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ILLUSTRATED WEEKLY MAGAZINE,

FOR THE

Architect, Engineer, Archaeologist, Constructor, & Artist,

CONDUCTED BY

GEORGE GODWIN, F.R.S.

*Fellow of the Royal Institute of British Architects; Honorary Member of various Societies; Author of "Town Swamps and Social Bridges,"
"History in Ruins," &c. &c.*

"Every man's proper mansion-house, and home, being the theater of his hospitality, the seat of self-fruition, the comfortablest part of his own life, the noblest of his sonne's inheritance, a kinde of private princedome, may, to the possessors thereof, an epitome of the whole world, may well deserve, by these attributes, according to the degree of the master, to be decently and delightfully adorned."

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The Builder



Condition of our Towns.
Birmingham.

E made but two promises in our last with reference to the new year; one on the subject named in the heading of the present article, and the second as to foreign parts. We proceed at once to their fulfilment. The previous volumes of the *Builder* show that we have never omitted, through illustration

and description, to pay attention to progress of architecture on the Continent. Many circumstances, however, prompt us, in the present year, to attempt a more precise examination of some of those objects and subjects which are of interest to our readers; and next week we shall commence the task. On the present occasion we propose to speak of one of our own towns. All admit how useful it would be in most of our daily concerns to be able to see with other people's eyes!—whence we may conclude that, if the inhabitants of various towns could be brought to see with a stranger's eye the vital need of immediate attention to the existing ills, there would be little time lost before the necessary remedies were set in motion. In this season of comparative peace and prosperity, it behoves us to leave not a stone unturned to bring about such a state of things as would ensure us all, at least, butterfly fare, pure air and good water. Plenty of light is another necessary that we were never intended to be without; and we may hope that with light, pure air, and abundance of water for our workers, plenty of roast beef—the result of healthy labour—would follow.

We select Birmingham, in the present instance, not because it is in a more dangerous stage than Brighton, or any of its alphabetical compeers—for it is not, the Brighton people being in that perilous state in which they are unwilling to see that there is anything wrong,—but because we shall thus be able to cast into the scale now poisoning there, such weights as may, perchance, turn the balance.

While we write, the ratepayers are in commotion on the subject of an Improvement Bill, in favour of which it is creditable to them to find a majority. In this Bill it is proposed to borrow 200,000*l.* for the purpose of completing the sewerage, and properly paving the footways, and for preventing the increase of and providing some remedy for the great evils arising from the erection of houses in streets which are not properly laid out, drained, levelled, and macadamized. This Bill is opposed by a large body of highly respectable residents. On what grounds? Because it was discussed and decided upon by the town-council in five days, whereby

they feel assured that due consideration has not been given to it. Another meeting of the burgesses has passed a resolution in favour of postponing the consideration of the Bill for twelve months on account of the peculiar arrangement in which the repayment of the proposed loan is proportioned over a period of fifty years—a debt, they urge, the present generation has no right to impose upon the next. The mode of raising the necessary funds, although a very important question, is foreign to our purpose: we confine ourselves to the aim of impressing upon all and every one concerned, the imperative necessity of immediate regard to the provision of sanitary essentials. In Birmingham, that great emporium of “unconsidered trifles,” that mart of real and imitation jewellery, electroplating, tea-trays, patent coffins, guns, percussion-caps, rifle slings, sewing-machines, “self-acting cinder-shifting ash-pans,” “double-action patent vertical and imperial mangles,” iron bedsteads, papier mâché elegancies and buttons, there are thirty miles of streets inhabited by the men, women and children employed in these various manufactures, without a sewer. Thirty miles of houses—we are afraid to say how many miles of homes, for there is more than one home in most of the houses—thirty miles of streets with no sewerage! With wealth flowing in from all quarters of the globe, with schools of design, scientific institutes, music unions, and other elevating influences, Brummagem has lived down its old reputation for bad taste and shams, but contentedly folds within its precincts this monster hot-bed of corruption. Birmingham, boastful in its advertising mediums of its lustres and lanterns, its adamant burners, its ornamental coffee-mills and tea equalisers, its Britannia metal-ware, crinoline cord, photographic window-glass, elastic stockings, and steel pens; of the quality of its edibles—from the sausages (Oxford, Cambridge, and German) manufactured from the pigs at Bingley Hall, to the *pâtés des lichens* for public speakers,—Birmingham, set forth as so ultra artistic in its refinement, so dainty in its appetite, is no more nor less than a mighty maze of mud. Birmingham, so boastful of its boundless manufacturing resources, of its ability to make any given object, from a needle to an anchor, is a network of irregular narrow streets, laid down according to the caprice of the proprietors of the land,—up hill, down hill, in blocks projecting upon already too crowded spaces, in labyrinthine perplexity; some macadamised, some not; some paved, some not; some drained, and many others unprovided for the common decencies of life. True, there are handsome buildings in some of the most crowded localities; but the roads to any of them are surpassed by the walks about the poorest village.

This condition is not beyond remedy. When the railway companies brought their magic-working lines into the heart of the town, no less than 2,000 of the poorest, dirtiest, most closely wedged together houses, were pulled down to afford the necessary area. And surely the voice and power of a people must be as potent as those of a company! It is only requisite to say we have learnt, out of the nineteenth century teaching, that, if

we do not want to see our little ones sickened and die at the fearful ratio the returns of the registrar show us they do,—if we do not want fever, with its haggard and hollow eyes, its wasting, wailing, and anguish of heart, to be our constant guest, we must have four things,—light, which we and our children need as much as plants do, to be strong and full grown;—drainage, that the air we breathe may be uncontaminated with fetid odours;—water laid on to every house, that our large families may not be obliged, on account of the great labour of bringing it from a distance by pailfuls, to use it over and over again for different purposes; and ventilation, that by a proper disposition of our streets, and the abolition of closed courts, we may be assured, when we open our windows, of fresh air from the green country beyond the blackened neighbourhood of the town. Again, in the few instances where there exist open spaces, these should be jealously preserved. The corporation or the public should purchase them at any cost. They should be looked upon as air reservoirs. As an instance at hand, we observed in New-street—the handsomest commercial street in the town—immediately in front, too, of the most imposing building in the street—Hyam's outfitting warehouse, a space of the rare and very desirable kind in question. It is a quadrangle, formed by the street lines, on the south side of New-street and west side of Stephenson-place, the back premises of the railway station hotel, and the boundary of King Edward's Grammar School. The centre of Stephenson-place, which is but a very poor approach to the immense central station, is incommenced by a statue of Attwood; and this quadrangle, one side of which, be it remembered, is formed by the line of the place, and is still unoccupied by houses, is now to let on building lease. If this space could be preserved intact, except on the southernmost side—where a handsome pile of buildings might with propriety be erected; and the statue of Attwood, placed in the midst of the quadrangle thus retained, several great points would be gained. First, there would be, so to speak, the air reservoir secured; then a more suitable site for the statue, now much in the way of the traffic to the railway. Further, the approach to the station and contiguous hotel could be widened to suitable dimensions; and King Edward's Grammar School, designed by Barry, instead of being overshadowed and overcrowded, would enjoy a proper circulation of air, and possess better points of view. To carry this suggestion into effect, there is no pulling down required: merely prevention of erections on a spot peculiarly valuable to its proprietors on account of its contiguity to the railway and frontage to the best street, but absolutely priceless to the residents in a sanitary sense; and to the authorities as an opportunity of improving the appearance of the town. We know that the interests of a town are made up of the varied interests of private individuals, which are, and must be, often opposed to each other; but the commercial and manufacturing greatness being composed of the same materials in the same manner, it is proved that a beneficial result to the many is not impossible of attainment. We are not pleading for a

Trafalgar-square, with fountains, or for a picturesque promenade with linden trees, as in most of the German towns; but simply for a ventricle for the heart of Birmingham.

New-street opens into High-street,—with a wide and safe curve? No. At this central point of traffic the road narrows into a neck. A few tottering houses taken down, and first-class substitutes for this kind we observed in various places;—the acute triangle formed by the junction of Dale-end, Bull-street, and High-street, and the narrow inlet from the Bull-ring into Moore-street, to wit.

The covered market is justly pointed out as one of the satisfactory features of Birmingham. It is commodious and even vast, but has not kept pace with the ever increasing population: on Saturday nights it is literally crammed, and overflows into the Bull-ring. It is, moreover, badly apportioned. The stalls for fish, fruit, potato parings, meat, shoes, confectionery, and hardwares, are indiscriminately mixed: thus it sometimes comes to pass that a purchaser occasionally finds the beard of an oyster fringing his orange, sawdust or suet sprinkled over his peaches. To set apart the various alleys to separate trades would be to approach perfection; and as the wealth of this great town seems overflowing here, in the well-stocked stalls, the thickly clustered buyers, the jewels, even—it is whispered—diamonds, worn by one of the fair and industrious "*Dames des Halles*," this is a height quite worth attaining.

In glancing at a view of the town made in 1732, we note the wording of its title: "Birmingham, a market town in the county of Warwick, which, by the art and industry of its inhabitants, has for some years past been rendered famous all over the world, for the rare choice, and invention of all sorts of wares and curiosities in iron, steel, brass, &c., admired as well for their cheapness as their peculiar beauty of workmanship." The paving of the streets must belong to this period now a century and a quarter gone. The "petrified kidneys," or oblong pebbles imbedded in some relief in the causeways, streets, and alleys alike, might have been endurable in the days of high heels and sedan chairs; but they are torture to the pedestrian of the present. In rain or shine, in wind or snow, the slippery, toilsome footing afforded by this old-world paving, must be a serious addition to the fatigue of the myriads of workers who have to traverse it in their way to and from their homes. We state the inconvenience to the workers first, because we are not sure but that the mincing gait it ensures, may be highly favourable to the display of the Magenta petticoats, in which case our fair readers would be to a vote against us; and, secondly, because we would deprecate any opposition to the laying down of good, smooth, wide pavements, on the ground that they were for the convenience of the rich and not the poor. The rich may ride and drive: the poor must walk: therefore, all improvements in the thoroughfares will be more enjoyed by the latter. Nor would we allude to such distinctions had not the conviction been forcibly impressed on us, in our experience in matters of parochial improvement, that a stanch opposition not unfrequently emanates from those intended to be most benefited; not so often from those whose property is likely to be affected by any change, as from those whose inconsistent resistance is expressed in the meaningless phrase that they are "not going to be trodden upon."

Birmingham, being the head quarters for glass manufacture, it is difficult to account for the small panes in the Townhall windows: they are a great blemish. In the interior we were dismayed at the poverty of the decorations, notwithstanding we saw it at its best, in the full blaze of the volunteer ball. The sun-burners with which it is illuminated cast a bright light below, but left the ceiling—always a great feature—in obscurity. We

presume that the short-comings in the ventilation, the cutting draughts where the cold is not stagnant, are already recognized; as, by way of assurance and recommendation to the prospective visitors, the committee printed the following information:—"The hall will be thoroughly ventilated and warm air admitted two days previous to the ball." The exterior effect of the building is somewhat marred by the incomplete stage of the Midland Institute building. The back premises abutting on this unoccupied space are placarded up to the chimney tops. The completion of this scheme, and that affecting the space so judiciously opened out in the rear of the Townhall, form another of the improvements needful.

In contrast to the Townhall we hear of a music-hall 10 feet longer and 20 feet wider, supported by the patronage of mechanics to such a remunerative extent, that the proprietor is enabled to give to chosen institutions, such as the Queen's Hospital, the railway guards, engine drivers, or glass makers' societies, "benefits" to the annual amount of 400*l*. Thither we proceed. We find, built in connection with a public-house, that is as handsome as an Italian palace, an immense hall, half as large again as Canterbury Hall, with a stage at one end, over which is inscribed the appropriate motto, "Be merry and wise." Here a superior class of concerts is given and ballets are performed before an audience of 2,500 persons. This assembly is seated before rows of tables, on which can be conveniently deposited the vessels containing the beverages of which all partake, and the pipes which, sooner or later, the greater portion of the company smoke. This class of entertainment, where the eye, the ear, and the appetite are gratified at the same time, is appreciated by the swarthy, sinewy men, whose trades entail upon some the necessity of working stripped to their waists before blinding furnaces the live-long day; upon others, of spending their working hours amid the din and crash of machinery; and upon all, of steady continuous application and labour. We learn that this music-hall was built by Mr. Holder, in 1816, to accommodate 200 persons; but that the extent of favour with which the recreations he provided were received authorized him to make the improvements and additions which render it now capable of accommodating 2,500. In this success we have a clue to the undirected taste of our mechanic population; and find it to consist in a love of elegance and music, accompanied by—refreshment.

The Music Hall *par excellence* is remarkable as a highly ornate Gothic building, in which iron is very freely brought into the composition. The roof is of iron; so are the tiers of galleries; and so is the abundance of tracery with which the interior generally is decorated. Of this, however, and other buildings in Birmingham, mention has been often made in our pages. Polychromy is boldly taken into account, with a result not auguring ill of its future development.

The church-building and restoration movement does not appear to be in great favour. A more stirring vitality must have prevailed in this matter about the time that the view to which we have alluded was taken, 1732, as the greater proportion of churches must be assigned to that period. The front of one of these, St. Philip's, is in course of refacement; the very soft stone having seriously crumbled away. The large windows, 6 or 7 feet wide, which, although not beautiful, were characteristic of the days that modern writers dwell upon as an Augustan age,—the days which cherished Addison, Swift, Steele, Gay, and Pope,—are being removed. Their small oblong panes, whose framework at least took away the sense of bareness, are replaced with plates of glass arranged in intersecting circles. Another church, that of St. Martin, a little later in its style, has had a new tower and spire affixed to it, which are bad imitations of those of St. Mary's, Oxford.

A very creditable edifice has, however, been

recently completed in Ryland-street, dedicated to St. Barnabas, in the Early Decorated style, and another new church is now in course of erection in Broad-street, on a very unusual site. It is built on an archway that spans the canal, the waters of which will be ever flowing beneath. The materials employed are Bath stone, red sandstone, cement, and bricks. And the Jews' synagogue is a handsome new building in the Italian style.

We would not depreciate efforts that have been successfully made to redeem the utter ugliness of this great manufacturing centre. There are some quarters of it where a certain prim, quiet snugness reigns, that the recollection retains with pleasure—the lawyers' street of Waterloo, sedate and tranquil; the old square of doctors' houses, in the Queen Anne style, at any of whose portals we should not be surprised to see the physician of the last century, with powdered wig and clouded cane; or Upper Temple-street, with its palatial pile of "offices;" Odd Fellows' Hall; Athenæum; and the Temperance Hall (illustrated in these pages).

Nor must we omit mention of the peculiar appearance of the colossal manufactories; Winfield's, remarkable for covering some acres of space, with an architectural effect akin to that presented by our bonded warehouses in the London Docks; and Upfield's iron bedstead and patent axle factory, recently rebuilt, the specification and planning of which are introduced by Professor Donaldson in his work on Specifications.

Modern days have given the town a fine statue of Sir Robert Peel, raised on a basis of red and white granite, guarded by bronze and gold railings, and lit up at night by gilded lamps. A column to Nelson, now historical for the fierce use the rioters made of its railings, ornaments the Bull-ring; and we have already mentioned a third statue, that of Attwood.

Aston Park is a step in the right direction; although, being charged with an entrance-fee, it is not of the practical use it should be. Children, sent out for air and exercise, are not often provided with the means of paying even the smallest toll; and the beneficial results of public parks must be looked for in the improved health of the rising generation, rather than in that of the present. There is also Calthorpe Park, which, if its limited area, thirty acres, could be increased to the relative requirements of so vast a population, would be a greater boon than it is.

Birmingham Heath has disappeared, save one corner—facetiously termed the Cape of Good Hope—that is to say, it is occupied by the workhouse, the lunatic asylum, the gaol, and the cemetery. Soho Park is also a mockery—Valcan's sable assistants here holding, midst flame and smoke, their continual court.

In quitting Birmingham we take away a deep sense of the misery of living in such dense districts as the Old Inkley, or in Digbeth—an old-fashioned street climbing up a hill, or rather slipping down one, whose lower stages are overflowed in floods, and lie in great black pools till the waters subside; and a vivid picture of the scorched country beyond, in the direction of Wolverhampton, which, although burnished with furnaces, would be dark, but for the fourteen miles of gas-light which eke out the nearly expunged daylight.

We hope that the Bill now about to be brought into operation will include as much alteration of these ills as our improved means and appliances can insure; and that before the stunted grass makes one more effort to tint the cinder-fields, Birmingham will be a light unto the nations.

THE GURNEY MEMORIAL.—The committee have received tenders for the erection of a fountain in the Broadway, Stratford, as a fitting memorial to the late Mr. Samuel Gurney. The tender of Messrs. Tregellie & Taylor was accepted for erecting an obelisk, 40 feet high, with water supply complete, at a cost of 400*l*.

TERMINATION OF THE STRIKE IN LEEDS.

RULES AGREED ON.

SIX months ago, about the beginning of July, we reported a strike among the masons of Leeds. At a meeting of the men it was agreed to present a memorial to the master builders, asking for several important concessions. These concessions were not granted by the masters, and the men struck. The most important of the points fought for were those embodied in rules Nos. I., VI., VII., and VIII., of the men's first code of rules, viz.:-

I. That the hours of labour commence on Monday morning at seven o'clock, and close at half-past five in the evening.

VI. That subcontracting and piecework be abolished.

VII. That overtime be not allowed except in cases of emergency; and not to work more than two hours for a quarter of a day; and to be allowed time and a half for all time worked after the first quarter, and double time for Sundays.

VIII. In yards or jobs, the nature and extent of which render the demand reasonable, sheds shall be erected. The society, in conjunction with the masters, to have a voice in directing, where a dispute exists relative to the erection of sheds. Any employer not acting in accordance with this rule, to pay half the time his men lose in consequence of wet weather.

A meeting of the masters was held on Monday morning at seven o'clock, and the following resolution was adopted:-

"We, the undersigned employers of masons and operative masons, for our respective bodies, agree to refer the matters in dispute contained in the twelve printed rules issued by the said operatives, to arbitration; each party selecting two gentlemen unconnected with the trade, who shall choose an umpire, and the decision of such arbitration shall be binding on both parties.

Signed, on behalf of the Leeds Branch of the West Riding Builders' Association,

JOHN WOOD, Chairman, &c.
THOMAS FRANCE, &c.

On the Monday following the issue of this resolution the men resumed work, some of the masters paying for the hour between six and seven on Monday morning, whilst some refused to pay for that hour's work. On October 23, a deputation of the men again waited on the masters, and received from them the following resolution:-

"That six o'clock be the hour for commencing work on Monday morning as usual, with the understanding that if the arbitrators decide for seven o'clock to be the hour, the men shall be paid for the hours wrought before seven o'clock on Monday previous to the arbitration."

The strike still continued, and ultimately arbitrators were appointed, who were, in accordance with the before-quoted resolution, unconnected with the trade; and Mr. Robert Barr, clerk to the magistrates, was chosen umpire.

These gentlemen, after several meetings, in which all the twelve rules of the masons were fully discussed, agreed on a slightly amended form of the original rules. The dispute, therefore, was at an end, and a meeting of the operatives was held in the Civil Court of the Leeds Townhall on Saturday evening, December 22nd, to hear the amended rules read. The meeting was a numerous one, under the presidency of the Rev. E. Monro, who opened the proceedings by a powerful, sympathizing address. He referred to the fact, that this dispute affected the happiness and prosperity of 3,000 workmen and a large number of masters; and now this disastrous quarrel, which was of so long standing, had been settled in the most amicable manner in a short time. The circumstance was a practical instance of the wisdom of arbitration, whereby the evil of strikes, which he considered a public evil, might be obviated. Both workmen and masters had public duties as individuals in the community of which they were members, and a resort to strikes, which might be prevented by arbitration, was a neglect of that public duty.

The first six rules ultimately adopted by the arbitrators and agreed to were explained by Mr. Lishman, and the last six by Mr. Hole.

On Sunday, the 23rd, there was a large meeting in front of the Townhall of the workmen who had struck, whence they proceeded in a body to Lady-lane Chapel, a sermon being there preached to them by the Rev. S. Davies.

In consequence of the Leeds Mechanics' Institute having been used as the place of meeting for the arbitrators, the masons and other members of the building trade have determined to present the sum of 100l. to the building fund of that institution, as a thank-offering for the great good of the termination of the strike.

It is to be hoped that the Council of Conciliation now organized, will effectually prevent any future strike.

We subjoin the twelve rules finally adopted, from which our readers will be able to judge of the modifications of the rules proposed as quoted above.

I.—That the hours of labour commence on Monday morning at seven o'clock, and close at half-past five in the evening; and that on the other five days the hours be

from six o'clock in the morning to half-past five in the evening, except Saturday, to close at four o'clock throughout the year.

II.—That during the winter months, namely, twelve weeks from the first Monday after the 9th of November, to commence work at daylight and close at dark, in no case to work later than half-past five in the evening. The summer months to be the rest of the year.

III.—That nine o'clock be starting time for three-quarters of a day during the summer months, and half-past nine during the winter months; and one o'clock for half a day's work throughout the year.

IV.—That one hour be allowed for dinner throughout the year, and half an hour for breakfast during the summer months.

V.—That the present rate of wages shall continue to be paid (as 6d. per day), subject to a reduction of 6d. per day during the twelve weeks in winter, in which work commences at daylight and ceases at dark, as provided in Rule II.

VI.—That the practice of sub-contracting be discontinued, except the sub-letting of the entire mason's work to a master mason by a person contracting for the several different works in connection with the same building. In cases where piecework is adopted, the scale of prices shall be such as to secure the workman at least the minimum wages he is in the habit of receiving.

VII.—That overtime be not allowed, except in case of emergency, and to be allowed time and half for all time worked after the first quarter, and double time for Sundays.

VIII.—In yards or jobs, the nature or extent of which renders the demand reasonable, proper sheds shall be erected. Any employer not acting in accordance with this rule, to pay for half the time his men lose in consequence of the non-erection of sheds. In cases where the master refuses to comply with the request of the men employed, to erect a shed, the men may appeal to the Council of Conciliation as provided by Rule XI, but shall continue to work until the decision of the Council be made.

IX.—Walking-time, in the morning, to be allowed to all jobs outside one mile and a half from the Wellington station, at the rate of three miles per hour; and any employer having work above three miles from the boundary, to pay 2s. per week for lodgings. In cases where lodgings are paid, to work the same hours as in the town (except Monday, when walking-time to be allowed as above. In cases where men are sent by railway, to have fare and time allowed going and returning.

X.—Where wages are paid on the Saturday, to commence paying at four o'clock every week; and men working beyond the boundary to be paid on the job, or to be allowed to leave work to reach their respective offices at four o'clock; or should the wages be paid on Friday (which is preferable), at half-past five.

XI.—That a permanent Council of Conciliation, consisting of three masters and three men, be appointed by each body, annually, who shall have power to appoint an umpire, and to whom all disputed questions (save and except the rate of wages) shall be referred. The decision of the Council or umpire to be final. The meetings of the Council shall be on the first Monday evening of every calendar month; or they may be convened at any time on a week's notice, by the resolution (in writing) of not less than two masters or seven operative masons.

XII.—That these rules be equally binding on both masters and men; and should any alteration be required, six calendar months' notice shall be given by either party; such notice to expire between the 1st of May and the 1st of August next ensuing."

ON SOME MALVERSE REACTIONS OCCURRING IN OIL PAINT COMPOSITIONS.

Preliminary Survey.

A DETERIORATION of some kind, it is alleged, has, within the last few years, taken place in oil paint work, or in the materials used in the composition of oil paints. This deterioration is attributed popularly to some modernly-created defects in the linseed oil entering into such compositions; and these defects are conjectured to originate in some occult and recently contrived system of adulteration of the oil.

The fact of there having lately existed some serious defects in our paints is indisputable; and the laying these defects to the charge of the oil has been so generally done as to have led, in attempts to trace their exact cause, to an examination not only of the oil, but also of the original seed itself. The recognition of the existence of some unexplained evil has been so general, and the probability that its origin might lie, in part at least, in direction of the original seed has been so strong, that several of the linseed oil and seed merchants, in their annual review of last year, especially, adverted to this subject. They touched upon it not as a chemical, but purely as a mercantile question; and, chiefly so, as affecting the linseed trade of importation. Translated from the conventional phraseology usually resorted to in such documents, the purport of their allusions (admitting that there had crept into the market seeds of a spurious character) was, that the remedy for that evil lay in the hands of the importers themselves, who had but to combine against buying the spurious mixture to ensure an adequate supply of the genuine seed. The further question of any treatment or adulteration of the oil itself, after its expression from the seed, lay not within their special province, though it was through the alleged imperfections in the oil that their attention had been directed to the condition of the seed. It is, however, upon more direct evidence than this significant if somewhat retrograde one, that the reality of the existence of some abnormal condition in our paint work or in our paint materials

depends. It is unquestionable that deterioration of some kind, making their appearances in defective qualities of our paint work, or in inadvertent and wrong effects in it, still exist;—that the adulterations of the original seed, or of its oil, or of both, whether such adulterations be of the incidental or the culpative kind, whether occurring in the natural order of things or done wilfully, and whether accounting for all or for only a part of what is experienced, are still, as it would appear, going on, and continue to inflict their evils on the consumer and the operative painter.

The *Builder* touched upon this subject about a year ago, being led to it, at that time, more immediately by a correspondent's inquiry, similar in purport to another which appears in its last impression. The subject is recurring to, as well out of respect to such inquiries as these, as in deference to a more extended feeling and requirement on this matter, which are known to be growing, to have become urgent, and very generally to prevail. Oil paint work now-a-days seems, by all accounts, to go wrong so frequently, and to do so—not locally or occasionally only, as every now and then it has always done,—but so generally, that some corresponding but unseen cause—some general, and not merely isolated or accidental cause—seems to be indicated as operating to produce results that are as injurious as they are troublesome.

It is, however, yet open to some question that it is to the linseed oil only, or, in fact, at all, we should attribute these malverse reactions and effects in paint work that are now so commonly met with. The whole question of the cause of these is both an interesting and an important one. Should it be proved that they are due, even only partially, to defects in the oil; then, to determine what these are, and what their origin, and to devise remedies for them, would alone, among the many other complicated questions the whole subject involves, be well worthy the time and trouble such a solution demands.

It can scarcely be that the detecting or recognition of these mishaps in painting can be attributed solely to some increased habit of more accurate observation on the part of either the employer or of the artisan; that the exercise of a more fastidious taste over art effects, in ordinary or decorative oil paint work, has suddenly been acquired, and thus shows itself in action. Participating in the rapid progress of art and of artistic skill that in all other directions marks the present epoch, this branch, too, has no doubt made a corresponding advance; but it is equally probable that the operators of the past decade were as well qualified to judge of the texture of a paint, to criticise its fresh and its finished effects, to detect any imperfections or malverse indications of any kind in it, either on its passing through or after having left their hands, as may be the operators of the present day. The pre-Exhibition workman may be supposed to have been as well able to discover effects in his work that had not been intended—decolorations, sweatings, pimplings, disturbing changes, in degrees of gloss and of flat, &c., &c., as are they who meet with so much of all this at the present time, and who are so loud, and apparently with every reason for being so, in their complaints.

The exercise of a superior taste or power of observation, and the requirement such an exercise must naturally lead to for work of a higher cast than that previously supplied—even if a so much keener discernment have really sprung into existence—can scarcely account for so much that is faulty now. Neither dare we assume that a talent and skill of this kind have degenerated within this period, and that, consequently, the work is now carelessly or improperly done and thence is inevitably replete with faults. The greater probability is, that the defects now alleged to exist are correctly seen and estimated; and that their cause, or combination of causes, is some special and recently created one, the real character and origin of which we must seek for in some other direction.

Whether or not it be that the effects, and the causes leading to them, which we here refer to, have always hitherto existed, it is certainly only within the last few years that they have been bruited notoriously, and that the kind of complaints the correspondents of the *Builder* and others make have more especially reached us. In casting about in search of an explanation of facts whose reality is indisputable, one cannot find an adequate one, in the occurrence, within this period of any unusual meteorological phenomena, at all calculated to have given rise to any correspondingly unusual reactions upon, or among, oil-paint compositions. The last three or four years—barring only the one just ended—have given us

seasons so favourable for painting as to stand almost unexampled, in this respect, in the history of our fickle climate. We have had neither inordinate developments of ozonic agencies to aid in bleaching or disintegrating our paint; nor inordinate prevalences of sun-light, or of hygroscopic moisture in the air (excepting always in this latter respect those of the past water-loving year) to disfigure or otherwise injuriously to affect it within the period of the occurrence of these special actions and appearances.

Can it be that the transition—which, within the last ten years or so, has been gradually accomplished—from the practice of using home-made driers to that of employing the wholesale-manufactured compounds of this class, has carried with it some deteriorating action upon the paints such compounds are mixed with? In the olden time, each operative was in the habit of concocting his own *alkalists* of this stamp: now he, for the most part, buys and uses those that are ready made to his hands. At every period the employment of driers has been, to a greater or less extent, an injurious element in the painter's work. Their peculiar chemical action was never, till quite recently, either properly understood or administered. Can it be that the composition of these wholesale manufactured driers is different in some respect, and injuriously so, from that resorted to by the older operators? or that the painter, because of their comparative cheapness, and the facilities of their application, now adds these ready-made driers to his paints in some more than usually undue or injurious proportions?

Has the cupidity of the day grown at last so outrageous and lawless that that which, in past times, has been done but rarely, and then with all due caution, viz., the culpative adulterating of both the raw and the boiled oil,—is now carried on to so much greater an extent as to have become an endemic disease, and utterly unbearable?

Has some important change (the fruits of new methods of manufacture, or of the fierce trade competitions that everywhere predominate, and bring in their train all the host of defective manufactures and of adulterated products) supervened in the chemical composition, and, consequently, in the kind of their reactions with the oil, of the pigments themselves? Are we to fix all blame upon the oil alone, and not to take into consideration the possible implication of the pigments, or of some one or more of these that may be the more generally employed? Are we to dismiss altogether a consideration of the possible agency of the complex mixtures of changeable elements, of which so many of our modern pigments consist? And is the turpentine and its many possible conditions, to be also exonerated from all complicity in any malverse agency or reactions?

Will the circumstance, already referred to, of the occurrence of some important alteration on the character of the linseed that now finds its way into England, give us any satisfactory clue to a solution of these difficulties?

As already said, the seed merchants themselves look to the quality, and, consequently, value of the seed,—not to the chemical question of the quality or purity of its oil. But it has been through the medium of the chemical character of the oil—first exhibiting itself, as it is stated, in these malverse reactions in paints, and also in varnishes,—that, in following up the inquiry, attention has been called to the quality of the seed; and to the fact elicited, that linseed now is not always so good as it formerly was,—in other words, that now it is frequently, and to a great extent adulterated with spurious seeds.

Do these spurious seeds yield some products, or do they themselves contain oils that, when mixed, on crushing with the genuine linseed oil, impart to it these alleged bad qualities? And if a paint-deteriorating cause from this source be proved to exist, are its effects of sufficient amount to explain all, or only some part, of the adverse phenomena, the solution of the origin of which is now sought for?

It is among phenomena and evidences of the mixed and complicated character here glanced over that the experimentalist has to labour in his attempt to solve this question of the real meaning of these malverse reactions in paints. His elements, at first view of them, appear to be but a chaotic mass of possibly questionable facts and of inextricably confused phenomena. He has to find his way through an unknown section of an almost wholly unexplored country, to cut and clear his pathway through "tangled junipers, beds of reeds," and other almost impassable obstacles; aided in his work only by his conviction that there lies beyond all a fair land whose possession will amply repay him in the end.

It is scarcely requisite to remind the readers of the *Builder* of that pregnant tale told of our merry monarch and his Fellows of the Royal Society. The tale of the fish and the bowl full of water is as equally applicable in its moral to the very inquiry now in hand as it was to any objects of research of existing in the reign of the second Charles. Enough has probably been said already to establish, as a real fact—as a palpable phenomenon and an unquestionable existence—this alleged one of the existence of some modern and unusual defect in our paints or paintings.

It is probably equally needless with the readers of the *Builder* to advert to that safe and wise rule in inductive research which teaches the inquirer or experimentalist that when he shall have discovered enough satisfactorily to account for any special phenomena he is examining into, it becomes both needless and impolitic—for the immediate and special objects alone—to extend his researches beyond such point of discovery.

If, therefore, in one or other or in a combination of the possible causes that have just been enumerated, there should, on a detailed examination of each, be found enough to account for these abnormal conditions of our paint-work, the inquiry now on hand will be finished; but, if not found to be sufficient, then this research would need to be further extended.

A natural as well as a convenient order of conducting such a detailed inquiry is to begin with an examination of the seed and its oil products, as these are to be now met with in the English market; and this, it is intended, shall form the topic of the ensuing chapter.

CHRISTOPHER BINES.

THE FAILURE OF RESERVOIRS.

The following observations on the reservoir of the Adelaide waterworks are from a South Australian paper:

"It seems this great national work is doomed to another delay before it can be pronounced to be perfect; for now, when the eyes of the citizens are charmed by the abundant supply of pipes and the vigour with which the work of laying them is being carried on to supply a pure, clear, and refreshing draught, and all are in hopes that, before the season of hot winds set in, every house will be supplied with somewhat of a remedy; lo! it is discovered that the reservoir is 'leaky.' The rumour has been in circulation in the city for some days to that effect; and, to ascertain its truth, we instructed one of our staff to visit the place. It appears from his report that the leakage has been going on for some days. To explain the nature of the leakage we must inform our readers that, in the centre of the embankment, through its entire length round the reservoir, a solid wall or puddle trench of clay was made at its commencement, having a natural bed of clay to rest upon, thus rendering it impervious from top to bottom. When the work had proceeded for a considerable length the character of the bed changed to a stony or gravel concrete, and Mr. Hamilton, the engineer, instead of ordering the removal of this stuff and following the clay for its foundation, ordered the puddling trench to be continued over the concrete. The consequence now is, although the reservoir is not half full, the water is forced through this bed of concrete, and is escaping in several places. To test the real cause of the defect several men are now employed cutting right through the puddled trench, and are now down to the bottom on to the concrete. The trench is found to be quite staunch from the foundation to the top, but the concrete is completely saturated with water, showing clearly where the defect lies."

This extract proves that water is as difficult to manage in Australia as in any other part of the world. If there be truth in the maxim that "the leak never sleeps," there is equal truth in the remark that "water never sleeps." Impounded water can find out the weakest point in an engineer's work in the New world as well as in the Old world, and we have no doubt but that our remarks will have time to reach Adelaide before the embankment at the waterworks has been made water-tight. Reservoir-embankment failures have taken place in England within the last twenty years on a large scale. Some have given way under pressure of water, as at Holmforth and Birmingham, where devastation, in both cases, and serious loss of life in the Holmforth case followed. At Manchester and at Liverpool the embankment failures are more of the character of this one, as reported from Adelaide—a leaking subsoil below a puddle trench. A leaking subsoil is, of all things connected with reservoir-making, the most difficult to stop. An absolute cure may be impossible, and in such case the engineer will act wisely if he accepts the natural conditions, and brings them into account with his plan. A leaking subsoil, such as the one described at the Adelaide waterworks, may be made available as a natural filter, if the water is intercepted at its issuing below the embankment, and is there turned into the conduit and taken on for supply.

It is impossible to do more than make the

suggestion to our Australian readers; but we are sure it is a suggestion worth consideration.

Reservoir embankments may be commenced where it is not possible to sink a puddle-trench down to a water-tight subsoil. There may also be springs of water rising in the gravel, shale, or rock, on a reservoir-embankment site; in which case the engineer will make a mistake if he attempt to close such down by attempting to cover with puddle or with any other material. The only safe mode of dealing with spring-water, in such cases, is to provide means for the water to rise and escape. Springs of water in the puddle-trench and beneath the seat of the embankment at Holmforth caused the destruction of that work, and brought about the ruin and loss of life which took place.

If nature has rendered it impossible for an engineer to make an absolutely water-tight embankment, on some particular site, and he cannot remove his work to a better point, he ought to study how best and most cheaply he can make an embankment safe which will *leak*; and then to render the water escaping at such leaks available. An engineer will, if possible, avoid a porous site for a waterworks embankment; but when he finds the difficulty upon his hands, it is his duty to accept nature as she is, and make the best arrangements under all the conditions and requirements of site and works. A leaky embankment may be leaky from several causes. If the outlet culverts and valves have been placed in the made embankment, and these give way and leak, there may be great danger to the stability of the entire work. If the leak is through the material of the embankment at any point, there is great danger. Where forms of leaking proceed from bad engineering, either ignorance or defective workmanship is involved, or both; and the engineer is blamable. But, if the leak be through the subsoil, and this be rock, shale, or gravel, there may be serious loss of water, and no actual blame to the engineer, nor danger to the works. This appears to be the case at the new embankment of the Adelaide Waterworks. We do not say that leakage in any form is safe, and most certainly it never can be desirable. But we do say that there may be leakage at a reservoir embankment which is not dangerous, and which an engineer will do wisely to accept; and, in place of spending large sums of money to no useful purpose, in vainly trying to stop that which will not allow of being stopped, he will strive to turn the leaking water to a useful purpose. Let our Adelaide engineer see if this cannot be accomplished with his case.

ON THE ARRANGEMENT OF CHURCHES.*

WHEN I first offered to read a paper on the arrangement of churches, I was not aware that it would be so immediately preceded by one on the same subject at the Royal Institute. The admirable and learned paper by Mr. Mackenzie Walcott, to which I allude, should be read by all who were not fortunate enough to hear it; it so completely exhausts one branch of the subject, that it is fortunate I had not proposed to myself to follow the same line. Our object being chiefly discussion, I felt that suggestive remarks rather than a collection of facts would be more likely to tend to this result. In order, too, to meet the wish generally expressed at the commencement of the session, "that our papers should be short and conversational," I have endeavoured to be as concise as possible, and thus to leave time for subsequent conversation on the subject, and to afford an opportunity for the interchange of original thought and suggestion.

My object, then, in the short time before us, will be to take a practical, common-sense view of this deeply-interesting question, both with reference to the ritual of the Church of England, as it now exists, as also to the peculiar exigencies and requirements of our own times, and the means at our command for meeting them in the most natural and straightforward and therefore in the best manner. In following out this plan time would fail me (even if the task had not been rendered superfluous by Mr. Walcott's paper) to enter into any detailed description of Medieval or earlier church arrangements, or even to allude to them except so far as I find it necessary to do so in illustration or support of my views. If my remarks, therefore, fail to take the interesting line of archaeological research which might have been expected, it is not that I at all underrate the high importance of this line of study in all its

* Read, at a meeting of the Architectural Association, by Mr. Blomfield, as noticed in our last.

branches, but that I take it for granted every one who aspires to the honour of being a church architect habitually pays especial attention to it; and we are therefore at liberty this evening to devote ourselves to the present and future, rather than to the past. Thus also I have avoided a very interesting branch of the subject, which was open to me,—the symbolism of church arrangements,—not because I slight the study of it, but because I think it involves questions scarcely practical enough for our evening's discussion; and because I think that a system of mystic symbolism (beyond that which explains itself at once by familiar use, or as distinctly scriptural), when it is merely based on human fancy and ingenuity, is, in this age, as much a toy and dead letter as the science of heraldry is amongst the sciences.

What I propose to consider then, is, first, the influence which our ritual, as it at present exists, ought to have on the architectural features and character of our churches; in what manner it ought, in other words, to make itself felt in the building; and whether we were in the habit of paying sufficient attention to this point.

Secondly, the customs, wants, and requirements of modern congregations as compared to those in former ages of the church. Whether these customs, wants, and requirements are to be ignored and slighted, or whether they ought to be met; and if so, whether we ought boldly to acknowledge the means we employ, and make the most of them; or to conceal them, and, as far as we can, apparently dispense with them altogether, because they do not fall in with preconceived notions as to what is "ecclesiastical." It will be observed that I place first the question of the influence our ritual ought to exercise on church architecture; because, if that can be determined, we may, I suppose, safely say that what has nothing to do with our ritual is not absolutely necessary to give due expression to a church; or, in other words, is not intrinsically ecclesiastical.

The first reformed English liturgy was produced in 1549, and was followed, in 1552, by a second, which is nearly identical with our present Book of Common Prayer. Since that time it has undergone several authorized examinations, and some few changes of importance have been made in consequence; but in all essential points it continues the same. Thus it will be seen that, precisely at the time of the great change in our church services, the knowledge and practice of the true principles of architecture had passed through their last phase and died out, so that the only object of the Reformers naturally was to obliterate, as far as possible, all traces of the Romish rites and ceremonies in their churches, without any thought of what might be preserved or adapted as expressive of the new liturgy. Since that time church building has gone through many curious changes, and remained for a long period at a very low ebb; and, although no one can doubt that we are in the right road now, how few churches have as yet been built that can at all bear comparison, in point of interest and a certain instinctive sense of complete fitness, even with the plainest churches of the best Mediaeval periods? Let us consider what is the cause of this.

When we hear a new church discussed, the points usually touched upon are the accommodation, the cost, and the quality of the design. We hear, perhaps, that sittings are provided for 800 or 1,000 persons, and that it cost so much,—very cheap or very expensive, as the case may be; then we hear the particular style adopted, the height and treatment of the roof, the richness of the decoration, and the originality (if there be any) of some part of the design, with numerous other details; but we seldom (I think I may almost say never) hear a church commended because the building itself, independently of its furniture, gives expression to every part and detail of our services. I do not mean broadly to assert that none of our modern churches do give such expression (though, as a rule, they certainly do not), but I mean to say that when such an exceptional church is met with, people do not appear really to know why they like it: they think it original and clever, but they cannot exactly say why it interests and satisfies them more than larger and costlier buildings; or why, without any copyism, the architect seems to have succeeded in catching the true spirit of mediaeval architecture. Now I think that, unless we discover the element of its success, and recognize it as a principle not lightly to be infringed, we shall not make much progress in church-building beyond the point to which the revival has already carried us. Do not suppose that I am presumptuous enough to speak disparagingly of what has already been done, and is

now doing; nor to imagine that I can tell you anything new and startling on the subject of church-arrangement; but I cannot help thinking that there is a good deal of misapprehension and false feeling afloat on this question; and the more we can work together and mutually assist each other to recognize true principles and sift them from unfounded prejudices, the better prospect have we of that onward progress without which art must decline and die. I suppose we have all felt, in comparing old and new churches, that there is often a deep sense of interest and continued satisfaction in exploring an old church, although it may be very plain and simple, which is totally wanting when we visit a neighbouring modern church, apparently its superior in all the usual architectural features. This is generally attributed to the charm of antiquity, and the sentiment of association; and these feelings no doubt have their due weight. But there is something beyond this, which I believe to be the existence in the old building of a principle apparently quite instinctive in the Mediaeval architect, which is too often (I cannot but think) overlooked by us. The principle I allude to may sound absurdly trite and hackneyed, but it cannot be too often repeated, until it is better attended to. It is simply that a building should *exactly express its purpose*; or, in other words, in the case of a church, that the bare walls or actual skeleton, before a bit of furniture is introduced into it, should bear the distinct impress of every part of the ritual existing at the time of its erection, and should give expression to all ceremonies and forms of worship about to be celebrated in it. Thus it may well be regretted, in a purely architectural point of view, that we are forbidden to erect stone altars. They were removed in 1550, to make room for communion-tables; and, though we may deplore, we can scarcely wonder at the measure.

Mosheim, in his ecclesiastical history, remarks,—“Posterity may regret this change as needless in itself and an injudicious sacrifice of a venerable decoration; but contemporaries alone can adequately judge of such questions; and they (the Reformers) had undoubtedly a degree of difficulty in weaning the people from inveterate superstitions, which rendered all incentives to them obnoxious.” But though our altars may not be of stone, we still may and no doubt ought always to mark, by some constructive feature, the exact position of the holy table; not necessarily elaborately and expensively, where funds will not allow it, but, at any rate, distinctly and thoughtfully; and let us always remember that, on no higher than artistic grounds, a little extra cost here, at the expense of the body of the church, will have far more value than the same amount expended in a sprinkling of meagre and uniform decoration over the whole building. I do not wish, in a paper of this kind, to say too much upon the higher grounds for making this the point of attraction in the church, nor to insist at too great length on the credence table, piscina, and sedilia, as architectural features; seeing that these are, after all, only adjuncts, depending on particular forms and methods of celebration, the propriety of which this is neither the time nor place to discuss. But the principle of always expressing the position of the altar by a solid reared depends simply on a question of fact:—Is the most sacred and solemn portion of our ritual celebrated there or not? If it is, the building itself should bespeak the fact.

To proceed next to the font.—Although the orthodox, traditional, and symbolical position of the font near the western entrance is now very generally adhered to, I have heard a great many different opinions amongst the clergy as to its convenience. Amongst others, Mr. Pettit remarks:—“Where the font is suffered to retain its original position it is generally found near the western entrance, and this, without doubt, is the most appropriate spot for a ceremony denoting admission into the Church; yet there may often exist sufficient reasons for placing it elsewhere; and it is of far more importance that we regard, both in position and design and the actual size of the font, the great solemnity of the rite which is administered in it, than that we restrict its locality to any particular part of the building.” Wherever it is placed, its position should at any rate be well defined and expressed by some modification or exceptional feature in the architecture; so that there may be a perpetual and ineffaceable protest against any future removal by a reforming churchwarden or a new incumbent.

I know an instance, by the way, of a font in a large modern church, which has been moved from west to east and back again three times in as many years; and in this case, as far as the

building itself goes, one place is as appropriate as another. It would of course be inconsistent with the custom which now prevails of administering baptism during divine service to place the font in a distinct baptistery where it could not be seen by the congregation; but, if a little thought be bestowed on it, we shall generally find that some distinctive feature may be introduced which will add interest and beauty to the church, and fulfil the purpose I speak of without cutting off the congregation from participation in the service.

Mr. Pettit, a little further on, in the passage I have quoted just now, supports the principle of making the font as far as possible a part of the building, and not only an appendage. He uses this last term in speaking of the font, and then immediately adds:—“An appendage, indeed, I should not call it; as, in old times, it was considered the very heart and nucleus of the church, erected often long before the walls and roof which were to cover it. The well-known font of St. Martin's, at Canterbury, is evidently much older than any part of the present building; and it is not improbable that it even preceded former ones. In Norburgh church the font is decidedly Early English, none of the building being earlier than late Decorated, most of it of the latest Perpendicular.”

There are, of course, numerous examples, in churches built of late years, in which the font is given its proper importance, and has a well-defined and yet prominent and open position given to it.

An arrangement of this kind has been admirably managed in a small church in Suffolk, lately built by Mr. Scott, where a round tower (after the fashion of the peculiar round towers of that county) is placed at the west end. It is vaulted with stone internally, and forms an appropriate baptistery. But, having noticed the principle, I will not take up time by multiplying examples.

Let us pass next to the consideration of the reading-desk and pulpit. Now, although these two play, if not the most important, certainly the largest part in our services, it is not often that we find one or the other treated as part of the building, or influencing its constructive details in any way. They are usually pieces of furniture which give no more impress of character to the building than the seats of the congregation: the exact position of each, and even the design, is generally not settled until the church is nearly completed. (Perhaps, indeed, it is fortunate, sometimes, in the case of the pulpit; as instances might be found where, through inattention to acoustic requirements in the first instance, a change in its position is absolutely necessary. But supposing that the pulpit is of stone, and the reading-desk on a stone plinth, this is not all that is required to meet the principle we started with unless they form part of the building. You may have stone furniture as independent of it as wooden furniture. With regard to the reading-desk architects unfortunately find a great difference of opinion among the clergy: one wants a large desk looking north and west; another wishes the whole desk to face west; and a third wishes, perhaps, to read prayers from a small desk in the chancel seats, and the lessons from a movable lectern. Without venturing to express an opinion as to what is absolutely the right form of reading-desk in a ritualistic point of view, I feel a strong conviction that, architecturally speaking, wherever readers are habitually read by the minister, the building should give some indication of the fact. We have before us the well-known examples of the arrangement of the early Christian basilica, where we find this principle carried out in every point as completely as could be done in adapting a building originally designed for secular purposes to the requirements of public worship. Such parts of the building as could be still used in Christian worship were adapted, and what was wanting was added architecturally, and incorporated in the building as far as possible. Thus the bishop and presbyters, as you know, took the places of the praetor and his assessors; the Roman altar became the Christian holy table; and a choir was thrown out into the nave enclosed on three sides by low walls. The ambo, from which the Gospel and Epistle were read, were actually built into these enclosing walls, and thus made part of the church. The church of San Clemente, at Rome, as you all know, shows, in the most perfect manner, the arrangement of the early basilicas. Although rebuilt in 790, it was exactly on the original plan; and it is owing to the fact of all the ritualistic arrangements here and elsewhere being absolutely solid and architectural and not merely movable furniture, that we are able at this time to understand fully the allusions and descriptions of early writers. Those who have

not seen the church itself, to judge of the eloquent manner in which the building speaks its purposes, will find it illustrated and described in Gully Knight and in Fergusson's *Hand-Book*.

Now, although the ambo does not exactly answer to our reading-desk, yet their uses were sufficiently similar to justify the analogy; and I think we may well take a hint from them. There is a good reason for the lectern to be movable, in the fact that a layman sometimes reads the lessons, as is the custom in college chapels, and not unfrequently in village churches; but I think we ought certainly to make the prayer-desk an architectural feature.

Next, as to the pulpit. At least two sermons are preached from it every Sunday in most cases; so that, I suppose, the preaching of sermons may be considered a fixed and essential part of our services; and if so, it ought, undoubtedly, to find expression in the architecture of the church. Now here, when we are at perfect liberty to look for assistance to the best times of art (seeing that the conditions for addressing a congregation must be much the same in all ages and for all creeds) here, where we should find plenty of assistance if we did look for it, we seem to neglect it in an unaccountable manner. I will just read a short extract from "Viollet-le-Duc's Dictionary" on this point, which exactly illustrates my remarks. It is the article on pulpits he says:—

"In France none of our ancient churches have, as far as we know, preserved any pulpits of an earlier date than the fifteenth century. It was customary, from the commencement of the twelfth century, in our Northern churches, to arrange a roof-loft at the entrance of the choir, from the top of which the epistle and gospel were read, and exhortations addressed to the faithful, when occasion served. In every case these sermons, before the institution of preaching friars, only took place occasionally. It is probable that in particular cases sermons were preached from a movable pulpit, arranged in some part of the church for that occasion. The pulpit was then only a little wooden stage, closed on three sides, and covered in front with a hanging. But in the thirteenth century, when the preaching orders had been established to combat heresy, and to explain to the people the truths of Christianity, preaching became a necessity which the architectural arrangements of religious edifices were compelled to obey. Exactly to fulfil these conditions, the Dominicans and the Jacobins, amongst others, built churches with two naves, one being reserved for the monks and divine service, and the other for preaching. Then the pulpits became fixed, and entered into the construction. They formed, as it were, a balcony projecting into the interior of the church, carried on corbelling, accompanied by a niche taken out of the wall, and generally lit by little windows. Access was gained by a little staircase contrived in the thickness of the wall. Thus, we see, the thirteenth century architect at once felt instinctively that when a sermon became a thing of fixed and regular recurrence, instead of an occasional address, he must express the fact in his building. It was no longer sufficient to provide a little movable wooden stage closed on three sides, but he must contrive a balcony or some architectural feature that should distinctly proclaim its original use as long as the building should stand. There is an instance of such a pulpit in the south nave of the great church of the Jacobin Convent at Toulouse. It has long been disused, the balcony and corbelling shrank off, and the niche blocked up; but still there are the evident remains; and you must pull down the building before you can obliterate the traces of what it has once been. As I said just now, a particular form of pulpit can have no more to do with creed or doctrine than a particular kind of brick or stone in a building (although I have heard a stone pulpit objected to on principle); and if this method of treating a pulpit was right in the thirteenth century, it is right now. We ought to feel, as instinctively as the architect of that day, that 'a wooden stage closed on three sides'—in fact, any sort of pulpit not entering into the construction of the church, does not thoroughly satisfy a principle we all acknowledge in the abstract.

The examples of ancient pulpits treated in this thoroughly common-sense manner are very numerous. But we must not confine our search after the earliest and best examples to the interior of churches: we shall find some of the best in the refectories of monasteries, used for reading to the monks during their meals. A very fine example of this kind of pulpit exists in a building (formerly the refectory) attached to the cloisters at Chester, and now used as a school. It is well worthy of careful study, and gives a peculiar

character and interest to the building. The woodcut, in Viollet-le-Duc, of the beautiful pulpit in the refectory of St. Martin des Champs, is, I presume, familiar to all. We find a great variety of later examples, both in the interiors of churches and exteriorly in the cloisters and elsewhere, such as the well-known examples at Beaulieu, Magdalen College, Oxford, and St. Lo, in Normandy. There is one peculiarity about nearly all ancient pulpits which, although belonging more strictly to the second part of the subject, I will allude to now as forming part of their construction. It is, that they nearly invariably have what the French call an "abat-voix," or voice-reflector (to avoid the obnoxious term of "sounding-board"). Where part of the pulpit was formed by a niche or recess, the roof of the recess, of course, acted as one; but, if attached to a wall or pier, some covering was almost always added. "For pulpits," says Viollet-le-Duc, "erected in the open air or in churches, the necessity was soon felt of suspending a ceiling over the preacher, to prevent the voice from losing itself in space." This is actually now done, in the large churches in Italy, with exceedingly picturesque effect, by suspending a large cloth or awning by the four corners over the pulpit. I only mention these facts, because there seems to be an unfounded prejudice now against sounding boards altogether.

This is probably owing to the monstrous erections of the last century, which seem, by some suspension of the laws of nature, to be balancing themselves on one corner, and to be ready at a moment's notice to shut down on the preacher like the lid of a trap. Although apparently of enormous weight, they are generally, in fact, made of thin wood, and comparatively light, and are altogether shams and abominations; but, because they are bad in design, I see no reason why the use of sounding-boards should be condemned altogether. Those of you who heard our president's admirable paper on "Acoustics," last Monday, will have heard that they have a decidedly beneficial effect in many instances; and I think that, though in most cases it may be unnecessary yet where there is any reason to suppose it may serve a useful purpose, it would be much better for the architect to incorporate it with his design, and put it up at once with the pulpit, than to run the risk of his work being disfigured hereafter by its addition. In a church with which I am well acquainted,—a fine building, only lately finished,—a sounding-board has been added to the pulpit, within the last few months, with exceedingly bad effect; cutting, as it does, into a beautifully carved capital; but the acoustic improvement is so great that we have to overlook its ugliness. I do not know whether the architect of the church was called upon to mar his own design in this instance; but I think it is a case where a sounding-board, originally designed by him as part of the pulpit, might have been made not an unpleasant feature.

There is still another part of our services which requires notice, and that is the musical portion. The only point about it which I wish to enforce in this division of the subject is this,—As an organ is now almost an invariable appendage to a church, and is generally considered necessary to the proper and decent celebration of our service, it should impart a distinctive character to that part of the building which is destined to receive it. I am aware that this is frequently attended to in modern churches, and always, I think, with a satisfactory effect. I could name instances of churches where such an arrangement has always appeared to me to give the chief interest and charm to the building. In small village churches, where a harmonium takes the place of an organ, a recess in the thickness of the wall may be contrived, with very good effect, at a small cost, and with unmistakable fitness of purpose.

I have thus briefly and imperfectly noticed some of the points to which we should all give special attention in order to make our churches what they ought to be—the architectural expression of the ritual of the church of England.

Let us now take a very cursory view of the other branch of the subject—namely, the customs, wants, and requirements of modern congregations, and the effect they ought to have on the architecture of our churches.

To begin with,—I think that (arguing from the analogy of former ages), we may lay down the principle that respect for precedent and sentiments of association should not prevent us from discarding any peculiarity of construction or arrangement that is found distinctly inconvenient or unsuitable, and which does not express any part of our ritual. As a single illustration of this principle, we find that the questionable association

which must still have clung to the heathen basilicas did not prevent the early Christian congregations from transferring their religious services to them from the baptisteries, which are now believed to have been the original ritual churches. This, of course, could only have been done because the hall of the basilica, with its side aisles, was found to be much more convenient for the decent celebration of their services than the circular and octagonal baptisteries. In the same way I think that, in any point where convenience is at stake, we ought not to be too much confined by the precedent of Medieval architecture. Neither our ritual nor our congregations are the same as those for which our ancient churches were built; and it is scarcely to be expected that, if they were exactly suited to one, they will be equally so to the other.

We have seen that at the Reformation Gothic architecture had arrived at its last stage. King's College Chapel, its last great effort,—commenced a century before,—had been finished about twenty years; and there can be little doubt that, had it been possible for a new and true architecture to have sprung up with the Reformation from the ashes of the old, we should have had churches as beautiful, but as different from the Medieval buildings, as they in their turn were from the early Christian basilicas.

Beyond the absolutely essential division of nave and chancel, I do not wish to occupy your time by saying much about varieties of plan. This is a question which must depend so much upon peculiarities of site and the number of the congregation, as well as other points, that it would form a long paper in itself. These eccentric varieties in the form of theatres and lecture-halls I need only allude to, as I hope we are all agreed that turning a church into a great auditorium is not only subversive of all proper ritual expression in arrangement, but renders it almost impossible to conduct the service in a decent and reverent manner.

At this point, however, it will be as well to take some notice of the *rexata questio* of galleries. We all know the numberless objections to them, and I suppose no one would employ them by choice; but where they become actually a necessity, which is often the case, they should certainly be treated as part of the construction, and their presence should be expressed externally. Great care should of course be taken as to their height and the steepings of the seats, so that they may neither overpower the church by being too high, nor oppress the occupants of the aisles by being too low. A flat ceiling under the galleries will be found to be much better for acoustic purposes, and more satisfactory to the eye than an inclined one. There is one position, however, for a gallery which is, in some churches, almost unobjectionable, from its answering two good purposes, one mentioned by our president last Monday, that of breaking up and dissipating the sound from the east end, and preventing echo; the other, that of clothing the conspicuous bareness of the west wall, which in many churches is far from agreeable.

To return from this digression: let us start with the acknowledged necessity of a nave for the congregation and a chancel (not too deep) for the clergy and choir; and let us take a modern congregation of say 1,000 persons and consider the wants and requirements we have to meet. The first thing to be noticed is that, according to received notions, the seats must be fixed; and, if we may judge from the serious inconveniences which attend the use of chairs where they have been tried, they are not likely to come into general use except as a temporary expedient.

The next requirement is, that all the congregation should have an uninterrupted view and hearing of the officiating minister. It may not seem, at first, evident that an uninterrupted view is necessary; but, in point of fact, nothing is so difficult or irksome as to keep up one's attention to a speaker who is unseen. This applies, of course, chiefly to preaching.

The next requirement, whether right or wrong, is, that no one should feel too cold or too hot; that there should be no draughts in the church. It may seem to many beneath the dignity of this subject to notice so trivial a detail; but, as a matter of fact, it will be found to be considered a most important thing; and it is not for us to decide whether it is right or wrong. If the age demand warming and ventilation we must give it them.

Now let us compare with this Medieval and earlier congregations. The warming of churches may be considered, I suppose, in the first place, quite a modern luxury. Next as to seats. In the basilicas, there were certainly no fixed seats except for the clergy. The congregation, whether

standing or kneeling, arranged themselves round the three sides of the choir. No one would then place himself by choice immediately behind a column; a defect, unfortunately, unavoidable in a modern aisled church with fixed seats. In our Mediaeval churches, on the other hand, distinct hearing of the services was a matter of no particular moment, as the loss of a syllable or of an unknown tongue could not interfere with the devotion of the faithful, and sermons did not form a regular part of the service as they do with us. Now, I am far from wishing in large churches to abandon aisles, and substitute a large nave under one roof; for I quite agree with our president, in his remarks last Monday, that the form of nave and aisles, which is hallowed by so many centuries' use in the Christian church, is also the most convenient for the decent and reverent celebration of our services, for hearing, and for economy of space, or rather cubic content. There is, however, one defect in our system of aisles which we are bound to remedy as far as we can; namely, the obstruction of view caused by the columns. I am aware that many architects think this practically nothing, but I have tried the experiment many times myself, and can therefore assert that in an ordinary aisled church there must always be a large proportion of sittings cut off from the view of either altar, reading-desk, or pulpit. The effect is practically very disagreeable, and to my mind inconsistent with the conscientious carrying out of the principles we profess. It appears to me that there are only two ways of overcoming the defect,—one, by no longer employing fixed seats; the other, by diminishing the column to such a diameter that the slightest movement of the head of any one placed behind it will bring the minister into full view. The largest diameter which can be employed to effect this is from 9 to 10 or 11 inches. Now, it is obvious that such columns can only be safely obtained by the employment of a material which has long been used without scruple for similar work in every modern building but a church. I allude, of course, to iron. There seems to be an extraordinary feeling afloat against an iron column, as uneclesiastical and ugly. Now, to say it is uneclesiastical is nothing more nor less than narrow-minded prejudice; and to say it is ugly is to acknowledge our own shortcomings in having left it so, so long. In defiance of art-critics, the civil engineer has long decided that it is good construction; and it is high time for the architect to take it in hand and make it good art. I believe a check has been given to progress in this really grand, and almost new, field of design (artistically speaking), by the solemn denunciations levelled against the use of iron in architecture (except as a tie) by an eminent authority a few years ago. The argument gravely advanced in support of his views, namely, that we find no mention of iron architecture in the Bible, might as well be used against stained-glass in decoration. Whatever may have been the cause, it is a fact, that church architects, until quite lately, have appeared to be ashamed of the use of iron as a constructive material. In cases where it has been used for columns, it has usually been from motives of economy; and instances are not wanting (happily not recent ones) where it has been neatly painted and sanded in imitation of stone. If used at all, the material should, of course, be treated as what it is; and I cannot doubt that, if properly handled and elaborated, iron columns may be made beautiful and attractive features in church architecture. It may be thought a very great innovation to gain but a small advantage, but there is a true principle involved in it. I cannot see why an iron column (which cannot have less to do with our ritual than a stone one) should be thought uneclesiastical, nor why it need be ugly; nor do I like to hear distinctly useful and convenient materials and modes of construction objected to simply on grounds of precedent and association. One objection I have heard raised against them is, the bad proportion they would bear to the superincumbent walls; but this again I believe to be, according to true principles, simply a question of association. In using a new material in a new position, we must create new feelings of association for ourselves. If a few good examples were erected, people would soon begin to get used to the proportion, and to like the thing, as undoubtedly right and full of purpose.

Before leaving this question of association, I have a few words to say about church warming. As I just now remarked, we find that this is a most important point, and nothing disgusts a congregation so much as finding themselves in a cold, draughty, or ill-ventilated church, where the ladies cough all the winter, and faint all the sum-

mer. You need not fear that I am now going to enter into any discussion of the best means of warming and ventilation. I merely wish to point out that we, perhaps oftener than necessary, increase our difficulties and impair the perfectness of the system adopted, by thinking it right to hide away as much as possible all the paraphernalia of chimneys, &c. For instance, I want a chimney for a vestry, and one for the warming apparatus; but I am afraid of making a good stack, and carrying them to the proper height, lest any one should tell me I have given my church too domestic a character. Ought I not rather to consider that, when we insist on introducing domestic comforts into our churches, that fact must, under an intelligent architect, come out distinctly in the character of the building? Our congregations cannot be provided properly and truthfully with the comforts and luxuries of home without paying for it by the disfigurement (if it be a disfigurement) of their churches by domestic features.

The next consideration—convenience of hearing—has been so fully discussed at the Institute by our president in his admirable paper, that there is little left for me to say. I fully agree with his remarks on the acoustics of churches; and I was particularly struck with the opinions he expressed as to open roofs and lofty naves, contrasted with a low proportion and boarded ceilings, as completely coinciding with my own convictions on the subject, based on observation and comparison of many buildings.

We must recollect that, in making observations on the acoustic qualities of churches, it is not sufficient to go yourself once, and try how you can hear at any particular part, as there may be many disturbing causes acting at different times. One of the best tests is whether it is what the clergy call an easy church. Inquire of a few clergymen who have done duty there, what they think of it in this respect, and you will form a truer estimate of its qualities than if you ask half the congregation. I believe it is little known how many clergymen's health is seriously impaired by having to do duty, day after day, in a difficult church. It, therefore, becomes not only a question of convenience to the congregation, but of health and comfort in many cases to the clergyman.

It now only remains for me to touch upon our requirements as to the musical arrangements of a church; and here let me say that, though it can scarcely, perhaps, be expected of a church architect that he should be a musician, yet he should make it his business to understand something of the construction of the instruments used in a church. An organ, the most beautiful of instruments when in tune, is one of the most disagreeable when neglected; and every one should know how sensitive it is to damp and draughts, in order to guard against this in his arrangements for the reception of the instrument. If there is a choir the organ should always be placed close to them, and the proper place for it is either in a side aisle of the chancel, or in an organ-chamber, built expressly for it, which is better. The effect of the instrument will be much enhanced, and it will be kept in better tune if the walls are lined with boarding on battens; and, if not in a gallery, it should always be raised on a platform some feet from the floor. The worst place for the organ on every account is in the west gallery, if there is one; and I believe organs are never now placed there in new churches. Of course I do not contemplate the possibility, in these days, of an organ appearing over the altar. In small village churches, where an organ can seldom be tuned, I think, myself, that a harmonium is much preferable. It has the advantage of not getting out of tune; and, though it has always something more or less wanting in the tone as compared to an organ, it is quite sufficient to lead the singers.

I have now taken a slight and hasty survey of our modern wants and requirements, and the influence they should and must ultimately exercise on our church architecture; and I must beg you to excuse me if I seem to have expressed any opinion too strongly, or if I have dwelt too long on any points which may appear trite, commonplace, or trivial. I feel that I have omitted much that might well and appropriately have been brought to bear on the subject, both from haste in preparing this paper and from a wish to be as short as possible; and I now relinquish the subject in the hope that the discussion will be taken up by others.

SOUTH KENSINGTON MUSEUM.—During the Christmas week, 14,179 persons visited the Museum.

DISTRESS IN COVENTRY.

The accounts from Coventry and the surrounding neighbourhood are of the most distressing description. It is stated on reliable authority that in the ancient city and at Nuneaton there are about 30,000 persons who depend for their living on ribbon-weaving, and that there are probably 10,000 more persons who are shopkeepers, or in some other way depending on this trade. It is said that in Coventry alone the weekly wages are less by 6,000*l.*, and in the Nuneaton district 20,000*l.*, less, than those of the corresponding week of 1859.

Those who are acquainted with the disposition of the chief number of the Warwickshire ribbon-weavers know that they are worthy of respect and consideration. In most instances they have by industry and economy purchased looms, and other property, at much cost. Independence of character and anxiety to work are characteristics of those workmen. Parish relief is the last thing they would think of asking for; and in hundreds of once happy homes the household property, bedding, and clothes, have been parted with for the purpose of providing food for starving children. Even to dispose of those matters is a difficulty: the pawnbrokers' shops are glutted, and little if any sale is to be had for this description of goods. The shopkeepers are in most cases in a state of ruin, and it is scarcely possible to collect rent.

In the midst of all this distress, the relief sub-committee is aiding so far as their slender means will allow; and assistance to the extent of from 1*s.* 6*d.* to 5*s.* has been granted weekly to families. All know how insufficient this is.

The season has been one of the wettest known. Dealers in female costume, in the metropolis and in the provinces have suffered much. There was no demand for last spring's goods, and the summer was so uncertain that there was but a tithe of the requirement for ribbons and light goods. Besides, just now, such is the fashion, that scarcely any ribbons appear on the ladies' dresses or bonnets. Let us hope, for the sake of the Coventry weavers, that the uncertain whirling may take a turn in favour of ribbons. A great deal of good might be done by a careful consideration of this in industrial quarters.

THE BUILDERS' BALL.

The ball on behalf of the Builders' Benevolent Institution, be it remembered, comes off at Willis's Rooms, St. James's, on Thursday, the 21st of February. The list of stewards is now being made up, and it is to be hoped past successes will not induce those who feel an interest in the excellent Institution to aid which this ball will take place, to relax either in their anxiety, or in their efforts, to make it as great a success as ever, if not to render it a still greater success than it has ever yet been.

THE PARIS OPERA-HOUSE COMPETITION AN EXAMPLE.

The Minister of State, Walewski, in the *Moniteur* of Monday last, announces that a competition is open for the drawing up of a design for the new opera-house. The competition is to take place on sketches, not finished designs,—sketches sufficiently made out to convey the ideas of their authors, as well upon the general economy of the edifice as upon its monumental aspect. The competition will be closed on the 31st inst. A general plan, geometrical elevation, longitudinal section, and descriptive and estimative particulars are required; but competitors may add such other drawings as they may think necessary. A jury, presided over by the Minister of State, and composed of members of the Academy of Fine Arts, in the architectural section, will examine the designs, and classify them in the order of their merit.

The author of the design which shall be declared not only the best of those submitted, but as meeting fully the views of the administration, both as to art and construction, will be commissioned to produce a definitive design, and have the direction of the works.

The author of the design second in merit will receive a premium of 240*l.* (6,000 francs).

The author of the design third in merit, 160*l.* (4,000 francs).

If no design worthy of being executed be presented, the first prize will not be awarded, and the administration will act as it thinks fit in obtaining the definitive design. But in any case the two premiums will be awarded to two designs.

A programme of requirements is given, with a plan of the site. The theatre is to accommodate



A WELL IN NORMANDY AND ONE IN KENT.

A Contrast and a Hint.

an audience of from 1,800 to 2,000 persons. The present Opera-house has 1,700 places. The stage of the new house is to be capable of accommodating about 400 persons.

A VILLAGE WELL IN NORMANDY AND ONE IN KENT.

"COMPARISONS are odious." No doubt of it; and, generally speaking, are to be avoided. Nevertheless, the operation has its value. It is useful to look back, and to look abroad, and to see whether what we do here is better or worse than what was done previously or elsewhere. One of the things compared may be seen to be "odious," but that may perhaps lead to amendment. While a thing of beauty is "a joy for ever," a thing of ugliness is a lasting injury; and, if the latter fact were enforced as constantly as the first, good would result.

In glancing at the few old water fountains or conduits which have been left in England, it will be seen they had little generally to recommend them. In the market-place of the city of Durham the old conduit still remains. It is a plain octagonal building, some 15 or 16 feet in height, surmounted by a figure of Neptune with his trident, striking a dolphin. At Newcastle-upon-Tyne the numerous conduits for the supply of the town with water were useful in their day, but not at all ornamental. Hobson's conduit, in Cambridge, though picturesque, had no great beauty. The conduit near the bottom of Holborn-hill, in London, seems to have been a handsome structure.

Generally, throughout England, the wells—even those that are associated with historical events—are not remarkable for their architectural adornment, although wells afford a good opportunity for the display of skill and taste. There are a few exceptions.

Of our pumps in towns, country, and villages, the less said the better. And yet what a wide opportunity. The number of "pumps" amongst us is enormous. The same objection will apply to most of the drinking-fountains.

Although the supply of water by wells, owing to the chances of pollution, is not to be recommended, in many cases this is a necessity; and for years to come wells in certain positions will be required. How many pretty pictures might be formed among green shady trees in parts of England if, instead of the ordinary wooden well-

roller, and in some instances the round plain enclosing walls now in use, the same spirit of architectural design were shown as in the ancient French example which is here engraved. In some parts of Normandy and other parts of France, in addition to the architectural decoration, the upper portions are ornamented with richly-designed hand-wrought iron work, which has an excellent effect. The well in Antwerp which Quintin Matsys adorned; the well in the court-yard of the Hôtel Cluny, Paris; and other examples, are well known to all.

NOTES OF THE RECENT FROST.

NOT many hours of the severe weather had passed when in several districts of the metropolis the water supply was stopped, causing the greatest inconvenience. Last year we made some remarks on the same subject, and it now calls for further notice. We have again made inquiry, and find that the mischief does not arise so much from the freezing of the tap and pipes immediately in connection with the cisterns—as by the application of heat this part might be thawed,—but, owing to the pipes which pass from the main to the houses being laid too close to the surface, the frost in a few hours stops the water supply. When houses are being built, the expense of placing the pipes at a sufficient depth below the surface would be but trifling, and the water supply would be more sure. It is not well at Christmas time for the families of industrious persons to be left without one of the most common and necessary elements of life.

The experience of the last few days shows that the footpaths have been generally ill kept. The law is, notwithstanding, distinct on this point; but no means seem to have been used by the authorities to carry out the necessary measures. Great distress at the present time prevails in several parts of the metropolis. A strong lad could easily earn 1s. 6d. in a morning by cleaning door-steps. Supposing that the regulation for the cleansing of the pavement were strictly carried out, it would cause a considerable amount of employment at a season when it is much needed. Taking the houses of London at about 600,000, the cleansing of the pathways would, at the rate of 1d. each, come to 2,500l. for every cleaning operation. This would be of much benefit, not only to the poor, who would gladly earn it, but also to thousands of wayfarers.

CO-OPERATIVE SOCIETIES.

SOMETHING is doing in the way of establishing co-operative societies in London. A large meeting has recently been held in Islington for the purpose of introducing the system. Mr. F. J. Furnival, M.A., of the Working Men's College, took the chair, and urged that by this system the workman would be his own master, and that one of the advantages of the system would be that to a certain extent they would avoid being exposed to injury from adulterated food: clothing and other matters would be obtained at a less cost, for all the members participated in the profits. It was stated that some of the societies which have been established divide yearly as much as from 1s. to 2s. 10d. in the pound on the amount of consumption, in addition to the 5 per cent. on the paid-up capital.

After a resolution had been passed advocating the formation of the "Caledonian and Great Northern Provident Co-operative Society," Mr. Gardner, the secretary, reported that the society, since its commencement, had met with far greater encouragement than had been anticipated, and that the peculiar features of the association were that members should enroll themselves at 1l., taking five or more shares, to be paid up in no less sum than 3d. per week, to form a capital for the purchase of groceries, &c., pure and unadulterated, according to the rules of the Board of Health; the profits realized to form a fund upon which 5 per cent. to the shareholders should be paid, and subsequently a dividend to the purchasers. They only now required a few more members to enable them to open stores.

CHURCH OF S. MICHELE, LUCCA, ITALY.

THE Church of S. Michele, in Lucca, is one of the most extraordinary specimens of art in Italy: few who have once seen it will forget it. It must be called Romanesque rather than Lombard: Pisan Romanesque would describe it more precisely. The illustration we give of the upper part of the façade is drawn from a photograph, and contrasts very curiously with the view given in Mr. Gally Knight's "Italy." That author says,—

"The embellishments of San Michele di Lucca record and illustrate the changes of fortune which that city underwent, and will be found to be contemporaneous with the period at which it enjoyed free institutions. The church was originally founded by Teutprandus, and Gumpranda, his wife, A.D. 764, and the bulk of the fabric belongs to that date. At that time the Archangel Michael, for whom a particular devotion had in the preceding century been imparted from Apulia into the north of Italy, was the favourite protector of the Lombards. But the rich facciata to which this church owes its celebrity was added at a much later period, in A.D. 1185, when Lucca was a free town, its inhabitants having resolved to do credit to themselves by adding splendour to their public buildings.

In 1168 the celebrated architect, Guidetto, who was afterwards employed to decorate the cathedral in the same manner, was called upon to ennoble the west end of San Michele. The idea of the facciata is evidently taken from the cathedral of Pisa, although executed in the more florid style which had subsequently come into fashion. If this facciata sins against classical rules in the multiplicity and irregularity of the orders of its columns, in their variety and over-enrichment, it nevertheless produces a grand and imposing effect."

The whole is constructed of white marble from the quarries of the neighbourhood. The statue of the archangel at the summit is of colossal size: the wings are composed of separate plates of bronze, so contrived as to suffer the wind to pass through them freely, lest it should have a dangerous purchase upon so large a mass completely exposed to its power.

Nothing more was done on San Michele during the thralldom of Lucca; but, when Lucca was again enfranchised, the second order of the lateral colonnade was added. This colonnade is sufficiently in harmony with the façade, but evinces a greater degree of purity of taste.

The exuberance of ornament, the elegance of some of the details, and the play of light and shade constitute the chief attractions of the façade of S. Michele.

The churches of Lucca contain some interesting paintings, particularly works by Fra Bartolommeo: there are also sculptures by Civitali, a native of the place, who flourished in the latter half of the fifteenth century. He was a barber for the first forty years of his life, and then suddenly became a sculptor.



CHURCH OF SAN MICHELE, LUCCA, ITALY.

Upper Part of Façade. Pisan-Romanesque, Twelfth Century.

WINCHESTER: THE CATHEDRAL RESTORATIONS.

CONSIDERABLE works have been going on at the west end of the cathedral. One of the last acts was the placing of a new statue in the niche above the gable, executed by Newman & Son, from drawings prepared by Mr. Francis Joseph Baigent, of this city. Mr. Baigent was first requested to inspect the ancient figure in January last, when he found it so much decayed that scarcely a trace of its original appearance remained, except at the back, near the sides, in which part it had been comparatively little exposed to the effects of the atmosphere, and remained tolerably perfect; and from this part it was manifest that the figure had been boldly executed, and of some artistic merit. Mr. Baigent identified it as the figure of a bishop in full attire. He afterwards executed the detailed working drawings for its restoration—a front and two side views (to a scale of $\frac{1}{16}$ inch to a foot). From these Messrs. Newman produced the figure. The statue is a little more than 9 feet in height. In Mr. Baigent's opinion the old figure was not of earlier date than the close of the fifteenth century. Dr. Milner considered it either the statue of William of Wykeham, or of the ancient patron of the cathedral priory—Saint Swithin. The present restorers have adopted the latter opinion. Mr. John Colson is the architect superintending the works.

THE CHINESE AND THEIR CAPITAL CITY.

THOSE who (like the countryman who believed that London was paved with gold) anticipated that Peking would turn out to be a splendid city must have felt some disappointment with the actual result of our forcible possession. The Chinese are a semi-barbarous people, architecturally speaking, though a very interesting nation, as regards their possession of innumerable traces of ancient civilization of a high order, which civilization they do not now possess,—if, indeed, these traces belong, properly speaking, to the Chinese at all. They are not an inventive people, for example, though highly imitative, and very industrious: nevertheless, we find many traces of inventions of a high order of genius in their possession, but which they turn to little account in the way of advancement; such inventions, indeed, being more like the fruits of some ancient state of high civilization which have got into the hands of savages, who have been taught to make use of them to a certain extent, but who are quite incapable of having originated or even of improving upon them. If such inventions were really of native origin, therefore, the Chinese are a people, once civilized, who are fast returning to a savage state. Like that of all other ancient Eastern nations, their architecture is a strange mixture of the squalid and the splendid. In ancient times the most magnificent temples for the gods were surrounded by the most paltry human dwellings. It is much the same with the Chinese at present, if, for temples, we substitute the palaces of the Emperor and his high Mandarins, at Peking. The splendour of these palaces, however, is much more an interior than an exterior—an upholsterer's and curiosity dealer's, than an architect's and builder's splendour.

"The appearance of Peking," says one writer on the spot, "is disappointing. The great width of the streets makes the houses look small and mean, but the wood carving in front of most of them is most wonderful in quantity and minuteness of its detail. Many of these carvings are gilt; and, in a long street of these shops, the effect is good. In dry weather the streets are 4 inches deep in dust, in wet, a foot deep in mud, [not much worse than the London of the present day, by the way]. There is a raised road in the middle of the street, on which two carts can easily drive abreast: on either side of this road there is a low one about the same breadth."

"The Emperor's summer palace (now destroyed) is a succession of detached buildings, with large courtyards, artificial mounds of earth planted with trees, fish-ponds with rustic bridges, artificial rocks, and all those varieties of ornamentation you may see depicted on Chinese crockery and drawings. The buildings have small pretensions to architectural beauty externally, and are more picturesque than handsome. Within they are more striking. The audience-hall is a well-proportioned lofty room, the floor of marble, the roof richly painted, supported on wooden pillars: the throne is a magnificent piece of wood carving. The whole suite of suites of apartments were furnished in the most costly style."

The French general writes to the French Minister of War in rather high-flown terms as to the splendour of the Yuen-Ming-Yuen, or Summer Palace, which, he says, is approached by a road paved with granite flags and a handsome bridge.

Respecting the palace itself, he says,—

It would be impossible for me to describe to you, Monsieur le Maréchal, the magnificence of the numerous buildings which succeed each other over an extent of four leagues, and which compose what is called the Summer Palace of the emperor, being a succession of

pagodas, all containing gods in gold, silver, and bronze, of gigantic dimensions. One deity in bronze, a Buddha, is about 70 feet high: gardens, lakes, and objects of curiosity heaped up for centuries past in the midst of buildings of white marble, roofed with dazzling varnished tiles of all colours; add to that the view over a delightful country, and your excellency will have but a very feeble idea of what we have seen.

In each of the pagodas there exist, not objects, but whole store-rooms of objects of every kind. . . . It would require a volume to describe all I have seen."

The *London Review* made a good suggestion, of which, however, the departure of the European troops from Peking will probably prevent the realization,—namely, that a desire to open up their country by railway communication might be instilled into the Chinese by laying down one between Tien-tsin and Peking, ostensibly for the convenience of our own army. The sight of such celerity of travelling would have forcibly struck the imitative and trafficking brains of the Chinese, who are far less disinclined to trading with the foreigner than their bigoted and grotesquely absurd Tartar rulers.

INSTITUTION OF ENGINEERS IN SCOTLAND.

THE papers read at the meeting held November 28th last, namely, "On the Application of Transversals to Engineering Field Work," by Professor Macquorn Rankine, and "On the Junction of Railway Curves at Transitions of Curvature," by Mr. William Froude, have been printed in the official report of Proceedings, and will be found valuable. It has become very necessary, curves of short radii being common, that curves should be set out with great accuracy, and that the cant to be given to the outer rail should be carefully adjusted.

ARCHITECTURAL INSTITUTE OF SCOTLAND.

THE annual meeting of the Architectural Institute of Scotland was held on the 21st ultimo, Mr. Lessels, chairman of the council of management, presiding.

Mr. W. Miller, the hon. secretary, read the eleventh annual report. After a review of the proceedings of the past year, it stated that the Institute had obtained a lease, on very favourable terms, of a new meeting-hall at 89, George-street. The report also stated that the Duke of Buccleuch, President of the Institute, had kindly authorised the council to take casts from Melrose Abbey; and that they had been in correspondence with the secretary of the Architectural Museum, Brompton, London, in regard to obtaining duplicate casts from that museum.

Mr. Cosmo Innes then read a paper entitled "Suggestions for the adaptation of Architectural Style to Place and Site," in the course of which he said,—

"When I see the progress of Edinburgh, its extension on every side, the constant change, and I admit, general improvement in the streets of our New Town, I cannot doubt that the day is at hand when we shall have some of the same energy, the same taste and wealth, directed to the restoration of our grand old High street. Now, when that day comes, I am sure the architects of Scotland will be prepared to treat the enterprise in a worthy manner. Why should our gables not rise bold and steep as of old, with crows'-steps, if you please, or with those rich embellishments that seem so peculiarly suitable to that style which we naturally seek for in the grand old cities of Flanders and up per Germany, and which Mr. Barnett has taught us to find at Nuremberg? It is not only our tall gables that are capable of being made very effective and ornamental. Why should our architects (in towns at least) so carefully hide the roof of the house,—send out the lady without her head-dress! In the modern streets of our city we have but two styles—the style of last century, where the eaves came over the wall, and dripped over it (unless a lead gutter saved the passengers' heads)—or our modern fashion, which runs up a poor architect or bit of cornice, trying to veil the slates and the roof altogether. I confess a great love for our genuine old Scotch style, of a range of windows breaking the eaves, a bold, manly, and with a little gable, affording the most appropriate position for sculptured or chiselled decorations. Besides these, there may be our national corner turrets, which, when well managed, enhance the outline of our upper stories, without flying in the face of any style. But this is not all. These only provide for the lower stratum of the roof. I see no reason why the roof should not mount high above all these accomplishments, and bear with it tier after tier of dormers—as many as you choose,—and end, if it suits the situation, in a coping of open work, of which I don't know the name: it is amazingly effective in Glasgow. I am unwilling to detain you longer on this part of my subject, which has, I dare say, been fully considered by professional men, who have found some impediment, which I cannot divine, to imitating some of the beauties of Flemish and German town architecture. I have ventured to recommend what I think the true course for improving our street architecture. It is in some degree with art as with language. We try back to the fountain of our mother tongue, not that we may speak or write like Chaucer or Barbour, but to get our fathoms or fix in our minds the foundations of grammar and idiom, which give us the mastery over our language and enable us to wield it. So with architecture. We don't want to build houses like the fifteenth century, cold and dark, without the comforts and conveniences of refined

life; but if there is there the germ of our peculiar and national style, and if (as I believe) that style is capable of adaptation to all our present wants, it is for the architect, in following out his noble profession, to develop it, to modify and elaborate it; ever keeping in mind the spirit which can be found in every honest work of genuine art."

The reader afterwards criticised severely modern works in Edinburgh. After some conversation,—

Mr. J. D. Peddie read a communication from the Royal Institute of British Architects, intimating that proposals were under consideration for the establishment of an architectural examination for diplomas, and requesting suggestions from the Institute, and their opinion as to a series of regulations enclosed.

It was agreed that an early meeting of the Fellows of the Institute should be called to consider this subject.

ANNUAL GENERAL MEETING OF THE INSTITUTION OF CIVIL ENGINEERS. ENGINEERING WORKS ABROAD.

At the annual general meeting, held on the 18th December, Mr. Bidder, president, in the chair, a short account was given of the state of engineering in a few distant countries, and, particularly, in some of the British Colonies; because those undertakings might not be generally so well known, and because attention had previously been chiefly directed to engineering progress in the United Kingdom and on the Continent of Europe. In the course of it, it was stated that the principal engineering works in progress in Australia were roads, telegraphs, and railways. Telegraphic communication was established between the capitals of the three colonies, and Tasmania had been connected by a submarine cable, which was now unfortunately damaged, between King's Island and the Hummocks. The telegraph wires, which were carried overground, might be seen wherever there were towns, as would be gathered from the statement that there were now 1,000 miles in operation in Victoria, about 1,000 miles in New South Wales, and nearly 500 miles in South Australia. The railways, with the exception of two or three short lines near Melbourne, all belonged to Government, and had been carried out by means of loans; the only private undertaking of any magnitude, the Geelong and Melbourne line, having lately been purchased by Government for about 750,000, at par.

The oldest railway in Canada, a short line called the Laprairie and St. John, was opened for traffic in July, 1836. From that period until the year 1849, little progress was made in the extension of railways. At the commencement of 1857, there were 1,403 miles of line in operation, and at the present time the mileage was 2,093, and the number of railways fifteen, all which, with one exception, had been constructed between 1852 and 1860. The three principal lines were the Buffalo and Lake Huron, the Great Western, and the Grand Trunk. The Canadian railways had nearly all a uniform gauge of 5 feet 6 inches, and were all single lines. The average cost per mile of the main lines had been about 15,000, inclusive of rolling stock and other expenses. The cost of the branches had ranged from 6,000, to 10,000, a mile. The bridges were generally built of timber, which it was thought cheaper to renew every ten years, than to build at first in stone or iron. The capital embarked in Canadian railways amounted at present to about 26,000,000 sterling, of which 4,161,150, might be considered as the contribution of the province of Canada, inasmuch as the interest on that amount (219,669,7) was an annual charge upon its revenue.

The improvements which had been made in the iron manufacture during the last few years, and the changes that were now taking place, were then referred to; and it was stated that the result had been, that whereas the annual "make" of a blast furnace in the year 1750 was only about 300 tons, now it ranged from 5,000 to 10,000 tons per annum; and, in a few cases, amounted even to 15,000 tons per annum.

It was stated that the library was now occupying the attention of a committee of the council, with a view to ascertain what was required to render it as complete a collection as possible of works on engineering and the allied sciences, as well as of books of reference on general scientific subjects. The members were urged to assist in procuring copies of all treatises, reports, and documents relating to professional matters; as this was the natural place for their reception and preservation, where they could be consulted by all.

The abstract of accounts showed that the receipts for subscriptions and fees amounted to

2,550*l.*, and the expenditure to 2,100*l.*, the outlay for minutes of proceedings being much less than in previous years. There being thus a balance in favour of the Institution, in addition to the 1,000*l.* already placed on deposit at the Union Bank, it was thought advisable that an investment should be made, and accordingly 1,000*l.* Norfolk Debenture Stock, bearing 4 per cent. interest, was purchased. During the recess the Stephenson and the Miller bequests of 2,000*l.* and 3,000*l.* respectively had been received. Thus, the funded property of the Institution now amounted to upwards of 12,000*l.*; in addition to which, there was a further sum of 2,000*l.* to be received under the will of the late Mr. Joseph Miller, in which a relative had a life interest.

The thanks of the Institution were voted to the president, to the vice-presidents, and other members and associates of council; to Mr. C. Manby, hon. secretary, and to Mr. James Forrest, secretary; as also to the auditors of the accounts and the scrutineers of the ballot.

The following gentlemen were elected to fill the several offices on the council for the ensuing year:—G. P. Bidder, president; J. Fowler, C. H. Gregory, J. Hawtshaw, and J. R. McClean, vice-presidents; Sir William Armstrong, J. Cubitt, J. E. Errington, T. E. Harrison, T. Hawksley, G. W. Hemans, J. Murray, J. S. Russell, G. R. Stephenson, and J. Whitworth, members; and Capt. Galton, R.E., and H. A. Hunt, associates.

ASSOCIATION OF ASSISTANT ENGINEERS IN GLASGOW.

A SOCIETY under this title has been formed in Glasgow, having for its object "the interchange of the members' ideas on engineering and kindred scientific subjects, and the promotion of friendly feeling among the young men in the profession."

The association is to consist of "bona fide assistants and pupils to civil engineers, mechanical engineers, and shipbuilders."

Is there any good reason why it should not form part of the association of engineers, which could be made to include assistants and pupils? Surely there is disadvantage in these sub-divisions. Mr. Guilhaume Fox is the secretary.

LECTURES FOR THE MULTITUDE.

WE know of few of the attractions of this season which have more interest than the lectures which Mr. Faraday has prepared for children. Week after week the philosopher addresses himself to the rising generation, who listen with intense interest to his remarks on the chemistry of a candle and the peculiarities of gases.

The good to be done by this description of teaching is great, and it is to be regretted that it is not managed on a larger scale. It is now no thing of wonder to see 10,000 and more persons assembled within a building to listen to the voice of one speaker, and we hope that are long our most famous men will be found addressing multitudes in a popular way, and thus materially advance the general education.

Lectures of this description by Professors Owen, Faraday, and others, the price of admission made moderate, would be of the greatest benefit. In Paris the principal professors of art and science give courses of free lectures: such is the case now at the Geological Museum, and it is to be hoped that a similar plan will be carried out elsewhere.

CABINET MAKERS AND WOOD-CARVERS AT A DISCOUNT.

"BOIS DURÉ" AND MACHINE-WROUGHT WOOD-CARVING.

AN artist in Paris is said to have made a wonderful discovery, which will effect a complete revolution in the manufacture of cabinet-work. He has, it is said, found a means of rendering any description of wood so soft that it will receive an impression either of the most varied sculpture or the most delicate chasing. The wood is then hardened to the consistency of metal, while the impressions remain perfect. The artist has already completed some sculptured articles, such as picture-frames, inkstands, chests, and liquor-stands.

Was there not an invention spoken of some time ago in which steam softened wood for moulding and desiccating machines hardened it again? This alleged discovery, however, does not appear to relate to wood at all, except in the shape of sawdust, if the following account of what appears to be the same invention be the correct version; and it accords with an intimation given some time ago in the *Builder* as to a similar use of sawdust.

One of the results of the late French treaty, says a Manchester paper, has been the introduction into this city of a new product of art and industry called "bois duré," which will cause quite a revolution in the manufacture of many articles of ornamental and general use, and the discovery seems to be a great success. Bois duré, or hardened wood, is made from sawdust, which, under the influence of a high temperature and the enormous pressure of 600 tons, acquires a hardness a good deal exceeding that of wood. It is of a very fine grain, and fears no atmospheric variation; but its principal merit is its adaptation to moulding; and, by the most economical processes, forms and impressions are given which would require, in any other way, considerable labour and workmanship.

A new patent in machine wood-carving may be here noticed. It has been taken out by Mr. Abdell Hawkins, glypographer, of 65, Hatton-garden, London, and relates to the finishing of such carvings by means of hydraulic pressure under a mould after the carving has been executed, polished, and varnished. The provisional specification states that it is to be "placed in a hot metal mould (which mould should be taken by any of the ordinary processes from the original pattern of the said carving, and may at pleasure be brought to the highest possible degree of finish). Then by hydraulic power, if the work be large, a suitable amount of pressure is to be applied, when all the beautiful detail and finish of the mould will be communicated to the rough carving upon which you are operating. For subjects in high-relief in the round, compound moulds (that is to say, moulds which take to pieces) must be used. The above process is applicable also to certain wood-carvings roughly cut by hand labour."

ELECTRO-TELEGRAPHIC PROGRESS.

THE internal administration (as we may call it) of the electric-telegraph in the capital is being rapidly organized, and its slender threads are being spun from street to street over the house tops, as if some Brobdignagian spider were busy spinning its web overhead throughout the metropolis. The telegraphic interweavement throughout the country has been rightly compared (both by ourselves and others) to the nervous organization of the animal frame; and it is a curious circumstance that some speculative physiologists have an idea that, even within the head itself, the brain is similarly organized, and the association of ideas effected, by nervous threads, crossing and recrossing each other, throughout the mass, in every conceivable direction; every new train of ideas requiring a new series of thread connections to establish it in the memory. We do not mean it to be understood that we adopt this speculative idea: we merely wish to remark that the analogy with what is now going on within the bounds of the metropolis, in the organization of electric intelligence, is rather curious and interesting.

The cost, to business establishments, of having their branch and other premises connected in this way, is said to be only at the rate of some 4*l.* a year per mile per wire, with 8*l.* a year for the use of telegraphic apparatus. The alphabetic apparatus of Professor Wheatstone, as recently improved by him, is that put in use by the new Private Telegraphic Company, and his recording telegraph is to be also brought into use. The transmissive force used is the magneto-electric—not the galvanic. The wires are fine threads, covered with a film of indiarubber, put on by Silver's process, and wrapped round with tape to protect it: a rope of thirty strands, or threads, is barely half an inch in diameter. A line of this kind, containing sixty wires, stretches over the houses in the Strand from the central office of the Private or District Telegraph Company in the City. Other towns are also preparing for a similar internal or central and capital organization of the telegraph. Glasgow is in the van: so is Oldham, where the establishments of an extensive machinist firm, Platt, Brothers, & Co., have been connected by the electric wire, which is of steel, and only two-tenths of an inch in diameter, and is stretched along by the tops of six tall chimneys. The work was done by Mr. H. Wilde, of Manchester.

Another submarine cable has proved a failure. In the first instance it was manufactured for communication between Falmouth and Gibraltar, and about 100,000*l.* had been spent when the Government found it so expensive that it was abandoned. It was completed, however, for the line between Singapore and Rangoon within the last few weeks, and shipped; but its temperature has been found

to increase so rapidly that, after anxious watching, it has been found to be impossible to send it closely stowed to a hot climate, for fear it should melt away,—the fate, we presume, of a large portion of the 400,000*l.* spent upon it. A proper scientific commission of inquiry and experimental investigation might have saved a good deal of money by this time in the laying of deep sea cables, besides realizing the cables themselves, which as yet can hardly be said of them.

The Toulon and Algiers line was being safely laid for about ninety miles, when it had to be cut in 1,300 fathoms water, in consequence of a collision between the vessels engaged in the laying. It has been buoyed in the meantime.

The North Atlantic Telegraph is about to be proceeded with, under the auspices of Sir C. Bright, C.E., who earned his knighthood by his connection with the laying of the afterwards unfortunate Atlantic telegraph, the directors of which, by the bye, have not yet abandoned their undertaking, whatever they may do or not do in respect to the line already laid.

The *Rangoon Times* announces that the wire to unite Burmah with Bengal has been completed. After traversing Burmah in a south-easterly direction it passes through Dacca, Chittagong, Akyab, and Sandoway, and thence across the Aracan mountains into the Prone district, where a junction will take place with the Pegu line, at the telegraph office in Prone.

INTELLIGENCE FROM GUERNSEY.

St. Peter's Port.—The old lighthouse on the south pier of the old harbour is being removed, and is replaced by a new structure at a distance of 26 feet. The new one is of timber, divided by platforms into three stories, the upper two being open work, and the lower boarded so as to form a shed for the light-keeper's stores. The lantern-frame is of brass and wrought iron, fitted with squares of plate-glass half an inch thick. The lighting is by means of gas, in which there will be a saving, it is said, of three-fifths of that consumed in the old house. The transmission of light is obtained from a catadioptric apparatus of the fourth order, similar to that of the Great Exhibition, and invented by M. A. Fresnel. The lantern and apparatus were supplied by Messrs. Wilkins & Co., of London.

Channel Islands Telegraph.—The half-yearly report of the company has been issued. The receipts for the half-year for messages exceeded the working expenses by 111*l.* 1*s.* 6*d.* The company have applied for an extension of the guarantee.

ASHTON-UNDER-LYNE SCHOOLS COMPETITION.

THE Committee for New Schools in the parish of Ashton-under-Lyne received, we are told, in reply to their advertisement, between twenty and thirty sets of drawings from different architects. After an examination, the Committee (by ballot) selected the design bearing the motto "Sit primum primum," whose authors were found to be Messrs. Hayley & Son, of Manchester.

There are to be three schools—for boys, girls, and infants,—to hold 250 each, and class-rooms adjoining. Each room is entered separately by closed porch, opening out of which is a lavatory and cloak-room. The rooms are so arranged as that, when it is desired to address the scholars collectively, they may be thrown into one. The amount proposed to be expended, exclusive of teacher's house and boundary-walls, is a little over 2,000*l.*

CHURCH-BUILDING NEWS.

South Carlton (Lincolnshire).—The church of this place, which has recently been restored, has been reopened. A few months since it was found that the roof was very defective, and it was thought necessary to rebuild the greater part of the church. The work has now been performed by Mr. C. Ward, of Lincoln, builder, under the direction of Mr. S. S. Teulon, architect. The greater portion of the nave and chancel has been rebuilt: the south aisle has been rebuilt to the church; and the north aisle has also been rebuilt, the work having been badly executed in 1851. The tower has been repaired, and a heating apparatus, manufactured by Messrs. Simpson & Co., of Lincoln, has been placed in the church. Some additional alterations are contemplated. The whole work will cost about 1,000*l.*, the greater part subscribed by the perpetual curate, the Rev. W. F. J. Kaye, M.A.

Batsford (near Moreton-in-the-Marsh).—The

parish church has been rebuilt, with the exception of a small portion of the old walls. The design, which was furnished by Messrs. Poulton & Woodman, architects, of Reading, is in the Norman style of the eleventh and early part of the twelfth century. The tower is surmounted by a spire, which rises to about 100 feet in height. The floor of the whole church is paved with encaustic tiles, supplied by Messrs. Maw & Co. The church is heated by Haden's warm air apparatus. The carving was executed by Mr. Nicholls, of London. The contractors were Messrs. Young & Co., of Oxford. Mr. Scovell, steward to Lord Redesdale, and Sir Charles Rushout, Bart., fulfilled the duties of clerk of the works, to the minutest details. The entire cost of the work will be close upon 3,000*l.*, the whole of which is borne by the Hon. Miss Mitford.

Weston Turville (Buckinghamshire).—On Wednesday, the 18th ult., the ancient parish church of St. Mary was reopened, after having been partially restored outside, and entirely repaired and re-seated internally. The whole of the seats have been replaced by others of a more suitable character; the gallery in the tower removed: all the piers and arches dividing the nave from the aisles, some of which were found to be in a dangerous state, have been thoroughly repaired and restored; and a warming apparatus, by Messrs. Haden & Co., of Trowbridge, has been constructed. The chancel has been repaired at the cost of the rector. The south and east walls have been rebuilt: a new east window has been introduced; and the three windows on the south side, against which heavy brick buttresses had been built, have been reopened and restored. The ceiling also has been removed, to show the timbers of a very handsome roof and cornices of the fifteenth century. By the re-arrangement of the pews, accommodation is afforded for 250 adult persons and 110 children. The church possesses a handsome font of early date in excellent preservation; and some very interesting relics of an early date, some being Norman, which were found in rebuilding the walls, afford evidence of an earlier church having once stood upon the site. Messrs. Fitkin & Co., of Weston Turville, were the builders; and the work has been carried out under the direction of Mr. David Brandon.

Upton (Warwickshire).—The church here is being restored. The chief work of the present year has been the erection of a new roof, chancel arch, and porch, and rebuilding of south aisle. Mr. Watson, of Napton, is employed to carry out the restorations. A cross, in red Kenilworth stone, has been introduced at the point of the arch. The north aisle is now decorated with three stained-glass windows, the gift of the churchwardens. The several compartments represent the prominent events in our Lord's history,—the Birth, Adoration of the Magi, the Triumphal Entry, Bearing the Cross, the Crucifixion, and the Resurrection. Messrs. Hardman were the artists. In the opposite aisle are four windows, by Mr. Holland, of Warwick. They represent the Annunciation, the Ascension, the Raising of the Widow's Son, the Healing of Diseases, and the Acts of Mercy. The west and Clerestory windows are also by Messrs. Holland. The former contains the patron Saint after Guido. The window near the font, the work of Messrs. Heaton and Butler, of London, represents our Saviour sending forth his disciples to teach and baptize all nations.

Highworth (Wilts).—Through the liberality of Mr. Ambrose Hussey, of "The Close," Salisbury, according to the *Wilts Standard*, the chancel of Highworth Church is undergoing repair. Its old windows are to be taken out, and new ones put in. The parishioners, too, have unanimously resolved "that it is desirable to restore, improve, and reseat the parish church." Mr. J. W. Huggall has been appointed architect to the undertaking; and plans, estimates, &c., are in preparation. Lady Wetherell Warneford has headed the subscription-list with 300*l.*; Lord Radnor, 100*l.*; the Vicar, 100*l.*, &c. The sum already collected is nearly 700*l.* A correspondent of the paper just named calls attention to an alleged objection to the substantial leaden roof of the church,—that "in frosty weather, when the sun shines out and melts the frozen particles on the roof, the water into which they are transformed penetrates through the lead, and subjects many ladies and gentlemen to great inconvenience by dropping upon their dresses and coats." He explains that, in all probability, "the damp air in the interior having become frozen to the inner part of the roof, becomes melted by the action of the sun on the lead, and, of course, drops, in its liquified state, from the roof on to the dresses of the ladies and on the coats of the gen-

tlemen;" and that a builder could, at no very great expense, provide a remedy for such a casualty without removing the enduring roof. More efficient ventilation beneath the roof may be all that is wanted.

Chippenham.—The tower and spire of St. Paul's Church are now nearly finished. The design, by Mr. Scott, has been carried out by Mr. David Jones, of Bradford-on-Avon, under the superintendence of Mr. Penton. The height of the whole from the ground is 172 feet, viz., the height of the tower, 74 feet; of the spire, 92 feet; and thence to the top of the weathercock, 6 feet.

Widcombe.—The ancient parish church of Widcombe has undergone restoration, and been reopened by the Bishop of Bath and Wells. The architect employed was Mr. C. E. Davis. In addition to two memorial windows recently put up, a third has been placed in the old staircase to the roof-loft by the builders and carpenters, Messrs. Rogers, and Morgan & Lovell. It bears the inscription "Preach the Word. Be instant in season, and out of season." The ceiling of the tower has been raised 10 feet; but the stained glass west window below it, which is in a good state of preservation, remains as before.

Lordham.—The parish church of Lordham, in Nottinghamshire, and nearly equi-distant between Nottingham and Southwell, has recently undergone extensive restoration and repair, and been re-opened. The roofs and interior had long been in a sadly dilapidated condition: the internal walls were formerly plastered, and the church was disfigured by huge high-backed pews and an unsightly western gallery. The latter have been entirely swept away; and, by a new arrangement of the floor space, in the fitting up of open benches, a large number of persons can be accommodated with sittings. The area of the church has undergone no change. An archway has been opened in the tower below the belfry floor, and decorated tracery has been added to the new clerestory windows. The arches in the chancel have been re-opened, forming a vestry and organ recess on the site of what was once a mortuary chapel, probably belonging to the Lordham and Broughton families. The plastering of the walls has been removed, and the face of the stone dressed and pointed. A new roof has been added to the chancel, and the gable raised in accordance with it, and the nave and aisle roofs restored. A large tomb within the altar rails has been removed by permission of a descendant of the family to whom it belonged, and the floor inlaid with encaustic tiles at the expense of the vicar, the Rev. Mr. Browne. A stained-glass window has been placed on the south side, at the sole cost of Mr. Abbott, junior. The expense of the restoration, according to the *Nottinghamshire Guardian*, will be about 1,500*l.* towards which the late Earl Manvers, the lay proprietor, gave the sum of 700*l.*, the remainder being raised by private subscription among the parishioners. The plans are prepared by Mr. Scott, and the whole work has been executed by Mr. J. Hall, of Nottingham.

Derby.—The new Congregational Church, in Victoria-street, Derby, has been opened. The church and schools together form a parallelogram of 138 feet by 63 feet; the entrance front of the former being on the north side and facing Victoria-street. The schools and library are at the south end, and the approach to them is from Becketwell-lane, next which street the whole building presents a frontage of 140 feet. A tower 69 feet high occupies the north-west angle formed by these two streets, and is surmounted by a slated spire 60 feet high, terminating with a metal cross and vane. Near the south end of the church are transepts projecting east and west. There are galleries in the north-east and west sides of the church with openwork fronts. The dimensions of the building are as follows: church, 75 feet by 50 feet, exclusive of organ recess, corridors, and transepts; school-room, 60 feet by 30 feet; seven class-rooms, averaging 12 feet by 11 feet; and a library, 60 feet by 18 feet. The style is the Gothic of the fourteenth century.

Birmingham.—St. Paul's Church, which has been under repair, has been reopened for Divine service. The interior of the edifice has been improved by the application of some colour in place of the former cold surface of the piers and columns, which have been relieved by contrasting the tints of red and grey granite with Sienna marble, the more ornamental architectural members being picked out in white and gold. It having been found necessary to remove the curtains hanging at the east end of the chancel, it was resolved also to decorate that portion of the building. The ceiling and the wall space behind the cross at the east end have been painted ultramarine, and are

to be studded with gold stars. The other wall space of the chancel is to be decorated with panels formed with ornamental borders, together with the altar tablets, the latter being surmounted with symbols of the Trinity and of the Redeemer. The painted window, by Egginton, which represents the conversion of St. Paul and other incidents in the life of that apostle, has been cleaned.

Bradford.—Alterations and restorations are in progress at St. Peter's Church. Amongst other improvements, it has been resolved to remove the plaster ceiling of the nave and expose the old oak roof. A curious tradition exists as to the ceiling and concealing of this roof. At the vestry meeting (probably in 1724) held to consider the propriety of ceiling the roof, says the *Bradford Observer*, "there was some difference of opinion, and matters ran high. As each ratepayer went into the vestry the question put to him was, 'Are you for God or the Devil?' the promoters of a plaster ceiling being supposed to be for God, the opposites for the Devil!" The churchwardens and chapelwardens of the townships in the parish are said to have sent a written remonstrance to the vicar against enforcing the order in vestry.

Doncaster.—The church of St. John, Chapel-town, has been consecrated by the Archbishop of York. The church stands on an eminence overlooking the Blackburn valley, and cost about 1,700*l.* It is in the decorated Gothic style, from designs by Messrs. Worth & Campsall, of Sheffield, and consists of nave, chancel, and south aisle, with tower and spire at the south-west, forming in their basement story a porch, and is capable of containing 420 persons.

STAINED GLASS.

Gloucester Cathedral.—A memorial window has been erected in the south aisle, to the memory of the late Mrs. Evans, of Highgrove. The design is composed of the vine, which runs through the whole of the window, and the panels for the groups are formed by the stems and tendrils. In the tracery are three groups and two Evangelists, Mr. Bell, of Bristol, was the artist.

St. Michael's Church, Coventry.—A stained-glass window, at the east end of the South Chapel, has been erected in memory of the late Archdeacon Spooner. The subjects are from the Old and New Testament;—in the top row, "Moses delivering the Law," "Moses smiting the Rock," "Passage of the Red Sea," and the "Falling of Manna;" below, "The Nativity" and "Baptism" of Our Lord, "The Woman of Samaria," and "The Supper at Emmaus;" in the tracery, the four Evangelists, with foliage. This is the sixth window placed in this church by Messrs. Heaton & Butler, of London.

Knowsley Church.—Two painted glass windows have been placed in the north and south transepts, recently added, by Mr. Paley, of Lancaster, to the church at Knowsley. The one window represents four of Our Lord's miracles, and the other four parables: these are presented by Lord Derby to the church. The artists were Messrs. Lavers & Barraud, of London.

Ecclesfield Church.—The works of restoration at Ecclesfield Church have been brought to a close for the present, by the erection (in the east window) of a memorial in stained glass, to the memory of the late Mr. B. J. Wake, his relict, Mrs. Wake, and their daughter Harriet. The design and execution of the glass were by Mr. Wailes. The subject is the last scene of "The Atonement on Calvary." The improvements effected by the architect, Mr. M. E. Radfield, in the interior of the church, comprise the restoration of the chancel stalls and screen, the removal of the unsightly organ gallery, and the arrangement of the pulpit and desk. Mr. Arthur Hayball has executed, under the architect's direction, the carving and restoration of the woodwork and roofing of the chancel.

SCHOOL-BUILDING NEWS.

Reading.—The Whitley Schools, which have been erected mainly through efforts in St. Giles's parish, on a spot about mid-way between Reading and Three Mile Cross, are now open. The schools are of flint and stone, with Bath stone dressings, and are in the Gothic style, from a design by Mr. H. Woodyer, of Guildford; and the work has been carried out by Messrs. Wheeler, of Reading. The building comprises a school-room and class-room, and a residence for the schoolmaster and school-mistress is attached.

Weymouth.—The newly-erected middle-school has been opened. It is situated upon the site of the old water-works, according to the *Dorset*

Charniele, and built in the Tudor style, with red bricks, pointed with coal-ash mortar, and Bath stone dressings to the windows. The roof is covered with Bangor and Delabole slates. From the roof rises a turret, by means of which the ventilation is effected, and in which a bell is fixed. The entrance-hall is 27 feet by 12 feet. There is a classroom, 30 feet by 23 feet, and 14 feet high, on one side, accommodating forty-five boys; and on the other a smaller room, 23 feet by 16 feet, having a gallery. The principal school is ascended to by a stone staircase with iron hand-rail, and measures 60 feet by 30, and 24 feet in height, giving space for the tuition of nearly 200 boys. There are four star-light gas-pendants, and, to heat the room, a fire-place at each end, with stone chimney-pieces. Mr. G. R. Crickmay, of Weymouth, was the architect, and the plans have been carried out by Mr. E. Seaman.

FURNESS ABBEY.

LIVERPOOL ARCHITECTURAL SOCIETY.

At the meeting of this Society on the 26th ultimo, when the paper on "The Resources of Design in the Natural Kingdom," printed in our last, was read, a denial was given, from Mr. Ansell, to the statement made at a previous meeting, that Sir Edwin Landseer and Mr. Ansell were in the habit of anointing dogs with bears' grease, for the purpose of polishing them to be painted from! Afterwards Mr. W. H. Pictou read a paper on "Furness Abbey." With reference to its history, he said it was founded in July, 1127, by Stephen Earl of Morton, by whom it was richly endowed, and dedicated to the Virgin Mary. It was occupied by the Benedictine order of monks in the first instance, and subsequently by the Cistercians, an order which flourished exceedingly in England. The wealth of the Abbey was second only to that of Fountains Abbey, in Yorkshire; and in magnitude the establishment was second, of the order, in the kingdom. Few abbeys could boast of more royal protection than that of Furness. The time, came, however, when the fact was revealed that what one king had raised in a spirit of pious zeal, another could destroy; and so, after having flourished for more than 400 years, the monastery was dissolved. The site and the remains of the abbey were commented upon. Unlike other ruins of the same date it is not in a good state of preservation, and this was attributed by Mr. Pictou to the fact that it had been made a quarry of for years, for material for building purposes. The paper concluded thus:—"After all that has been written, and all the researches that have been made, little really is known of these old buildings, and many things must ever remain a mystery. As Sir Thomas Brown says: 'There is no antidote against the opium of time, which temporally considereth all things: our fathers find their graves in our short memories, and sadly tell us how we may be buried in our survivors. Grave-stones tell truth scarce forty years: generations pass while some trees stand; and old families last not three oaks.'"

"The sacred tapers' lights are gone:
Grey moss has clad the altar stone.
The holy image is o'erthrown;
The bell has ceased to toll.
The long-rabb'd aisles are burst and shrunk;
The holy shrines to ruin sunk:
Departed is the pious monk:
God's blessing on his soul."

CONCRETE AT THE LONDON DOCKS.

At a recent meeting of the Royal Scottish Society of Arts, Mr. G. Robertson, C.E., read a paper on the concrete used in the late extension of the London Docks. The paper was a sequel to one read by the author before the Institution of Civil Engineers in April, 1855, on the theory and practice of the hydraulic mortar used on the same works, and gave an elaborate description of the manufacture and the application of the concrete. A general boring of the ground in which the Shadwell New Dock was built showed that a bed of gravel, of an average thickness of twelve feet, extended over the whole area of the works, which furnished the requisite ballast, and made concrete the most economical material which could be used. Almost all the concrete was made with blue lime, brought sun-burnt from Lyme Regis, and burnt on the works in two egg-shaped kilns, holding each about 100 tons of stone. The concrete was applied in the works in four forms, always, however, in the monolithic form. 1st, in foundation, as a means of spreading weight over a large surface; 2nd, as the cheapest method of reaching a good foundation in the good London clay, which was at a level of thirty feet below Trinity high-water mark; 3rd, in the dock walls themselves,

wherever the concrete would not be exposed to the alternate action of wind and water; 4th, in counterports and buttresses, where weight was wanted, but on which nothing was afterwards to be built. The paper showed that the total cost of making a cubic yard of concrete came to 5s. 8d., at the rate of 10d. per bushel of lime, the price arranged in the contract with Messrs. W. Cubitt & Co.

LEEDS MECHANICS' INSTITUTION AND SCHOOL OF ART COMPETITION.

We have received a letter from the author of the design, "Red Cross in a Circle," but can find space for only a portion of it. The writer says:—

"In your report on the exhibition of the designs for the Leeds Mechanics' Institution and School of Art, the favourable mention you give of the design with the monogram, 'Red Cross in a Circle,' of which I am the author, has induced me to protest against the underhand manner in which the committee, or the secretary with or without their sanction, has acted throughout the whole proceedings, but especially at the conclusion of this competition. Mention was made in the conditions that the committee proposed calling in some professional gentleman to assist them in the selection. The Leeds papers have more than once asserted that Mr. Scott was to be so called in; but this, I suppose, was found to be impracticable, or his opinion has been adverse; else we should have heard of it from these papers."

If Mr. Scott has approved of the selected design after having seen the conditions, I, for one, shall be perfectly contented, and shall no longer feel myself an injured competitor. You have, in your report, clearly proved by facts, that the selected design does in more than one point fail to meet the requirements. On the other hand you have asserted that two designs, "Fortress et Fideliter" and my own, very definitely meet the requirements of the conditions, and you so far honour these designs as to assert that the difference of style is, in your opinion, the only test of their respective adaptability for the purpose and of their merits as designs."

With implicit faith in your superior capability of judging, and on the strength of your decision, I beg to be allowed to call the attention of the committee and the notice of certain gentlemen in Leeds, who have subscribed largely to the new institution, and whose positions place them beyond all suspicion of unfair dealing, to the present position of the affair."

W. H. CROSSLAND.

WOMAN'S AID FOR LONDON HOMES.

"Sore pierced by wintry winds,
How many shrink, for the soul's bid
Of cheerless poverty?"—*Thompson's Water.*

SIR,—I have always been an admirer and venerator of research; and much as I deplore the waste of invaluable human life in the Arctic regions, in the hope of recovering our lamented navigators of the Franklin expedition, deep is my cherished remembrance of the self-devotion of Bollet and Kane. Not less worthy, however, of respect and recognition are those who devote their energies to the solution of a far more important problem, in a national point of view, than even the bringing back to their homes gladdening tidings of the long-lost brave. Were it possible to accomplish this victory of humanity, how rejoicingly would all England combine to pay the price; but we dare not hope that any expenditure of money, science, or energy would now be availing. There is, however, a triumph of justice and benevolence yet to be achieved which this country may accomplish, and of which the editor of the *Builder* must be considered the pioneer. It is the rescue of multitudes of our fellow-citizens—men, women, and children—from darker than Arctic regions,—those of ignorance, filth, and demoralization, from companionship more debasing than that of Esquimaux savages, in the miserable haunts of destitution described in the number of your journal for the 29th of December last. All honour to the brave spirits who descended into these, to reveal the social degradation of the unhappy denizens of such localities! All shame to us of the upper regions of society if the revelation be made in vain! The work is not practicable by a few: it must be made the work of all. Taking good counsel for our guide, we would ask, what would be the expense of improving the courts, alleys, and other rookeries described in the *Builder* of last Saturday?—and again, what the probable expense of providing better permanent homes for the families now so wretchedly housed?

I would respectfully suggest that a calculation of this kind should be made, and presented to the readers of the *Builder*; and I would further suggest that the wives and other female connections of the building profession should form themselves into the nucleus of a society for carrying out this plan, in which they would have the best opportunity of obtaining assistance and advice in accomplishing their object, and giving employment to numerous labourers.

For myself, I shall be happy to aid in giving my mite, though no way connected with the architectural classes; and I would also offer my humble services as secretary and collector for the district

in which I reside, if supplied with the needful credentials. It would be an essential preliminary, I should think, to print the statement you have made, for distribution, as a justifiable appeal on behalf of the sufferers, and to found on it a request for the sum necessary.

Such a benefaction would not, I think, be refused, when the importance to the health and decency of the whole metropolis is considered.

S. E. MILES.

THE STAGE AND AMUSEMENTS.

EVERY theatre in London (and there are nineteen open at this moment, without counting "entertainments" and music halls), presents a Christmas piece, the most a pantomime, wherein scenery and mechanism play an important part. The increase in the number of scenic artists of late years is very remarkable. At *Drury Lane* a novelty is introduced in the transformation scene, by Mr. Beverley, the most inventive of the brotherhood. The scene shows the approach of "the flying women of the loadstone island;" and, by means of two large wheels to which the flying women are loosely attached at the shoulders, the effect is produced of an arrival never ending, still beginning. The polychromatic changes on the wings are also very striking and beautiful. The pantomime at the English Opera-house, Covent-garden,—*"Blue Beard, or Harlequin and Freedom in her Island Home,"*—is produced with great elegance and completeness. Messrs. Grievé & Telbin have done the scenery, and have done it well. "Britannia's Marine Retreat," with its iron roof, "Street near Mustaphustina's house," and a "Scene of Desolation," ending in no small change, the "Fairy Fountain," may be pointed to. The pantomimists are excellent. Mr. Harrison's *Operetta*, "The Marriage of Georgeette," increases in attractiveness.—Mr. Buckstone, at the *Haymarket*, has achieved a considerable success, under the title of "Queen Ladybird and her Children, or Harlequin and a house on Fire." Out of the simple nursery rhyme he gets quite sufficient story, and some charming scenery is aided by novel effects of fire and water,—too much water, indeed, for the comfort of the dancers. "An April day in the Country," and "The Honey-suckle Bower," are both charming scenes; but, in the closing scene of the fairy story, the rising of the Ladybird's new house, with its glassy retreats, mother-of-pearl doors, silver fountains, and running streams of water, Mr. Frederick Fenton has produced the best thing he ever did. The harlequinade ends with a sparkling view of the capital at Washington, and a warm compliment to our brethren of the stars and stripes.—For the *Princess's Theatre*, "Robinson Crusoe" has been seized on to introduce a pantomime, and we have a wonderful Man Friday (M. Espinosa), alarming savages, pretty paintings by Mr. Telbin, and dances not merely original, but aboriginal. The "Translation" scene, "The Golden Grotto of Christmas Berries," though quiet as compared with what is sometimes done in our days at this epoch of the piece, is artistic and beautiful. Mr. Fechter, an actor of great merit, is shortly to reappear.—Mr. Alfred Wigan, eschewing clown and pantaloon, has mounted, at the *St. James's Theatre* a classical extravaganza, *"Endymion, or the Naughty Boy who cried for the Moon,"* which agreeably relieves the seriousness of the first piece, "The Isle of St. Tropez." Mr. F. Lloyds has painted the Landscapes to coincide with the author's Views, and Miss M. Taylor, Miss Herbert, Miss St. Casso, Mr. Belmore, Mr. Chas. Young, and Mr. Emery make them resonant with mirth. The ascent of Endymion with Diana is an effective, beautiful climax. The practiced hand of Mrs. Wigan is seen in the getting up of the piece. We spoke of mirth just now. There is none of this in the drama "The Isle of St. Tropez," but there is in the drama a striking story, a telling situation, and some most admirable acting by Mr. Wigan, acting which should be seen by all admirers of the art. Mr. Devar is a promising actor, new to us.

Mr. and Mrs. Charles Kean.—With a warm recollection of the services rendered by Mr. Charles Kean to the stage, as well as those departments which concern an art-paper most as otherwise, we are glad of an opportunity to record the great success of his tour in Ireland, in company with Mrs. Kean. In Dublin and Cork they have been received with genuine and well-deserved plaudits. On Monday last our informant saw them act in *Hamlet*, in Belfast, with their accustomed great excellence.

The *Polytechnic Institution* offers some sound attractions, including brilliant electrical experiments, the illuminated fountain, some good views

of noted parts of Sicily, and a large sectional model of the earth's crust, designed and executed by Mr. John S. Phené, managing director of the Institution. This model is 100 feet in length, with scenery extending from the Arctic regions to the Equator, corresponding with the stratified section beneath. Working mines and sections of the ocean are introduced. The mountains and other elevated portions of the earth, as well as the animals of the respective countries, are brought out in bold relief from the surface of the paintings.

Gallery of Illustration.—Here Mr. and Mrs. German Reed and Mr. John Parry are repeating their very elegant, and, what is even more to the purpose, interesting and amusing entertainment. Mrs. Reed is singing admirably.

WHAT IS A GRIFFIN?

THE Architectural Publication Society gives us one plate, out of six only, in their number of the "Dictionary of Architecture," just issued, filled with sketches of griffins; but, as they have not arrived at the letter G with their text, we are yet left without information as to their nature and use, or the object of illustrating them.

I venture, therefore, to forestall their coming article by an endeavour to realize, from the examples given, some idea of the subject, for those who may be curious about it, humbly owning that my view may be open to correction; which, doubtless, will be made when the scientific treatise we anticipate is forthcoming.

A griffin, then, is an animal "composed," as capitals, are said to be by classic reviewers, when Ionic volutes are struck over Corinthian leaves, like the headgear of an old-clothesman. It is mainly a lion, typifying how brute force can be subjected to man's art. This has been so thoroughly done, that all the limbs and joints of the creature have become swollen as if with rheumatism, the muscles disarranged and puffed up, till all truth of anatomy, as well as sense of power, is gone; and one feels that the poor beast could scarcely move from the position in which its postmaster last placed it. All its moral teeth and nails have been drawn, so its real ones can be harmlessly paraded, yet some cat-like vice would seem to be left, as the example No. 1 (from the frieze of the Temple of Apollo Didymæus, Branchida) is stealthily creeping along, in order to clutch some poor mouse or other, which, fortunately, it looks as if there were little chance of its catching. The specimen No. 2 (from a marble bas-relief, at Rome) has been so completely cowed as to have cheerfully undertaken the office of a flunkie, and has comfortably tucked away its inconvenient tail, together with its dignity, and quietly settled down to act as a torch-bearer, lolling out its tongue with an air of self-satisfied imbecility. Happily for No. 3 (from statue of Caligula, Villa Borghese, Rome), its nature seems to be but slightly sensible of pain, for the tyrant to whom it belonged evidently condemned it to walk upon hot wires, and its fore-paw has been already shrivelled to half the size of the rest; all which it takes but little amiss, and has not even uncurred its tail from the very Roman line of beauty into which it had been bent. The creature is, however, subject to infirmities; for No. 4 shows a specimen of one taken before, and No. 5, of one taken after the application of some infallible barber's restorative. No. 6, also portrays another afflicted with *mal d'estomac*; and No. 7 is a view of a similar patient, licking up from a platter some necessary but nasty compound. Nos. 8 and 9 show the perfectly-trained classic grotesque animal, having lost every trace of its native vigour, and rendered altogether ornamental and helplessly effete and idiotic, ready to stand upon three legs at command, garnished with wings, crumpled as if taken out of a band-box for the occasion; a matter of slight importance, seeing that they never were intended and would be useless for flying with.

Such, then, is a griffin,—a tame, classic monster, freed from all laws of consistency, anatomy, or common sense, and bereft of energy, nerve, and character,—a fit emblem of the ornamental art of the period. Whether these examples have been here given by the Architectural Publication Society for our warning, or for our admiration, we have yet to learn. Let us assume the former, and that they are about to give us a plate of good grotesques to which these are to form a contrast, and of which scores may be found in the rudest Romanesque or Gothic buildings, executed when men felt and believed in, rather than "composed," their art.

JOHN P. SEDDON.

A MODE OF ADULTERATING LINSEED OIL.

HAVING by accident discovered the method now in use for adulterating linseed oil, &c., I beg to forward the following statement, to enable you to expose the rascality of the prevailing system in the pages of your widely-read journal. The manufacturing process of the adulterating medium is extremely simple. Diseased or damaged coconuts are broken and boiled for a considerable period, then allowed to cool, when a thick coating of light frothy (yet colourless) fatty matter forms on the surface of the water; and this, being skimmed off, is applied in its solid state for various purposes; but if again melted it remains liquid. This fact being established, the fraudulent seller was at once in a position to reduce oils inexpensively, and the general complaints of all interested, prove the extent of deterioration. Marine-store dealers, railway grease and candle makers, have been victimized to a great extent; but they, finding the fat in question contained from 15 to 20 per cent. of water, and had no body, have for some months refused to purchase even at the price of greaves, or less than one-half the average market value of "melted stuff." Looking to the real quality of the "best linseed oil," now supplied, the price should be 9d. per gallon (not 3s. 6d.), as proved by several samples procured of old-established and apparently respectable firms, all of which afford conclusive evidence of their being adulterated with the molten fat described to an extent hitherto unheard of or even thought of. It is impossible to conduct a fraudulent business of any character unknown to the principals; and, as the manufacturer and merchant in this case must indistinctly share the profits of their roguery between them, without consideration as to the disgrace and loss sustained by their customers, I beg to recommend the immediate application of the only remedy open (in my opinion) to those interested, viz., analysis and public exposure.

Geo. BIGGS.

THE BLIND.

THE annual meeting of the Society for Improving the Social Position of the Blind, Milton House, Walworth-road, was held recently, at the House, Kensington. The chair was taken by Mr. Frederick Doulton, and afterwards by Mr. William Roupell, M.P. A large and influential assembly was addressed by the following speakers:—Rev. W. Barker, Mr. W. H. Bonner, J. McConnell Hussey, Mr. Kirkman, P. Perry, F. F. Statham, W. P. Tiddy, and others.

The report read showed that the object of the formation of this excellent institution was to act as a general religious and secular mission, undertaking for the blind, irrespective of age, sex, creed, condition, or locality, as such is evidently greatly needed. It organizes systems of regular visitation to the homes of the blind, and provides education, trade employment, and rational amusement for this suffering class; it also supplies hired guides, to enable the blind to attend places of worship, classes, lectures, &c. These are but a few of the numerous and, in many respects, novel features of this Society; and these advantages have been extended more or less to upwards of ninety persons during the first eighteen months of its operations.

Tokens of sympathy and respect were manifested by the various speakers towards Mr. Alexander Mitchell, the hon. secretary, himself blind; and the perusal of an essay, entitled, "The Blind,—their Capabilities, Condition, and Claims," written by the same gentleman, and published on the present occasion, was strongly recommended. A bazaar and concert by the blind took place in the early part of the evening.

BUILDERS' ACTIONS.

CONTRACT OR NO CONTRACT.—*Marks v. Bonner*.—This was an action in the Brighton County Court, to recover 50*l.* for work done by plaintiff, a carpenter and builder, for the defendant, a Jeweller, who paid 11*l.* 6*s.* 8*d.* into Court. The claim was for erecting a glass house at the top of defendant's premises, and the real point to decide was whether the contract for the work had been so far broken by alterations, made in obedience to defendant's orders, as to entitle the plaintiff to charge the whole by "measure and value." It appeared that estimates were given each time for the proposed alterations, and that plaintiff proceeded with the work without intimating that he should charge by measurement. The judge, feeling satisfied that the amount paid into Court was sufficient to cover the balance due upon the estimates given, gave a verdict for defendant.

EMPLOYERS AND EMPLOYED.

TRIGG v. CULLIFORD.—This was a summons charging the defendant with having endeavoured by threats to force James Warner to depart from his hiring. The complainant deposed that he was a builder, residing in London, and was engaged in superintending the erection of certain works for Mr. Sandham, on Hayling Island, Havant. He engaged James Warner to fetch bricks for him from Farham and other places, and the terms agreed upon were 2*s.* 6*d.* per ton. Warner, having failed to fetch the bricks, gave as an excuse that he should have done so, but Mr. Culliford, (the alleged proprietor or joint proprietor of the barge), insisted upon his not going for the bricks. Warner himself deposed much to the same effect.

The Chairman observed that he thought Warner was the party liable. Complainant appeared to have sued the wrong man. Mr. Culliford said that he was sending a great number of bricks to the dockyard at Portsmouth. The barge belonged to John Warner, and he Mr. Culliford, had employed the barge for carrying his bricks to Portsmouth for the past seventeen months.

The Chairman said that Warner ought to have told Mr. Trigg that he could not use the barge without first asking Mr. Culliford. It seemed that Warner made an agreement with the complainant, and having failed to do it, he did not fulfil, and therefore complainant could take out a summons against him. Warner had no business to have made a contract to fetch the bricks in that particular barge without having obtained Mr. Culliford's sanction. According to Warner's own statement, he was liable to be summoned to the County Court for the whole amount of loss sustained by the complainant through his breach of contract.

Mr. Trigg first thought of summoning Warner before the magistrates, but on consideration he said he had determined to take the matter into the County Court.

Books Received.

Buildings for Mechanics' Institutions. London: Published for the Yorkshire Union of Mechanics' Institutes, by Longman, Green, & Co.

THIS pamphlet contains designs (elevations and plans) for institutes in small towns and villages, with a copy of the Act for exempting institutions from local rates, and will be found useful by architects and others. The object of the publication is to promote the erection of buildings for institutes in small places where the difficulty encountered in obtaining convenient plans is considerable. It includes a design by Mr. Isaiah Dixon, for a limited site; the Long Preston Mechanics' Institution, architect, Mr. John Beecroft; a design from Mr. Cuthbert Brodrick, intended for a small town; the Middleborough Mechanics' Institution, Mr. John Dunning, architect; and the Holbeck Institution (a good plan), Mr. E. Milnes, architect. The last has a lecture-room to contain 800 persons, and cost 1,830*l.*, exclusive of the land, which was given.

Miscellaneous.

THE BATH SURVEYORSHIP.—After some further discussion at the adjourned meeting to which the matter was postponed, the surveyor gave in his resignation to the City Act committee.

PROGRESS OF THE HARTLEY INSTITUTION AT SOUTHTAMPTON.—The chief stone of this edifice is to be laid by Lord Palmerston on the 8th instant. It appears that the front block or main building, which was first carried up and remains prepared for the ceremony, is 73 feet long in frontage, and 45 feet wide, and is brought up to the ground-line.

FALL OF IRON ROOF, HAVRE.—At the Entrepôt Dock at Havre, the large inner court is covered in with a glass roof, supported on iron rafters. The iron, having contracted with the frost, became loosened, and the weight of snow which had fallen on it a few nights ago caused it to give way, and the whole came to the ground with a tremendous crash.

PARTIAL DESTRUCTION OF THE PIER AT RYDE. A south-east gale has driven three collier vessels through the pier at Ryde, the largest space left being 150 yards, and the further part of the structure being left like a wooden island. The damage is from 1,000*l.* to 1,600*l.* Temporary bridges are being made. The new pier is safe.

THE ALPINE TUNNEL.—Within the last few weeks, the works of the tunnel through Mont Cenis have been suspended,—some say, owing to want of funds, while others assert that unexpected difficulties of execution have appeared. This latter seems to be the more probable supposition; for the Sardinian Government regard the opening of this tunnel as an event of great international importance, and are not likely to allow the works to languish from want of funds, although doubtless they have a good deal to do at present with their money.

POST-OFFICE LIBRARY.—We have already mentioned the establishment of a library and literary association in connection with the Post-office, and are glad to hear of its successful working. To provide funds for the furniture and fittings of a larger reading-room, the committee, with the sanction of the Postmaster-General, have made arrangements for the delivery of a course of lectures to the members of the association and their friends. Entrance to these lectures will be by tickets, the money paid for which will be applied to the purchase of the furniture. Mr. Anthony Trollope, Mr. Hughes (author of "Tom Brown's School-days," &c.), Mr. G. H. Lewes (author of the "Biographical History of Philosophy," "Seaside Studies," &c.), Mr. George Goswami, Mr. T. A. Trollope (author of the "Girlhood of Catherine de Medici," "A Decade of Italian Women," &c.), Mr. Thomas Hood, Mr. Edmund Yates, Mr. West, and Mr. Scudamore, have consented to take part in the course. The first lecture, "On the Civil Service as a Profession," will be delivered on the 4th inst., by Mr. Anthony Trollope; the second on the 18th inst., "On Good Authors at a Discount," by Mr. Edmund Yates.

COLLIERY EXPLOSIONS.—Reading in the *Builder* about the recent fearful colliery explosions, I think it right to mention that a person of the name of "Debrulle" in this town (Lille) has improved upon the "Davy Lamp," so that a man, if he attempt to open it, extinguishes the light. The lamp has been in use some year or so in Belgium, at Mons, and other places, and no explosions have been known to take place since.—M. G.

THE ART-UNION OF THE LIVERPOOL ACADEMY. The drawing took place, as announced, on Saturday last. The amount subscribed was about 800*l*.

IMPREGNABLE NAVAL ARCHITECTURE.—Mr. Whitworth says he could build a ship impregnable against any guns—a structure perfectly indestructible by firearms; and that the ship could be taken within six miles of a fort, and thence pour into it molten iron at discretion.

PUBLIC WORKS IN INDIA. The Government of India have published an important despatch, enumerating no fewer than 106 public works postponed or retarded for want of funds. An expenditure of more than eight millions is required for these projects, but the means are not forthcoming at present. The Government are desirous of applying to them, out of the 1 per cent. on incomes above 50*l*. a year, a quarter of a million this year, and half a million next year.

NATIONAL PORTRAIT GALLERY. Several new pictures have just been added to this incipient national collection in Great George-street, Westminster, including a portrait of Sir Christopher Wren, one of Kneller's best works, which bears date 1711, and is well known by the engraving published in Allan Cunningham's "Lives of English Painters, Sculptors, and Architects." The colour of the walls of the room has been changed to a deep red. The gallery continues freely open to the public on Wednesdays and Fridays, between the hours of twelve and four: on other days it is strictly closed.

THE TEMPLE FOUNTAIN.—Sir: the only purely Italian design of a fountain to be seen in England, which is not offensive in taste, is that of white marble in the Temple Gardens, which, instead of being made the most of, as it well deserves to be, and having proper accessories, is covered up in great monster trees, and overflows its marble border, instead of having an open space around it, with four vases or statues on the paths which should lead from it. I feel sure, did the benchers think of it, something would be done to open out one of those of which we have so very few, and even they so impure in taste.—SOMERSET.

MUN. DRAINAGE.—The deputation named by the late meeting at Hanover-square has waited on the Home Secretary to urge upon him the need of some strong and large measure being brought in by Ministers to enable majorities in flooded districts to obtain an outfall for their waters in spite of obstinate individual landowners, local Acts "for navigation," &c. We understand that Sir G. C. Lewis expressed his willingness either to introduce or facilitate the passage of a bill founded on Lord Carlisle's Act of several years ago, from which, however, it is to differ in certain important respects, pointed out as its defects by the gentlemen of the deputation.

SHIPS IN ARMOUR: LAUNCH OF THE "WARRIOR." A new era, in naval architecture, appears to be in progress; and, for the next few years, we suppose, a sort of rivalry in speed of manufacture will take place between France and England, as to ships in armour. Surely, however, it is a clumsy principle to keep such ships in perpetual armour, like the man with the iron mask: could not ships be so constructed as to have their plate-armour bolted and dovetailed on their sides when they go to war, or into imminent risk of action, but taken off and laid aside, or not put on at all, under more peaceful auspices? So was it with hosts in armour, and so might it be with ships in armour. The *Warrior*, just launched in the Thames, though constructed for ponderous armour, was not cased in it when launched, and still remains, like the old warrior while at home, "stripped to the buff." Each armour-plate of the new ship is formed of scrap-iron, carefully welded into a slab, about 16 feet long by 4 feet broad, and 4½ inches thick, and weighing about 12 tons. All the plates are dovetailed at the edges to fit into one another; and they are to be bolted through teak and iron into the inner ribs of the ship. The teak is an inner coat of armour, 20 inches thick, of this very dense and tough wood. The total weight of the plates on both sides is 1,000 tons. The "nose" or beak of the ship is one immense slab of iron, 30 feet long, by no less than 10 inches thick, and weighs nearly 20 tons. A few of the armour-plates were in their places when the launch took place. The total weight of the ship, when fully equipped with the armour, will be 9,000 tons, or about the weight of the *Great Eastern's* hull when launched. The tonnage of the *Warrior* is 6,177. The engines are of 1,250 horse power, but there will be room for only six days' coal, or 950 tons.

The sub-structure of the vessel is of course very strongly framed, with iron beams and girders strengthening the timber work. She will have powerful Armstrong guns.

THAMES TUNNEL.—During the Christmas week 35,081 passengers visited the Tunnel, and paid 146*l*. 3*s*. 5*d*.

A PEAL OF BELLS FOR PELSALL.—The new tower of Pelsall Church has been supplied with a peal of five bells, made by Messrs. Warner & Sons. The tenor weighs between 7 and 8 cwt., and the whole peal, according to *The Staffordshire Advertiser*, is remarkable for perfection of casting and for tone. The erection of the tower cost 500*l*, and the bells 27*l*.

NEW FREE SCHOOL FOR CLAYTON WEST.—The *Huddersfield Chronicle* states that Messrs. William Kaye & Son, manufacturers, Clayton West, in conjunction with Mr. William Kaye, jun., of Melbourne, Australia, have just commenced the erection of a new free school and house for schoolmistresses, at Clayton West, which they propose to endow and give to the residents of the township. The entire cost will not be less than 3,000*l*.

IMPROVEMENT OF ROADS IN THE SICILIAN DOMINIONS.—The Director of Public Works at Naples has addressed a circular to the governors of Sicilian provinces, requesting them to send him all the information in their power respecting the roads in the country and those places which are more or less in want of new ones, in order to enable him to form such a general network of roads as will best contribute to the revival of trade and the prosperity of the people.

PILLAGING "THE BUILDER."—A copy of the *New York Builder* was sent to us a few days ago, which contained five complete articles transferred from our pages without the slightest acknowledgment in any one instance. Another American art-paper usually takes two or three, acknowledging one, and appropriating the others without acknowledgment. At home we are similarly treated in a few quarters only. The *London Journal*, for example, systematically transfers whole articles without the slightest acknowledgment; and we could mention others. We are glad to find our matter, often costly though it be, widely reprinted with acknowledgment; but we protest most strongly against such appropriation as that to which we have alluded.

UTILIZING WASTE STEAM.—An invention, the object of which is to utilize the waste steam of steam-engines in such a manner as to economize fuel to a great extent, has been provisionally specified by Mr. F. Datchy, of Paris. He conducts the waste steam from the engine through a pipe that leads to a receiver, enclosed in a water-jacket or casing. On the top of this receiver is a constant shower of cold water, which causes a slight condensation of the steam, which is then withdrawn by means of a pump attached to the engine, which forces it into vertical tubes on each side of the furnace, where it is subjected to the heat of a surrounding cylinder. The effect of this is, that it is forced again into the boiler for further use.

THE HASTINGS COTTAGE IMPROVEMENT SOCIETY.—The seventh half-yearly report of the Hastings Cottage Improvement Society, for the six months ending October 10, 1860, has been issued. From this report it appears that the society has continued to increase and to prosper during the past six months. The number of the society's houses now amounts to about 108, and the number of tenants to about 122. The most important acquisition made by the society during the last half-year has been two houses in East-hill Passage. The possession of these will enable the committee greatly to improve that neighbourhood. During the past half-year the society's total income has increased from 504*l*. 0*s*. 3*d*. to 651*l*. 18*s*. 10*d*.; and the net income from 285*l*. 10*s*. 8*d*. to 389*l*. 5*s*. 11*d*.: the gross rents have increased from 404*l*. 11*s*. 3*d*. to 524*l*. 18*s*. 4*d*.; and the net rents from 281*l*. 14*s*. 8*d*. to 376*l*. 14*s*. 7*d*. The average amount of the gross rents received during the past six half-years has been at the annual rate of 11-3*s*. per cent. on the total outlay; and the net rents have been at the rate of 8-65 per cent.; the outgoings for rates, taxes, insurance, repairs, &c., having been at the rate of 2-73 per cent. All the property has been lately put into thorough repair by the expenditure of capital. During the last six half-years the society's average total income from all sources has been at the annual rate of 12-85 per cent. on the paid-up capital, and the net income has been at the rate of 7-65 per cent.; out of which sum the shareholders have received a dividend of 6*l*. per share, free of income-tax (which is paid on the gross rental by the society); and the remainder has been added to the reserve fund. The total cost of the twelve separate properties possessed by the society has been about 10,400*l*.

"THE LIFE-BEAT JOURNAL."—The quarterly number of this *Journal* has been issued from the Royal National Life-Boat Institution Office, 14, John-street, Adelphi. The price is only 2*d*.; and, besides several articles, on the Education of Seamen and Marine Schools, the value of Barometrical Indication, the loss of the *Arctic*, services for Life-boats, and other official information, it is illustrated by an engraving from a picture of the Life-boat, by a Liverpool artist, Mr. S. Walters. From this periodical, it appears, that 200 persons were saved by the life-boats of the Institution during the past year, and they also went off forty times in reply to signals of distress, and assembled on other occasions in stormy weather both during the day and night. For these services, the total amount paid was 792*l*. On occasions of service and quarterly exercise during the year, the life-boats were manned by upwards of 5,000 persons. All the life-boat services took place in stormy weather, and frequently in the dark hour of the night. The Institution has 108 life-boats under its charge. Much has been done, but much, as the *Journal* truly remarks, yet remains to be done; and it is from the contributions of the many, and the endowments of the humane, that such an establishment must derive its vitality and future-power to keep up its large life-saving fleet. The National Life-Boat Institution has, doubtless, only to be more generally known to be placed upon a more permanent and extended footing.

TENDERS

For the erection of two detached villas at Great Malvern, for Mr. J. B. Hemling, of Worcester; Mr. E. W. Elmslie, architect.

Thompson	£3,000 0 0
Smith	2,500 0 0
McCann & Evans	2,500 0 0
Smart	2,450 0 0
Edwards	2,350 0 0
Holt	2,195 0 0

For alterations at the Crown and Horse-shoe public-house, Holborn-hill—

Stevens	£300 0 0
Wells	342 0 0
Wagstaff & Son	320 0 0
Mart	295 0 0
Fox	210 0 0

For painter's work to be done at Messrs. Barr & Scott's premises, Cannon-street, City; Mr. Henry Jarvis, architect. Quantities supplied—

Knight	£496 0 0
Lawrence	372 0 0
Hem-hav	39 0 0
Fisher	304 0 0
MacLachlan	21 0 0

For building four houses at Gipsy-hill, Norwood, for Mr. White; Mr. Mills, architect. Quantities supplied—

Carter	£2,404 0 0
Penny	2,350 0 0
Garman	2,758 0 0
Seymour	2,785 0 0
Downs	2,787 0 0
Fisher	2,695 0 0
Adamson & Sons (accepted)	2,639 0 0

For the formation of the roads and sewers on the Gordon estate, Stoke Newington; Mr. J. H. Rowley, architect—

	With gravel on the estate.	To purchase gravel.
Garner	£880 0 0	£765 0 0
Ley	507 6 11	
Ellis	495 19 0	£15 10 0
Freddy	457 0 0	455 0 0
Pound	373 0 0	433 0 0
Sharon	350 0 0	400 0 0
Mann	350 0 0	460 0 0
Sacey	336 0 0	340 0 0
Bliton & Clarke	339 14 0	476 13 0
Potter	290 0 0	
Hartland and Bloomfield	273 7 0	390 7 0
Hovatt	250 0 0	325 0 0
Hawkes	238 0 0	
Symes	230 0 0	337 0 0

For a villa at Dulwich, for Mr. F. Donlton; Messrs. Banks & Barry, architects. Quantities supplied by Messrs. Shewick—

	Bath stone extra
Wood & Son	£2,328 0 0
McCloud	2,320 0 0
Ennor	2,210 0 0
Downs (accepted)	2,066 0 0

For the construction of the works and mains of the Southborough Gas Company. The plans and specifications were prepared by Mr. Alfred Penny, engineer, Wenlock Iron Works, London—

	Buildings and Works.	Main Pipes.	Total.
Cutler	1,570	532 3 6	1,092 3 6
Murphy	1,520		1,750 0 0
Perigo	1,320		
Seagar & Gardner	1,321		
Ludlow	1,160	484 2 0	1,644 2 0

Ealing Cemetery.—The "Schedule of Prices" sent in by Messrs. Adamson & Sons, of Turnham-green, for draining and enclosing the Ealing Cemetery has been accepted by the Burial Board.

The Builder.

VOL. XIX.—No. 936.

The French Capital in 1861.

HE new ties of commerce with France, the abolition in favour of Englishmen of the system of passports, and relations between this country and the Continent generally, to be fertilized, it may be hoped, by the Exhibition of 1862, will increase the number of travellers, and should induce, as well as allow, one nation to derive what is good in another, whether that good be of the matter which belongs to our pages, or to any wider range of conception. To the English architect of the present day, truly, the Continent is not unknown; an admixture of Continental features is observable in the designs of most architects: whilst, if it

have become the custom to pay visits of a few months instead of, as formerly, years, facility of communications, and productiveness of the present methods of representation, have given to the recent student having little time or money, much of whatever advantage there may be in an extended field. Photography, however, at best, affords only a valuable memorandum, or, as we may have said heretofore, no more a *substitute* to the eye, for the work of architecture itself, than it affords in the case of sculpture, for a cast or actual statue. There is also a special value in seeing things for ourselves: or, in any case, there is much to be seen, or noted, that is not to be drawn. But, further, there is that expansion of mind coming from observation of the phenomena of difference in the manners of neighbouring races,—and in the discovery of how much the intellect of either is needed by the other to constitute the perfect man,—which might be reflected even in the productions of the architect, and would just now form the best of the results to him from travel. To know the art of a country, it is not sufficient to journey at the present rate of speed, or to bring away the best photographs. Something more than architecture must be inquired into, to see why one nation has the taste for ornament, and another some different impression of what mainly is needed for architectural effect. Enough, as we conceive, has been said to show that the importance of foreign travel is not lessened, and why we may think that an effort, fortified by some previous experience and thought, to gather such information as can be gleaned in the localities themselves, may produce results in our pages of permanent value.

Of the range of the articles that we contemplate, we will at present say little. Whether these can treat of localities at considerable distances apart, and whether they will be numerous, must depend upon many circumstances with which we need not trouble our readers, on the political state of certain countries, and on the assistance which may be given by architects and others abroad. There is one foreign capital, however, where works now in progress extend over so vast an area, and are

planned with so much regard to architectural effect, and still more important objects of street improvement, that we must give to it the whole of our attention in the first instance.

Of the importance of the French capital as a field of study, it would be difficult to give the idea to any architect who happens to have his acquaintance with it yet to make. The multitude of the resources in educational institutions, museums, and books; the beauty of the older buildings, and the admirable manner in which these, and the streets have been planned for the whole effect; and the recent works in the formation of the Boulevard de Sebastopol and the prolongation of the Rue de Rivoli, however, comprise only part of what is now most noticeable by the architect, in Paris. The street improvements in hand, or immediately to be commenced, equal in extent those of the Rue de Rivoli, and the Boulevard. When we say that, including all the scheme, and by the introduction of numerous through-routes of communication, an entirely different character will be given to the plan, or that Paris will be as a new city, we use terms such as are generally taken with a certain discount, but which here express the truth. Quarters are to be opened up which now are reached by a circuit: seven theatres on the Boulevard du Temple, including the Théâtre Lyrique (illustrated in our pages soon after it was built as the Théâtre Montpensier), and probably others, are coming down: a new Théâtre Lyrique and a Circus are being completed on the Place du Châtelet; the Boulevard de Sebastopol is prolonged on the left bank of the Seine to the southern extremity of Paris; and nearly every day there is an announcement by the Prefect of the Seine, of some step taken towards the work of opening out a route, and the erection of new buildings in place of old.

We mentioned last week the announcement of a competition of sketches by architects, for a design for the new Opera-house. The building in the Rue Lepelletier was erected forty years ago only as a temporary structure; and it is, like many of the theatres of Paris, strangely out of character with everything else in the same capital. The new building will stand considerably to the east of the present edifice, or in a space set back from the Boulevard des Capucines, opposite the junction with the latter of the Rue de la Paix. The axis of the new building will not correspond with that of the Rue de la Paix, but with that of a new street, which will run from the junction of the Boulevard and the Rue de la Paix, to the angle of the Théâtre Français near the Palais Royal. The south-western portion of the latter building, which separated the theatre from the Rue St. Honoré, is now removed; and works thus rendered necessary to the palace, are in progress. The subject of the architecture of theatres has been occupying much attention in Paris of late; and amongst the results looked for in the new buildings, will be improved methods of ventilation. On a triangular space of ground on the Boulevard des Capucines, and separated from the Opera-house only by the new Rue de Rouen, will be erected the Hôtel de la Paix, a vast structure similar in its contrivances and advantages to the Hôtel du Louvre. The Opera-house or the Madeleine may be taken to form, as either is very nearly in point of fact, the centre geographically of Paris. Both these buildings are near to one of the principal railway stations, and to other lines of communication with the western suburbs, in which last an extraordinary amount of building is now going on. The site of the Opera-house will also be connected, through a prolongation of the Rue de Lafayette, with the northern Faubourgs. Also from the Opera-house, extends the Rue de Rouen to the Rue du Havre, as the communication with the station in the Rue St. Lazare, just alluded to, which latter street will be widened in prolongation of a new line to pass eastward in front of the church of Notre Dame de Lorette. The opposite western or pro-

longation of the Rue St. Lazare, called Rue Pépinière, and the similar prolongation of the Rue de Rouen, will meet at a point where the Boulevard de Malesherbes, which starts from the front of the Madeleine, will intersect. The Boulevard de Malesherbes will continue north-westerly, and will cut the end of the present Parc de Monceaux, and extend to the Porte d'Asnières of the fortifications. The other line, that starting originally from the Opera-house, will extend from the point of intersection south-westerly, through the Faubourg St. Honoré, to the Rond Point, or area, of the Arc de l'Etoile. From this Rond Point there will be twelve radiating lines. To the north is the Boulevard de l'Etoile, which intersects the Avenue des Ternes, the old external boulevard, and the Boulevard de Neuilly, and joins the Boulevard de Malesherbes at its intersection with the Boulevard of the Chemin de Fer d'Anteuil. To the south is the Boulevard du Roi de Rome. Westward is the Avenue de la Porte Maillot in prolongation of the eastward avenue, Des Champs Elysées. The Boulevard of the Faubourg St. Honoré, already in active progress, and called Boulevard de Beaujon, prolongs north-eastward, the south-westward line of the Avenue de l'Impératrice. In similar manner, the Boulevard de Monceaux prolongs the line of the Avenue de Saint Cloud. The four other lines are only about being commenced. Others in the same quarter, are the Boulevard de l'Alma, joining the Pont de l'Alma with the Avenue des Champs Elysées; and a prolongation of the Avenue d'Antin (the line passing the end of the Palais de l'Industrie, and connecting the Pont des Invalides with the Rond Point of the Champs Elysées) northward across the Boulevard de Beaujon to the Parc de Monceaux. Each of these lines may be prolonged on the southern bank.

But it would require several pages of our journal, and the aid of an accurate plan, such as is not procurable in Paris, to give detailed particulars of the improvements even now commenced. The only plan to which we have had access at the Hôtel de Ville, was not in a state for reference; and all that it showed us was a net-work of new streets contemplated, which would defy present powers of description. A better plan is being made; and there are to be seen in some of the principal open spaces, as at the Madeleine, the Boulevard Montmartre, the Place du Trône, and elsewhere, lofty turrets of timber frame-work, which have been erected for the purpose of the triangulation. The best map, published only last year, by Andrieux-Goujon, omits several new lines towards the commencement of which proceedings have just been taken, and also some of those which we have mentioned. We are able to make out, however, that the new Boulevard Saint Germain, which, on the left bank of the river, is intended to connect the Port aux Vins with the Rue St. Dominique St. Germain (passing the Hôtel de Cluny and crossing the Boulevard de Sebastopol), will be completed in its eastward division, and that it will be prolonged across the river, under the name of the Boulevard de l'Île Louviers to the Place of the Bastille; and that we should have mentioned above, as one of the most important lines on the plan, one passing from the Boulevard des Capucines in face of the Opera, westerly across part of the site of the Théâtre des Vaudevilles, and the Place de la Bourse, and across the Boulevard de Sebastopol, to the new Square of the Temple. The large group of erections called the Halles Centrales, are already connected by subways of most expensive construction, with the Strasbourg railway station north, and with the quays south; and a communication of similar character has been made along the Rue de Rivoli to connect the Tuileries with the Hôtel de Ville. The pacification of the capital under certain eventualities, has had much to do with the street improvements designed, as also with the commanding positions chosen for the barracks, buildings which are certainly the least satisfactory of the recent works in point of art. Progress in the

introduction of subways combined with sewerage is being made in Paris. A considerable amount of widening of streets, and rebuilding of houses, is already in progress north and south of the eastern blocks of the Halles up to the Boulevard de Sebastopol; additions are in progress to the Halles themselves, involving the removal of one substantial edifice but recently erected, and other street improvements are to be made about the western building, or Halle aux Blés.

Opinions are not wanting that the concentration of the *matériel* for the provisioning of Paris in any one quarter, or one which the reader is already aware is not the geographical centre, is a mistake, and that much carting, and cutting back again, might have been saved by the establishment of *entrepôts* at the outskirts of the town, if not in immediate contiguity with the railway stations themselves. This concentration, the characteristic of French authority, makes, however, evils as well as the charms of the capital, and we are inclined to agree with the writers referred to, that the habitual aim of such authority creates some of the evils now complained of as attendant upon the demolitions; and from the imputation for which, the Prefect of the Seine has lately sought to defend himself in an elaborate paper published within the last few days. In that document he shows that, whilst 1,171 houses, containing 7,715 tenements, have been demolished in Paris in 1860, 3,986 houses, containing 22,040 tenements, have been built. A vast increase had already been made in the previous seven years; so that the constructions at the end of 1860 would exceed those of demolitions in the eight years by the number 35,550. Keeping attention, however, to the past year, the gain has been, in 1860, 2,815 houses, or 14,325 tenements. That gain has been manifested in the quarters Montmartre, Batignolles, Ménilmontant, Saint Laurent, and Duttes-Chaumont more especially; whilst in those of the Louvre, the Temple, the Pantheon, and the Elysée, no augmentation has taken place. It needs but little examination of Paris to see that the reverse of augmentation must have happened; and, worse, whoever has occasion to seek a *logement* in such quarters,—say the vicinity of the Muleline,—will find apartments halved and quartered, and dark passages formed by the thinnest of partitions, opposed to all conditions of health, as to English notions of propriety and decency. The worst of the case is, that the expensiveness of tenements seems to extend into new quarters, such as those of the Pantheon, contemporaneously with their connection with the heart of Paris; so that many of those,—we will not speak of the *ouvrier* class,—who think a central situation desirable for their avocations, find themselves subjected to a loss of accommodation or an increase of rent. It is not surprising that discontent should have been loudly expressed. With the *ouvrier* class, comprising as it does so large a number of persons associated with building operations, the pressure of the evil has been mitigated by the employment afforded; though, again, it must not be left out of consideration that these great works have called artisans from the country, thus operating in a manner apprehended by more than one French government when public works, with the object of providing subsistence, have been talked of.

The present dearthness of *logemens* in Paris, which extends to all other requirements, is attributed by the Prefect to extraneous causes, such as the influx of strangers to a city now so well served by railways. It is, however, very well known to us in England, that when buildings of a costly character take the place of others very inferior, the proprietor must exact a larger return in the shape of rent, and that the tendency is in every case for the tenements to be kept empty until by slow degrees the landlord arrives at conviction that he cannot obtain a certain sum for his return, which he had been induced to fix at as high a rate as possible. It is inevitable, therefore that Paris should be passing through a great crisis,

during which opposite opinions are expressed, not so much against the improvements in themselves, as against the manner in which they are conducted, either too hurriedly, or without some provision for the incidence of that difficulty which is otherwise almost inevitable from being unhoused. We understand the Prefect of the Seine to endeavour to show that there is at present a number of *logemens* vacant, quite insufficient to allow liberty of choice; but that the number available for persons of small means is greatly in excess of those lately provided for the rich, and that the *locataires* submit too readily to an increase of price rather than to the inconvenience of removal. He concludes, that for such evil as is real, the only corrective is the energetic pursuance of the work of opening out new quarters, the shortening of distances, and the establishment of the best means of communication, as well as in assuring everywhere facility in the supply of provisions, or, in a word, he thinks, in marching resolutely in the way of the amelioration and transformation of the city. "*Hors delà*," he says, "*tout est illusion et utopie*." We have ourselves too often recommended the improvement of the thoroughfares of London, as essential to the object of providing improved dwellings, to hesitate in our adhesion to great part of what is here argued. The weak point in the Prefect's report, and it is well pointed out by the *Sibele*, is the want of application of one of his own principles to such a case as that of the Halles. The subject, however, is not terminated by the report; the dearthness of the incorporated Baulieu is not referred to; and it appears that there is a fund which can be placed at the disposition of proprietors, towards the object of the erection of workmen's dwellings, of which there has not lately been any account. Some of the dwellings erected in Paris for this class do not seem to be devoted to their original destination.

Treating, however, the Halles as a grand centre of Paris, most important lines of street have been commenced or designed to radiate from them in several directions. There is the street south-easterly to the adjacent Place du Châtelet, and that southward, ultimately to expand into a great place to the Pont Neuf. There is one north-easterly reaching to the angle formed by the Boulevards St. Martin and du Temple at the Château d'Eau, and which intersects other new streets, besides the Boulevard de Sebastopol, in its route. Running north and south past the Halle aux Blés, will be a line in prolongation of the Rue du Louvre (the street which separates the Louvre from the church of St. Germain l'Auxerrois), passing northward across the site of the Post-office to the Rue Montmartre, and southward by a new bridge across the barrage of the Seine, then close between the Palais de l'Institut, and the Hôtel des Monnaies to the Place St. Germain des Prés, whence the line will reach to the station of the Chemin de Fer de l'Ouest, Rive Gauche. Let us add the completion of the great line in the east and north of Paris, connecting the Barrière du Trône with the Strasbourg, and the Northern railway stations, on part of which, the Boulevard de Magenta, the buildings are in active progress,—also the short line from the Hôtel de Ville, by Notre Dame, to a new bridge, a complete remodelling of the district of the schools north of the Pantheon, and the completion of a southern boulevard, or communication between the Pont d'Austerlitz and the Ecole Militaire, and we have not exhausted the account.

In the art element in these works, there is much in which we see with regret, that hurried demand has interfered in details, with the accomplishment of the highest character of design. In the magnitude of the street improvements, however, and their subserviency to the primary objects and to the effect of buildings; in the prevalence of a taste for decoration too general to remain unresponded to, if sometimes exceptionally or with a richness which recoils and reconciles the English artist to his lower pitch, there is

enough in the merely new or the designed improvements and buildings of the French capital to instruct and detain an English architect for weeks or months. In the formation of these new routes, it is not merely the work in demolition of buildings in the town, or the roadmaking and planting in the suburbs, which will be taken into account by the same sort of observer. The London architect sees with amazement the quantity of earthwork which is attacked, and wonders that the prospect of return is such as to induce these exertions to get an easy gradient, or a level. Yet the result is generally successful in increased value of sites, as in the district of which we have chiefly spoken. On the New Boulevard de l'Etoile, ground now stands at 250 francs the square metre, which formerly was of little value.

How is it that, with years of exertion for the amelioration of London, and in no unfavourable position contrasted with France as to our art-knowledge, the progress of our capital is such as to discourage exertions. Whilst, look at the new square before the Conservatoire des Arts et Métiers, in Paris, open to all, and on the route of the new Boulevard,—with its marble balustrades, its elegant candelabra and vases; and note both the same provision, and the appreciation, everywhere in the gardens and public places.

In private houses, costliness of the furniture and *ameublements*, planned or admirably fitted to their positions, is astounding. The love of decoration is everywhere seen; and we find a house in Paris, of which the cost of the small staircase, with Algerian or onyx marble, has been 12,000l. Mere costliness in art should go for nothing; but the instances in Paris showing the love of art, as well as richness of effect, are numerous, and force themselves on the notice.

We pause, not for want of matter, but to resume the inquiry which we have just opened, in another number.

ON THE CHURCHES OF LE PUY EN VELAY, AND OF AUVERGNE.*

In the course of last autumn, after having spent three weeks in climbing Swiss mountains, I was able to devote a few days on my way home to a district which, as far as I had been able to gather from books, appeared to contain a mine of interest for the architect, not less than for the geologist and the lover of natural scenery. From Lyons I went by Monistrol to Le Puy, which was the grand object of my tour; and from thence into Auvergne, and by Issoire, Clermont Ferrand, and Nevers, to Bourges and Paris. I was so much struck by what I saw that, though I am well aware that my visit was too hurried to be at all exhaustive, I think I cannot do better than give you the results of my journey, in the trust that what was full of interest, novelty, and instruction for myself, may be of some use also to others who have not yet been able to make this journey for themselves. The Gothic architecture of Velay and Auvergne is not, it is true, to be compared to the best work in the north of France. I am not, however, going to tell you about it, but about an earlier style, which, as I hope to show, has special value as illustrating, among other things, the way in which French Gothic was developed from Romanesque and Byzantine buildings. And our attention will, therefore, be almost entirely devoted to buildings which are either Romanesque or Romo-Byzantine in their character, or in the period of transition from these styles to First Pointed. The complete Gothic buildings are comparatively few, and have no special value; and I shall probably not have time to refer to them even in the most cursory manner.

The most convenient course will probably be to describe shortly some of the principal features of these buildings; and then, if I have succeeded in giving you an accurate impression of their character, it will be the more easy to enter on some of the very interesting questions which they appear to suggest, and on which I specially desire not to dogmatize; because I trust that there are those among you who will be able to throw much light on any questions which may be suggested; and, if necessary, to correct the conclusions to which I may have come too hastily, or from insufficient

* Read by Mr. G. E. Street, as elsewhere mentioned.

knowledge of discussions which have already taken place.

I will begin with Le Puy.

On the wall you will find some photographs which will show you how eminently picturesque is the site of this ancient capital of Velay. The city is crowded up the side of a volcanic rock, one end of which is crowned by the picturesque mass of its Eastern-looking cathedral. It consists of a network of narrow streets, not passable by carriages, and reminds one forcibly of some such city as Genoa. Above the rock on which the cathedral is perched rises another, called the Cornelle, on which are some old fortifications, and which has just been crowned by a monstrous image of the B.V. Mary, made of the metal of the guns taken at Sébastopol, and to whose charge I think I may fairly lay much of the imperfection of my account of the buildings beneath her feet; for I had the ill luck to arrive at Le Puy only three days before the inauguration of this statue, and I found the whole city so entirely occupied with preparations for the fête, that it was with the greatest difficulty I examined the cathedral at all; and into some portions of it I was quite unable to penetrate; whilst the only condition on which I could obtain rooms at an inn was that I should not stop for more than two days, and should make room for some bishop, prince, or cardinal (of whom there was a legion on the road), before the great fête day. I had to work very hard, therefore, to do as much as I did; and I make no doubt that a more leisurely and uninterrupted examination would have enabled me to discover and do much more.

Separated from the great volcanic rocks I have already mentioned by one or two furlongs only, is the smaller but even more striking rock called the Aiguille de St. Michel, and crowned with a little chapel dedicated to the archangel. It rises in the most abrupt and precipitous manner to a height of about 265 feet. The distant background includes a series of truncated conical hills, evidently ancient volcanoes; and from almost every point of view a landscape of the most picturesque and extensive description is seen. Nor have I often enjoyed a more charming ride than that which, for the last twenty miles into Le Puy, on the road from St. Etienne, made me generally acquainted with the remarkable physical formation of this mountain district, and was in all ways most beautiful; just when, some twelve or fifteen miles before I reached the city, I first saw the "Angelic" church, as it is styled, standing up boldly on its rock, the centre of an almost matchless landscape.

The story of its claim to this style of "Angelic" is this: Bishop Erodus, at the end of the sixth century, on being made first bishop of Le Puy, wished to construct a church. The Virgin, who had before shown to St. George the place where she wished one to be built, appeared to a sick woman on the mount surrounded by a crowd of angels, and desired her to tell Erodus to proceed at once with his work. After much prayer he went to Rome, and the Pope sent back with him an architect and senator named Senteire, under whose auspices the church was soon built, and whose tombstone is still to be seen near the transept-door. Erodus and Senteire then started for Rome again; but, on the way, met two old men, who gave them two boxes of relics, and desired them to return to Le Puy; saying, that as soon as they arrived with the relics before the church the door would open, the bells would ring of themselves, and the whole interior would be bright with torches and candles, and they should hear divine melodies, and smell the sweet perfume of the heavenly oil which had served for the consecration of the church by the angels. Everything happened just as had been foretold, and Erodus felt it unnecessary again to consecrate his church, which from that time to the present day has been called the "Angelic" church. No doubt you all know how curious a parallel to this legend the history of our own abbey of St. Peter at Westminster affords. But, in searching for information about the churches of Auvergne, I came upon a continuation of the Le Puy legend, to which the Westminster story bears no likeness. The legend tells how that, when the "seraphic Basilica" of Le Puy had been thus dedicated, St. Anne descended from heaven to visit the palace of her daughter: content with this human work, she seized the hammer of the master mason, and taking wing descended on the summit of a hill, and turning towards Auvergne, which to her mind offered no church worthy of the queen of heaven, she threw the hammer, saying, as she threw it, "On the place where the hammer falls a church shall rise." The hammer fell on the right bank of the Allier, and immediately there rose from the

soil, like a flower, the church of Les Chases, which was dedicated forthwith to St. Mary. The moral of the legend seems to be, first, that architects are not always wanted, and second, that as it is certain Les Chases was not a Gothic church, it may be argued by any one hard up for an argument against Gothic, that St. Anne and the angels evidently had no sympathy with the style.

Let us now leave legends, and direct our attention to the ground-plan of the cathedral. Its architects have contrived to cover, in an ingenious manner, the whole of the summit of the rock on which it stands. It consists, as you see, of a nave with aisles, transepts, a choir, and choir aisles, and a steeple at the east end of the north choir aisle. To the south of the cathedral is the modern bishop's palace, whilst to the north are the cloisters, two grand halls, and some ruins; and to the north-east a chapel, dedicated to St. John, and other buildings. There are entrances into the east walls of each of the transepts; but these were rather intended, I suppose, for the exit than for the entrance of the people; and the mode in which they were admitted forms one of the most striking features of the whole scheme. I said that the church was built on a rock, and on the western face the slope up to it, forming one of the principal streets of the city, is so steep as to consist alternately of steps and inclines; until, at a short distance in advance of the west front, where it is changed to an almost interminable flight of steps. The grand west entrance is an open porch, like an enormous crypt, beneath the three western bays of the nave and its aisles. The steps formerly rose in a straight line until they came up in the very centre of the church in the fifth bay of the nave, and in front of the roof-loft and of the miracle-working image of the Virgin, which, brought from the East and given to the church by St. Louis, was, until its destruction in A.D. 1789, the greatest attraction for pilgrims in France.* This singular entrance, and the mode of exit by the eastern doors of the transepts, gave rise to an old saying, that "in Notre Dame du Puy one entered by the navel and went out by the ears."! Unfortunately, however, the central entrance has been diverted; and, after ascending 102 steps and arriving at the Golden Gate, as it was called, the passage branches right and left; to the left ascending into the cloister, and to the right winding round the south side of the church, until the 135th step lands the weary pilgrim in the south aisle, near the transept. This, then, is the general scheme of this most singular church. Let me now go on to describe it in detail, beginning with the oldest portion. This I have marked on my plan by the brown tint, and it comprises the choir, the transepts, and a "crossing," and the two easternmost bays of the nave. The choir is completely modernized, and I am unable to say whether any portion of the internal arrangement is old. You will observe that it presents the peculiarity of a square exterior and a circular interior. This is a not uncommon arrangement in the earliest Italian examples of the apse, as at St. Mark's, Venice, and elsewhere. The arches opening into the choir aisles are old, and I believe that we may venture to say that the original plan must have been very nearly the same as that of the church of St. Martin at Lyons, in which the choir aisles are shorter than the choir, and all are terminated with apses.

I shall have other occasion to point out that, at a later date, the architects of St. Martin's and of Le Puy must have been the same. The date of the foundation of the first is some time in the ninth century, and it was carried on until the end of the eleventh century; but the apse and capitals of the columns of the crossing (for the columns themselves are Roman) cannot, I think, be later than about A.D. 950 to A.D. 1000, which latter would, I think, be the date generally accepted for this portion of the work at Le Puy. To proceed with my notice. The crossing is surmounted by a quasi dome, carried up as an octagonal lantern, much of which has been modernized in restorations, and much is quite new, though the universality of the raised central lantern in the churches of the district makes it probable that it is to some extent a proper restoration.† The transepts are covered with barrel vaults, with transverse ribs of a square section below them: the small apses in their end walls have semi-domes, and the tribunes which cross them are

groined with quadripartite vaults without ribs. The whole of the nave is covered in the same way as the crossing, each bay being divided from the next by bold transverse arches, and having a quasi dome supported by arches across the angles of each compartment; and all of them, in truth, being, not domes, but eight-sided pointed vaults, springing from the octagonal bases thus contrived. There are no pendentives, properly so called; and the construction is, I should say, that of men who desired to erect domes, but had no knowledge whatever of the way in which they were constructed in the East. Or, to take a more favourable and perhaps juster view, of men who, desiring to give a small building the greatest possible effect of space, to roof it with stone, not knowing anything yet about flying buttresses, and to light it from a clerestory, actually solved all these points in a successful way. Where this kind of roof was first attempted I am quite unable to say: certainly the central lantern at Auray is so identical in character with some of those at Le Puy, that the same workmen must have executed both; but, looking to the fact that there seems to be no other example in the same district, whereas at Le Puy everything was more or less roofed on the same principle, I think we may safely say that it was there first used. The second portion of the cathedral at Le Puy consisted of the third and fourth bays of the nave, and the third portion of the fifth and sixth bays. In my plan I have coloured the earliest work brown (date, from 980 to 1030); the next grey (1030 to 1100); the next red (1100 to 1200); and the later works blue. Portions of the building added since the sixteenth century are coloured light blue. The division of the building into work done at various epochs is beyond question, though there may be much question as to the dates I assign. The latest portion is of Early Pointed character, and not later in date than circa A.D. 1180 to 1200; and it was at the same time that this was erected that the greater part of the enormous substructure forming the porch was also undertaken. The aisle throughout the church are vaulted with quadripartite vaults, the three western bays alone having ribs. In the two western bays we see engaged shafts, both in the front and abacus in the nave; but the rest of the piers are of the simple plan, large and cruciform in their section, save at the crossing, where the arches are carried on coupled or detached shafts. There is much elaborate sculpture introduced in the capitals of the pilasters and columns of the nave, but it is nowhere of any very high merit, and so inferior in delicacy and beauty to the sculpture of the same age to be seen on the banks of the Rhone, that I should attribute it to a native school of sculptors acquainted probably with none but inferior Roman sculpture, from which they endeavoured to develop a style for themselves. A clerestory of wide and rude round-headed windows, one in each compartment, lights the surfaces of the domes in a very effective manner. The arches across the nave are very bold, and above them an opening is pierced under each of the cupolas. As is generally the case, however, in churches covered in this way, very little is seen of the real vault in any general view of the church; these transverse arches, with the quasi pendentives above them, only being seen. These pendentives are true semi-domes, constructed in alternate courses of dark and light stone, and the difference between their plan and the square angle on which they are placed is skillfully concealed by detached shafts with capitals placed under them. I think you will agree with me, when you examine my sketch of this interior, that, considering its early date (no part probably later than circa A.D. 1150 or 1180), it would be difficult to find a grander or more nervous scheme, or one which, with such small dimensions, conveys nevertheless so great an impression of size and importance.

The choir aisles were altered at various times. That on the south has been rebuilt in Second-Pointed of poor character, and is now a mere passage-way to the modern sacristy; and that on the north was probably interfered with not very long after its first construction, when the great steeple, which now abuts upon it, was commenced. M. Mérimée,* in his very interesting description of the church, suggests that the base of the tower was originally a baptistery; but I see no reason whatever for this suggestion; and it is impossible to doubt, when one carefully examines the whole design, that, though the steeple was long in building, the main feature in its design was from the first just what we now see it to be. Moreover, the chapel of St. Jean, close by, is said to have

* As evidence of the popularity of Notre Dame du Puy this may suffice. In Amiens cathedral, until A.D. 1230, there existed a series of pictures given by the Confrérie of Notre Dame du Puy. A similar confrérie existed at Limoges.

† At present the interior of the lantern is covered with a domical roof; but an illustration in the "Dictionnaire Encyclopédique" shows it finished with a low-pitched tiled roof, and without any of the inland mosaic which is now seen on it.

been the baptistery for the whole city until within the last sixty years. You will see from my elevations that the design is very bizarre and unusual. It consists of a long series, of no less than nine stages on the exterior, and it diminishes rapidly in diameter, and, perhaps, on the whole, more curious than plesing. If you look at the ground-plan, you will see that its construction is most remarkable. The internal diameter of the tower at the base is 24 feet 6 inches; but this is reduced to only 12 feet by four detached piers, 1 foot 10 inches square. These piers are carried up from the base to the very summit, detached in the three lower stages, and forming part of the thickness of the wall in the portion above. The highest stage of the steeple, 12 feet in internal, and 16 feet in external, diameter, is therefore as nearly as possible carried upon these four piers; and the rapid decrease in the external dimensions, from 36 feet to 16 feet, was only rendered possible by this very ingenious mode of construction. So far as I know, there is only one other example of the same scheme, namely, in the steeple of the cathedral of St. Etienne, at Limoges. Here, however, the base is the only portion remaining of the original work, and the columns are cylindrical in place of being square; but it is evident, that the intention was the same as at Le Puy. The steeple at Limoges is probably the first in point of date. M. Viollet-le-Duc dates it at about A.D. 1050; but the Abbé Arbellot, in a learned paper on the cathedral in the "Bulletin of the Société Archéologique du Limousin," maintains that it was certainly built before A.D. 1012, where the Bishop Arnaud de Périgueux, after assisting at the consecration of Bishop Gerald, at Poitiers, accompanied him to Limoges, and put the cords of the bells into his hands. The lower part of the steeple at Le Puy, may, I think, safely be referred to the end of the eleventh century, and its completion to the end of the twelfth century, whilst the planning appears to me to be thoroughly characteristic of a Byzantine artist, the construction of the piers being almost identical with that of the main piers under the domes at St. Mark's, Venice, and St. Front's, Périgueux.

The arrangement of the belfry stage, with its gable on each face, is very noteworthy, and is, perhaps, one of the earliest examples of a type which was developed afterwards into the well-known arrangement of the belfry of the southwest tower at Chartres; and this combined with the influence of the churches of the Rhine into almost all subsequent modifications of the spire, with its gabled spire lights. One of the windows under this pediment is planned in a most ingenious manner, presenting externally a semi-dome pierced by two pointed arches. Another window is pierced with a trefoil head, the diameter of which is much larger than that of the light it surmounts. This is a favourite form of cusping throughout this district, and I have collected on one sheet several examples of it. I have seen it in Lyons, at Vienne, often at Le Puy, at Brioude, at Notre Dame du Port, Clermont, and in the south porch at Bangor, and there can, I think, be little doubt that it is somewhat Eastern in its origin, and analogous to the horseshoe form of arch.

The cloister on the north side of the church appears to be in part co-eval with the earliest, or, perhaps, the second portion of the fabric, and in part with the later additions to it.* It consists of a simple arcade of round arches, on rather solid piers, with a detached shaft on each face. The capitals are all richly sculptured, some with figures, some with foliage, and I have here illustrations of some of the latter. The spandrels of the arches are filled in with a reticulation of coloured stones: above the arches runs a band of similar ornament, and above this again a carved cornice, which in the later part of the cloister forms a sort of frieze. In this portion the arches have sculptured key-stones, a peculiarity which I hardly remember to have met with before in work of the same date. On the south side there is one spiral and two fluted shafts: all the rest are circular, but noticeable for their very considerable entasis. The groining is all quadripartite, without ribs, and executed with rough stones set in concrete, on a centering of boards. The cloister was, as you see, surrounded on all sides by buildings. On the south is the cathedral. On the east, and opening to the cloister by an arcade of open arches, is a large hall, with a pointed barrel vault. This was originally called the choir of St. Andrew, and in it masses in commemoration of the dead were said,

and services held on the feasts of the Invention and Exaltation of the Cross, and on the feasts of St. Andrew and Eustachius. It was also called Cimetarium, being used for the burials of the clergy, and is now called the chapel "des Morts." On the end wall are still to be seen remains of a painting of the Crucifixion, with many prophets and angels, St. Mary and St. John, the sun and moon, &c. In the northern gable of this building is a fine cylindrical chimney, built in alternate courses of dark and light stone, and of the same date as the hall. M. Viollet-le-Duc gives a drawing of the fire-place, which is of a not unusual early type, the head projecting considerably on a semi-circular plan. At the north end of the Salle is a passage leading to the cloister, and there along the whole northern boundary once stood a vast range of buildings called the Maitrise. Nothing now remains of this save its undercroft, which was spanned by bold pointed arches of stone, on which the wooden floor rested. The Maitrise was pulled down a few years since; and, not long before, I find that a tower close by it, called the Tour de St. Mayol, was also destroyed.* It seems to have served as part of the fortification of the church, which was also attached to in an alteration of the building on the east side of the cloister in the fourteenth century. This building contained, below, a hall, on a level with the church, which was the chapel of the holy relics: above was the Salle des Etats du Velay, and my sketch of the interior shows both these in their present state thrown into one room. Above these again was an open space under the roof, protected on the side towards the town by a magnificent overhanging battlement and machicolation of the fourteenth century, and quite open on the side towards the cloister, save for the stone pieces supporting the roof. My drawing shows the peculiar arrangement of the machicolis, which are some of the finest I have ever seen, and project from the buttresses as well as from the walls. The only access to this stage of the building seems to have been from the roof of the cathedral.† Le Puy was in the first instance selected as a site for the cathedral because it afforded so secure a refuge from attack; and in later days it seems to have been no less necessary to provide against danger; for among other enemies the lords of Polignac, a magnificent castle visible from the steeple of the cathedral, and only some five miles distant, were the most conspicuous, as they were also the most powerful. M. Viollet-le-Duc supposes, indeed, that the tower of the cathedral was meant in part for defence; but I see no evidence of this, and possibly he had in his mind the destroyed tower of St. Mayol, which, as well as the double wall of *enceinte* which formerly surrounded the whole cathedral, was no doubt a purely military construction. Fortified churches are by no means uncommon in this part of France. At Brioude is a painting showing the church entirely surrounded by a crenellated and turreted wall in 1636; and Froyat, near Clermont, and the abbey church of Menat, also in Auvergne, still retain provisions for defence. The Salle des Etats contained formerly the archives of Velay, and in removing them a few years since (about 1850) portions of a hanging of blue wool *semé* with *heurs-de-lys*, and adorned with the armorial bearings of Jean de Bourbon, Bishop of Le Puy, from A.D. 1443 to A.D. 1485, were found. At the same time a curious painting on the east wall of the lower chamber was discovered under the whitewash. It represents four liberal sciences—Grammar, Logic, Rhetoric, and Music—as females, seated, with ancient worthies at their feet. Ptolemy sits below Grammar, writing, and two boys with open books on her other side. Logic holds a lizard in one hand and a scorpion in the other, and Aristotle is arguing below: "the inscription below is 'Me sine doctores frustra colere sorores,' and each figure has a corresponding leonine verse inscribed below. Rhetoric holds a file in her left hand, and Cicero sits at her feet. Music plays upon an organ; whilst Tübal, with two hammers, plays upon an anvil.

There used, according to the "Chronique de Médis," to be a second painting here, with figures of young demoiselles gorgeously clothed; and from the same chronicle it appears that Messire Pierre Odin, official of the Bishop Jean de Bourbon, who died in 1502, presented both. "Il était si grant orateur que par son mellifère et suavituel langage, fust commis plusieurs fois estre ambassadeur devers le Pape à la requeste de très excellent et

redouté prince Louis Onze, roy de France, lequel du dict Pape obtint grande louange et avoit, ce que il employa en divers facons et moyens en aulmoines, et à la décoration de ceste sainte église du Puy." The picture has very considerable merit. Its detail is a mixture of Renaissance and Gothic; and the Gothic portion, as, for instance, the chair on which one of the figures sits, is not Italian; and I should be inclined to suppose that it was the work, therefore, of a French artist.

The external side elevation of the church is best seen from the cloister; and, with a few words upon this, we will leave this portion of the building. Here, even more clearly than inside, the division of the building into work of different epochs is seen. The two bays nearest the coping have large coupled windows in the aisle; with particoloured voussours and saints' shafts. The clerestory is very peculiar in its treatment, and, undoubtedly, very effective: the windows are of one light in each bay and round-headed, and on each side of them above the springing there is a recess in the wall, in the centre of which a detached shaft is placed to carry the cornice. A similar recess and a smaller shaft occur immediately over the arch of the windows, and the window arch being built of alternately dark and light stone, and all the panels being filled in with geometrical patterns composed in the same way, an extremely rich effect is obtained. Recesses of the same kind in the upper part of the walls occur all along the eastern face of the transept at Le Puy, and between the clerestory windows of Notre Dame du Port, Clermont, St. Paul, Issoire, and commonly in Auvergne.

But, as far as I can judge from the portion of the cathedral in which it occurs, and from the early and simple character of the work itself, I am inclined to believe that it is earlier here than in any of the other examples. It would be of great interest to have some more positive evidence on this and other similar questions of date. But, so far as I have been able to discover, there is no such evidence, and we are left in doubt, therefore, whether the architecture of Velay came from Auvergne, or whether the reverse was the case; as also whether this external decoration of the fabric is coeval with its first erection or is a subsequent addition. The two central compartments of the nave have circular windows (16 feet in diameter) to light the aisle and round-headed windows in the clerestory; and between the arches of the windows are small arched recesses. In the two western bays the clerestory is similar, save that the intermediate sunk arch is omitted. In both the voussours are counter-changed, and the wall from the springing up to the eaves coursed. The transept gables are only noticeable for the course of inlaid patterns with which they are enriched. All these patterns are formed with white stone and lava: the latter, indeed, forms the whole ground of the walls, and varies in colour from a greenish grey to black, and the patterns are formed with the darkest lava and stone. The cloister is similarly inlaid above the arches, but it has almost all been restored in a most injudicious manner. They have *struck and ruled* (I believe that is the technical phrase for one of the most abominable of inventions, is it not?) an enormous red mortar joint between all the stones; and, wherever this has been done, the diaper appears to be formed with a chequer of black and red. Wherever the cloister has not been retouched, the diaper is black and white.

I have left almost until the last that which is, after all, the crowning wonder of this singular church—the western porch. I have already referred to its position and plan. The majesty, I may say the awfulness, of this entrance can hardly be exaggerated. It owes little to delicate detail or enrichment of any kind; for, though these have been, they are no longer; and it is the gloom and darkness, the simple nervous form of arch and pier, the long flight of steps led in obscurity, and crowded constantly (when I saw them), with a throng of worshippers, which constitute the strange charm of this strangest of entrances. I told you that in the nave the two western bays of the aisle alone had groining ribs: in the porch below it is only in the western bay that they are used, and this affords interesting evidence of the very gradual yet regular development of our art. The spaces below the aisles, in the third bay from the west, form chapels, that on the right dedicated to St. Martin, and that on the left to St. Giles. Before the last extension of the building, you will observe, that these chapels

* M. Viollet-le-Duc considers the earliest part of the cloister to date from the tenth century; M. Mérimé thinks the eleventh century more likely.

* It was standing in A.D. 1839, but I have been unable to find any drawing of it: it is described as an erection of the eleventh century, battlemented, but without machicolis.

† Mérimé, Voyage en Auvergne, p. 232.

* M. Malley, of Clermont, says that the mosaic work of the church of Notre Dame du Port, Clermont, was all set in red mortar.

were at the extreme west end. They have western doorways, and these still retain the wooden doors. Each of these doors was of four divisions in height; and, as you will see from the drawing which I exhibit, covered with subjects carved in low relief. They are executed either in cedar or deal (I am uncertain which, for they are covered with paint), and the subjects, inscriptions, and borders are all obtained simply by sinking the ground 3-16ths of an inch. The figures are all, of course, only in outline, but it is still evident that they were carefully painted with draperies, &c., so as to be thoroughly distinct. There is some appearance of the ground having been painted with broad horizontal bands of colour, but the traces are so indistinct that it is difficult to speak positively. The doors are hung folding, and those to the chapel of St. Giles contain subjects from the early life of our Lord, whilst those in the chapel of St. Martin contain subjects from His Passion. The meeting rail in the former fortunately contains an inscription of extreme value:—"Gaulfredus: me FCIT: PETRUS EPI," after which some letters are lost. If my reading of the last letter but one as P is correct, I think it leads to a most important inference. No one who looks at the design of these gates can doubt that they are thoroughly Eastern in their character: and upon searching for the list of bishops of Le Puy since my return, I was delighted to find that the first bishop of the name of Peter was consecrated at Ravenna by Leo IX. in A.D. 1043, and died at Genoa A.D. 1053, as he returned from the Holy Land. Gates of the same description are said to exist in the churches of Chamalères, and of Lavoute-Chilhac,* in the same district; whilst other evidence of intercourse with the East is afforded by fragments of tissues preserved at Moneslier, at Pébrac, and at Lavoute-Chilhac. These tissues are all extremely Eastern in their character, and very similar to the famous cope at Chimon, and to the Le Mun tissue, both of which are described by M. du Cammont in the "Abécédair" and in the "Bulletin Monumental" for 1846, p. 564. The date ordinarily attributed to these tissues is the middle of the eleventh century, and this would exactly tally with the return of Bishop Peter from the Holy Land. I dwell on this the more because, if the inference I have drawn from the inscription be true, it gives the date also to the second portion of the construction of the cathedral, to which the chapels in the porch undoubtedly belong; and the result would be that whilst we should date the earliest portion of the church at about the end of the tenth, or quite the commencement of the eleventh, century, the second portion would be dated at about A.D. 1050; and finally, there is little doubt as to the whole having been completed in the course of the twelfth century.† These dates are, as in all such cases, of course only approximate, and it is pretty clear that there was seldom any long pause in the works, and the development in their architectural features is therefore very gradual.‡

THE CONDITION OF LEEDS.

OUR article on Leeds has made a very considerable stir; and, as might be expected, has brought down some denials. Some people will cry out when you throw salt at them. The *Leeds Times*, while on the one hand it admits the gravest of our statements,—that there are groups of houses "constructed upon unsanitary principles," that it would require "a sanitary Hercules" to restore the Aire or Lady Beck to its original purity, that the drainage has been neglected for two years, that some of the streets are only superficially drained, because owners are not forced to connect their drains with the main sewers,—on the other hand says we have been tilting "at shadows and windmills." In one sentence he admits, that "the surface of some of the streets is offensive from the garbage which cannot pass through the grates;" and in the next says we talk "utter nonsense" when we affirm that some of the streets are so disagreeable that persons accustomed to pure air cannot remain in them even for a short time without becoming sick. What can be said to those who will write thus? The *Leeds Times* will best maintain its own excellent character, by aiding us in inducing such steps as may improve the condition of the town, and get rid of evils, and supply deficiencies, of the existence of which the editor of the *Leeds Times* knows as well as we do.

* The predecessor in the See, Stephen II., and uncle of Bishop Peter I., was buried at Lavoute-Chilhac.
† A "Diploma" of A.D. 1146, is dated from the Ville d'Anis, and fixes the date at which this "cité" received the name of "Ville."
‡ To be continued.

MIDDENS AND MORTALITY IN SALFORD.

THE same story again! Admissions and contradictions which amount to this, that what the *Builder* says is perfectly true, only the *Builder* is very wrong in saying it, and we don't like it, and must contradict it somehow. The *Salford Weekly News* says that our correspondent, T. J., has been "misleading" us "slightly regarding the facts on which the *Builder* seeks to build a sanitary argument," and then goes on to show that he has not misled us at all.

The pith of our statement was to the effect that there are districts in Salford where a pestilential air predominates, and which give an average (per annum, we conclude) of 47 deaths in 1,000. Then thus the *Salford News*,—

"The allusion here is to the mortality in Clemenston-street and Arlington-street districts. The *Builder* is quite right as to the predominance in this quarter of a 'pestilential air,' and as to an average mortality of 47 in the 1,000; but he is quite wrong (misled by his correspondent) as to the influence in producing these results of the cesspool and the 'passage' called an entry running in the rows of what are called back-to-back houses, with no passage running between the rows. Why, the very thing complained of by members of the town council, when the mortality of these districts was under discussion, was that, generally speaking, the excessive mortality was in the rows of what are called back-to-back houses, with no passage running between the rows. To the want of this passage more than one member actually attributed the unwholesome air which prevails in the neighbourhood, and much of the excessive mortality. The *Manchester Guardian* gives the *Builder's* statement without note or comment. Being on the spot, the editor is less to be excused than the London journal. By all means let us condemn the cesspool system, but do not let us attribute to the 'passage running between the rows' what those who know the locality from personal inspection declare emphatically to be owing, in part, at least, to the fact that there is no such passage."

Who did attribute it to "the passage?" not we; nor our correspondent either; and we are glad to find that the *Manchester Guardian* sees that; although the *Salford News* has been induced to speak differently. The "passage" was merely mentioned as part of the arrangement in connection with the middens, and is not pointed to as the cause of the admitted "pestilential air;" none other than these pestiferous and brutal middens being necessary to account for it.

In a succeeding issue of the *News*, Mr. Pickering, the sanitary inspector of Salford, writes a letter, which would admit of a comment or two, not very complimentary. We pass it by, however, for the present. Our original correspondent on the subject thus writes again:—"The sanitary inspector of Salford has written a letter, by order of his employers, to show how erroneous my description of the 'middens' is (Mr. P. will not allow them to be called 'cesspools'). The 'midden' I took for my exemplar measures 8 feet 6 inches long, 3 feet wide, and about 3 feet deep, with an inclosed privy over each end. That there are worse contrived places in Salford I freely admit; for, in the short walk I took through Arlington-street, I found 'places' provided for streets full of people that perfectly horrified me, from their want of everything usually thought requisite."

It is greatly to be hoped that the intelligent inhabitants of Salford will set themselves to learn thoroughly the evils that exist, with a view to an immediate removal of them; encouraging, not finding fault, with those who would aid them in the inquiry.

ARCHITECTURAL PHOTOGRAPHIC SOCIETY.

THIS Society's Exhibition in the gallery, Conduit-street, will be opened next week, and will comprise four or five hundred works, many of them made expressly for the society, and of great beauty. Messrs. Bisson, Brothers, send the largest collection and the finest, including pictures of the west front of Rheims Cathedral, the west doorways of Rouen Cathedral, the churches of Poitiers and Angoulême, the door of Bourges Cathedral, and many others. We are disposed to regard the northern of the three Rouen doorways as the finest photograph we ever saw. Messrs. Candall and Downes illustrate English churches. Mr. Frith has sent a remarkable collection of Egyptian capitals and views of places not heretofore illustrated; and Messrs. Thorn and Thornthwaite send pictures of Indian antiquities, made by the wax-paper process. Mr. Fenton's works are less striking than usual; Mr. Bedford's quite up to the mark. A series by him of the carvings and details in St. Paul's Cathedral, a view of the excavations at Wroxeter, and two of St. Mary Redcliff, Bristol, may be especially mentioned. Mr. Austin, of Canterbury, sends a number of views of the interior of the cathedral there, which are very admirable. We advise our readers to send their names to Mr. Lightly as subscribers. Lectures will

be delivered during the season by Mr. Fergusson, Mr. Seddon, Mr. P. Anson, Mr. Lamb, and others, illustrating various groups of the photographs.

ARCHITECTURAL EXAMINATION QUESTION.

ON Monday next the Royal Institute of British Architects will meet to consider further this question. They have already resolved that it is desirable to afford the means for an architectural examination; and on Monday they will probably settle whether the examination shall be open to all members of the profession or be confined in the first instance to the "present associates and future fellows and associates of the Institute." Very good reasons might be given for adopting the latter course in the first instance, but we are disposed to hope that the Institute will at once throw open the opportunity of examination to all, under some necessary conditions. Our readers do not require to be told that we have no desire to see the practice of architecture closed to all but those holding the diploma of certain individuals. But we have a desire to see a proper course of study marked out for those who propose to devote themselves to the profession, and made necessary by the force of public opinion. We view the steps proposed to be taken by the Institute as having this for its chief object,—as an educational measure mainly; and, as such, it has our warm support.

GLEANINGS FROM THE CATHEDRAL AT COLOGNE.*

"Ich leg euch, Thörn, in Zamberlande!"

IS none of the building records of the cathedral at Cologne do we find the names of the architects. The original designer remains unknown. Some archaeologists attribute the conception to Albertus Magnus (1193 to 1280). Of him we know that for a time he was Bishop of Regensburg, which avocation he gave up in 1262, and retired to Cologne. He is reported to have built the cathedral at Regensburg, also the choir to the Dominican Church at Freiburg, and at Cologne. He may have been the builder or promoter of these structures, but it is only supposition that he was the designer.

Others attribute the design to the master mason, Gerhard, of whom we read in the earliest records that he was presented, in 1257, with a plot of ground by the cathedral chapter, in consideration of the valuable services which he rendered in the direction of the entire building. The idea that the structure was or is the design of various ages must be entirely dismissed, for the still existing record of the proceedings, upon the occasion when the foundation stone was laid, tells us that the bishop with his suite walked in procession three times round the entirely staked out building, and the workmen had marked the main pillars of the body, by placing burning candles in the form of crosses. Again, if we compare the colossal portions of the choir, with those of the body, we draw the conclusion that the entire structure had but one designer.

If it were the design of various epochs, we ought to be able to discern, as in similar buildings, the development and changes of the times. We certainly can trace various epochs in the execution of the different masses, but the unity of the design appears to be of one conception.

The choir was the first portion begun of the cathedral, and it was continued with until 1258, when civil war interrupted its progress until 1297, when it was again proceeded with, finished and consecrated on the 27th of September, 1320. From that time the choir received its decorative finish, and great efforts were displayed on the southern tower. Many misfortunes happened hereafter to the building, the main feature of which was, perhaps, the misuse and detention of the collected money for the building.

A storm, in October, 1484, took the lead off the roof, and the latter material knocked down one of the highest buttresses on the east side, which, in its fall, broke through the vaults of the choir nave: the same has been re-erected.

In the meantime the southern tower was so far advanced, that in 1497 the bells could be hung up in the same. Then followed a panic which stopped the progress, and the tower was covered with a temporary roof upon which we see the crane-hoist. This feature is still admired as the main sign of Cologne.

Then came the deplorable event which history records, that art had sunk so deep, that in the

* From a paper read before the Liverpool Architectural Society, on the 9th inst., by Mr. Jos. Justen.

year 1620, stone carvers had to be brought from other places to repair some of the structures in the town.

About this time the stone, which had been used in the construction of the cathedral, showed itself to be of a decaying character. The same was taken from the *Dachstuhl*, and contains numerous pieces of felspar, which gives the stone a neat appearance; but it proved so fatally untrustworthy, that in some of the records it is mentioned as the *cathedral desolator*.

In the year 1815, King Frederick William IV. of Prussia first entered the halls of the cathedral. Upon his command, Architect Schinkel reported on the structure. His estimates for preserving the building, so far, from becoming an entire ruin, amounted to 15,000*l*. The Government granted this sum during the next five years; and the stonemasons set again to work under the direction of Architect Ahlert.

First of all, the small tower on the roof of the choir, which had become dangerous, was taken down. The roof was renewed, and all necessary repairs were made to secure the existing portions. In 1819 a new crane-hoist was put up. The support which the Prussian Government gave to the furtherance of the building gave a fresh impulse for its continuation. According to an arrangement between the King Frederick William III. with the Pope, the bishopric of Cologne was re-established in 1821. A tax was imposed upon the citizens of Cologne in aid of the building. A committee of gentlemen was formed, who collected subscriptions. King Frederick William IV. of Prussia granted 1,500*l*. per annum out of his privy purse. Efforts brought large means together, and ever since the proceedings have been carried on with care and energy.

The materials used in the reconstruction were a volcanic formation of basalt and sandstone, the latter of which comes from the vicinity of Heilbrunn.

Architect Ahlert gave fresh estimates for 39,400*l*.; and, on the 3rd of August, 1825, the eastern end of the choir was decorated with the gilded cross.

Regarding the works of the just-mentioned architect, who died in May, 1833, it must be said that he omitted in his designs the decorative beauty, and thus formed a mere body of constructions, of course well enough adapted with regard to the strength of the building, but not in conformity with former works. This deficiency was noted by his successor, M. Zwirner, who was appointed in 1833. Of him we may say, that he understands so well the design, that it is difficult to distinguish his additions from the former works.

In the structure of Cologne Cathedral we notice the work of generations. The whole design is after the French Gothic, which it resembles more than any other edifice on the Lower Rhine. Its development may be looked upon as the continuation and as the finish of the external system, as it was practised during the first half of the thirteenth century in the north-east of France.

What has been effected in the cathedral at Amiens, and what is carried to a fantastical development in the cathedral at Beauvais, appears in the Cologne cathedral in a better and in a more cultivated form. The design in its elements is French Gothic, but we notice a regeneration in the singularities of the German art.

The proportions in the plan bear the most noble correspondences. In the arrangement of the apside ring is a strict rhythmus, such as is not to be found elsewhere in a building after the same system. In all the dimensions of the building we find the symbolic figure 7, according to the Cologne scale.

For instance, the inner height of the choir is 161 feet; the height to the gable, corresponding to the entire width of the west front, 231 feet; the (proposed) height of the towers, equal to the entire length of the building, 532 feet; the height of the side naves, 70 feet,—and so forth.

In a similar manner, we find at the entrances on either side the stands for seven statues; in each of the forehalls we find as many spaces for statues. There are fourteen corner tabernacles on the southern tower; and with attention we might go into all details, tracing the same combination.

The first portion, that is, the lower part, of the choir, to the triforium of the centre nave, was executed under the superintendence of Master Gerhard. This portion exhibits the feeling of forms with which the work was commenced.

The second epoch is the upper part of the choir, built from 1300 to 1322. As master of this part is in the chronicles mentioned Master

Arnold (1295—1301), and his son Johann (1301—1330). This upper portion forms again two parts, which seem to point to happy moments of the artistic conception. The one part is the actual body of the building. The second portion is the relief system,—buttresses of considerable dimensions, which rise from the lower structure.

A third epoch is the building of the body of the church. The commencement of this portion dates from the finish of the choir, under the superintendence of the last-mentioned Master Johann. The execution shows a new step in the development of the system.

The western façade is preserved in the original plans. It displays the work of a gradual development in a singular manner. In its plan and execution appears an unlimited continuation of a rising relief system, all throughout moulded and kept within strict laws. On the corners we see colossal masses, and main points are on all sides. . . . Before I depart in my observations from the ancient part of the structure, I beg to draw attention to the glazing. Most of the windows have suffered much in the course of time, but those in the upper choir may still be seen in their original splendour. The one representing

“The Adoration of the Child by the Three Wise Men” is certainly a masterpiece, both in composition and execution, and is one of the finest of the specimens which are preserved to us of the fifteenth century. The figures on both sides, 8 feet high, are intended for the kings of Judea. Regarding the technicalities in the glasswork I mention the following:—The glass is strong; the different pieces are joined together with lead, and soldered with tin, both in and outside, which gives the whole great strength. The panes are fastened upon iron frames, which are again fastened upon rods. In the interior the panes are screwed upon iron bars, half an inch thick, which are let into the masonry. The colours mostly used in these windows are blue, red, and yellow, next green and violet. The darker colours are well set off with white, which gives them a lively, pleasant character. Next I point out to you the gear for lighting the choir, which is used as such, on grand, solemn occasions. It consists of two parts,—wood, and upon this iron. The decorations are chiefly displayed in the ironwork, done with the hammer; and, when we look at the various ornaments, such as leaves, escutcheons, &c., we must consider it as a most important production of its kind, and we cannot but admire the perseverance and the talent of the artists who made it in the fifteenth or sixteenth century.

I shall now pass over to the modern additions to the structure. When architect Ahlert died the direction of the building was entrusted to M. Zwirner, who nobly responds to his duties and appears to be the right man in the right place. He began with finishing the restoration of the choir; and the reconstruction of this older part served as an excellent school to the attentive master.

It proved the same to the stonemasons, who found great assistance in the fragments which were as examples before them. As soon as the restoration of the choir was completed, the question arose whether it would not be recommendable to execute the remaining portions of the cathedral on a plainer and simpler scale. The Rhinish people decided this answer by voting for the execution of the original drawings. This resolution has been so far adhered to, with the exception of the buttresses, &c., on the north side of the structure.

This is caused by the circumstance that the building is carried out on the south side at the expense of the Prussian government; whilst, on the north side, its furtherance depends upon the moneys which are collected by different societies in Germany, donations, &c. The progress in the building was very cheerful for some years, and King Louis of Bavaria, upon one of his visits to the cathedral, presented the windows in the south side nave. In 1818 and after, the advancement was somewhat checked by the revolutionary strifes among the Continental nations. However, at the end of 1852 a happy result was achieved, and the former ruin appeared in its beautiful outline. The expenditure since the restoration up to that period was, as per government grants, 78,300*l*.; whilst the collections and donations had brought in the sum of 73,500*l*., being equivalent to the former when we add to it the value of the windows presented by the king of Bavaria. The side naves were vaulted in, whilst the centre nave had yet to be covered by a temporary roof.

The northern tower had advanced, and the western main portal was completed. At the end

of 1853 the first horizontal cornice was laid above the 55 feet high windows. There is only one more horizontal division, which is in the triforium. The just-mentioned cornice is 3 feet 7 inches high, and, in order to connect the stones, iron hooks were put hot into the holes, which were then filled up, surrounded with asphaltic. By this proceeding the iron is for ever preserved from oxidation. This system has proved itself the best, because the applications of mortar, gypsum, sulphur, and lead have all failed. On the exterior, bronze, surrounded with lead, is used, which has proved itself the best material.

The gables which have been put up above the windows on the side naves are very rich in their details, and similar examples are very scarce. Between these gables appear the buttresses to a height of 33 feet above the cornice, and finish with slender finials: these latter bear only a decorative character.

The construction of the upper side walls to the centre nave was attended with great difficulty, for the walls were but thin, and moved sideways whilst bringing up the heavier stones. In order to prevent casualties, timbers were spread in until the vaults could be arched in. After this period the outer buttresses were formed which support the before-mentioned side walls in carrying the vaults. The latter has lately been accomplished. The towers meantime have reached a height corresponding to the vaults of the centre nave, and we see now, as an accomplished fact before us, that which forty years ago was doubted.

The roof has been constructed of iron in a superior manner.

As the four centre pillars did not show any provision in their construction, the question arose as to whether it ever had been intended to erect the central turret in stone. This supposition was thrown aside by the fact that the mentioned four centre pillars in their height of 150 feet showed considerable movements which would not allow them to be entrusted with the weight arising from the central turret. In consideration of this it was decided to erect the turret entirely of iron. The dimensions of the central turret are rather more than those of a tower, for it measures at the bottom, above the roof, 34 feet in diameter, and in the upper octagon 27 feet. It is raised to a height of 360 feet above the floor of the cathedral.

Thus stands the structure at the present time in an outline, wanting still the interior and some of the exterior decorations. Although these may be set aside for some time, and must depend upon the success of the future, I hope that I shall have the pleasure to see the spires completed in their magnificent forms.

DIED OF BAD AIR.

THE reports of coroners' inquests daily show the great need there is for sanitary teaching. Every week, in the metropolis alone, children are suffocated in bed, or under the shawls of mothers. They die, as the coroner is constantly stating, in consequence of inhaling their own breath, which is a compound of carbonic acid gas. They are, in fact, in the same situation as a person who is locked up in a room which is full of the fumes of charcoal. The children are gradually overpowered by the deleterious atmosphere, and die without a struggle, it being thought that they were in a sound sleep.

Another instance of the fatal effects of poisonous atmosphere has been brought before the public.

William Saunders, and Caroline, his wife, were found dead in the room of a house in a court in Bristol. The room in which these deaths took place is exceedingly low, of small dimensions, without a fireplace or chimney. The house is but of one story, and consists of two rooms. It is reported that the windows of the house were well closed, and that cork and linen had been placed in the apertures, to exclude the smell or the cold. An escape of gas had been complained of, and the police constable who was on duty says that he found that gas could be lighted in the court, just underneath the walls of the window of the house.

The surgeon proved that the deaths had been caused by suffocation. On further inquiry it was found that the public gas-pipe had been broken, and from this cause the earth was so impregnated, that it was actually inflammable. It also appeared that the dangerous gas was passed underneath the room in which the unfortunate persons slept, by a drain.

This accident, if it may be so called, shows to what an extent the soil can be polluted by the

escape from gas-pipes. Such a case of sudden death is evidence of the power of evil gases. In a slower but no less sure manner, carelessness in the trapping of sinks, and the ill-construction or rotten condition of drains, do deadly work in ill-ventilated apartments.

We have before alluded to the fact, and again find it necessary to remark, that, in the cold weather, a large number of fatal cases of fever happen in the crowded dwellings of the poor; and these are caused chiefly by the blocking up, as closely as possible, of all apertures which would afford the chance of ventilation. The houses thus situated become places of pestilence and danger.

THE SOANE MUSEUM.

WITH reference to the observation made at the Institute on Monday last, as elsewhere mentioned, we may add, as to the vacant office of curator, the following extract from the Act of Parliament:—

"That any future curator, to be appointed as herein-after mentioned, dying or resigning the said office of curator, or being removed from the said office as herein-before is mentioned, it shall be lawful for the President and Council of the Royal Academy for the time being, within three months from such vacancy occurring, to select and nominate and appoint as such curator as aforesaid, an English architect who may have distinguished himself or gained any academical prize, being at the least of the age of twenty-five years, whom they may deem the most competent to discharge the duties of the said office."

The salary of the curator is fixed at 300*l.* per annum, with the use of rooms and a servant.

We hear of several candidates, particularly Mr. J. W. Papworth, Mr. Joseph Bonomi, and Mr. Eastlake.

THE EXETER SCHOOL OF ART.

THE annual meeting and *soirée* of this school was held on 27th ult. The president, Sir Stafford Northcote, Bart., occupied the chair.

The report of the committee stated that the average number of pupils for the last two years was equal to that of previous years, and that 70 per cent. belonged to the artisan and school-master classes. For the year 1860, fourteen local medals and fifty prizes had been awarded, and the works of five pupils received honourable mention: ten drawings were again selected for the national competition for 1861, and ten pupils had their free studentships renewed by receiving local medals. Miss A. H. Huxtable obtained a free studentship, having passed in four stages, and also having obtained a local medal; in addition to which two national medallions were awarded to Miss Brown and Miss Wigzell out of 80 awarded to the 80 schools in the kingdom. In the public schools 251 pupils were examined, 130 of whom obtained prizes, being an increase of 25 over the year 1859. At the present time, continued the report, a prize of five guineas from R. S. Gard, Esq. (being the second given by that gentleman), is the only one the committee have to award; but they trust the interest excited among the pupils by these prizes, especially in original designing, will not be allowed to wane for want of further aid.

In the course of his address the president thus referred to the resignation of the head-master. Mr. Wigzell, he said, was a man of considerable ingenuity and mechanical skill, and had been successful—unfortunately successful—in making an invention which, while it would, they hoped, enrich him, would certainly impoverish them. Perhaps he might mention, for the benefit of those who did not know what the nature of the invention was, that Mr. Wigzell had invented a kind of nail—a screw-nail—which was driven into a piece of timber or other material as easily as a common nail, but held with all the tenacity of a screw, and was removed as easily by some kind of turn-screw.

Before the distribution of medals and prizes was made, a testimonial, consisting of a gold watch and chain, was presented to Mr. Wigzell, for which he returned thanks.

THE TEMPERATE HOUSE, ROYAL BOTANIC GARDENS, KEW.

Few of our national establishments possess greater interest than that of the Royal Botanic Gardens at Kew, whether viewed with reference to the increasing intelligence of the age or the more liberal policy which has characterized the Government of the last quarter of a century, aided by a Sovereign whose constant care has been in all things to increase the welfare and happiness of her people.

It is doubtful whether the ordinary visitor be aware of the true nature of the institution, and of its importance and value to the State, beyond that

of a place for the healthful recreation of the public.

A brief retrospective glance at the history of the Gardens, and a reference to the annual reports of the director, Sir W. J. Hooker, under whose skilful and intelligent administration they have reached their present excellence, will prove that the gratification of the public is not all that is aimed at; but that science and commerce are largely benefited by this institution.

Kew Gardens originated in the middle of the seventeenth century, with a private individual, Sir Henry Capel, whose love of botany led him not only to cultivate the choicest plants of his own country, but to import largely from abroad.

At the death of his widow, Kew House and grounds were leased in 1730 to Frederick Prince of Wales, and subsequently purchased by his son, George III.

Sir W. Chambers was employed by Prince Frederick to ornament the grounds, by the erection of various architectural buildings, some of which yet remain.

Considerable additions were made to the grounds during the latter part of the reign of George III., under Mr. Aiton, who published a catalogue of the plants then in cultivation, under the title of "*Hortus Kewensis*."

In the early part of the reign of her present Majesty, a commission was appointed to inquire into the condition of the gardens, which resulted in the management being transferred to the Commissioners of Woods and Forests, who appointed the present director, Sir W. J. Hooker.

In 1841, the Botanic Gardens were transferred by the Royal Family to the public. They now contain 75 acres, and are separated, by a wire fence, from a larger district known as the Pleasure Grounds, containing 325 acres. The whole extent, therefore, enjoyed by the public, is not less than 400 acres.

In 1844 Mr. Decimus Burton was commissioned to design the Great Palm-house, illustrated in a previous volume of the *Builder*; and Mr. Nesfield, the well-known landscape gardener, in conjunction with him, prepared a plan for bringing into form these hitherto irregular and partially neglected grounds, which had grown by various additions, and were "without form, and void." Vistas and paths were laid down, whose lines connected existing buildings, and determined the position of future erections.

There are about 5½ miles of paths in the gardens and adjacent pleasure-grounds, and a lake, 4½ acres in extent, is in course of formation, which will communicate with the Thames.

The public entrance on Kew-green, with its wrought-iron gates (also illustrated in a previous volume), was designed and arranged by Mr. D. Burton, in 1845.

The increasing interest felt by the public in these gardens is shown by the yearly returns of the numbers admitted, which have gradually increased from 9,174, in 1841, to 405,376, in 1858.

But the most interesting particulars remain to be given.

We find by the annual reports of the directors that "the chief objects of the Government in establishing and supporting the Gardens are—

1. As a place for the healthful recreation of the public, gratifying the national love of gardening, and affording popular information as to the appearance, names, uses, and native countries, &c., of an extensive series of useful and ornamental plants, from all parts of the world, together with their products, whether as food, drugs, dyes, timbers, textiles, or cabinet work.

2. By encouraging horticulture and scientific botany; promoting the useful arts which depend on vegetable produce; supplying information to botanists, and aiding their publications; and imparting a knowledge of plants to travellers, merchants, and manufacturers; also by training plant collectors and gardeners for home, colonial, and foreign service.

The peculiarities of the climate of England render it singularly favourable for the growth of trees and shrubs of temperate regions, from almost all parts of the globe.

In pursuance of this object, an arboretum has been formed in a favourable situation, and already contains a classified collection of about 3,500 kinds of hardy trees and shrubs (including marked varieties).

There are two nurseries, one especially for planting the Kew grounds, the other for supplying the metropolitan parks with ornamental trees and shrubs."

In 1847 an old building, formerly connected with the kitchen-garden, was converted into a

museum. In the words of the director, "It promised to afford, for a time, the needful accommodation for a display of the various products of the vegetable kingdom; especially such as are in demand by the merchant and manufacturer, the timber-dealer, the cabinet-maker, the druggist, &c.; and to form, in short, the nucleus of a museum of economic as well as structural botany, which should contain all that was interesting or curious in vegetable organization, and that could not be preserved nor generally exhibited in the living state."

"Such a collection could not fail to answer the *cui bono?* so often propounded, by showing the uses and applications of plants. It was commenced by the transference to this building of a considerable series of articles of this nature, which the director had been forming during the previous forty years in connection with his own private herbarium. Thanks to the contribution of friends, in a few years' time the ten apartments (two of them of considerable dimensions) were full. An additional structure of much more capacious accommodation was then required. This was commenced in 1835, finished early in 1856, and was to be seen but little vacant in 1858."

To render Kew Gardens a complete botanical establishment, a herbarium and library (without which the plants could not be correctly named), were long a desideratum. True, the very extensive library and herbarium belonging to the director were accommodated in a suitable building, the property of the Crown; and, by an arrangement between the Board of Works and himself, they were thrown open, with the needful attendance, to all men of science; and in 1855 two collections of dried plants (*herbaria*) were added as gifts. They now form that portion of this department which belongs to the Crown. These, combined with the director's own (under the same roof, but in different apartments), unquestionably constitute the most extensive and practically useful herbarium and library ever formed. They cannot fail to be, and have, indeed, already proved, of inestimable service to all who are engaged in pursuits connected with botany and horticulture.

Men of science are continually taking up their residence at Kew, in order to avail themselves of these collections while preparing their several works.

An extensive and valuable collection of original botanical prints and drawings (30,000 drawings and numerous engravings), mostly presented by Sir W. J. Hooker, and many of them the works of his son, Dr. Hooker, during his extensive voyages and travels, are systematically arranged in seventy-five portfolios, and have proved of great service to persons studying the different families of plants.

In 1853 a building was erected opposite to the Palm-house, for the reception of the valuable collection of economic botany. About this time various greenhouses were erected for classified plants.

In the Gardens, a highly interesting and valuable collection of living plants had been suffering for years from want of a proper building for their reception. The Director, in his annual reports, had long been most urgent in his appeals for such a building; and, in his report of 1856, he said,—

"Above I have alluded to the hope of a new conservatory being speedily erected for the accommodation of those noble Chilean, Mexican, Australian, and Norfolk Island conifers, and the fine trees and large shrubs of temperate climates, for the possession of which the Royal Gardens of Kew have long been celebrated, but of which I must now speak almost in the past tense. Some of them have suffered beyond recovery within the last few years; others may yet be restored by the needful amount of space, light, and temperature, being afforded."

Many have completely overgrown the houses hitherto devoted to them; and the best of them have been decapitated to keep them under the roof of the old orangery which they now chiefly occupy."

He afterwards again urged the desirability of its erection.

In 1859, the Government granted the sum of 10,000*l.* towards building this long-desidered conservatory; and Mr. Decimus Burton was directed to prepare the designs. Tenders were obtained from several eminent builders: the lowest, that of Messrs. W. Cubitt & Co., was accepted; and, under it, that firm are now proceeding with the works.

The site is on the west side of the great avenue leading to the pagoda.

* Some particulars of the museum will be found in our vol. xvii, p. 561.

The building, as the accompanying plan and view will explain, will stand on an earthen terrace about 4 feet high, approached by wide flights of steps at the sides and ends; and will consist of a centre connected with two wings by two smaller conservatories, octagonal on plan.

The internal dimensions of these respectively are as follows, viz.:—

The centre portion, 212 feet 6 inches by 137 feet 6 inches. Each wing, 112 feet 6 inches by 62 feet 6 inches. The intermediate octagons, 50 feet diameter.

The total length of the building will be 582 feet, and its superficies, 48,392 feet—about $1\frac{1}{2}$ acres. The Palm-house, at Chatsworth, contains about 15,276; that at Kew, 24,200; and the conservatory at Syon, 7,785 superficial feet.

The building will present an ornamental continuous façade, having wide glazed openings and stuccoed piers, on a stone plinth, 2 feet high.

The centre roof is 60 feet high, and is constructed of wrought-iron framed arched principals, springing at 36 feet 6 inches above the floor, from cast-iron standards, 3 feet wide, which are bolted down to granite blocks, bedded in brickwork and concrete.

The standards are connected together, at the springing of the principals, by two sets of cast-iron longitudinal arched girders. A gallery-floor of rolled plate-iron forms a continuous bond at this level. A portion of each standard is continued 8 feet above the gallery-floor, to support the curb and rafters of the upper roof. These rafters are of wrought-iron, 52 feet in length, with feathering rolls on each side to receive the sliding lights. There are three tiers of iron purlins, secured to the principals and rafters, and wrought-iron diagonal wind-bracing riveted to the under side of the latter, and vertical bracing on the upper portion of the principals. The upper ridge is of rolled iron, and receives the ends of the rafters, and an ornamental ridging of cast-iron. A bold cast-iron cornice gutter conveys the water of the upper roofs to a hollow portion of the vertical standards, whence it is conducted through underground iron pipes or tanks, under the terrace.

The wings are 37 feet 9 inches high in the centre, the roofs formed by wrought-iron arched ribs springing from cast-iron columns, which serve as rain-water pipes, as in centre house: cast-iron spandrils support rafters on which the lights traverse.

Straight instead of curvilinear rafts were necessarily adopted to allow of the roof being uncovered as much as possible during several months of the year.

A very ingenious apparatus for moving the sliding roof-sashes has been devised by the engineer of Messrs. Cubitt & Co., by means of which the three upper of the four tiers of lights covering the sides of the roof of centre house will be passed one over the other, and rest on the lowest tier.

The power employed is that of the wheel and endless screw, worked at the level of the gallery, and is such as will enable one man to cover or uncover each bay of 500 feet superficial area in about five minutes.

The vertical sashes throughout are to be hung on centres. Those on the ground-floor and gallery are to be opened and shut by hand, and the remainder, together with the lights of the lower roof, by machinery.

Green-tinted glass is to be used, similar to that of the Palm-house: of this about 63,848 superficial feet will be required.

There are vaulted basement stories to receive the heating apparatus under the octagons, in which trees and plants which require most warmth are to be placed. The temperature of the other compartments will be only about 40° in winter.

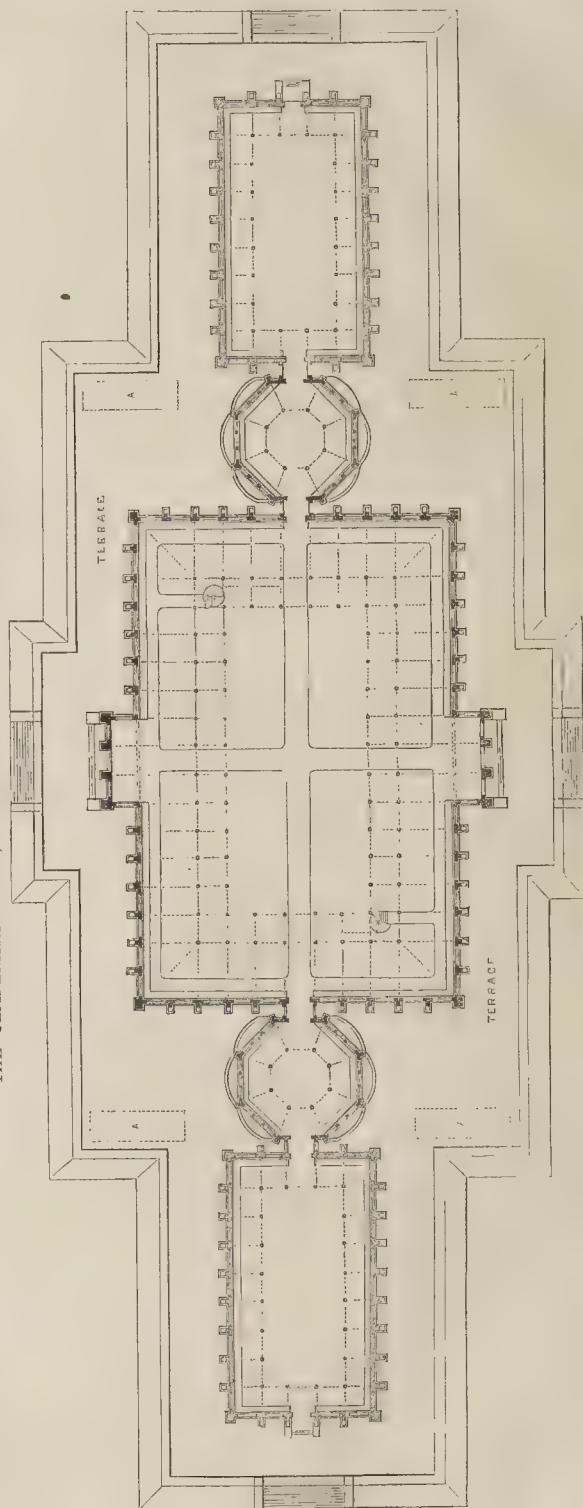
The heating will be effected by hot water circulating in four cast-iron pipes placed under the filleted tables around the sides of the house throughout. The centre part will contain about 4,000 yards run of pipe, the wings 2,000 yards, and the octagons 700, or collectively about 7,000 yards ($3\frac{1}{2}$ miles).

It is proposed to have gravel paths and beds for plunging trees and plants throughout, except in the octagon buildings.

The tanks will contain upwards of 130,000 gallons collectively. The water will be drawn from these by means of pumps placed in convenient situations in the building.

It is the opinion of the directors that, when this building is completed, Kew Gardens will be the most important and practically useful establishment of its kind in Europe.

THE TEMPERATE HOUSE, ROYAL BOTANIC GARDENS, KEW.—Plan.





THE TEMPERATE HOUSE, ROYAL BOTANIC GARDENS, KEW, NOW IN PROGRESS.—MR. DENNIS BIRTON, F.R.S., ARCHITECT.

THE ITALIAN FESTIVAL IN HONOUR OF DANTE.

MOST of our readers are probably aware that it is the intention of the Italians to hold a grand centenary commemoration of their great poet, DANTE ALIGHIERI, at Florence, in May, 1865, that being the sixth from his birth. To honour his memory, it has been proposed to carry out a suggestion ascribed to Michelangelo, who, on being asked by Cosimo de' Medici what was the best way to ornament the Piazza della Signoria, replied, "Bring out the Loggia of Orgagna, and carry it round the Piazza, for nothing can be better." Thus produced, beneath the arches it is proposed to place statues of those Italians who have deserved well of their country, and to have the wall behind covered with the historical events in which they figured; while, in the centre of this Italian Pantheon, a noble statue is to be erected to Dante, as the founder of Italian unity, and the great chief of the patriotic league. It is also intended to institute a quinquennial festival in honour of the poet, on which occasions ten medals will be awarded to the best works which have been produced, in the interval, on literature, science, and art. To obtain in part the funds necessary for carrying out these things, and to afford to the friends of Italy, in foreign lands, an opportunity of participating in the national joy, and preserving a memorial of the great event which has restored the paradise of Europe to its just rank among the leading powers, a national edition of Dante's works is preparing under the direction of an Italian commission, at the head of which is Prince Strozzi, with the assistance of the most eminent Italian Dantophilists. This work is to be in six volumes, large royal octavo, with an additional volume as an album, containing subscribers' names, and other matters. The first volume will be devoted to the Life and Times of Dante: it will have an engraving of the poet from the painting by Giotto, discovered by our countryman Seymour Kirkup, and each copy will bear the name of the subscriber for whom it is destined, with the number of the copy in the list. It will appear early in 1862, and the whole of the volumes will be published by May, 1865. The price, as fixed by the Italian commission, is two hundred lire, or 8*l.* English, exclusive of transport. Mr. Trübner, of Paternoster-row, is the agent to the commission, to whom alone copies will be consigned for distribution.

Dr. H. C. Barlow, who originally suggested the *fête*, and has been named a commissioner to aid the undertaking in England, is anxious that naval, as well as civil architecture, should have a share in this commemoration: a war steamer, to be called the *Dante Alighieri*, considering the necessities of the times, and the poet's well-known love of the sea, would have been a graceful no less than a most useful addition to the programme, and it is not too late to add it yet.

Numerous as are the editions of Dante's "Divina Commedia," there is not one in all respects satisfactory—not one that corresponds to the requirements of the age, and the actual state of literary criticism. Those who would study the poet in the spirit, no less than in the letter, are obliged to furnish their book-shelves with various editions; for the meanings of Dante, like the deep things in sacred literature, are developed and explained in part by the course of time and events, and we require to know and to compare together the current opinions of his commentators at different periods. Dante differs from all other poets in this particular, that his "Commedia" is not only the reflex of the age in which he lived, an historical mirror of things past, but is also a light to the future. It is as much political and progressive as it is poetical. It contains the creed of a self-regenerating nation. This is not the place to enlarge on the merits of Dante, great in everything, in his adversity no less than in his prosperity, and growing into a mighty colossus with the development of his united monarchy for Italy. Who among the cultivators and patrons of art, who have trod that classic soil, who have profited by its treasures of architecture, sculpture, and painting, who have meditated among the ruins of Roman greatness, and gazing from the tower of the ancient Capitol, have felt that Rome was still the centre of an empire, and, in a manner, the beloved mistress of their hearts—who of all these does not rejoice to behold Italy risen from her grave of a thousand years; and, in her own unalienable right, seated crowned upon the throne of her Apennines, her feet bathed by the blue waters of the Mediterranean, and her arms outstretched from sea to sea! And this great event is mainly due to the lofty mind of *Dante Alighieri*

diffusing itself through the Italian people by means of his immortal poem; inculcating the only true principles of a national policy; making his thoughts their thoughts, and his spirit their spirit; and thus effecting in time the confirmation of his own prophecy, the consummation which he ever had at heart, of a united people under one monarchical ruler. Well may Italians exclaim—

Onorate l'altissimo Poeta!

a sentiment the echo of which is in no country more distinctly heard than in our own.

THE COINAGE, NEW AND OLD.

THE new bronze coinage is coming slowly into circulation, but is by no means satisfactory either in design or in execution, as we have before said, and does not seem, so far as its artistic merits are concerned, to meet with much favour. It has much more the aspect of apprentice work than of masterly performance such as ought to be found on the coinage of this great realm. The new bronze coinage of France will, undoubtedly, not be such a bungle. It is mortifying to think of the estimate which will be formed in France and elsewhere of our latest efforts in the numismatic art. There is little or nothing either excellent or effective about our new coins. The face of the queen is most unlike; the modelling of the wreath, hair, and other parts is weak in the extreme; the figure of Britannia has a helmet which looks like a "kibosh,"—a very bad hat indeed; the drapery is also unsatisfactory; and the same want of power and artistic expression displays itself in the trident, shield, and lettering. It may be a small matter, but it would have been fit in the reign of Queen Victoria to have shown on the bit of ocean which forms the back ground of the figure of Britannia, besides the sailing ship and the light-house, one of those steam vessels on which the naval superiority of the realm so much depends.

It would be well, in connection with such an important matter as the coinage, to endeavour to get the best possible design, and it does not seem that there is any great necessity to continue the use of the figure of Britannia as the reverse of the coin, provided anything more suitable and connected with the times could be discovered. This figure is said to have been modelled from the fair Miss Stewart, who afterwards, in Charles II.'s reign, became the Duchess of Richmond. We have now before us an example of the coins of that reign. In some of them the figure of Britannia, who is seated on a globe, is beautiful both in design and in execution. The coins, particularly those of silver, of Charles II.'s reign are elegant productions. From the time of the introduction of the figure of Britannia in Charles II.'s reign there seems to have been little worthy of design, with the exception of St. George and the dragon on the crown pieces of George IV.'s reign. This idea, although the coin is a bold and masterly performance, is not new, for the same fancy is shown on a coin of the reign of Henry VIII.

In the ancient British time, long before the Roman occupation, there were, even in England, coins founded in rude imitation of Greek models: then were used the coins of the Roman empire, and then, amongst the Anglo-Saxons, after the introduction of Christianity, the cross, in various ways arranged ornamentally, was in use on one side, and the heads of the kings on the other, for several centuries. The Romans made but little change, and it is remarkable that it is difficult to discover the coins of one of the four Edwards from the others. The Henrys, on their coins, did not number the succession until the reign of Henry VIII. At this time, and it had been so for some time previously, the coin of the realm had been most basely adulterated; and this system of imposition was continued during the chief part of Edward VI.'s reign: it was only in Queen Elizabeth's reign that the matter was first put into a satisfactory condition.

The gold, silver, and other coins of the reigns of Henry VIII., Edward VI., Mary, and Elizabeth, have peculiarities which show the transition of taste; those of Queen Elizabeth are coarser than those of Henry VII. and Henry VIII.

The coins of James I. and Charles I. exhibit a marked improvement. This again declined rather in the reigns of George I. and George II. Some of the coins of these reigns are very good: the figures of Britannia would be worthy of imitation at present.

Long discussions have arisen in connection with the lettering on the new coin. Why not put a stop, however, to the risk of any such difference of opinion by using the plain English,—"Victoria, by the grace of God, Queen of Great Britain,

Defender of the Faith?" there is plenty of space, even on the bronze half-penny, for this to be printed in a legible manner: on the coin, as it is at present, we have English on one side and Latin on the other.

In designing a coin for general and extensive circulation, there are, doubtless, many things to be taken into account: it must be formed in such a way as to resist wear; and it may be that the practical medallist, in some instances, sacrifices artistic qualities to some of these considerations. In the first instance, however, as it seems to us, we should have an artist of the very highest ability and refinement to make the design. We would like to have seen Flaxman so employed. It has been suggested that in preparing any future coin it might be found useful to offer a substantial prize for a suitable design. In George the Fourth's reign an artist of eminence actually was employed in connection with the coinage; for the king, being annoyed at the appearance of his face on the early coins, consulted Chantrey, who at that time had just completed his famous bust of the king; and the sculptor was engaged to prepare a medallion for the coinage. This was offered to Pistrucci to engrave; but this artist thought it beneath his dignity to copy the design of a contemporary artist, and, in consequence, the work fell into the able hands of the late Mr. William Wyon.

At the present time a quantity of the silver coinage is in a very bad condition. Some of the sixpences are so worn that the quantity of silver in them is not worth 3*d.*, the stamp is completely obliterated, and some of the shillings are not in a much better state. An opportunity, therefore, may soon offer for redeeming our national character such as it was in respect to numismatic art, which the new bronze coinage has certainly damaged.

The bronze coinage is being prepared by Messrs. James Watt & Co., of Soho, Birmingham. The quantity to be produced by them in two years and a half amounts to 1,800 tons. Upwards of 400,000 pieces per day on an average will have to be struck during the whole time. These pieces have to be made up into about 60,000 rouleaux per day, wrapped in paper, placed in separate cases of the value of 1*l.* each, and packed in strong boxes of 20*l.* each for delivery and distribution. More than 40,000 of such boxes, and 800,000 internal cases, are required. The old Soho Mint, after an existence of nearly 60 years, was taken down about ten years since, to make room for the new suburbs of the expanding town of Birmingham; but a new Soho Mint has risen, as if by magic, during the last autumn, for the manufacture of the new coinage. There is here a complete mint, more than half as large again as the Royal Mint, with new foundry for the melting and mixing of the metal, all of which has to be done in crucibles capable of producing from four to five tons per day; laminating department, where the bronze slabs or ingots are rolled into plates; cutting-out rooms, where the blanks are punched from thin plates; milling, cleaning, picking, and annealing departments; and finally a long press room, in which thirteen presses complete more than 40,000 coins per hour.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE Ordinary Meeting of members was held on Monday last at the house in Conduit-street.

Mr. Godwin, V.P., occupied the chair. The minutes of the last meeting having been read and confirmed—

The Chairman said he had to announce the death of one of their fellows, Mr. George Bailey, which occurred on their last day of meeting, the 17th of December. He was one of the earliest members of the Institute, and had acted as Honorary Secretary for some time, taking considerable interest in the arrangement of the library (which was now occupying the attention of the Council), and in preparing the catalogue. He had been an assistant of the late Sir John Soane, who, acting for the Bank of England, had delegated to him the duty of purchasing the property and other matters connected with the establishment of their provincial branches. Mr. Bailey was the first curator appointed to the Soane Museum in Lincoln's-Inn Fields, and there was now a vacancy in the office. It was not, he believed, generally known that the election of a curator rested, not with the Trustees of the Museum, but with the President and Council of the Royal Academy. He ventured to hope that when the successor to Mr. Bailey was appointed, the Soane Museum would be made as accessible as possible to the profession and the public. Heretofore the privilege was nearly confined to walking through

the rooms on certain days, permission having been previously solicited for that purpose. The museum contained immense stores of information in the shape of drawings and books, many of which, he ventured to say, had not been opened for years.

Mr. Penrose (Honorary Secretary for Foreign Correspondence), in announcing certain donations to the library, called attention to a drawing for a proposed bridge over the Thames at Lambeth, near Market-street, designed by Mr. P. W. Barlow, the ornamental details by Mr. E. C. Robins. The bridge in question was a combination of the suspension principle and that of the lattice girder, a form which was desirable on the score of lightness, durability, and economy in construction. It was proposed to carry it over three arches, each of 300 feet span, and to have a double carriage-way, and footpaths. The estimate for construction (including the purchase of land, formation of approaches, &c.) was 40,000*l.*, being not more than about a tenth part of the cost of some of the metropolitan bridges, and a contractor of undoubted responsibility was willing to undertake it for a sum less than the estimate.

Mr. Kerr inquired whether the bridge was to be carried out.

Mr. Penrose presumed that such was the ultimate intention, but he had no information on the subject.

The Chairman observed that the principle was to some extent new, and that he presumed it would be tested before it was applied to any considerable work.

Thanks having been voted to the donors, Mr. Penrose then referred to a correspondence which had taken place between the Institute and the Dean and Chapter of Lincoln. In consequence of a report having reached the former from fellows that a faulty system of restoration (by scraping the stone) had been adopted, the Institute had written to know whether the works at the cathedral were carried on under the direction of a competent architect. In reply, the Dean had written a courteous note, in which he stated that the letter of the Institute would be laid before the Chapter at the next meeting of that body; but that in the mean time he (the Dean) was enabled to state that the works referred to were being carried out under the superintendence of Mr. Buckler, architect, of Oxford.

Mr. T. H. Lewis (Hon. Sec.), expressed his regret that a similar measure of courtesy had not been extended to him in answer to a letter addressed to the mayor of Hereford on the subject of the proposed destruction of the ancient Town-hall in that city. The mayor had not condescended to answer the letter; and as the materials of the old hall were announced for sale in the *Builder* of the present week, it was clear that the old hall was doomed to destruction.

Mr. G. E. Street read a paper containing some account of the ancient churches of Vézlay, and of the architecture at Anvergne, a portion of which we give this week.

At the conclusion, Mr. Penrose observed that he had had the advantage, some years ago, of passing through the district referred to by Mr. Street, and that he could bear testimony to the exceedingly interesting nature of its architecture. He had been particularly struck by the beauty of the cathedral at Clermont; and although he had not the opportunity of making the architectural researches which Mr. Street had prosecuted, he well remembered the impression made on his mind by the combination of colour, the force and lightness of the architecture, and the happy arrangement of the radiating chapels, which he had not seen elsewhere.

Mr. Street said that at Narbonne and at Limoges the churches were identical in plan with that of Clermont.

Mr. Morris complimented Mr. Street upon the perseverance and skill which he had displayed during his brief sojourn at Le Puy and Anvergne. The surface of the district was remarkable as indicating the scene of extraordinary volcanic eruptions at some very early period; in fact, the ground was completely covered with molten lava, which afforded materials for the construction of the cathedrals, houses, and public buildings. As far as the physical features of the country were concerned, nothing could be more sterile or in better harmony with the history of the district, which was formerly inhabited by a rude and lawless population. The only exception to the sterility of the soil was the extraordinary fertility of the vineyards, which produced the finest Burgundy wine. This was in fact the grand redeeming feature of the district. The architecture was

bold and picturesque, but nothing more; and when they saw so much time and attention devoted to its illustration, he could not help indulging the hope that Mr. Street would, upon another occasion, take a more fertile field, and reflect the architecture of some of our English districts. There was abundant scope in our castles, abbeys, and village churches, and he hoped that the younger members of the Institute would not be led away from their studies to the contemplation of objects which had much fewer claims upon their attention.

The Chairman said he was unable to agree with the last speaker in thinking there was nothing valuable but Burgundy wine in the district to which Mr. Street had referred, for to an architect he thought it was one of the most interesting parts of Europe, and he therefore hoped young architects would be led to study the architecture of that portion of France. The series of churches, the plans of some of which were now before them, and to which Mr. Street had given his attention, were deeply interesting, and presented instructive problems for the students of architecture which he hoped they would avail themselves of when practicable. Mr. Parker had contributed papers to the *Archæologia* on a neighbouring district, and he hoped that nothing which Mr. Morris had said would discourage young architects from pursuing the class of study which they were intended to illustrate. There were one or two points to which he would refer in connection with Mr. Street's paper, and one of these was the encouragement given in early times to the craft of the silversmith. Anvergne possessed at one time no fewer than from thirty to forty silversmiths who had left fine works: in our own day the difficulty of getting silversmith's work of an artistic character executed, even at preposterous prices, was so great as to deter any one from attempting it. He was enabled to speak on this point in consequence of some recent personal experience. Mr. Street had referred to masons' marks, and he understood him to say that he had found them on the arches and not on the pillars. Did not this seem to indicate that these portions of the work were of a period different from others?

Mr. Street.—The moulded bases were marked by the mason, and not the stones of the pillars.

A vote of thanks having been unanimously accorded to Mr. Street for his paper,

The Chairman announced that a meeting would be held on the 14th, to discuss the question of architectural examinations, and that the next ordinary meeting would be held on the 21st.

Mr. G. E. Pritchett, of 4, Great St. Helen's, Bishopsgate, was on ballot elected an associate of the Institute.

METROPOLITAN DISTRICT SURVEYORS' ASSOCIATION.

MR. HESKETH, after fifteen years' service as honorary secretary, has resigned his post, and Mr. Charles Fowler, jun. has been named by the Committee to succeed him. A testimonial was voted to the retiring honorary secretary some years ago. A record of the thanks of the Association, handsomely engrossed, is now to be presented to him. Mr. Gutch, after the last meeting of the Committee, of which he has long been chairman, entertained the members of it at dinner at the Gray's-Inn Coffee-house.

ANOTHER GRIFFIN.

I AM a Griffin; and the Griffin of St. Mary Anne's. I have read Mr. Seddon's spirited criticism of the "tame classic monsters, freed from all laws of consistency, anatomy, or common sense, and bereft of energy, nerve, and character," "rendered altogether ornamental, and helplessly effete and idiotic," of which "compositions" the Architectural Publication Society has judiciously issued certain delineations "for a warning" to their subscribers. I have also noted the writer's expectation that that Society will follow up with "a plate of good grotesques to which these are to form a contrast," "for our admiration." Now, as I am myself a "good grotesque," as all the world knows that knows St. Mary Anne's, and as I am neither tame nor classic, nor altogether, or, indeed, in any way "ornamental," eminently consistent, anatomical, common-sensical, energetic, nervous, characteristical, and everything else that is admirable, and by no means a "composition," but a non-composition, every inch of me (and what can I say more?), this must be my excuse for offering myself to your "admiration," as one of the best "contrasts" possible, to the "perfectly-trained classic grotesque," which we all hold in

such contempt, and as good a plate of thoroughbred, high-spiced Christian grotesque of the good old times, where "men felt and believed in rather than composed their art," as any one need wish to dine upon, even at cold Christmas.

The church of St. Mary Anne to which I have the honour to belong, and of which, indeed, I am, as you will see, the head stone of the corner, is a genuine work of those times when "men felt and believed in rather than composed their art." It has neither composition nor composure, but is all feeling and belief, passion and faith, magnanimously devoid of everything but the most highly non-intellectual qualities,—ostentatious picturesqueness, repudiation of elegance, barbaric crudeness, and, in short, all descriptions of savage virtue and rampant non-composition. "A fit emblem of the ornamental art of the period," and dedicated accordingly to St. Mary Anne the Bedlamite. Facing no stately parade like a Pagan temple, but accessible with even purgatorial pain by an exquisitely mean and Mediaeval crooked dirty alley, this fine example of Christian art, crouches sullenly in a corner, like some holy anchorite in his unsavoury cell; no siren temple of the Graces wooing with the blandishments of beauty, the homage of unconsecrated intellect, but (what is better far, and now in the unceasing circumgyrations of the whirligig of taste, what has become the fashion), attracting the sublimated notice of stormy weird folk, in slouched hats and bristly beards, who, with all their senses wide-expanded to the picturesque (and even their sense of smell), come hither with a frown of fierce delight to sketch the rugged glories of St. Mary Anne's.

Grandly awry, a noble tower flanks the sacred edifice; a heaven-aspiring turret flanks the tower; and flanking in its turn that heaven-aspiring turret,—*voilà!* standing, leaping, creeping, flying, snirking, sneering, laughing, and crying, snickering, sneezing, snivelling, and sighing, the likeness of nothing in the heaven above or in the earth beneath, or in the waters under the earth, but "of imagination all compact," non-composition run magnificently mad, one great grim, ghastly, ghostly, grisly, gristly gargoyles! *C'est moi!*

I pause to wipe my forehead; I am on my hobby. I am myself that hobby. I "feel and believe in" myself. Pardon me, therefore, if I cannot "compose" myself, but must rush forward again with all that terrible earnestness of passion and faith which gives character to the true Christian grotesque, into that description of my noble self, which is the proper object of my epistle.

I represent Cacodemum. I am "mainly a lion" seeking whom I may devour, typifying the frenzied vigour of that art which is "felt and believed in rather than composed." My joints and limbs, not "swollen with rheumatism," like the tame classic composition, but of fine subdued anatomy, are delicately wire-drawn into rigid, unencumbered sticks and strings. My muscles, not "disarranged and pulled up," are all magnanimously ignored. My teeth and nails are not "drawn." Oh, dear no! but playfully expanded as in beatific sport. My tail by no means "comfortably tucked away," with that heroic scorn of comfort which is the true glory of the church, is set up stiff on end, and sweetly buddeth at the tip, all in a bunch of roses. No "*mal d'estomac*" troubles me; for stomach I never had, but ribs alone, and bare backbone, and bristles. No trim garniture of wings have I "taken from a bandbox, and never intended to fly with," but the stern metallic pinions of the Great Dragon, scale-mailed, and spined and barbed, and intended to fly away with you all some day; truly, fine feathers to plume! No "effete and idiotic" monster am I; no "tame classic monster," indeed, no "perfectly-trained" monster; no "altogether ornamental" monster; no monster "bereft of energy, nerve, and character," certainly not,—most unequivocally, unmistakably not; but a truculent, savage, barbarian, Scandinavian monster (grand, rugged Christian attributes!); no stately janitor for an Augustan porch, and a sunny sky, but a stormy petrel of western superstition and cloud,—a thing of dark ages, and all the gilding of romance can never brighten—a bad joke of a bad lot,—a mere vulgar Old Scratch, such as the foul imagination of barefooted friars, set up for the scaring of a brutish and down-trodden people, in that senseless and anti-Christian non-composition of depraved and ignorant animalism, the Mediaeval hell.

Wishing you a merry Christmas and a happy new year, I remain (in a Turkish bath of self-admiration and fierce derision of all opponents),

THE GARGOYLE OF ST. MARY ANNE'S.

NEWCASTLE ANTIQUARIAN SOCIETY.

At a meeting held on the 2nd inst., in the Castle, Mr. Kell in the chair,

Mr. F. R. Wilson submitted a work on which he has been engaged during the last year, being drawings of the whole of the churches in the archdeaconry of Lindisfarne. The first portion, now completed, embraces the deaneries of Norham West and Bamborough.

Dr. Bruce read a short paper, sent by Mr. Ralph Carr, of Hedgeley, on certain vulgarisms in spelling names on the ordnance map of Northumberland. Dr. Bruce observed that the ordnance authorities would be very willing to receive suggestions from antiquarian societies on this subject, and were anxious to adopt any correction that was shown [to be called for]. Mr. Carr's paper proceeded upon a curious classification of the vulgarisms referred to. The first class were called adverbial vulgarisms, and consisted in the use of *ly* instead of *ley*, as the termination of names of places: *ly*, the adverbial termination, meant *like*, whereas *ley* was the old word for pasture—*ley* or *lee*—in Scotland *lea*. Examples were given: as Gladly, Beaully, &c., which ought to have been Gladley, Beaulley; the latter meaning literally, beautiful *lea*, or pasture. The next class were sartorial vulgarisms, which turned *coat* into *coat*, a termination very different from the real one of *cot* or *cottage*. Prandial vulgarisms were committed in the spelling of Coldpik instead of Coldpike, Throple for Throple, Caudle for Cauldwell; while postprandial vulgarisms found their illustrations in Walbottle, in place of Walbottle (the latter termination being the Saxon for a place of abode), Newbottle, Lorbottle, &c. Sputatory, or spitting vulgarisms, showed themselves in giving two *t's* to Spital, there being several places of the name; and deaconal vulgarisms turned *deane* into *dean*. Finally, there were mere mountebank vulgarisms, illustrated by the curtailment of Swinboe, Camboe, &c., the dropped *e* completing the terminal *hoe*, which meant a hough.

CHURCH-BUILDING NEWS.

Newcastle-upon-Tyne.—The Bath-lane New Congregational and Armenian Church has been opened. According to the local *Courant*, although it is a large, plain, and simple building, without the branks and shadows secured by projecting buttresses, cresteries, pinnacles, &c., which are almost invariably to be found in Gothic structures, it is as Gothic as any modern building erected in this style. In the spire ornamentation is more concentrated. The edifice is 80 feet long by 60 feet wide. It is galleried all round, the organ and choir facing the entrances. The pews, which have sloping backs and seats, are painted wainscot, as is also the frontage of the galleries. The roof is in three compartments,—one over each side gallery, and a broad arched roof running along the centre. The whole is supported by arches which spring from iron columns in the side galleries. The acoustic properties of the building are said to be successful. The accommodation provided is for about 1,200 persons, with large vestries and other adjuncts, at the back. The contractors were Messrs. Scott & Reed, Messrs. Lowry, Mr. John Gibson, Mr. Bailey, &c. Mr. Andrews acted as clerk of the works. The architects were Messrs. Oliver & Lamb, of this town. The cost of the church and of the intended schools will be about 3,000*l*. Of this sum 2,900*l* has been already subscribed, a considerable proportion by working men connected with the congregation, in sums under 5*l*. It is intended to erect, in addition to the present structure, week day and Sunday schools, to be erected at a cost of 1,200*l*. The preliminary plans for the schools have been prepared.

Farlam (Cumberland).—The new church which has just been erected at Farlam has been consecrated by the Bishop of Carlisle. The church has been built from designs furnished by Mr. Salvin, architect. It is constructed of white stone, in the Early English style, and stands upon a hill overlooking an extensive tract of country. Porches on the north and south sides conduct into a nave 56 feet long by 24 feet wide, on the north side of which runs an aisle, about 11 feet wide, and capable of accommodating about a hundred persons. The total number of sittings in the church will be about 400. At the east end of the nave is a chancel 32 feet 6 inches long by 17 feet 6 inches wide, by the side of which stands the vestry and a small chapel. The walls are mostly 2 feet 3 inches thick, and they are supported on both sides by buttresses. There are four gables on the north side, which run into the main roof. The

roof is open, and is supported upon arches which spring from stone pillars running down the side of the nave. The chancel and passages are laid with Maw's encaustic tiles. The bell turret rises on the west end of the building, and contains two bells made by Warner, of London, and presented to the church by Mr. Ramshay. The building is heated with hot air, the apparatus for which has been put in at the expense of Mr. Dobson, of Tarn House, and under his own personal superintendence. The contractors for the church were Messrs. C. and J. Armstrong, of Carlisle. The entire cost of the edifice is estimated at about 1,570*l*, of which sum the Hon. Charles Howard subscribes 500*l*; Mrs. Thompson, of Kirkhouse, 200*l*; Mr. G. A. Thompson, 50*l*; Mr. T. C. Thompson, 25*l*; and Mr. Attwood, 50*l*. Lord Carlisle presented the site.

Lochaber.—The church of the new parish of Duncansburgh, in Lochaber, has been opened for public worship. The architect was Mr. H. Burrell, and Sir Duncan Cameron provided the funds for the church and manse, when endowing the parish.

Aberdeen.—"The Church of the Assumption," the new Roman Catholic building in Huntly-street, has been consecrated and opened for worship. The building consists of the church and priests' house, at present erected, and a convent not yet executed. The main entrance to the church is from Huntly-street, by a double-arched doorway, flanked by polished granite pillars. This doorway leads into the vestibule, in which are two doors opening into the nave. From the entrance to nave, passages run down the centre and either side, the seating running transversely across the church, all facing the east, and where the principal altars stand. The seats are of a light and unobtrusive character and will accommodate 1,500 persons. The nave is separated from the side aisles by freestone pillars and arches, seven bays on each side. Immediately above the pillars, and between the arches, are large ornamental brackets, twelve in number: these are eventually to carry life-sized statues, having canopies over them. Above the large arches are the cresteries windows, by which the building is principally lighted. The roofs are all open-timbered, stained and varnished. Near the west doors stand out freestone water-fountains, the centre one encircling a pedestal, on which stands a statue of the Virgin. Above the vestibule is the choir: the new organ will occupy the corners on either side of the large window. The dimensions of the church are 156 feet long, 69 feet wide, and 72 feet high internally. The seating is all on the floor of the church, the choir being the only gallery. Much remains to be done to the edifice, including the erection of the convent.

Mr. Alexander Ellis, of Aberdeen, is the architect. **Guernsey.**—The new Wesleyan chapel at the Vale, Guernsey, the foundation-stone of which was laid in June, 1859, was opened on the 23rd December, 1860. The chapel is built in the Gothic style. The dimensions are 56 feet long and 30 feet wide, inside. There is a porch, and the new chapel is joined to the old one on the north side, where a sliding door separates them. The edifice can hold 300 persons; but when required the doors can be opened, and from 450 to 500 persons accommodated. The cost is about 650*l*. The Vale Chapel is erected in blue Guernsey granite. Mr. Matthew De Putron was the architect, and Mr. Manger the builder.

LEEDS MECHANICS' INSTITUTION AND SCHOOL OF ART COMPETITION.

SIR,—Having noticed in your last number a communication from Mr. Crossland, whose design you associated with my own in terms of high commendation in the critique upon the drawings sent in for the above competition, I scarcely refrain from adding my protest to his against the decision of the Committee, and the exceeding unfairness with which the competitors have been treated. Had the gentlemen of Leeds intended to have given the commission to their fellow-townsmen, no one would have complained. Had they entrusted it to Mr. Brodrick, no one would have been more happy that they should have done so than myself. He is a personal and intimate friend, and among the rising men of the profession. None have won their position more fairly: none have so gallantly forced their way through the many difficulties that hedge round success in our laborious profession; and to better hands the commission could not have been trusted. But we have a right to complain that, with this foregone conclusion, they invite architects to lose money, and time more valuable than money, in a hopeless contest. And still more, that, with most un-

usual professions of fairness in their instructions, they nevertheless accomplish as gross a piece of injustice as was ever perpetrated in the practice of a competition. It was, indeed, the impression that it was to be a fair contest that induced me to enter the lists at all, and to take most unusual care in the arrangement of a most difficult plan.

Had Mr. Crossland not opened the subject, I should have been silent, principally from my relations with Mr. Brodrick; but also, because we know very well, when men do what they have reason to be ashamed of, the last thing they are likely to do is to proclaim it to the public by admitting their error; and what they have not honour enough to do in the first instance, they have not conscience enough to do in the second. But as he has taken up the matter, I cannot well be silent.

HENRY B. GARLING,
Author of design *Fortifier et Fideliter*.

THE STREETS OF GLOUCESTER.

YOUR criticisms on the condition of the town of Leeds (see the *Builder* for 22nd December) are, I know from experience, most just; and your intention of administering the rod to other towns will doubtless be productive of good fruits.

Gloucester is not troubled with the smoke and concomitant disagreeables connected with the manufacturing districts; but there, even in the main highways and centre of the city, evils are allowed to remain, which, during the late frost, have jeopardized the safety of life and limb of her Majesty's lieges; not a few accidents having happened in consequence.

The entrances to cellars belonging to shops, warehouses, &c., are covered over with sheets of iron, from which all roughness has long since worn away; and these stretch themselves, in some cases, three-fourths of the width of the foot-pavements: in some instances only the curbstone being unoccupied by them. Add to this, that many of the rainwater down-pipes disgorge themselves on to the flagstones, without any attempt at under drainage, and you may perhaps imagine some of the difficulties of proceeding along the thoroughfares during the late severe weather; the cellar-covers being, if possible, more slippery than ice, on the slightest frost or covering of snow.

Could you suggest some method better than these solid iron covers? Open gratings seem to be objectionable on account of the rain and dirt passing through them, also children's feet are often caught in them; and ladies object to walk over them. Would not wooden covers with heavy nail heads dotted all over them at about 2 inches distance be far better?

I do not remember what is done in other towns in this matter; but I know, if a few yards of the streets of Gloucester had been trodden upon for a single day by the crowds that pass along London pavements, there would have been numbers of people in hospitals before the day was out. I can safely assert that a more dangerous condition of foot-pavements was never seen in a country town.

W. H. E.

PROVIDENT INSTITUTION OF BUILDERS' CLERKS.

SIR,—May I suggest to my fellow clerks, through the columns of your valuable journal, the establishment of a "Provident Institution of Builders' Clerks." The Builders' Foremen and Clerks of Works have their society, which is liberally supported by the employers, who would, I have no doubt, assist their clerks with equal liberality. I would also suggest, in connection with the Institution, a library composed of works connected with building matters; also a registry of names of efficient clerks requiring engagements.

ESTIVATR.

* * It would be better to join a Provident Institution already existing, and aid in rendering it one that would embrace all connected with architecture and building.

IRISH BUILDING NEWS.

THE new church of St. James, Dublin, built under the Ecclesiastical Commissioners, was opened for Divine service on Sunday, the 16th ult. Messrs. Welland & Gillespie were the architects. Mr. Thomas W. Carroll was contractor.

The new Independent Church, at Galway, is almost completed. The style is Early English; the plan an oblong, 77 feet by 28 feet, with a chancel, to serve also as a vestry-room. The walls are of black rubble limestone, height to the eaves, 16 feet: the dressings are of sandstone and New York bricks. The total cost will be about 1,500*l*. Mr. Raffles Browne is the architect.

Messrs. W. H. Beardwood & Son are the contractors. The Great Southern and Western Railway Company have erected, at the Portlanning Station, a new refreshment-building in the Gothic style, at a cost of about 1,600*l*. The saloon is spacious, and elaborately finished. Mr. George Wilson was the architect. Messrs. W. H. Beardwood & Son were the contractors.

The new railway bridge over the Malahide estuary, on the Dublin and Drogheda line, was opened on the 13th inst. Mr. M. H. Eyre, engineer.

The new market at Newtownmavady, for the sale of grain, butter, &c., has been opened. The markets are 130 feet long, 65 feet wide, enclosed on both sides, and covered in. The interior is lighted from therof, which are three in number, supported on two rows of metal columns. A large news-room and board-room are situated in the south-west angle of the building. There is a basement containing grain, stores, &c. The front is a neat Italian elevation. Mr. J. G. Ferguson, of the firm of Fraser, Ferguson, & Frazer, of Derry, was the architect; and Mr. McClelland, Derry, and Mr. S. Mercer, of Newtownmavady, were the contractors.

A new gallery for the proposed exhibition of arts and manufactures is about to be erected in the agricultural hall of the Royal Dublin Society. The gallery is to be supported on wrought-iron pillars, which are to rest on the present columns. The total length of the gallery will be 526 feet. Mr. J. Clarendon (of the Board of Works), is the architect.

At St. Joseph's Institution for Male Catholic Deaf Mutes, Cahon, a new wing, calculated to afford accommodation for the reception of fifty additional inmates, has recently been completed, and similar extensions are contemplated to be commenced early in the season in consequence of the increased demand for admission. The works for the manufacture of gas upon the site of the building have also been successfully carried into execution by Mr. Wm. Daniel under the direction of the architect, Mr. Charles Goughigan.

RATING OF SUNDERLAND DOCKS.

This question was settled at the Quarter Sessions, Durham, on the 1st instant, under the title—"The Wear River Commissioners, Appellants, and the Parish Officers of Sunderland, respondents."

Mr. Bovill, Q.C., appeared on behalf of the appellants, to support an appeal against a poor-rate imposed by the parish officers of Sunderland upon the docks at Sunderland, on the ground of its being excessive, the gross rental being 20,000l., and the rateable value 10,000l.

The question of the rateability of these docks and the amount of the rateable value was in the year 1828 and 1830, before Mr. Welby, the barrister; and he made an award, rating the docks as above, on which the parish relied; this, however, Mr. Bovill contended could be no guide to the Court, when he stated the particulars upon which it had been made. The dock dues had been reduced and the trade much increased thereby, but the works & expenses had increased likewise, so as to amount to a larger percentage on the receipts than before. The docks had also been constructed and large repairs performed, but these had been carried to the capital account.

The Hon. A. Liddell, who appeared for the respondents, objected to the re-opening of the whole question of value, which had been decided by Mr. Welby. He was quite willing to allow any evidence that could be brought to show if any, and what, change had taken place in the value of the docks since the award was given. The respondents were, in fact, of opinion that the rateable value had increased during the interval, which would probably raise the rateable value from 10,000l. to 15,000l.

The Court ruled in favour of receiving evidence as to the value of the docks.

Mr. Bovill then put in a statement of receipts and expenditure, and called Henry Arthur Hunt and Mr. Charles Lee, both of London, who had examined the accounts and made estimates, and they were examined by him in support of the appellants' case.

After a lengthened sitting, the Court reduced the rateable value from 10,000l. to 4,937l. in Sunderland parish.

On inquiry by Mr. Bovill, the Court stated that they had adopted the principles of Messrs. Hunt & Lee's valuation throughout, but they had disallowed 500l. on the depreciation or unusual fund, and reduced the tenants' capital from 25,000l. to 20,000l.

The following is the witnesses' valuation:—

Receipts for year ending June 30, 1859	£10,850
Working expenses and repairs during same period	25,643
Net receipts	£15,216
Renewal fund made up by various percentages on the different classes of vessels, and varying from ten to eighty years' duration	£8,117
5 per cent. on 20,000l. tenants' capital	1,250
15 per cent. on ditto tenants' profits	3,750
Rateable value of the whole docks	£5,999

As only a part of the docks is in Sunderland parish, this amount was divided according to the water area as follows:—

	A.	R.	P.	£
In Sunderland	40	0	26	3,923
In Bishopwearmouth	4	0	4	392
Extra parochial	8	0	8	784
Total rateable value of docks				£5,500

Books Received.

Report to the Mayor and Corporation of Wisbech on the Tug accident of the River Nene, from Peterborough to the Sea. By THOMAS PAGE, C.B., &c. London: Cox & Wyman, Great Queen-street, Lincoln's-Inn-fields, 1860.

Tin shallow shores and flat littoral of England on much of its eastern margin, and the manifest tendency of the land to extend itself on that side,—so different from the steep trend and the deep waters of the country on most of the west coast,—must of themselves occasion great and continual difficulties in the opening or the maintenance of navigable water-courses on much of the eastern coast. Such seems to be the case with the river Nene and the Wash, through which it issues into the sea. In the reconciliation of commercial with agricultural interests, too, great difficulties have occurred. Many reports and plans have been made with the view of suggesting modes of settling all these difficulties,

the last of which were those of Mr. R. Stephenson in 1847, and Mr. Rendell in 1849; but still the matter remains in an unsatisfactory state; as is proved, *ad facie*, by the issue of a new report upon the subject.

The Wisbech corporation, who, from first to last, are known to have expended, for their own share, more than 120,000l. towards the improvement of the river channels, gave instructions to Mr. Thomas Page, on the termination of an inquiry which resulted in the removal of the dams from the Nene at Waldersea and Guyhirn, to make a survey and examination of the river between Peterborough and the sea, and report to them on the following points:—

1. What he would suggest as the best plan for Wisbech as a port, taking into account the necessity for obtaining the best outfall for drainage.

2. In such plan to provide a fresh-water supply for the town of Wisbech, so that it could be made available at any time when the authorities might resolve to establish waterworks.

3. To provide for the fresh-water supply to the middle level, Thorney Lordship, and the districts of Waldersea, Redmore, Wisbech (north side), Levington, and Parson Drove.

4. The probable expense of the necessary works for carrying the recommendations into effect."

The result of these instructions is what Mr. Page has embodied in the extended and elaborately worked out notice; and we need only further remark, that it is seen from the estimates that Mr. Page is of opinion, it is practicable to open the navigation from the Wash, by Wisbech, to Peterborough, and to allow a free tidal action up the river, carrying salt water above Thorney Sluice, and yet make ample provision for fresh-water supply.

Lyra Germanica: Hymns for the Sundays and chief Festivals of the Christian Year. Translated from the German, by CATHERINE WINKWORTH. Illustrated under the superintendence of JOHN LEIGHTON, F.S.A. London: Longman, Green, & Co. 1861.

This is one of the most complete and beautiful of the illustrated books of the year. Head-pieces, tail-pieces, initial letters, landscapes, and figure subjects, are all brought to bear on the illustration of Miss Winkworth's excellent translation of some of the best of the German hymns. Mr. Armitage, Mr. Lawless, Mr. Marks, and Mr. C. Keene, have co-operated with Mr. John Leighton, in producing the drawings, and Messrs. Bolton, Cooper, Dalziel, H. Leighton, and others, have engraved them. When we add that the binding, of Mediaeval character, is particularly handsome, we shall have shown that this is a book for those who can appreciate.

On Heat, in its Relations to Water and Steam; embracing new Views of Vaporization, Condensation, and Explosions. By CHARLES WEE WILLIAMS, A.I.C.E. London: Longman & Co. 1860.

IMPERATIVE of the merits of the various important questions discussed in this volume,—and the reasoning, vigorous and persuasive as it is, is far too speculative, and too open to question and doubt, for us to be able to give an unqualified or favourable verdict on these merits,—this is a remarkable production, considering that the author is now upwards of eighty years of age. His life, however, has been devoted to scientific research, and his present speculations are but the fruits of many years' investigation and thought. Indeed, the present volume is described by the author as a selection of extracts from the laboratory memoranda of the last fifteen or twenty years; and it has been prepared for the press in the hope that it may remove some of the uncertainties and correct some of the errors which prevail in reference to the application of heat and steam in the steam-engine, and in particular in steam navigation, with which the author has for years been connected.

Whatever errors this treatise may contain, there seems little doubt of its becoming a recognized and standard work in the history of heat in its connection with steam.

Notes on the Site of the Holy Sepulchre at Jerusalem. By JAMES FERGUSON, Fellow of the R.I.B.A. London: Murray, 1861.

MR. FERGUSON has come out in force against the writer on his theory in the *Edinburgh Review* of October last, and has knocked him about a bit. Fifteen years have produced nothing to weaken his opinion that Constantine built the Dome of the Rock, or what is now called the Mosque of Omar, over what he at least supposed to be the sepulchre of Christ. The position of the present Church of the Holy Sepulchre cannot be reconciled with the indications of the Scripture narrative, and its architecture is of a style wholly subsequent to the period of the Crusades.

Mr. Ferguson has unquestionably the best of the argument. The book he reads from is a stone one, written on with a chisel. Those who do not know the language cannot translate it. The issue is a simple one,—Are the ancient parts of the Dome of the Rock of the time of Constantine? Mr. Ferguson and others judging from drawings and photographs, say, unquestionably they are. Surely, it will not be long and present political arrangements, before some competent investigator (for though they be), using his eyes on the spot, will be found to confirm or set aside this opinion.

DINNER TO WORKMEN.—On the 5th instant Mr. William Jenkes, of Great Russell-street, Bloomsbury, gave a dinner to his workmen in the hall of the Freemasons' Tavern. Upwards of 120 assembled, and spent a pleasant and convivial evening. We are glad of the opportunity to express our esteem of Mr. Jenkes as an able and honourable tradesman.

PROPOSED VISIT OF ENGLISH WORKMEN TO PARIS.—A letter from Paris says that delegates from working men in some parts of England have come to Paris to organize a visit to their fellow-workmen in this capital. The object is simply to introduce the English operatives to the acquaintance of their Parisian brethren. It is proposed that the visit shall take place about Easter, and that the married men shall be accompanied by their wives. A committee of working men, to promote the excursion, is now sitting in London. It is explicitly stated that the movement has no political signification, and that "Mr. Klotz-Rossell has nothing whatever to do with it."

CITY IMPROVEMENTS.—Now that the removal of the Law Courts is, to all intents and purposes, a thing accomplished,* only waiting for that legislative sanction which is certain to be obtained, it becomes an imperative duty on the part of the City Improvement Committee to assist in every practicable way, and as early as possible, the promotion of alterations of a more distinct character than have recently claimed their attention. Under the Act for the removal of the Law Courts it is proposed to take down all that block of houses, extending from Bell-yard, Fleet-street, to the Pillars in the Strand, on the north side of St. Clement's-Dane Church, thence north to Carey-street, and from Plough-court, in Carey-street, to Bell-yard, and on the site to erect an extensive and elegant building, in which all the business now conducted at Westminster will be transacted much more expeditiously and comfortably, both to the judges, counsel, and the public, on account of the more immediate vicinity of the Inns of Court. Constantly upon pulling down these houses in Fleet-street and the Strand, there will still remain in the narrowest part of the former important thoroughfares eight houses, standing out of Temple Bar, and extending to Chancery-lane, which must continue not only an obstacle to the traffic, but an eyecore with reference to the principal entrance into the great City of London. One of these houses, No. 198, now occupied by Mr. John Most Threlke, was formerly the habitation of the eccentric Isaac Walton, who kept and sold history there. This house, like the other seven, overhangs the pathway, and is a great impediment to the traffic. To remove these eight houses would widen the street most conveniently, and expose to view one of the most handsome modern buildings of the city, viz., "The London." We call attention to this improvement, because it ought to be made at once by the City Improvement Committee of the Corporation. After the Bill for the removal of the Law Courts passes, as it most assuredly will in the next session, the value of property in this locality will be doubled, not only on account of the number of tradespeople, who will naturally seek a dwelling where their connection lies, but, from the influx of lawyers and their clients into the neighbourhood, house property has quadrupled in value between Temple Bar and St. Dunstan's Church within the last ten years. Old houses, once let at 50l. per annum, have been pulled down, and a rental of 120l. for the ground alone on which they stood has been obtained. We would, therefore, urge the Improvement Committee to be on the alert in assisting a great public work, or rather, in taking the initiative, when an opportunity offers, for purchasing this property at half the price, which a full, in three or four years' time, he demanded. —*Bell's Weekly Messenger.*

"SOUTH KENSINGTON MUSEUM."—Sir: You refer to public lectures in your last number. You might do some good by inquiring why no lectures are being delivered in the South Kensington Museum.—A READER.

TO KEEP ICE FROM SHOP WINDOWS.—Take an ordinary paint-brush or sponge and run over the glass once or twice a day a little alcohol, and it will keep the glass, it is said, as free from ice as in the middle of summer, besides giving as good a polish as can be got in any other way.

PETERSFIELD, HANTS.—A new mansion has just been commenced on the Hawley Hurst Estate, near Petersfield, Hants, for Mr. J. J. Maberly, under the direction of Mr. S. S. Teulon; the builders being Messrs. Fisher & McLean, of Reigate. On the 2nd inst., the workmen employed thereon, to the number of nearly fifty, dined at the Spread Eagle Inn, Liss, at the expense of the owner. Mr. James Barford, clerk of works, was in the chair; and Mr. John London, foreman of works, in the vice-chair.

THE LEICESTERSHIRE ARCHITECTURAL AND ARCHEOLOGICAL SOCIETY.—At the last meeting (Rev. J. H. Hill in the chair), it was resolved:—"That the warm thanks of the society are due and are hereby offered to the Right Hon. Lord John Manners, M.P., for his kindness and courtesy in affording his valuable aid to the society, by presiding over the *soirée* lately held in Leicester; and that the society will give its best attention and consideration to his lordship's observations on architectural questions, at the same time tendering its grateful acknowledgments of his public services in promoting an improvement in the architecture of our national edifices." Mr. E. L. Stephens, borough surveyor, was elected an honorary member of this society, in acknowledgment of his courtesy to its members, and of the assistance he invariably renders in the prosecution of archaeological inquiry. Mr. George C. Neale read a paper "On the recently adopted Regulations in regard to 'Treasure Trove.'"

NORTH STREET SCHOOL (ANGLICAN).—The annual fête for the children of this school, now 740 in number, came off with great *clat* on Thursday evening last, January 3rd. The entertainment consisted of a selection of vocal music, sung by the children and officers, under the direction of the superintendent, Mr. Smith, and the chaplain, the Rev. O. J. Vignoles; together with a performance by the school band, under the skilful guidance of Trumpet-major Lawson, of the Royal Artillery band. Between the parts, prizes were distributed to the most deserving of the children by the chairman, Mr. J. L. Bennett, amidst the hearty applause of their fellow scholars and playmates. Afterwards the young people were addressed by the chairman, and her Majesty's Inspector of Schools, Mr. E. C. Tufnell, both of whom congratulated the officers and teachers on the very efficient state of the institution, and the general progress, as well as healthy and happy appearance, of the children. The children admitted into these schools are taken from the most destitute classes of the metropolis. The girls are taught to cook, clean, and sew, and at sixteen are provided with situations. The boys all learn some trade, and at the same age are put in the way of making an honest living by it.

VIADUCT ACROSS THE TAPTEE IN BOMBAY PRESIDENCY.—The first train crossed this viaduct on the 1st ult. It spans the Taptee, close to the village of Phoolpara, the turning Ghaut lying eastward but a few yards. At high-water at this spot the river is 1,200 feet in width, and often in floods the water swells to the extent of 1,800 feet. The viaduct consists of thirty openings, of 60 feet wide, spanned by girders on the Warren principle, resting on cast-iron piles, which are screwed to each other transversely by horizontal and diagonal ties of great strength. The distance from the road-rail to the bottom of the pile is 80 feet, and from the road to the surface of the water is 45 feet. In the rainy season the current runs with amazing force, and large trunks of trees from the inland jungles are frequently seen whirling down the river. In order to avoid these coming into collision with the main piles, and prevent the danger of breaking them, other piles on each side of the main piles are rivetted, sloping from the top at an angle of 30 degrees, in the direction of the stream. The total weight of wrought and cast-iron consumed in the construction of the bridge is upwards of 3,000 tons. This undertaking has been constructed under the superintendence of Mr. Jerome Burns, and his assistant, Mr. Francis King; and opened for public traffic in twelve months, during four of which the operations were partially suspended, in consequence of the monsoons and heavy rains.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—The second Annual General Meeting was held in the Society's rooms, 9, Conduit-street, on the 10th inst., when, in addition to the ordinary business, the prize medals, awarded in the session of 1860, were presented, viz.:—In historical painting, to Mr. S. Solomon; in landscape painting, to Mr. Vicat Cole; in water-colour painting, to Mr. Henry Tidey; in sculpture to Mr. J. Durham; in architecture, to Mr. S. J. Nicholl; in poetry, to Miss M. Power.

STAINED GLASS.—The committee for the erection of a window in Gloucester Cathedral, in memory of the late Mr. Thomas Turner, has determined that the memorial should be placed in one of the two large windows at the eastern end of the north aisle. The work is to be intrusted to Messrs. Clayton and Bell, and the subject will be Christ's miracles at the pool of Bethesda. It has been agreed to erect a memorial window in the Chester Cathedral to the late Canon Slade, the window to adjoin that which Canon Slade erected, not more than three years ago, as a testimony of thankfulness for recovering from his last illness but one. The Dean and Chapter will put the tracery in, and restore the window to its proper architectural character, before the memorial window is put in.

THE NEW LOCOMOTIVE WORKS AT CREWE.—An extensive range of new engineering workshops has just been completed at Crewe. These consist of a series of sheds, situate on the line of railway about a quarter of a mile to the north of the station. The large shed, or erecting shop, is about 270 feet long, by 70 wide and 30 high, and is fitted with every modern mechanical appliance to facilitate the operations which will be carried on. The shed is divided into two immense bays, by a row of fluted iron columns, which support traveling cranes, used in removing the locomotives. The cranes are moved by machinery, which is also used to lift all heavy weights. There are Nasmyth's steam-hammers, and steam is brought into requisition in every possible manner. When the sheds are in full working order, employment will be given to about 600 additional hands, the present number being about 1,620. The buildings have cost about £35,000. The completion of the whole was celebrated by a *soirée* and ball, Mr. Hardman Earle presiding. The company assembled numbered 3,600. The Marquis of Stafford, General Lawrence, and other men of known name, were present. Crewe, twenty years since a mere crossing point in the country for various railways, now contains 1,500 houses, and a population of about 9,000, chiefly of the working class connected with the railways. The works maintain a stock of 540 engines, and turn out six new ones every month. About 284 trains daily pass through the Crewe station.

ELECTRO-TELEGRAPHIC.—In a long and interesting account of the new arrangements for town telegraphing, the *Observer* says: copper wire no thicker than the cotton on a lady's work-table can be coated with india-rubber not thicker than paper, and through this delicate material electricity may be made to travel for at least twenty miles, and to transmit intelligible signals. A rope can be made of thirty of these thin strands, coiled and twisted into a cable of the size of one's middle finger, but little heavier than a piece of hempen rope of the same dimensions, and a highway may be thus formed for thirty different conductors of intelligence. This cable or "electric highway," may be suspended over the house-tops; for, unlike gutta-serena, the india-rubber insulation will not be affected by the smoke from the chimneys, nor by the heat of the summer sun. It is proposed to connect every part of London, and some other large towns, by a system of triangulation. The whole metropolis will be divided into a system of triangles, the sides of each being about a mile in length; each point of the triangles being united to the adjoining ones by one of these cables of insulated wires. The wires of these electric cables will be available for private use; and, just as in the case of the gas or water companies, any person in the district may have a wire laid on for his private and special convenience, paying a rental to the company for its use. The charge made by the London District Telegraph Company for single messages is 4d., and 6d. for message and answer to and from any part of the metropolis [when and where their wires are strung, we presume], including the cost of delivering and receiving the messages.—An over-house or street telegraph has been put up in Southampton.—That unfortunate submarine telegraph of which we recently spoke, as destined for Rangoon, has been wrecked with the *Victoria*, which contained it.

A SCHOOL OF ART FOR HERTFORD.—An effort is now being made to establish a School of Art in Hertford, in connection with the Council of Education. There will be day classes for ladies, and classes for artisans and others.

A NEW BRICKMAKING MACHINE.—The experience of late years has shown that machinery can turn out bricks at a rate which would have surprised the ancient task-masters of the poor Israelitish brickmakers, under Pharaoh, who had to struggle hard to produce "their full tale of brick." Further progress is being made in the same direction. The *Marblesfield Courier* speaks of a new invention which has been patented by Mr. P. Effertz, a German engineer. The full-sized machine is intended to make bricks from the freshly-dug clay, which is shot into a hopper (at the back of the machine) direct from the cart. When in the hopper, the clay is pressed through a series of narrow slits, by a movement somewhat like placing the fingers of the right hand between those of the left, and which ejects suitable material. The several further steps in the process we have not room to describe, but we may add that an important appendage to the machine is a new kind of carriage, which answers alike the purpose of a drying-ground and a wagon for conveying the bricks to the kiln. The clay being well mixed, and strongly pressed, causes the bricks to be much drier than when made by hand; and this plan dispenses with laying them down in a brick cleft, or building them up in walls to dry. Each carriage is to hold about 2,500 bricks, which are made ready for the kiln in about twenty-four hours.

THE SEARCH FOR EMPLOYMENT.—Well I remember the uncertainty with which I set out, and the adventures of that day. One of the most disagreeable things a working man has sometimes to do is that of searching for employment. Many an industrious man plods this vast city with aching heart, in the endeavour to obtain the means of subsistence; happy if but the opportunity be afforded him of working out the sentence to "earn his bread by the sweat of his brow." But how often does he meet with a rebuff—almost unbearable—for daring to ask the question if his services be needed. Too frequently is the door shut in his face as he can venture to make known his request; or he is looked at with a suspicion of being idle and worthless, and therefore has no business to be out of employment. There are some people who really seem to think that "work," in this vast commercial city, can always be had for the mere asking for it; yet how many are there who find it impossible to obtain it, and whose sufferings in consequence would, if they were but known, rouse the strongest feelings of commiseration. Employers of course have their cares, and perhaps an apparent harshness may sometimes result from losses which working men can barely appreciate. Still a little respect or something like attention to the unemployed applicant would often tend to alleviate that distress with which too many have to battle amid the fluctuations of this world of labour, and would engender a better feeling between master and man than sometimes prevails.—*Recollections of a Working Man, by J. Bate.*

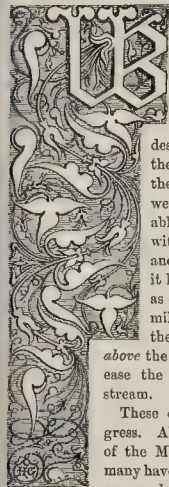
EXPLOSIONS IN KITCHEN BOILERS.—During the late severe frost, several rather serious explosions of kitchen boilers have occurred. In Yorkshire and Lancashire, especially, these explosions were rife, as at Leeds, Bradford, Rotherham, Blackburn, &c. The cause in some cases is the formation of ice in the boiler pipes, in the first place; thus cutting off the supply while the empty boiler remains heated; and, in the next place, the thawing of that ice allowing the water to enter the overheated boiler, and so produce the explosion. In other cases the cistern, when outside, freezes on the surface, and so prevents the descent of the water even where the pipes are kept safe from the frost: the thawing or breaking of the air-tight crust of ice, of course, at once allows the water to descend through the pipe to the empty and over-heated boiler; and, as in the other cases, an explosion is the instant result. Both cisterns and boiler pipes ought to be carefully protected, therefore, from the frost; or, where the cistern cannot be so, the ball-tap should be fixed so as to shut off the supply till a favourable opportunity occurs for filling the boiler while cool, or the fire should be raked out for the purpose. Where the pipe becomes frozen, there is nothing for it, we suppose, but to keep the boiler cool till the thaw ensues, if no access of heat can be readily got to the pipe: in heating the pipe, of course care should be taken that the boiler, meanwhile, is not too hot. The protection of both pipe and cistern from frost is the only safe course in any case where a boiler must be kept in continual use.

and therefore could introduce a pupil to profitable employment at the expiry of his articles.—Address, A. A. A. Office of "The Builder."

The Builder.

VOL. XIX.—No. 937.

Metropolitan (Underground) Railway: Central Railway Station in the City.



ITH railways below the ordinary roads, the roads themselves widened, straightened, increased in number, especially by one along the river side, and furnished, where

desirable, with tram-ways, the accumulated millions of the metropolis, and its wealth of equipages, will be able for a time to circulate with something like ease; and when, a few years hence, it has still further extended, as extend it will, and another million has been added to the population, a viaduct above the principal road may again ease the block and liberate the stream.

These changes are fast in progress. All our readers have heard of the Metropolitan Railway, and many have been turned out of their course by the stoppage of the Euston-road and other thoroughfares, by the works necessary for its formation. Probably, however, the engraving and plan we give in our present number* will afford to the public the first clear idea of what it really is, and of what has been done.

The view shows the double bell-mouth and groining at King's-cross, which are formed to allow the junction of two branch lines by which this railway is connected with the Great Northern Railway. The whole of this bell-mouth is executed in brick-work,—the greatest span being about 45 feet. The road on the left shows the line to the east side of the Great Northern, and is completed.

The two branch lines, passing as they will do on each side of the Great Northern Station, will enable trains to work continuously from stations on the Great Northern to the City without interruption, and without crossing any of the main lines of rail; thus practically extending that railway into the City, and by the authorized London, Chatham, and Dover Railway, &c., to Brighton and the Continent. The main line, seen on the right, is being carried forward to Victoria-street and Smithfield.

At the western end the Metropolitan Railway joins the Great Western Railway, extending it likewise into the City, thus placing the Great Western Railway on an equal footing with the Great Northern in respect of City communication.

The Metropolitan line will be made on the mixed gauge, so that it can be worked by broad or narrow gauge stock. The arch is 28 feet 6 inches span in the clear, formed with six rings of 4½ inches work, in hydraulic mortar. The height is 16 feet 6 inches from the rails.

The portion of the line which passes under roads and streets will be in a covered way, as in our view; but where it traverses private property it will lie in open cutting, with retaining walls. Gas will supply the place of the sun where it is unlighted. The stations will all be open to daylight, and the carriages will be lighted artificially.

Besides terminal stations, there will be intermediate stations in the Edgware-road, Baker-street, Portland-road, Gower-street, King's-cross, and Victoria-street, or Smithfield.

The interferences with sewers are necessarily considerable; but they have always been discussed and arranged with the engineers of the various Boards of Works, and no inconvenience has in most cases resulted. The "Fleet ditch" passes over the railway in a large iron tube, visible in the branch line to the Great Northern. Many large gas and water mains have been exposed: some have been removed, and placed away from the works; others have been supported temporarily, and left almost in the position in which they were found.

A considerable portion of the line is already constructed, and the works are now in progress in Praed-street, Paddington; Chapel-street; in the Marylebone-road, near Northumberland-street, and at Portland-road; near King's-cross; and in Coppice-row, near Victoria-street.

The material through which the line is formed, is, at the West-end, sand and gravel, with its usual accompaniment of much water; and at the East-end, the London clay. The present severe weather has stopped the progress of the open work; but the portions which are "driven," progress much as usual, as the temperature is much higher below than on the surface.

Mr. John Jay is the contractor for the eastern portion, namely, from the City to St. Pancras New Church; and Messrs. Smith & Knight take it up there, and are carrying it on to Paddington. Mr. Houslander is Mr. Jay's representative on the spot. Mr. John Fowler is the engineer-in-chief: Mr. T. Marr Johnson, the resident engineer.

Returning to the portion we are illustrating, what we have said will suffice to show that it is a work of no common difficulty,—a work calculated to keep awake all who are concerned in it. Some of it was effected in a cutting 65 feet wide, with the weight of houses on both sides pressing against it. It was got out in sections at intervals, and then the intermediate parts were filled in.

Going westward from the part finished, a wagon-way, or heading, is driven, and formed with whole-timber uprights, heads, and cills, with 1½-inch or 1¼-inch boarding, using about 50 feet cube of timber in every yard. The earth, then, being removed above this is shot down into wagons, taken by temporary rails to the Great Northern, and so to Wood-green. About 500 yards of stuff are taken out every day. A sump, we may add, is formed near the junction we have illustrated, into which any water that may accumulate is drained, to be thence pumped out. At present the tunnel looks very dry. At the angle of the junction, it will be seen in the plan, an apartment is formed, with a brick dome, for the telegraph, and there are other small apartments for lamps and attendant. At the other end of the line the excavated material is taken away, in a similar manner to that just now described, to Brentford, to form an embankment there. Much of the gravel is used in the works for concrete and as ballast.

When the Metropolitan line joins the Chatham and Dover, in Farringdon-street, it will constitute the first railroad through the heart of London.

In connection with the subject to which we are referring,—a subject of the utmost importance to the metropolis,—we must mention the plan for the concentration of railway stations at the north end of Farringdon-street, proposed by Mr. J. B. Bunning, the City's architect, the Improvement Committee having requested him to consider "whether the establishment of a central railway station in the City of London (say in the neighbourhood of Smithfield), for the purpose of connecting therewith the whole of the existing and contemplated railways, be desirable and practicable." Mr. Bunning took into account,—the large amount of land now unoccupied in Victoria-street; the approach of the Dover and Chatham line at the foot of Snow-hill; the proposed Metropolitan Station in Victoria-street; the unprofitable occupation of Farringdon-market; the supply of meat

to the proposed new meat-market; and, above all, the inconvenient and dangerous gradients of Holborn-hill, Skinner-street, and Snow-hill,—and came to the conclusion, that the formation of a Central Railway Station would be both "desirable and practicable" at the north end of Farringdon-street. The design, if carried out, would not only afford an opportunity of uniting all the existing and contemplated railways, but would connect the entire network of rails with the proposed new meat-market in Smithfield. It lifts the valley of the Fleet, at one point 12 feet 6 inches, thereby improving the acclivity of Holborn-hill, by reducing the gradient from one in nineteen to one in forty, and that of Skinner-street to one in forty-five, an improvement which, with especial regard to the public convenience, can scarcely be over-estimated. It suggests a profitable employment of the site of Farringdon-market, and the large amount of unoccupied land in Victoria-street; and, whilst pulling down much of the smaller property from Long-lane westward to Holborn-hill, contemplates very desirable street improvements in that and the surrounding locality.

The committee approving of the scheme recommended it to the Court of Common Council and asked to be authorized to prosecute the inquiry, by conferring with the Government, the railway companies, and other parties upon the subject. The court afterwards directed the committee to carry out their report, and we are much disposed to believe that further inquiry will show the advisability of the plan and the means by which it may be effected. What we have been long calling for, the connection of the various lines of railways east, west, north, and south of the metropolis, to remove it from its present absurd position of being actually a block in the way of all through traffic, is now fast approaching completion, and this very excellent plan of Mr. Bunning's will materially aid in bringing about the much-desired result. It will further afford an opportunity to make this a fine part of London. Let it be taken advantage of with a will. Enormous sums would necessarily be expended by the corporation and the various bodies interested in carrying out the idea, and profitably expended too, and this should be done with a view also to general effect, and with a full appreciation of the value of the beautiful.

"A PLEA FOR POLYCHROMY,"

THE ARCHITECTURAL MUSEUM.

ON Wednesday evening, the 9th inst., a lecture was delivered by Mr. William White, the subject being a "Plea for Polychromy." The lecturer first insisted upon the necessary existence of polychromy in architecture, and pleaded for a further introduction of colour largely for its own sake in architectural interiors. He appealed to man's intuitive love for colour as illustrated in a variety of ways, and to the analogy of nature. He then referred to the value of "unconscious influences," and to the manner in which men are affected by colour even though unconscious of its presence, and called attention to the necessity of colour in order to the healthy state of the eye and brain, and the consequent cruelty which its withdrawal inflicted upon the sick and the poor. We give some portions of the lecture.

Colour is one of the elements of our art—as much so, indeed, as form, texture, or proportion. Our houses may be whitewashed from top to bottom, roofs and walls alike, as in the Bermudas and Newfoundland, or in the cottages nestling in the sides of the dark grey mountains of North Wales. But this again shows the value and effect which the presence of colour existing in all material has in the humblest architecture, seeing that the very absence of the ordinary local colour, which lies hid beneath a coat of lime, forces itself upon the most casual observer as an instance of striking peculiarity—picturesque, perhaps, in its way, but not commending itself for universal imitation in other parts of the world; not that the employment of white as a colour is to be deprecated, either in exterior or in interior architecture, but the sweeping concealment of all local colour, not suggestive of necessity, or of high art, whereas the smallest artistic, or even systematic selection and arrangement of such colour does display design. There must, I say, be some colour, and

* See p. 41.

if the work has any pretensions to art, selection is made, and all collateral considerations are duly weighed, as to its treatment.

In the consideration of colour for its own sake, and apart from any such accidental existence of colour in natural material, a great deal might be said of the value and fitness upon the ground of the constitution and intellectual parts; but apart from this, I hope to show that it is not and ought not to be considered a matter of mere fancy gratification or choice, but of absolute and positive right or wrong. Many of us are content to live on with a knowledge of but comparatively few of the natural causes influencing our happiness and welfare. Through the advancement of science these are continually being brought out. The beneficial effects, e.g., of light and air in our dwellings are now becoming every day better received and acted upon. The good effect, even upon the poor and uneducated, of association and companionship with forms good and true, rather than with such as are base and unworthy, are, through the means of constant philanthropic observation and research, better understood and valued accordingly. And since colour has an influence upon us, of which very many are scarcely aware, let us, in like manner, endeavour next to trace out a few of the facts and phenomena of nature in order to pursue our study of natural causes into the territory of chromatic art, and then let us look at the bearing of these facts upon the workings of "unconscious influences"—for notwithstanding all our keen observation of common things, and our pride of independence upon anything that we do not perfectly understand, such influences have a greater and more permanent effect upon us than those of which cause and effect are more immediately apparent. And first let us consider a few of men's natural instincts as to the love of colour.

Most remarkable, perhaps, is the love for colour intuitive in little children. It is almost the first thing that attracts infantile interest and affords delight. With very many grown persons the home associations connected with the days of their childhood are recalled by the sight of beautifully-coloured objects, such as flowers, butterflies, or birds. It is, indeed, chiefly to the well-trained, home-loving, and self-disciplined mind that such memories of the past are present; but herein, again, is shown that the association itself is good and true, and to be encouraged as an innocent and beneficial refreshment, whose effect does not pass away with the fleeting moments of early life, but, if we may credit the testimony of many an aged man, remains by one to cheer the loneliness of age, as is again and again proved by the testimony of those who have experienced its virtue. I have myself heard the aged invalid speak of the great relief afforded by the eye resting even on the flowing pattern of a common wall-paper, during recovery to consciousness from severe attacks of illness, the eye, at first, but imperfectly taking in either the form or the colour, day by day regaining its power and proper action with increasing strength, and finding pleasure in following the coloured lines, which imparted an interest to an otherwise blank and wearisome gaze upon apparently vacant space.

Most men have, more or less, an appreciation of, or at any rate some love for, colour, and no one in good health naturally has an abhorrence of colour in itself. Very many show apparently a great indifference to it, who yet feel the coldness and discomfort of its being withdrawn, and who seem unconsciously to choose the very works exhibiting the choicest colour, which a highly cultivated taste would have selected as good. They will select the very spots for rest or retirement which present the strongest attractions in respect of colour. Good colour, in fact, does impart a finished and cheerful effect, to which but few are wholly insensible, whatever their ideas or professions may be with respect to its influence. Not that colour, irrespectively of its quality and harmony, will afford rest or pleasure, any more than the jingling, discordant, harsh, or grating tones of the street-grinders will satisfy the ear; yet even here one is sometimes struck with the exuberant, though genuine, delight expressed by the uneducated at the poorest colouring, or the lowest class of music.

Whether subjects, or single figures, may or may not receive a considerable amount of colouring, in order to obviate the effect of being too much detached from that of which they may form a portion in the general treatment, necessarily depends upon the particular circumstances of the case, and it is scarcely within the scope of my subject to inquire further. But it is perfectly compatible with the nature of my plea to allow, nay,

to urge, that the finer the subject as a work of sculpture, the less ought to be the amount of colour applied; supposing some colouring to be needful in order to harmonize the work with the building in which it is placed. But, in fact, the question of applying paint to those much-admired sculptures whose beauty depends chiefly upon the delicate chiselling of the artist's own hand, in no manner applies to the present case. His selection of a hard and close-grained material of pure colour and fine texture, may afford, it is true, a fair pretext for the denunciation of paint *in toto*, as applied to sculpture. But it is altogether beside the question, for such treatment of such sculpture never has been, nor ever will be, soberly entertained. Nevertheless, when a soft and porous material, incapable of carrying a fine edge, one whose texture is improved and hardened by the application, is employed, there is not the same *primæ facie* ground against the use of paint; it cannot be classed in the same category; and thus on the one hand, we may safely say, that the richer or finer the material, and the deeper or more delicate the work, the less need is there of elaborate colouration; whilst, on the other hand, where extensive plain surfaces, or poor materials, are employed, the need of colour is all the more felt, and colour becomes, as it were, absolutely indispensable. But, perhaps, the strongest popular argument put forth by the opponents of polychromy is that of reference to the example of our ancient uncoloured cathedrals as compared with the wretched attempts at an improved state of things in some of the works of our Continental neighbours, e.g., the solemn dignity of our Abbey Church of St. Peter, Westminster, with the smartly decked-out interior of Notre Dame at Paris. I am quoting no imaginary case. It is one that is continually brought forward to illustrate the bad taste of a profusion of colour and the beauty of its absence, and the anti-colourist rejoices in having such a crushing argument to throw in the teeth of the polychromatists, proving, as we conceive it must, to every one's satisfaction, the unfitness of colour for architectural interiors; whilst he maintains that it is the excess of colour which has produced such unsatisfactory results. Again and again, Notre Dame is set up as the polychromatists' idol, to be demolished by ruthless defenders of form against colour.

Let the anti-colourists look to it, for if they cannot produce a more dangerous enemy than this, it shows but a hopeless cause. Their argument is plausible, and, no doubt, well meant; and if they really and truly believe that we regard Notre Dame in any other light than as a warning against the abuse of colour, they are, to some extent, justified in their dread of its introduction on a large scale—much as they do us and the cause which we advocate injustice by such imputations.

But, further than this, it is not to the profusion of colour, but to the improper diffusion of colour, and to the unsatisfactory mode of its application, that its ill effects in Notre Dame are to be attributed, our adversaries themselves being judges; for even they allow that the interior effect of the beautiful little chapel of La Sainte Chapelle, in the same city, although containing at the least five times the proportionate amount of colour, is so immeasurably superior to that of Notre Dame, as to be beyond the reach of comparison with it.

And, on the other hand, to quote Westminster Abbey as an instance of the superiority of uncoloured effect, is just as wide of the question in another direction. In the first place—gladly agreeing to the alleged superiority of the interior of Westminster Abbey over almost any other church or cathedral in Christendom—I maintain that the amount of actual colour in Westminster Abbey is very far above the average, not only in the buffs and greys which age has spread upon the surface, but also in the gilding and positive colours shining through the coating, though not in sufficient strength to convey a distinct impression of what it must have been when it came forth from the hands of the guild that directed its completion; but it would be, to say the least, as fair for us to claim it, as giving its testimony in favour of colour, as it is to ignore the presence of colour, and call Westminster Abbey an instance of an uncoloured interior. The appeal, too, to our more evidently uncoloured interiors fails as a precedent of what was done in old time, when we bear in mind how universally these were furnished with pictures, and hung with costly tapestries of polychromatic material, embossed with silver and gold.

But perhaps one of our strongest opponents is prejudice. I have known instances of a vague

dread of superstition in the presumed application of "Symbolism" in the use of colours, to have so prejudiced people's minds against polychromy as to induce them to condemn it entirely for ecclesiastical purposes. Having, upon another occasion and at another place, already entered fully into the nature and mode of such applications, and into the benefits of this branch of symbolic teachings, I shall not now do more than express my concern that sensible persons should be led away by an empty cry of this kind. And I might have expressed my surprise that men, even professing liberal views, should ever condescend to such bigotry and intolerance as to condemn, on behalf of others, a most valuable accessory to art, merely on the score of its having once been, in a dark and corrupt age, liable to dangerous misuse,—had I not long ago learned that a noisy profession of liberty of conscience always means liberty for others to do anything but what clashes with its own limited preconceived opinions. The dread of the danger suggested is akin only to that of contending that, after all the railway accidents of the last few months, it would be much safer and better if no one ever entered a railway-carriage again. That we are, or ought to be, independent of such accessories as either colour or symbolism; and that the love of colour must be in some way necessarily connected with a pitiable weakness—or still more pitiable superstition, is a species of scepticism which its advocates would at once repudiate if made applicable to their own case in domestic daily life.

I repeat, it is not the profusion of colours which is offensive to the fastidious taste, but it is the mode of its application, its harshness, its want of harmony, its unfitness for its purpose, its imperfect treatment, arising in a very great measure from long neglect of the scientific study of chromatic law in combination with careful experiment as to its application. The question as to what would be a proper amount of colour or good treatment architecturally in any given work is as difficult to determine as any other general question relating to art in a particular instance. It fairly admits of considerable variety of opinion, and I for one shall not attempt to define it. I take my stand solely upon the general principle against those that would set aside the true merits of the case, and appeal to evidences of failure as an argument against all attempt at better things. For many an aspirant artist-critic will look at a work of varied quality, containing, perhaps, extremes of good and bad taste; he will denounce or advocate, as a general proposition, some point bearing in reality upon only one element therein of failure or success; upon a branch of art but little understood he will profess to exercise a mature judgment, and will proceed to attribute to colour itself, rather than to imperfect treatment, all the evil result of an unsatisfactory work. And hence it is that has arisen the wholesale condemnation of colouring as such by those who have formed their notions, I will not say upon a few poor and faulty works, but upon works showing the highest order of merit in some respects, whilst in other respects they fall so far short of perfection as to present at first sight to the casual observer an appearance of discord and confusion. Hence it is, too, that a capricious public will bestow upon an unworthy object a great deal of effusive and inapplicable admiration, which, in after-times, each individual is ashamed to own having given.

ON SOME MALVERSE REACTIONS OCCURRING IN OIL PAINT COMPOSITIONS.*

ALLEGED ADULTERATIONS OF THE LINED OIL.

Through the Medium of the Seed.—It has been within only the last five or six years that the fact of there being something unusual and wrong in the condition of lined oil began to be noticed so generally as to lead to the inference that this was scarcely to be accounted for by even a great multiplication of ordinary cases of adulteration. But it has been within the still more recent period of the past couple of years that this question has assumed its present dimensions—pointing distinctly to the existence of some very generally operating cause.

The question naturally arises whether there can be traced any clear connection between all this and the changes in the localities of the growth of the seed, that followed upon the breaking out of the Crimean War, when, the Baltic and Black Sea ports being sealed against us, we were driven to our Indian possessions, and have since had thence the greater proportion of such supplies for the English market. And if a coincidence of this kind be proved to have

* See p. 3, ante.

existed, how is it that now, after the reopening of the Russian ports, and the action of a partial recurrence to the old state of things might be supposed to have worked its effects, we find the reputed condition of the oil to be worse, and not to have been restored, even partially, to its wonted condition?

Now, a careful examination into all the facts and attendant circumstances, discovers to us an unmistakable coincidence between the first symptoms of disorder in the oil and the occurrence of the Crimean war. It shows us also a double cause why the East-Indian seed oil is, to some extent, different from that obtained from the Northern seed; and it explains why we do not now, so generally as we formerly did, get genuine oil from the resupplied Russian seed.

It has been within this period,—the past five or six years,—that linseed first began and has continued to reach us in greater proportional quantities than it formerly did from Calcutta and Bombay. The "Market Reports" just issued,—that, for example, of Messrs. Rose, Graham, & Wilson, give the total importation, for the past year, as 1,255,000 qrs.; of which 550,000 were from the East-Indies, 350,000 from the Black Sea, and 260,000 from the Baltic and White Sea, and 95,000 from other ports; and this of course presents a fair average of the relative sources of the seed from which the linseed oil in the British market is now extracted.

In a former article in the *Builder* on this subject there was suggested a natural, and consequently a non-culpatory explanation of the difference between the Baltic and the East India seed oils. That explanation was that side by side with the linseed of the hotter climate of India there grew other seeds, not appearing in the colder climate of the north, yielding oils that are non-drying; that these extraneous seeds, when not winnowed from the genuine linseed, gave, on crushing, a mixed oil, containing a considerable proportion of a non-drying element, and led, when applied in the composition of paints, to much, if not to all the malverse results that were being complained of.

This explanation still holds good; but a closer and more recent examination of the East-India seed oil has shown that, in addition to this source of difference, there exists another due to the presence in the Indian oil of certain elements that either do not exist, or are not so fully developed in the Russian—adventitious and extraneous constituents of climatic origin, not affecting the specific character of the oil, but of material importance in its art-applications, and when being treated for improving its drying properties,—differences which will be more particularly reverted to hereafter. And as regards the Russian, an equally explanatory fact has recently transpired, and is now well known to the oil and seed merchants, namely, that both at the Baltic ports and those of the Black Sea (and similar things may, though the writer cannot so certainly vouch for that, be done also at Calcutta and Bombay), it is no unusual practice deliberately and intentionally to add other and valueless seeds to the genuine linseed. In other words, to bring, it is said, these adulteratives even to the quay side, and have them "shot" in along with the real seed on the lading of the vessel under some surreptitious contrivances or connivance sufficiently ingenious for such occasions.

The kind of refuse seed chosen for this purpose is generally that of the wild rape, growing spontaneously in vast profusion on the wastes of Russia. This wild rape yields a comparatively non-drying oil; and the quantity of the seed so added has been known to have amounted to as much as 17 and, in some cases, even to more than 20 per cent. on the whole cargo.

The oil from the seed of this wild rape is essentially a non-drying oil, similar in its general properties to that of the ordinary rape, with the oil from which we are all so familiar. Such oils exposed to air on a surface of glass, become thickened or gummy, or pass into a half-indurated state at the end of several weeks or months; whilst *raw* linseed oil, similarly exposed, becomes *hard*, that is, *dries* properly, in from 70 to 100 hours; and a good drying oil, that is, linseed oil, that has been specially and properly treated to increase its drying rate, will, under like conditions, harden within a time ranging between six and twenty-four hours.

It is important to trace the consequences of the admixture of such an oil in the genuine linseed. In a mixture of a non-drying with a drying oil, the drying property of the one is not destroyed, only impeded; its proper final effects are vitiated

by the presence of the non-drying element. The former dries finally notwithstanding the presence of the latter, which retains its fluidity till at least other and different actions supervene. The proper final effects that should be obtained from a drying oil are, therefore, vitiated to an extent directly proportionate to the relative quantity that may be present of the non-drying element. There takes place in such mixtures no other action than a merely mechanical one. The injurious effects of the non-drying property of the one oil are not compensated for, or overcome, or even partially so, by the drying power of the other. A degree of hardness is finally reached in such a mixture, which is the mean of the hardness proper to the solidified genuine oil, modified by the adulterative, which remains fluid. The relative proportion of the non-drying ingredient may be so small, that apparently (but illuively), its presence in no way interferes with the drying of the mixture; or, on the other hand, the quantity may be so large as obviously and palpably to impede the finally hardening of the mass. The drying element itself hardens, but the non-drying one remains fluid.

One hundred grains of linseed oil spread in a thin film over a surface of glass will, under ordinary external conditions, solidify or become dry, in (by way of a broad example), say, one hundred hours. The same quantity, similarly treated, of rape oil will undergo no perceptible change (omitting from present consideration results of all other kinds—its acidification, bleaching, &c.) in its degree of fluidity within the same period. 95 parts of linseed and 5 parts of rape will harden within the same time; but the degree of hardness attained in this case will be inferior to that reached by the pure linseed. Using 90 parts of the one plus 10 of the other, we shall then find that the maximum hardness is not, as before, reached within the 100 hours, but is driven beyond that time, and when attained, is still less in degree than in the first mixture example. The fluid particles begin now, from their presence in increased quantity, to offer impediments to the contact, and consequent solidifying action, on the particles of the linseed oil, of the atmosphere. Carrying on the trials still further, say with 85 plus 15, 80 plus 20, and so on, the time of reaching the maximum degree of hardness is as progressively extended; and the degree itself, when reached, is at every step proportionately inferior to the preceding one. The unmixed pure linseed oil in these trials will, in the end, be as hard as a paint oil ought to be *per se*. The first mixture will be less hard than this, and will yield easily to the finger-nail. The next one will be palpably soft to the pressure of the finger; and as we go on adding to the proportion of the rape, the mixtures may be made finally to set in conditions not harder than fresh-made putty, or to remain as semi-fluid as meglin.

Obviously such mixtures as these,—even that consisting of only the 5 per cent. of the non-drying rape is so,—are wholly unfit to be employed in the composition of paints.

It is not, however, in respect only of this one defective point—that of their finally inadequate hardness,—that such adulterated oils carry with them into paint compositions their malverse consequences. The particles of still fluid oil in such mixtures are left open to the action of a variety of external and internal agencies, tending to a structural disorganization of the fabric of the paint, as well as to disarrangements in its effects taking place perhaps long after the work has been done.

The sources of the evil thus shown to have their origin in the condition of the seed itself are, as already intimated, unfortunately not the only ones that exist. There still remain, in all their force, those attributable to culpative adulterations of the oil, after it has quitted the seed-crusher's hands, perpetrated in some one or other of the ramifications of the many channels it may pass through before reaching the mixing-room of the operative painter.

There exist no fats, or non-drying oils, whose properties, appearance, and price, admit of their being used to adulterate the linseed with, excepting only when obtained in this indirect manner through the seed.

The chief adulteration still continues to consist of common brown resin. Resin oil itself is but rarely attempted to be employed now.

An almost undeviating attention to the subject of linseed oil, and the habit of constant examinations of samples obtained under every variety of circumstances, give the writer the following as the general result of his experience for the last

ten years, as to the condition of the *raw* (not the *boiled*) oil in the market and the shops:—

Previously to 1855, from 11 to 20 per cent. of the samples, would be found to be adulterated; the remainder to be excellent and commercially pure oil. The adulteratives at that time consisted of resin oil and of resin chiefly: the former being the rarest, and the latter the most common form. The proportion of resin to genuine oil would vary between 3 and 10 per cent.—most commonly the quantity that had been added, was 1 cwt. to 19 of genuine oil, making up the ton. Up to the year 1855, it was seldom found that fat, or other oil, had been intermixed with the linseed, and, when found, there was always reason to think its presence accidental, or not to have adulterating objects.

After 1855 the oil became impure, through the presence of non-drying, oily matter; so that it became then the rule, and not the exception, to find the linseed oil in this condition. But the percentage of the resin adulterations, whatever the quantity of the oil otherwise, was still kept up. The percentage of the non-drying element ranged between 7 and 15 per cent. At the present time from 40 to 50 per cent. of the examined samples, taken indiscriminately from the shops, will give evidence of the presence in them of non-drying oils, and about 16 per cent. will prove to be adulterated with resin.

There is still to be met with as of old, fine genuine linseed oil,—the product of good sound unmix seed, or of seed from which the crusher has previously winnowed the spurious interpolations.

It is to be remembered, that all this neither includes nor even touches upon the condition of the *boiled* oils in circulation.

These data, relating to the raw oil alone, and to its adulterations, incidental or culpative, though very far from serving to impeach *in toto* the entire state of our present supplies of the oil, still furnish enough to account for a very great deal of the disarrangement that is so generally felt to exist. The evils originating out of intentional adulterations of the oil itself will form the next topic of discussion.

The prevalence of such adulterations induces another thing, namely, a feeling of regret that generally the operative painter himself is wholly unable to apply any unerring test to the oil he is handling, before he may have committed his time, and perchance his credit as an artist, to some unfortunate application of it—a desideratum it is intended to supply to him, by a few plain directions in a succeeding chapter. C. B.

ON THE CHURCHES OF LE PUY EN VELAY, AND OF AUVERGNE.*

THE external elevation of the west front (LePuy) is shown in the photograph which I exhibit. It is similar in style to the clerestory on the north side, and mainly executed in alternate courses of lava and stone. The aisle roofs are masked by walls, with pediments. Throughout this part of the work you will observe that its early date is proved by the fact that the round arch is almost invariably used for ornament, and the pointed arch only where great strength was required. A great buttress which had been built against this west front was removed during the recent restorations.

I observed before that there are doorways on the east side of both transepts—the "care" referred to in the old saying. The south transept door is in itself remarkable for the peculiar form of the cusping of its arch, and still more for the magnificent porch built over it. The date of this is the latter part of the twelfth century, and its character will be best understood by an examination of my drawings of it. It is open on the south and east sides, and abuts on the church on the west and north, occupying the re-entering angle between the transept and choir aisle. The arch is remarkable for a rib detached from the arch below, and connected with it by columns at intervals, so as to have the appearance of being suspended. My impression is that the architect feared that his arch had not sufficient abutment, and hoped, by bringing some of the weight on to the lower rim of the arch, to remedy this defect. The whole detail of this group is a very rich kind of Pointed, full of half Romanesque and half Byzantine detail. The groining in alternate coloured courses is quadripartite, but has the very rare peculiarity (in France) of ridge ribs. Above the porch is a room or chapel, to which I omitted to gain access. Over the door of the other (north) transept, a great arch, thrown from the cathedral

* Read by Mr. G. E. Street. See p. 18, ante.

to the chapel of St. John, carries another chapel, lighted with a First Pointed triplet. This door is square-headed, and covered with rich, though rude, ironwork. The door handles have a resemblance to one in the cathedral at Trèves, made by Jean & Nicholas, of Bingen, which struck me, and was remarked on also, I find, by M. Mérimée. The lintel of the door is deeper at the centre than at the sides of the door—pediment like—and has figures of our Lord and the twelve Apostles carved on it; whilst above, under a circular arch, is another figure of our Lord, with an angel on either side. The whole has been very much mutilated, and all the figures hacked to pieces. The ground was all painted, and no doubt the figures were also; and the woodwork of the door was covered with linen or leather under the ironwork.

The very ancient chapel of St. John is close to this door, and by its side is a fifteenth-century archway. The chapel is arched on its south side, and pierced with very simple windows. Some antiquaries assert that it is a piece of Roman construction, and it is not impossible, though I should be much more inclined to call it tenth-century work. The chapel has a rude quadripartite vault, and its apsidal channel is roofed with a semi-dome. It was, until A.D. 1791, the baptistery for the entire city, none of the churches in which seem to have possessed fonts.

I must conclude my already long notice of this church by some mention of the extensive remains of painted decorations still visible. During the late restorations of the cathedral, I understand that the greater portion were destroyed. The north transept vaults, and the semi-domes of its apsidal recesses, are still, however, covered with paintings, though they are scarcely intelligible now, owing to darkness and dirt. In one of them occurs a figure of our Lord, giving the benediction in the Greek fashion, and it is one of many evidences which may be adduced of the Eastern influence visible here in so many respects, though I am not disposed to lay so much stress upon it, as some of those did who engaged in the controversy it occasioned. In the western porch there are also extensive remains of painting. The soffits of the arches in the third bay from the west are all painted; and so, too, are the walls over the altars in the chapels of St. Martin and St. Giles. The painting was executed on a thick coat of plaster, and the nimbi are of gold, with lines incised on them. No doubt the whole church once glittered with gold and colour; and seeing how fine its effect still is, we may, aiding the indications still left with our recollections of St. Mark's, of Assisi, and of Padua, people the bare walls once again, and bring before our eyes an interior of the most gorgeous magnificence.

I may conclude what I have to say about the cathedral, with a few words about the sacristy and its contents. The building itself is not more than 150 years old, and most of its treasures have been lost. The most precious relic still left is the Bible, recorded, by a note at its end, to have been written by S. Theodulf, Bishop of Orleans, in the ninth century, and sent by him, in accomplishment of a vow, to the shrine of Notre Dame du Puy. It is a 4to. of 3,107 leaves of very fine vellum; some white, with black letters, and others, purple or violet, with gold or silver letters. It contains the Old and New Testament, commentaries on the text, interpretations of Hebrew, Greek, and Latin words, and some poems, by Theodulf. The pages are interlarded with excessively delicate tissues of various colours and patterns, which appear to be of the same age as the book, and of Eastern manufacture. The binding is, however, later, and of red velvet on chamfered oak boards, with good simple metal knobs. There are also preserved here some candles, tapering considerably in their length, and stamped with a pattern made by a pointed instrument; and, finally, there is a tipset, said to have been of Charlemagne's time. It is embroidered with a tree of Jesse. It is not so old as is said, but may possibly (though I very much doubt it) be of the twelfth or thirteenth century; but it has been much damaged by removal from its original ground, and by partial reworking. They also have a reliquary of very late sixteenth-century date, of which a photograph has been published by M. Aymard, but which was not shown to me. There is also an almost endless roll of vellum, illuminated with a chronological tree of the history of the world.

How much has been lost may be guessed from some statistics which I have come upon as to the number of silversmiths and specimens of their work in Le Puy in the Middle Ages; in A.D. 1103, there were no less than forty resident in the city; whilst, as to their work, I find that, in A.D. 1141,

there were in the sacristy 33 chasses and reliquaries, 26 chalices, 11 statues of the B. V. Mary, angels, and other figures; 10 candelabra, 9 crosses, 9 lamps, 9 mitres, crosses with their stems, episcopal rings, crowns for the Virgin, censers, paxes, basins, plates, books with covers adorned with chasings, pearls, and precious stones; and many like things. And in A.D. 1475, I find that Louis XI. gave thirty silver marks for a canopy over the miracle-working figure of Notre Dame du Puy, which was made by François Gilbert, a silversmith of Le Puy. Other churches in the neighbourhood have been more fortunate in retaining some of their old plate, and a fair list might be made out, if I had time, of their possessions, many of which have been photographed by M. Aymard.

The building of the greatest interest after the cathedral is the little church of St. Michael, which crowns the enormous rocky fity called the Aiguille. It is reached by steps winding irregularly round the rock, to the shape of the summit of which it has been most ingeniously adapted. The oldest portion of the building is the square choir covered with a dome, under which stands the principal altar. To the (ritual) east and north of this are apsidal projections, and to the south an archway, which, as it agrees exactly in dimensions with the others, opened no doubt into a third apsidal chapel like the others, whilst the entrance was at the west. This archway now leads into a chapel of very irregular form, part of which extends over the porch of entrance, in the arrangement of which one may trace a certain kind of analogy to that of the cathedral, though it is perhaps older. West of the choir is a nave, somewhat like a cone in plan, and surrounded on three sides by an aisle, from which it is divided by arches supported on slender shafts. The choir has a square domical vault, and the chapel over the porch a true dome, the pendentives under which are just like those of Santa Fosca at Torcello. The apsidal chapels have semi-domes, and the rest of the church has a wagon vault of very irregular outline. An arcade against the walls of the aisle corresponds with that between the aisle and the nave. At the end of the nave is the tower, which was probably built at a slightly later date than the main building. The whole interior appears to have been richly painted, but a faint indication only of this portion of the decoration remains. In the central dome there is a sitting figure of our Lord on the east side, the emblems of the Evangelists at the angles, and angels and seraphim around our Lord. Below these is a line of single figures, six on each side—the four-and-twenty elders; and below this again, subjects, the whole combining together to make a very interesting example of the treatment of the Last Judgment. The dome of the chapel over the porch is also painted with our Lord, angels, and the Evangelists.

The walls generally are built of lava, though a little white stone is used in the steeple and for the sculptured capitals. The columns are very small (averaging 8 inches in diameter), and decrease considerably in diameter from the base to the capital. The dimensions are exceedingly small, the central choir being only 13 feet 6 inches in diameter, and the spaces between the principal columns varying from 4 feet to 4 feet 9 inches. The effect is rather that of a crypt, but in spite of its small size it is solemn and religious-looking.

The steeple suggests comparison, in some respects, with that of the cathedral; the arches are built with alternately light and dark voussoirs, and there is a peculiar spire-light rising out of the parapet, as to the antiquity of which I have my doubts.

The only part of the building in which any rich work has been introduced is the front of the porch. You will see by my sketch that it has a semicircular arch, triforium, and a horizontal lintel. The walls are richly inlaid, and there is also a good deal of sculpture. In the centre division of the triforium is an "Agnus Dei," and figures kneeling and holding chalices within the cusps on either side. In the five divisions of the arched cornice are, in the centre, our Lord; on His right, St. Mary and St. John; and on His left, St. Michael and St. Peter. The mosaic is done with black, red, and white tiles, and the stone is a light yellow sandstone. I know no other example in this district of the use of tiles for inlaying, though M. Malley mentions one at Mergonde, in Auvergne, which he says is of the seventh century; but this is not always to be implicitly trusted. And at Lyons, in the extremely beautiful Romanesque domestic building called the Menconterie, and at a slightly later date in the church of Ainay, in the same city, we find tiles, used with admirable effect. Odo de Gissey, in his "History of Le Puy," published in A.D. 1619, states that the first stone of St. Michael was laid in A.D. 965, and that the church was completed in A.D. 964, when Guy II. was bishop of Le Puy, "as one may learn from the ancient charter of its foundation, and from other manuscripts which I have read." Brother Théodore, in his "Histoire de l'Eglise Anglaise," in A.D. 1699, says that the first stone was laid in August, 962, and that his statement is "derived from the deed for the foundation of the church, and from the book of obits in the cathedral."

* Quoted by M. Mérimée, "Notes d'un Voyage en Auvergne, A.D. 1838."

These dates, if they refer to the existing building, can only do so to the central portion, with its apse, and the nave may have been added some time in the eleventh century, and the steeple perhaps in the course of the twelfth.

At the foot of the flight of steps which leads up to the picturesque entrance of this little chapel, are the remains of a small detached building, probably a residence for a sacristan or priest.

Close to the foot of the Aiguille de St. Michel is a curious chapel, the plan of which is drawn on the same sheet as that of St. Michael. It is an octagon, with an apse projecting from the eastern face, the octagon covered with an octagonal domical vault, and the apse with a semi-dome. The walls are arched inside and out, below the vault, the internal arches springing from engaged shafts in the angles. Some of the arches outside are cusped in the angles, the cusping not starting from the cap with a quarter circle, but with a half circle, the same as all the rest. There are doors in the west and north sides, with tympana filled in with mosaic; and the wall in the spandril between the arches outside is also inlaid. The exterior of the apse is not visible, but I found, on making my way into the cottage and barn built against it, that it is perfect and undamaged. The popular opinion at Le Puy is, that this chapel is an ancient temple of Diana, a fiction which a minute's examination destroys. M. Didron, in the "Bulletin du Comité Historique," No. 7, p. 64, maintains that it was a mortuary chapel; this is, he says, a common arrangement in Greece, and he refers to the chapel of St. Croix, at Montmajour, as an example akin to this. M. Mérimée, on the other hand, says that the Templars had property in the Faubourg de Chailly, and that he supposes it to be the oratory of the Templars at Metz, and he might have added the curious Templars' church at Laon as another case in point.

This concludes my notice of early buildings in Le Puy, and I have no more than time to catalogue the Church of St. Laurence, famous for the monument of the Comte de Du Guesclin. It is a large Second-Pointed building of poor masonry, and of the village. The plan and design, and with an enormous sham front; the gable-end of the hospital chapel, with its fifteenth-century bell-turret; a pretty little fountain in the Rue du Port d'Auvignon, a large column in the village, the houses of the fifteenth and sixteenth centuries; and a very scanty remnant of a gateway at the bottom of the town, called, I think, the Porte Panasse, and against the proposed destruction of which I protest, as I have not seen it, only a few years back, in the Bulletin Monumentale.

About four miles to the north of Le Puy, close to the ruins of the magnificent castle of Polignac, is the Romanesque church of the village. This is a parallel-triapsidal in plan, and the piers are planned, as are those in the cathedral, in the shape of a cross, with columns in the re-entring angles.

The little church at Monistrol is a good example of the Le Puy type applied to a very small building, and the church at Monestier, which has many features of similarity to the cathedral at Le Puy, and which in early plate, ought not to be forgotten, is an unblest to speak of from personal inspection, but I exhibit a photograph of its west front.

I will conclude you to the churches of Auvergne. It seems bold to do so at this period of the evening; but in point of fact, though they are numerous, they are so much alike in their character, details, and design, that a description of their peculiarities need not be so long as might be supposed.

These churches all lie in a group together, Clermont-Ferrand being their geographical centre,* and to its north are Riom, Volvic, Mazauc, and Ennezat; to the east, Chauriat; to the west, Royat and Orcival; and to the south, Issoire and Brioude.

Beyond the bounds of the province, at Conques, at Semur, Vouzou, and in the church of St. Etienne at Nevers, among many others we have examples of precisely the same description of design and construction.

It will be well to describe the general type of these churches, and then give a few notes as to particular examples.

In plan they consist of a nave and aisles, western narthex and steeple, central dome and steeple, transepts and choir, and apse, and in the church of St. Etienne at Nevers, among many others we have examples of precisely the same description of design and construction. It will be well to describe the general type of these churches, and then give a few notes as to particular examples.

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The nave is roofed with wagon-vaults, either with or without cross ribs below them. The aisles have quadripartite vaults, and the triforia above them are roofed with a continuous half-barrel vault, which, as you will see by reference to my sections of Notre Dame du Port, Clermont, resisted the thrust of the vault of the nave; and was, in truth, a continuous flying buttress. The triforia galleries are lighted with small windows, and this, the only light analogous to a clerestory, being entirely inadequate, the effect of the nave roof is generally very gloomy. The transepts are vaulted with a barrel-vault, as are, in one or two instances, also the triforia, divided in height by a sort of tribune, level with the triforium. At Brioude, where this arrangement is seen, there is an original thirteenth-century open fire-place in the triforium. At Mérimée ingeniously suggests that the noble counts of Brioude—for they all had the rank of count—were in the habit of hearing mass before a good fire; but it is fair to them to say, that the fire-place was in the east wall, and that I saw no sign of an altar near it.

The crossing under the tower is generally roofed either with an octagonal vault, or with a circular dome, with a triforium in the centre. To resist the thrust of this dome on the north and south sides, the upper vaults of the triforia are continued on between the transepts and the crossing. The choir is vaulted, with wagon-vaults terminating with a semi-dome, and the apsidal chapels are also each covered with a semi-dome. The columns are generally square, with half columns, engaged on three and sometimes on four sides, the latter only when the main vault

* The cathedral of Clermont-Ferrand, a fine fourteenth-century church, is said to have been originally on the same plan as Notre Dame du Port. Excavations have been made at the base of the tower. The present cathedral is almost precisely similar in plan to those of Narbonne and Lunenburg. See Viollet-le-Duc, Dictionnaire, vol. i. p. 74.

* S. Hilary, Poitiers, and Angoulême cathedral, have only four chapels.

of the latter.* But it was impossible to obtain any light for a clerestory roofed and supported in this fashion; and one is rather disposed to wonder how it was that so many churches should have been built on the same gloomy scheme. It was, no doubt, because in that part of France wooden roofs were thought to be undesirable; and no other economical way was seen of combining the nave and aisles with what was intended to be an indestructible stone roof. I need hardly be reminded that the same is the north of France, in Normandy, and in England, the nave was seldom, if ever, roofed with anything but timber, and the aisles only were vaulted in stone.

At Tournus, on the same, another device was adopted to serve the same end as the Auvergne roof, but admitting of a clerestory. This was the covering of the nave with a succession of barrel vaults at right angles to the length of the church, and supported on bold transverse arches. But I doubt whether it was ever repeated on a nave, though there are several examples of aisles thus roofed; and it was, no doubt, ugly and ungainly. The Le Puy architect devised yet another plan, which, combined to some extent all the others, and this was, as I have explained, a succession of domical vaults, which, while it was much lighter and more practicable (owing, in part, to the difference of scale) than the St. Front plan of a series of genuine cupolas, achieved, nevertheless, much of the effect that was there gained. A very small portion only of the weight of the vault exerted a direct lateral thrust, and it was possible, therefore, to erect such a roof upon a clerestory; and though the transverse arches limit the height of the building in one respect, in another there is no question that the height is apparently much increased; for in looking down the interior, it is impossible ever to see the apex of any of the domes, and the vault, lost behind the transverse arches, gains immensely in mystery and infinity, so as to produce the effect of a larger and loftier building than the reality. But, on the other hand, the disadvantages were great: the piers between the nave and its aisles were so large as to render the aisles nearly useless; and I can hardly wonder, therefore, that the same set here was not generally (if, indeed, at all) followed.

It is doubtful where the kind of vault used at Le Puy was first devised. The central dome of St. Michel de l'Aiguille is perhaps the oldest of all, and this is, in fact, a square dome, if one may use the expression. The octagonal dome-vaults of the cathedral are probably a little later, but that the crossing of the church at Ainay, at Lyons, may possibly be older. If you compare my sketch of it with that of the interior of Le Puy cathedral, you will find that one is evidently copied from the other. And if the Le Puy vault was derived from the other, we make the important inference that it was an Eastern invention travelling up the Rhone, and distinct from that which we see at Périgux, to which we owe this kind of domed roof. You will see further evidence of this if you look at my sketch of the pendentives of the dome at Brioude which are identical in intention with the plan of the church of St. Sergius and Bakhara at Constantinople, and yet quite unlike the kind of pendentive common in churches of the St. Front type. They are, in fact, the Le Puy and Ainay pendentives reduced to the very simplest conditions.

The invention of the flying buttress adorned in, and possibly suggested by, the quadrat vaults of Auvergne, finally stopped these various endeavours after new forms of roofs, and set men at work to see how it might most readily be made to serve the best and most economical systems of design and construction; and in the rage for these, that old system of roofing with domes, which had been, so far as we know, first tried in France at Périgux, as I had afterwards spread with such rapidity over a very large district—though with many modifications and variations—was entirely ignored or forgotten. Is it well that we, too, should ignore it? It is clear that the disciples of the Gothic school may claim as their own, with just as much truth as any other school can. And in some form or other it is often so attractive—so majestic on a large scale, so impressive even on a small scale—that few of us who have much work to do should altogether eschew all use of it, or treat it as though it were the exclusive property of the architects of Classic and Renaissance buildings.

I do not feel, however, as most who write on the subject seem to do, that our domes must invariably be supported on what are called true pendentives. I think they are more beautiful, and I do not see that they are more scientific. The St. Front pendentives are mere corbelling out of the wall, and in truth only imitations of pendentives. At St. Mark's they are formed with a succession of arches of brickwork across the angle of the dome, though this construction is not visible; and these, I suppose, are all wrong; but they are very similar in their intention to the kind of pendentive which I have had to illustrate to-night, and which is, in truth, much more Gothic and picturesque in its character than the true pendentive, admits of every amount of decorative sculpture, and is really precisely similar in its object to the squinches under our own English piers.

I will add but a few words as to the constructional polychrome which distinguishes the exterior of the churches throughout this volcanic district. So far as I have seen, it was never, save in Le Puy cathedral, admitted to the interior; and this is much to be regretted, because it

seems that the vaults of their naves, the domes of their crossings, and the semi-domes of their sanctuaries, would have afforded most admirable fields for this kind of decoration. As I have told you, the walls were once covered with painting, and as long as this existed, a mosaic of black and red and dull red would have been the least of the beauties of the interior. But now that the iconoclast, the whitewasher, and the restorer—all of them at least as active in France as they have ever been in England—have done their worst, the want of some decoration on the otherwise bald surface of the vaults is painfully felt everywhere. Externally, the coloured materials are used in two ways,—sometimes the whole of the wall is built of the dark volcanic products, and patterns are obtained by the occasional use of white stone, or by alternate courses of this and the dark scoria that can be found,—or else the walls generally are built of stone, and the patterns only formed with the dark material. Here, too, as is the case in all old examples of coloured construction with which I have ever met, the colours follow the natural course of the construction. At Le Puy, for instance, the courses are alternately light and dark, producing bold horizontal bands of colour. The arch-stones are continued generally in one line of colour all across an arch, even when it consists of several orders of arches from the arch on into the wall. The bands of ornament are similarly arranged in horizontal stripes, generally placed where they will dignify, and give value to some very prominent architectural member. They never occur below the line of the springing of an arcade, and are richest under cornices and between their corbels. And when we consider the date at which this inland work was executed, and compare it with what we know of our own art at the same period, or indeed with that of any other portion of the country which we now call France, we cannot too highly extol its delicacy and grace, and its carefulness of design and execution. It is a work of the most refined and refined of these churches to have been the ablest of their time. He says, too, which is very true, that they never attempted more than they knew that they could accomplish, and that the consequence was that the work of these buildings stand uninjured and undecayed; and all might well have done so, had they received commonly fair treatment at the hands of their guardians. I believe, too, that we may regret the whole of the work of Le Puy, and Auvergne, as that of native artists. The detail of sculpture is, when compared with such work as is to be found in Provence, exceedingly rude. It is vigorous, indeed, but wanting in grace and refinement. The refinement, which marks the work of the Early Provencal artists.

It is probable that I have not carried you with me in my theory about the development of the perfect French chevret, from the chevrets of Auvergne, for I know how easy it always is to ride one's own hobby. The statement of my theory was, however, only incidental to, and not the main object of my remarks to-night. Originally, I intended only to give a good description of the cathedral and other buildings of Le Puy, as my two days' study of them would allow; and this, because I could not find any published plans or drawings of them, and I thought that the measured plans and sketches which I was able to give you, would, therefore, have more value than would otherwise be the case. But it is impossible, however, to resist saying something of the churches of Auvergne, because they are so mixed one with the other with those of Velay, that it is difficult to enter fully into one without knowing something of the other. And, as I almost equally diffcult to enter upon the examination of churches, such as these, without starting some theories, about which there may be ample differences of opinion among us. Were I to attempt to say anything about the buildings of a later date, it would be impossible to do more than to give a catalogue which would be as unintelligible as it would be tedious. I will only say, therefore, on this head, that Clermont cathedral well deserves careful study, and is rich in very fine glass; that at Montfermeil may be seen as large a collection of Medieval houses of all dates, as in almost any small town that I know; that Riom possesses one of the finest churches of the thirteenth century; that the Abbey of Chaise-Dieu are still preserved a very rare and complete series of tapestries of the sixteenth century. Besides this, a large number of articles of church plate are to be found scattered all over the country, in the churches; and all this goodly store of antiquities is set before you, in a province whose physical features are so full of interest and beauty, and in themselves to make a journey through Velay and Auvergne one which none will regret having undertaken.

PURE GAS FOR PRIVATE DWELLINGS.

FINDING, by constant experience, in past years, while originating and exciting the movement in favour of cheap and good gas for the million, that dear gas (then, at all events) was just as bad as cheap gas, and that no price, however high, appeared to be capable of insuring the receipt of gas quite pure, and entirely suitable for use in private dwellings, such gas, indeed, having been held by the gas authorities to be impracticable,—we therefore ever and anon urged the public to agitate first for cheap gas, since they might as well have their gas cheap and bad as dear and bad; assuring them, moreover, that, when they had reduced the bill then inordinate and most uncalculated for price to reasonable rates, the gas companies,—on whom we were also ever impressing the much greater advantage to themselves of an extended consumption at low price than that derivable from a restricted consumption at a high rate,—would come to see that an extensive consumption in the vast and almost unlimited field of private dwellings was their most hopeful and best source of profit; and that to insure this they would be compelled to take, or induced to find out, some better means of purifying their cheap gas; without which purification they could not hope to make that field fully their own.

The main objection urged against this view was, as we have said, that gas quite pure and suitable for use in private dwellings was a practical impos-

sibility; inasmuch as gas, generally speaking, after the utmost possible purification, contained compounds of sulphur and carbon which it was utterly impossible to get rid of; except, indeed, in the costly and elaborate or *dilatant* experiments of the chemical laboratory. In this view, too, the gas authorities were strongly supported by the chemists themselves; and, in the evidence taken not long since on the Metropolitan Gas Bill, both gas engineers and chemists united in the one decided opinion that there was no known practical means of depriving gas of this final contamination with bisulphuret (or bisulphide) of carbon and probably other noxious forms of sulphur, after all possible purification had been effected.

Thus, Dr. Letheby, the official chemist of the City corporate authorities, said,—“When in the gas, I do not know any means of getting it out; it must be prevented from getting in,” and again, “it could not be taken out, but it need not be produced from any quality of coal except at high heats.”

But here was, indeed, the difficulty: it is much more costly to manufacture gas at low heats than at high; and gas companies, therefore, had strong temptation towards the application of high heat as well as of cheap and sulphurous coal. Prices, however, had been reduced; at first compulsorily; but, at length, voluntarily; from the acknowledged adoption of our axiom, that extended consumption at low prices was more profitable in the manufacture and sale of gas than restricted consumption at high prices; and, although the companies in almost every instance thus greatly increased their profits,—these, in many cases, rising from zero, or something worse, to 10 per cent., or the highest allowable by law,—still they urged (and probably with truth) that they could not afford to use the costly processes of the chemical laboratory to render their gas really and perfectly suitable for use in the extensive and tempting field of private dwellings, which lay like a rich gold diggling before their eyes, but beyond their reach.

Having thus been brought to the very point we had anticipated; the means of removing the noxious bisulphuret of carbon and other pernicious and noxious compounds of sulphur which defied every available process of purification became a grand desideratum, much more wished for than hoped for, but strenuously sought for notwithstanding; and we, on the public behalf, no less than the gas companies on their own, have ever kept the “weather eye open” to the signs and tokens of its advent. The most hopeful of these signs, in our estimation at least, was the discovery, by the Rev. Mr. Bowditch, B.A., the incumbent of St. Andrew's, Wakefield, that common clay had the curious (but chemically accountable) property of converting the bisulphide of carbon,—which so often remained in the most highly-purified gas, prepared even by low heats, far less in that more cheaply prepared at high heats, and from sulphurous coal,—into sulphuretted hydrogen, which lime and other agents could then readily and cheaply withdraw, as was well known, from the gas. This important discovery was pool-pooled and ignored by the gas engineers and chemists; one of whom advised that “a cobbler should stick to his last,”—a clergyman to his pulpit; and we ourselves got no little obloquy for defending the rev. gentleman's just pretensions to public and professional consideration. Nevertheless, Mr. Bowditch's process has since been making way amongst the gas companies; and he has now made the additional discovery that lime itself, if heated to a certain moderate degree, acts like the clay, either hot or cold (the hot, apparently, being most efficient), although neither cold lime nor any other known agency in its natural state besides clay will do so. The method adopted by Mr. Bowditch, previous to this additional discovery, in the extraction of the remnant noxious sulphurets from gas, consisted in the repeated alternation of clay and lime (cold lime) in say ten or twelve compartments, through which the gas was made to pass, each clay compartment decomposing so much bisulphuret of carbon, or other sulphur compound, into sulphuretted hydrogen, and each lime compartment absorbing and fixing that sulphuretted hydrogen, till all was extracted and the gas remained perfectly free and pure. The clay, in its use, moreover, has a special power of purifying the gas from ammonia and its compounds; and so valuable is the clay, thus impregnated, said to be as a manure, that agriculturists have supplied gas companies with new clay for the old, as Aladdin's enemy supplied new lamps for the old in order to realize the riches of his old material.

The discovery that a small quantity of hot lime

* Mr. Ferguson gives a section of a church at Granson, on the Lake of Neuchâtel, in which the nave and choir are roofed in the same way as at Conques and in the Auvergne churches. He says that the date of the church is the end of the eighth or beginning of the ninth century, but I do not know what his authority for this very early date is.

† The Abbaye Aux Hommes, Caen, has its aisles roofed with transverse barrel vaults.

‡ This qualification is necessary: for the curious evidence which M. Vermith has given us of the existence of a Venetian colony in the tenth century at Limoges would be enough to make it probable that though St. Front's is the earliest complete example extant of a French domical church, others may have been built before it, and that some of those which M. Vermith supposes to be derived from St. Front's may really have been derived more directly from the East.

§ There is no end to the diversity of the countries in which they are found. In the cathedral at Worms we have squinches formed by semi-domes. In St. Nicodemus at Athens, they are identical with those in the cathedral at Nevers, and the same form is repeated in the domical vault of the steeple at Auxerre Cathedral. At Notre Dame du Port the dome is circular, but the squinches below are octagonal on plan, and the circle (which is not, however, a true circle) is set up on the octagon.

will also convert the sulphurets into sulphuretted hydrogen led Mr. Bowditch to the alternate use, in this case, of hot lime and cold, the hot, or monohydrate, singularly enough, impregnating, as it were, the gas with sulphuretted hydrogen (though from the latter's own sulphurets), while the cold absorbs that sulphuretted hydrogen from the gas. Even hot lime, however, he finds, *if moistened*, will, like the cold, absorb the sulphuretted hydrogen so evolved; the reason being that hot and dry lime is a monohydrate, while cold lime, like moistened hot lime, contains a further proportion of water, which deprives the lime of the power which the dry hot lime or monohydrate possesses. Neither hot lime nor hot clay, he finds, at the temperature required, does any injury to the gas itself.

Besides having been brought under the notice of the Royal Society, these processes have been submitted to investigation by various eminent chemists and gas engineers, who all appear to have expressed their unqualified approval of the result.

Thus Dr. Letheby, to whose recent evidence against the very possibility of removing the bisulphuret of carbon, if once allowed to contaminate the gas, we have just alluded, says,—“after having made a large series of investigations for the purpose of ascertaining whether the monohydrate of lime, at certain temperatures, and under certain conditions, would remove every trace of sulphur from coal gas,”—that the results are in the highest degree satisfactory; and he adds,—

“It is needless to dwell on the importance of this discovery; for it is admitted, on all sides, that the presence of sulphur, in an unabsorbable form, is one of the most serious objections to the employment of gas as an illuminating agent; and if, as in the present case, the sulphur can be entirely removed, without in the least degree injuring the illuminating power of the gas, it is manifest that a new era is commenced in the history of gas illumination. I have no hesitation in saying, from my investigations of the matter, that this discovery, of the perfect action of lime as a purifying agent, is one of the most important of the present day, and cannot fail to give an impetus to the manufacture of gas, by securing to the public a complete protection against the hitherto objectionable properties of it.”

Dr. Frankland, in “strongly recommending the process to the attention of gas manufacturers,” says,—“Unless unforeseen engineering difficulties arise, it will enable them to supply gas in a state of purity hitherto unknown; and thus the only real obstacle to the universal adoption of coal gas for illumination in private houses will be removed.”

Mr. Brande, the celebrated chemist, and author of one of the best works on chemistry we have, has also given his attention to the subject, and thus testifies as to it:—

“Inasmuch as all the methods hitherto practised for the purification of coal gas left residuary sulphur in it, in such quantity as to form, in most cases, a mischievous proportion of sulphurous acid during its combustion; and, as Mr. Bowditch's process, when properly conducted, removes the whole of such sulphur, it must, I think, be considered as a valuable and important discovery,—more especially as it is simple, economical, and applicable upon the large scale.”

Mr. R. Warrington, chemist to the Apothecaries' Company, who is also chemical referee to all the four gas companies south of the Thames, testifies that he has “investigated the Rev. W. R. Bowditch's new process for purifying gas by means of heated lime,” &c., and says,—

“I find that it converts bisulphuret of carbon and other sulphur compounds into sulphuretted hydrogen and carbonic acid, which are easily removable by the processes in daily use at gas-works. The operation is simple and of easy execution. Of course it is needless to add that this renders the use of gas quite free from the usual injurious effects.”

Another chemical referee to several London gas companies, Mr. T. W. Keats, F.C.S., considers that Mr. Bowditch has discovered—

“What has been a great desideratum, viz., a practical means whereby coal gas can be deprived of the last traces of sulphur, the presence of which, more than any other circumstance, has prevented the adoption of gas in private dwellings.”

The time, then, appears to have at last arrived when we may confidently look for a vast extension of the use of cheap and good gas in private dwellings,—the great and ultimate aim which for years we have laboured to point attention to and to promote the realization of. Meantime, from a small volume on coal gas by Mr. Bowditch, recently published,* we may present the following quotation, because it may be useful to those who would wish to reap the benefit without awaiting the adoption of the means by their gas companies:—

“Consumers can protect themselves against burning ill-purified gas just as easily as they can protect themselves

against drinking dirty water. The latter is filtered in a domestic filter, and the former can be as easily purified in a domestic purifier. In fact the trouble in reference to gas is far less than is required for filtration of water. A purifier containing a series of ten or twelve trays of clay and lime would keep back every impurity which can be removed by cold purification, and would last for several months without being touched. Twice a year would be sufficient to renew the purifying material, and the time occupied in doing it would not exceed half an hour. As a precaution, therefore, it would be well if all persons in trade, whose articles are injured by bad gas, and all private persons who burn gas in well-furnished apartments, were to have a private purifier fixed near the meter, which their gas-fitter would cleanse and recharge twice a year for a shilling. They would thus protect themselves against unavoidable accidents which may render impure for a time the gas of the best-managed company, and also against systematic neglect or ignorance.”

We might quote passages that would show how much the animus with which this gentleman has been actuated in his researches, accords with our own (although it is to be hoped his efforts will prove a little more profitable and pleasant personally than ours have been), and how fully he adopts the axiom we have for years urged on the attention of gas companies as well as of the public, but we cannot now give more space to the subject. We must add, however, this general observation, that the gas at this moment furnished by some of the companies is of the most unsatisfactory character. That, for example, supplied by the Western Gaslight Company, is so bad at times (we speak from ample personal experience), as to constitute little less than a swindle.

LECTURES AT THE SOUTH KENSINGTON MUSEUM.

In reply to a “Reader,” who asks “why no lectures are being delivered at the South Kensington Museum,” we are told that the following courses of lectures are being delivered in the theatre of the museum, every Monday and Tuesday, in the daytime, by Mr. O. Hudson, on *Ornamental Art*; every Friday evening, by Mr. Marshall, on the *Human Form*; on Monday evenings, from the 7th of January to the 4th of February, on Chemistry, Geology, Physical Geography, Navigation and Nautical Astronomy, and scientific instruction generally, by the various scientific examiners. We can excuse a “Reader” for inquiry, for we believe that the fact that these lectures are going on is very little known. His inquiry referred to the Museum proper, but we may remind him that a course, conducted by the committee of the Architectural Museum, on Wednesday evenings, is easily accessible. The next in this will be delivered January 23rd, “On the Art of Engraving (illustrating the several styles) and Printing Plates,” by Mr. S. C. Hall, F.S.A.

PHOTOGRAPHIC SOCIETY'S EXHIBITION, PALL-MALL.

THE eighth Exhibition by the Photographic Society is a good one, and shows as much advancement as can now be looked for year by year. In copying old pictures improvement is evident, and the process by Paul Preisch, which includes the production from photographs, by electrotype, of blocks to be printed by the ordinary letter press, an important matter, is progressing. We hear, by the way, of a mode of preparing calico for photographic impressions, which, being dyed with a madder colour, become fast pictures that cannot be washed out. The inventor, Mr. Mercer, further dips calico into a certain kind of cold bath, whereby it undergoes a transformation, somewhat similar to that of paper into parchment, and acquires a stiffness which no heat will afterwards soften.

The great card of the present exhibition is a very large view of the Coliseum in Rome (30), by P. Dovizelli. It appears to have been made in three pieces, and, with marvellous accuracy, brings before the spectator the whole construction of the mighty theatre. The “Aurora,” by the same photographer, is already known: it is a fine work. Mudd's landscapes are very good; but the best, as it seemed to us, are those by Maxwell Lyte; notably (153) “Ple du Midi d'Ossau,” and (515) “View from the Coumelie.” Amongst the landscapes we may mention also (279), “Panorama of Raglan Castle,” by F. C. Earl. Fenton has some remarkable studies of fruit and flowers, 148 and 150. “The Tomb of Bishop Fox, Winchester (234),” by Cundall and Downes, is a nice specimen, and (266) “Copy of Engraving after Murillo,” by H. Hering, shows the power of photography in this path. No. 4 in the series, 252, showing the statue of Newton, by Munro, presented by the Queen to the Oxford Museum, and photographed on waxed paper—by S. Thompson, is very

attractive. It is a most graceful thing; thoughtful and calm in the pose of the figure; and it is admirably reproduced. Captain H. Dixon's views of buildings in India, 399 to 410, have an interest of their own. F. Bedford maintains his position, whether in landscape, “Cheddar Cliffs,” or in buildings, as 482, “The Vestibule of Bristol Chapter House,” and his views of Wells Cathedral. The appearance of the exhibition owes much to the care of Dr. Diamond, the present estimable secretary of the Society.

TAYLOR'S DAMP-PROOF COURSE.

THE “damp-proof course,” as it is called, consists of a perforated slab of burnt clay, bedded in mortar, in lieu of asphalt, sheet-lead, or slates in cement, the joints being brought together dry. Mr. George Jennings, who has purchased the patent, urges for it that it keeps down the damp; admits, in a much more complete manner than air bricks, of the introduction of air; and bonds the walls with an imperishable material of great strength. It seems to us to have claims on the attention of those who would build properly: the extra cost, moreover, is inconsiderable.

THE ARCHITECTURAL EXAMINATION QUESTION.

PROCEEDINGS OF THE INSTITUTE OF ARCHITECTS.

A SPECIAL general meeting of the Institute was held on Monday, the 14th instant, to consider this question: Mr. M. D. Wyatt, V.P., in the chair. We proceed to give the result, and may hereafter report the debate.

Mr. Hayter Lewis, honorary secretary, read the replies received from those societies to whom inquiry on the part of the Institute had been addressed, viz., from the Northern Architectural Association, the Birmingham Architectural Society, the Liverpool Architectural and Archaeological Society (with a protest from the associates and students of the same society), and the Architectural Association (of London).

The Institute had resolved on the 25th of June last,—

“That it is desirable to afford an opportunity for a voluntary professional examination.”

A motion from the chair on the part of the Council, and hereunder given, as modified, was withdrawn to allow of the following preliminary resolution, which, on the motion of Mr. J. W. Papworth, seconded by Mr. Kerr, was carried:—

“That this Institute by the publication of the resolution of the 25th June, 1860, and by the circulation of the propositions submitted by the Council at that time, having, to the utmost of its power, ascertained the views of the profession thereon, and having taken into consideration the replies forwarded by the various societies, does, in conformity with the wishes expressed in these communications, take upon itself the labour of constituting an examination tending to promote a systematic professional education.”

The following motion from the chair, seconded by Mr. Godwin, already referred to, and as amended by the suggestions of Mr. Jennings and Mr. Papworth, was carried; an amendment for an adjournment having been previously negatived:—

“That the examination be open to any British subject; and that candidates, not members of the Royal Institute of British Architects, do produce a recommendation, signed by three members of the Institute (one of them being a Fellow), and subscribe a declaration of their intention to practise, as architects, in accordance with the usual rules of the Institute.”

An amendment, proposed by Mr. Street, and seconded by Mr. Pearson, to substitute the words “any person” for “British subject,” was negatived.

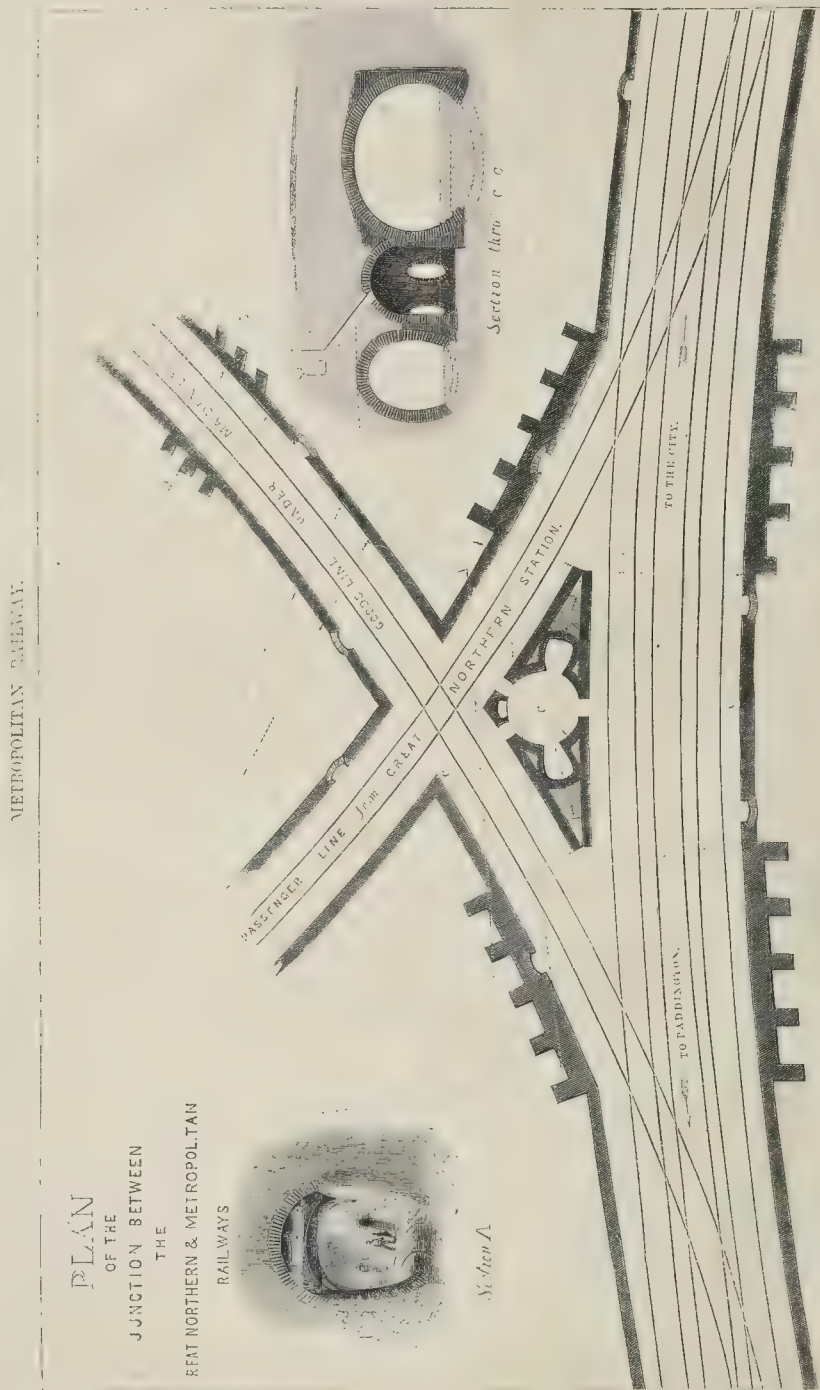
It was moved from the chair, and seconded by Mr. Penrose,—

“That the council be empowered to carry the said resolution into execution, and be requested to appoint a committee to act in conjunction with them.”

Upon this the following amendment was proposed by Mr. R. Kerr, seconded by Mr. Burges, accepted by the council, and carried unanimously:—“That the council be instructed to proceed with the preparation of a curriculum and by-laws, and be recommended to appoint a committee to this end to report to a general meeting.”

A vote of thanks to the chairman closed the proceedings.

* On Coal Gas; a Discourse delivered to some Directors and Managers of Gasworks, June 13th, 1860, and published at their request. By the Rev. W. R. Bowditch, B.A., Lecturer at St. Andrew's, Wakefield. London: Van Voorst, Paternoster-row.



DD. The Fleet River, &c. &c.

C. Telegraph Road.

Section of A shows the Iron Tiding for Carrying the Fleet River.



METROPOLITAN RAILWAY. THE JUNCTION AT KING'S CROSS.—MR. JOHN FOWLER, ARCHITECT.

THE LEEDS MECHANICS' INSTITUTION COMPETITION.

WE have received a long letter from the secretary of the Leeds Mechanics' Institution, in reference to the criticism which appeared in *The Builder*, on the plans in competition for the new building of the Mechanics' Institution and School of Art. Out of consideration for that gentleman, and the apparent haste which characterizes the composition, we forbore to print it. As fallible beings we are at all times liable to err, and we are only too happy to rectify any proved mistakes; but we suggest to the secretary that to write an abusive letter is not the best way to point out assumed errors.

The first fact noticed in the communication is the statement we made concerning the issue of a second circular, giving architects permission to amalgamate the departments of the Institution. We observed that this circular entirely altered the conditions of the first; seeing that, whereas, in the first, the two departments of the Institute were to be kept separate, so that the whole might be built at two separate dates, the second gave permission to transpose rooms in such a manner, that the whole Institution would have to be built at one time. We stated that this latter circular was apparently sent too late for the authors of that we considered the best plans to make use of in this permission. The secretary writes:—

"The first instructions were issued on the 29th of August, and stated that a plan of the site, with full printed particulars, might be obtained on application to the secretary. Considerable delay took place in getting at this plan. Copies were not ready for delivery till the 10th of August, and the time for sending in designs, originally fixed for September 20th, was, in consequence of this delay, extended to October 20th." (The italizing is ours.) "Frequent complaints were received from architects, urging the importance of being furnished with ground-plans; stating, naturally enough, that not a pen could be put to paper until they had it. Now, the majority of the architects did not receive the plan till the middle of August, and some as late as the 27th, and the circular, which is the bone of contention between us, was issued on the 30th August, viz., within ten days after the architects would receive the ground-plan, &c., and seven weeks before the plans had to be sent in. You say, 'the original instructions were observed strictly'; curiously, however, the permission was used in the selected plan." In reply to this we may observe that a great majority of the competitors had used the same permission."

It will be seen, then, that copies of the plan (the site) were ready for delivery by the 8th of August, and may have been delivered at once to some, the majority of competitors not receiving the plan "till the middle of August"—the 15th; and the circular, which is the bone of contention between us, was issued on the 30th day of August, viz., within ten days (fifteen days, if you please, Mr. Secretary) after the architects would receive the ground-plan, &c., and seven weeks before the plans had to be sent in."

Now, we will suppose the majority of competitors to have received the plan, with the information that the time was extended to October 20, by the 8th up to the 15th of August: the great difficulty of the plan was to keep the two departments separate, and this condition was never abrogated. In the first week in September the competitors receive the second circular, stating that, in "case of any difficulty of providing for the School of Art rooms, some of them might be placed in the Mechanics' Institution wing." But this was to be only done in case of a difficulty; and, as the majority did not do so, they apparently found no difficulty in complying with the condition. Moreover, by this time, when the competitors had been working for nearly a month (from August 8 to the first week in September) on their plans, it was impossible in the remaining time to entirely rearrange their designs, and most of them did not do so. We argued that it was because this second circular was sent too late to be of use to them, and we adhere to that opinion. The secretary states that the majority *did* make use of the permission to amalgamate the departments. This is surely a misrepresentation. The majority of competitors did not do so, and the following among the number—"Prodesse civibus," which was the second selected plan; "Spes," the third selected plan; "Art and Science;" "Anstos" (a design not noticed by us); "Fortiter et Fideliter;" and "Red Cross in a Circle,"—all of whom adhered to the original conditions, and made designs which could be built in two sections. In fact, it must have been a question with the architects when they received the second circular whether they should entirely recommence their works, or elaborate their designs as they then stood. As there was not time left for the former, they appear to have resorted to the latter. They comply with the minor features of the circular, but adhere also to the original conditions. Thus we considered

ourselves justified in remarking that the circular was sent too late to be of use to the majority, from the fact, which the secretary does not seem to be aware of, that, in the best plans, "the original conditions were observed strictly."

With reference to the question of estimate, on which we do not desire just now to lay much stress, the letter proceeds,—

"Condition No. 6, says,—'The author of the design that may be approved will afterwards be required to produce competing estimates for the several works from approved parties; and should the lowest amount of the total of these estimates exceed the sum of 13,000*l.*, or thereabouts, the plan will be rejected.' Some architects, 'taking advantage of the words 'or thereabouts,' exceeded the amount by 500*l.*, 1,000*l.*, and 1,500*l.*; and if the committee determined to give them all a place in the competition, little fault can be found with one who exceeds the estimate by some 250*l.* or 250*l.*'"

If the committee swallowed its own instructions by considering plans which exceeded the estimate by 1,500*l.*, it certainly had a right to digest also this excess of 250*l.*,—but this is a bad way of putting the argument. As the secretary puts it, it stands thus:—"If the committee chose to do a great wrong, it had a right to do a lesser wrong." We object to both the greater and the lesser.

After quoting the instructions to competitors, the secretary says,—

"The committee stipulates only for the area required to accommodate the pupils."

This was a mistake: the committee not only stipulated for the area, but gave, room by room and foot by foot, the dimensions of most of the rooms. The secretary proceeds,—

"Any man of common sense might have gathered, from the general spirit of the instructions, that the conditions were imposed more as suggestions to guide him, than as laws, the infringement of which would expose the offender to instant expulsion. This strict adherence to printed instructions, which is so strenuously advocated, and insisted upon, if strictly carried out, would, in nine cases out of ten, destroy all originality of conception on the part of the architect."

Our answer to this is a quotation from the printed conditions:—"Any breach of these conditions will certainly exclude the drawings."

The secretary adds,—

"Instructions should only be regarded as a help to competitors; and he is the wisest who embodies so much as is compatible with beauty of design and simplicity of arrangement, and who has the genius to conceive what may be best and best expressed in the conditions, and who has the promptitude to execute it, and who throws the rest, which would only encumber him, to the winds."

This is rather a different tale to that told in the statement,—"*Any breach of these conditions will certainly exclude the drawings.*"

Conditions are either intended to lead or mislead. The committee evidently intended they should be complied with, or they would not have made the above threat of exclusion for non-compliance. Our readers know very well what our opinion is of stringent conditions; but, if conditions be issued, those issuing them are bound to select those competitors who have attended to them.

Taking us to task for presuming to differ from the committee in the selection of what we considered the best plans, the secretary states:—

"In your criticism of the Gothic plan marked 'Red Cross in a Circle' (Mr. Crossland's) you state, amongst the advantages which give it the pre-eminence, in your opinion, is the following:—That the 'central court-yard in the Gothic plan is most valuable as a means of access for carts and goods.' We should like to know wherein this value consists, seeing that the said court-yard has no communication whatever with the street!"

This is a specimen of the amount of knowledge betrayed by the judges, if the secretary fairly represents the committee's knowledge. We are confidently assured that the central court-yard *does* communicate with the street by means of an archway at the side. The letter concludes:—

"We may, in conclusion, observe that the plans have not been submitted to Mr. Scott. The impression which yourself and Mr. Crossland seem to have is, that the plans were to be submitted to Mr. Scott for his opinion on their respective merits. The committee had no such intention. The prize design has been selected without any professional assistance whatever."

We have only to say, in reply to this, that the committee, we are positively assured, so far from not having any intention of submitting the selected designs to Mr. Scott, *did* decide to submit them to Mr. Scott, and that the secretary came to London for that purpose; although Mr. Scott did not see the designs.

In conclusion we have only to remark that, when a "prize design is in future to be selected without any professional assistance whatever," competitors will do well to know who are the judges before they enter into competition. Both Mr. Crossland and Mr. Garling concur with us in our opinion that, intentionally or otherwise, an injustice has been done to them, as their letters in our two last numbers plainly show.

APPEARANCE OF LONDON.—DISAPPOINTMENT OF VISITORS.

IN nine cases out of ten, the first idea of persons coming from the provinces to the metropolis is one of disappointment and bewilderment. In the cathedral cities of the empire, and elsewhere, there are stately and beautiful buildings, which have in a degree formed a standard of taste, by which a judgment of other structures is, in some measure guided; and now, in most of our chief towns, we have halls and other institutions raised on a large scale, and which claim general admiration for their architectural merits.

Let us take for instance, Edinburgh. Glance at the churches and other places of worship which have been reared in modern times. See that classic temple for the fine arts—that fine monument to Sir Walter Scott,—the buildings which have been reared for business and other purposes,—the massive stone-work,—the open squares,—wide streets and other excellent arrangements of the new town,—and the picturesque but unsanitary appearance of the old: we will say nothing about the buildings on Calton-hill. There is, however, enough in Edinburgh to make those acquainted with that place, rather criticising in their judgment on other towns.

So great has of late years been the increase of our large towns,—that a vast amount of bustle is no rarity; and in some of our chief commercial and manufacturing places, such as Manchester, Liverpool, Glasgow, Birmingham, &c., scenes of as great activity may be witnessed, as will be met with in any part of the metropolis. They who come to London from the Mersey, Tyne, and other famed trading rivers, have recollections of the great docks and other arrangements for shipping and such like useful purposes; and it is a singular, but true circumstance, that most of those who come for the first time from the provinces to the metropolis are apt to have an idea that those spots connected with incidents with which they have been long intimately associated, are larger than they are in reality, and look upon what meets the eye in London, with comparative indifference. Many will remember, however, when, after a few years' acquaintance with the great capital, they have returned to the scenes of their youth,—how dwarfed and circumscribed seemed those places of which they had carried away such great ideas.

Doubtless, one of the causes of the disappointment at first by the visitor to London, is the unfavourable points at which travellers arrive. In the old stage-coaching days, the places for setting down,—the White Horse, Fetter-lane; the Sarcen's Head, Holborn; some of the old-fashioned holsters in Bishopsgate, &c.,—were places of the most ordinary description, and not surrounded by anything of a stately or striking description; since the building of the General Post-office, the Bull and Mouth, in St. Martin's-le-Grand, might be considered as an exception. In the present era the railway termini are most unfortunately situated. What can be more dilapidated and dismal, than the scenes which meet the eye on arriving from the east? Is it possible to produce throughout the whole kingdom, a more incongruous mass of buildings than the terminus at London-bridge, the entrance to London, for persons coming from abroad? In the Waterloo-road approach, there are seen before leaving the train, seemingly endless masses of dwarfed, unwholesome, and ill-built houses, exhibiting dismal scenes of poverty; and when the station has been left, in all directions there are rows of monotonous houses.

A singular impression is made upon the country visitor, when first wandering along such thoroughfares as the Strand and Fleet-street, in noting the numerous well-known names which meet his eye;—the newspaper offices, the publishing houses of well-known serials, and other literary works; the places which have been made familiar throughout the length and breadth of the land by persevering advertisers; the famous banks, &c.; and he wonders at the small and insignificant appearance presented externally by many such places.

Left, even after some days of friendly guidance, in the streets of London, the feeling of bewilderment is extreme, for as boundless in a certain sense seem the masses of houses, lines upon lines of streets, as in another light must the wide-spreading prairies of America to the unaccustomed traveller. Building after building is passed, in the first instance, without particular notice; and yet, perhaps, one of these would present a striking feature in most provincial towns. Day after day, by means of knowledge, this mighty city impresses itself by its vastness on the mind. Here, without any particular external appearance, is a manu-

factory in which are between 2,000 and 3,000 workmen. There, in the General Post-office, many thousands of persons are busily engaged. Almost adjoining it, St. Paul's Cathedral stands about four hundred feet in height; but grand as it is, it does not look out of keeping with the objects around. On first looking at the metropolis we see structures such as the East-India House, the National Gallery, British Museum, and General Post-office, and some other places which, in their general features, are not unlike, and convey an idea of monotony; and, when compared with Edinburgh, Dublin, or even the new parts of Newcastle-upon-Tyne, it must be felt that a sad want of that effect which is caused by general arrangements exists in London. One quarter of the money which has been lavished here and there, if some decided plan had been adopted by an architect like Inigo Jones or Sir Christopher Wren, would, notwithstanding the comparatively bad site of the city, have led to better results.

Much, however, depends on the season of the year at which the visitor reaches the metropolis. In summer, when the parks and squares are green, and bright with flowers, and when the fashionable and pleasure end of the town is gay with people and carriages, and the streets enlivened outside by the house-painter, the contrast with most of the manufacturing towns is very striking. The dazzling shops at night, the works of art and curiosity in galleries, and thousands of other things which attract attention, are, as we have said, bewildering to visitors, and they are even more wonderful to those who have studied them for many years.

AN ARTIST.

CREEKE'S CAPPED DRAIN-PIPES.

SOME people are afraid of spiders and "daddys," some of ghosts: one is horrified if he meet a squinting woman, and another can't bear Friday. Our own especial object of dread,—shall we acknowledge the weakness?—our own *l'été noir*,—is nothing more nor less than—a drain-pipe! When one of fresh shape is brought to us, we know what will come of mentioning it, and view it with quaking and dread. Speak of A. and B. feels injured: mention Poole, and Lambeth is fluttered.

However, we must keep our readers informed; and we therefore point attention to the arrangement of drain-pipes patented by Mr. Creeke, the characteristic of which is a cap at every other joint for inspection or cleansing. An illustration of it has appeared in our advertising columns. Amongst other good qualities the patentee claims, that the capacity of the drain is not lessened when under examination; the side joints above the ordinary water level having a free drainage course for seven-eighths of the depths of their diameters to the water line of the cap, which is secured by a flange; consequently, there is no liability of leakage; and, moreover, that they can be supplied at the same price as the ordinary socket-pipe.

SEWERS AND SEWAGE.

THE flow of water in sewers and drains must vary in accordance with the amount of permanent spring water found on the line of any sewers and drains. In ordinary weather the springs, day by day, will give steady volumes of water, which will, however, vary with the seasons and time of such seasons. The flow of rain-water will be exceptional. With a regular and steady flow of spring water there will be a daily intermittent and varying flow of sewage; regulated, of course, as water is used for domestic purposes. Commencing at 6 o'clock A.M., there is a gradual increase up to 8 o'clock and then up to 11 o'clock. From this time the flow slackens to culminate again about 4 o'clock P.M.; diminishing to 8 o'clock, from which time to 6 o'clock in the morning spring water alone, or almost so, is flowing. In devising pumping-works it is very important to ascertain the irregularities; and, in using sewage for irrigation, the condition of the fluid at stated periods should also be observed. From 8 to 11 o'clock in the morning sewage will, we expect, be found to be the richest in manuring power, and then up to 6 o'clock P.M. During the night spring water almost pure is flowing to the outlet.

The relative volume of spring water to sewage water will vary, probably, in each town.

The amount of sediment brought down by sewers will depend on the surface gradients, character of roads and streets, surface cleansing, &c. The cubic volume of sediment to be dealt with will, however, startle some engineers new to

their work; and, in surface irrigation, will bother the farmer, unless it is allowed to subside before the fluid is turned on the land. At Birmingham the ordinary quantity is, we have learned, some 500 cubic yards per week; or, upwards of 25,000 cubic yards per annum, of solids to be removed by hand. A week of heavy rain has brought down something like 3,500 cubic yards in one week. This is road drift and solids which deposit in the subsiding tanks, and are now removed regularly at great cost to the corporation.

Experience has proved that sewers may be so constructed and used as to remove the ordinary solids with the fluid, even on gradients so low as 1 in 700. This is a great gain over wide and flat inverts, which inevitably retained all the solids to be removed by hand labour, or ultimately to choke up the sewer. It is much better and cheaper to remove the solids at the outlet than from the sewers. Besides, clean working sewers are free from putrescible matter, which sewers of deposit are not. We shall be glad to publish any useful facts relative to sewers and sewage if sent to us.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening, the 4th instant, at the house in Conduit-street; Mr. T. Roger Smith in the chair. The minutes of the last meeting having been read and confirmed,

Mr. Billings gave a sketch of his professional career, and exhibited a number of drawings illustrative of works carried out under his inspection. In the course of his observations, referring to polychromy, he remarked, that in his opinion it was quite inappropriate to a climate like ours, subject to vicissitudes of intense cold, and the chemical action of the atmosphere. He did not deny that the principle of polychromy might be advantageously carried out for internal decorations, but he contended that the experiments made in various public buildings in the metropolis were sufficient to prove that it could not be successfully applied to exterior. The attempts made to gild the iron railing in front of the British Museum and the cross at the top of St. Paul's, were, he submitted, abundant evidence that this process was unsuitable to the climate of England. The speaker concluded his observations by recommending young architects not to supply designs for works which they were not to carry out, as he stated that he had himself suffered in reputation by the "subsidence" of certain works carried out by the late Lord Murray, at Edinburgh, and the failure of which had been caused by an oversight on the part of the person entrusted with the superintendence of the work, and for which he (the speaker) was in no wise responsible. The speaker complained, in reckless phraseology, and without the slightest ground, of a notice of this accident that appeared in the *Builder* of March 10th, 1860. The paragraph, which came to us just as it was printed, attributed blame to no one; did not seek to do so; indeed, mentioned no name; and our belief is that until this moment we had never heard that he had anything to do with it.

The Chairman announced that on the next evening of meeting (the 18th instant) Mr. Arthur Allom would read a paper on "The Battle of the Styles."

The subject for the class of design was "A Town Gateway."

CONDITION OF OUR TOWNS: BRIDGE-WATER.

THE editor of the *Bridgewater Times* says,—
"Our very useful and clever contemporary, the *Builder*, commences the new year with a subject of great domestic importance.—'The Condition of our Towns'—which it proposes to review from time to time during the current year. It says, 'I admit how useful it would be in most of our daily concerns to be able to see with other people's eyes!—whence we may conclude that, if the inhabitants of various towns could be brought to see, with a stranger's eye, the vital need of immediate attention to the existing ills, there would be little time lost before the necessary remedies were set in motion.' This is very true; and the impartial and scrutinising eyes of the *Builder* will detect, in most of the towns he visits, more or less neglect of the common sanitary conditions under which alone a dense population can remain in a normal state of health."

After giving an account of one of our articles the *Bridgewater Times* goes on to say,—

"The agitation of this question calls us to look at home. With reference to drainage Bridgewater has nothing to complain of: the natural advantages she possesses have been taken advantage of by the local authorities; and we may safely assert that there are few better drained towns in England."

"There are a few courts and alleys and cottages which would be better pulled down; but, generally speaking, there is no deficiency of fresh air in the poorer parts of the

town. In sanitary matters, then, we have no great cause of complaint; but, when we advance from them to town improvements, there is something to be said. The town at present is in a ferment with reference to the site of the post-office."

And the editor then proceeds to urge the desirability of several much needed new buildings. Is our intelligent contemporary quite certain he is correct in saying that, with reference to sanitary matter, there is little to complain of in Bridgewater? We have an impression that, if he were to look, with knowledge, not merely at the courts but into some of the houses in better parts of the town,—into some of the cottages in the neighbourhood,—even into the *workhouse*,—there would be a different story to tell.

Perhaps he will try.

PROVINCIAL NEWS.

Norfolk.—At the Norfolk sessions the county surveyor reported to the police committee that the repairs of the Acle station (the roof of which had been in a very bad condition) had been completed. The flat roofs of the Grimstone, Holt, Reepham, and Stalham stations, the committee recommended should be replaced by slated timber roofs in the ensuing spring, at a cost not exceeding £100. Mr. Howes observed that all the flat roofs put up by the late county surveyor had entirely failed, except the one at Norwich, which hitherto appeared to have answered. The repairs were ordered to be made.

Wiltshire.—The *Lincolnshire Chronicle* gives the following list of tenders for a new farm-house, farm premises, and pair of double cottages, including all fencing and fittings, and labour and materials, for Mr. Arthur English, proposed to be built at Wiltshire: E. Pearson, London, 2,416l.; S. & W. Pattinson, Ruskington, 1,605l.; Swann & Carrington, Market Deeping, 1,526l.; J. W. Timms, Castle Bytham, 1,459l. 5s.; H. Bradshaw, Stamford, 1,420l.; Belton & Grant, Metheringham, 1,276l.; Cogswell & Day, Peterborough, 1,352l. 9s.; J. & J. Sneath, Boston, 1,250l. 18s. 10d.—Architect, Mr. E. Browning, Stamford.

Uxbridge.—The new Corn Exchange over the old Market House has been opened. The old roof has been removed, and a lantern-trussed roof substituted. There are now side-windows and a new floor, and the centre ceiling is covered. The room is 109 feet long and 25 feet wide, and there are three private offices at the east end, and a committee-room at the west end. There is room for about thirty stalls. The architects were Mr. Eves, of Uxbridge, and Mr. Shoppee, of London; and the builders, Messrs. Fassnidge & Son, of Uxbridge.

Reading.—Of the New County Assize Courts and Central Police Station, the local *Mercury* says,—It had been expected that the entire building would have been completed ere this, but, as might be anticipated, the late strike amongst the building operatives occasioned much delay and inconvenience to Mr. Myers, of London, the contractor. The new buildings, however, have been prepared for the Epiphany Sessions, which have just been held in them. The principal apartments, besides the building erected for the Berks Constabulary Central Station, are,—an entrance-hall, communicating with the Crown and Nisi Prius Courts, and with the Finance Committee and Treasurer's room; Clerk of Indictments' room; Grand Jury room, communicating with Grand Jury gallery and with the gallery for witnesses in waiting; Grand Jury retiring room; waiting room for female witnesses; rooms for Petty Jurors, Counsellors' consulting room for each court; Barristers' robing room and lavatories; offices for Clerk of Peace. In the basement are refreshment rooms. The arrangements as regards hearing in the Court, are said to be satisfactory.

Guildford.—It has been determined to erect a new public hall here, with a lecture-room for 1,000 persons, and accommodation for the Guildford Institute and Workmen's Institute. The estimated cost of the building is 2,500l.

Southampton.—There is some prospect of a new lunatic asylum being required for the town of Southampton.

Chipping-Norton.—New National Schools, built at a cost of 1,500l., have been recently opened here. The buildings were erected by Mr. C. Young, builder, of this town, under Mr. W. Wilkinson, architect.

Kelso.—It is the intention of the Commissioners of Supply to commence the erection of a new Court-house here as soon as the preliminary arrangements can be made, and the weather will permit; and Mr. Rhind, of Edinburgh, has been appointed architect.

Dundee.—The tender of Messrs. George Hag-

and William Robertson, builders, Dundee; the erection of the new Post Office has been completed. It amounts to £3,665. The Parliamentary grant was £4,800, of which £375 have been paid for the site, and the balance will be expended in furnishing, &c.

CHURCH-BUILDING NEWS.

Great Carlton (near Louth).—The church of St. John the Baptist, Great Carlton, which has been (with the exception of the tower) entirely rebuilt, almost at the sole expense of the vicar the Rev. Frederick Pretymann, has been rededicated to the service of the church. The restorations have been carried out from the designs and under the superintendence of Mr. John Fowler, architect, Louth. The old arcades have been rebuilt, and heightened below, so as to correct the previous shortness of these pillars. The nave roof is of a simple construction, and the south aisle has a lean-to roof; but variety is given to the fabric by covering the northern one with a span roof, in consequence of its greater width. An arch opens into the chancel, and this last is finished with a reredos enriched with Minton's wall tiles, in which green predominates beneath the east window. In the interior of the walls the warm but sober hues of the sandstone from the old fabric have been contrasted with the freestone pillars and arches below, and above lines or strata of the rose-coloured brick of the vicinity are diversified with bands of Ancaster stone, narrow borders of blue tiles, and others scattered. The monotony of this horizontal linear treatment is diversified by occasional figures formed of tiles of various hues and white bricks. Externally, a small octagonal vestry is surmounted by a conical roof.

Bicester.—The restoration of Bicester Church is contemplated. It is proposed to remove the galleries, throw the vestry-room open to the body of the edifice, remove the present pews, and re-erect the church with open seats. The cost is estimated at 2,000l.

Maidstone.—On St. John's day, the church of St. John, which is situated in the Motte-park, the seat of the Earl of Romney, was consecrated by the Archbishop of Canterbury. It consists of nave, chancel, vestry, organ-chamber, north porch, and bell-turret at west end for three bells. The style of architecture adopted is Early English, slightly approaching the decorated period; and the principal materials employed in its construction are Kentish rag-stone for the outer walls, with dressings of Bath stone; the interior face of the walls being entirely of fair hassock in regular courses, relieved by dressings of Bath stone. The roofs are open-timbered, that to the nave having six pairs of curved principals with tracered spandrels, and that to the chancel being groined throughout. The curved ribs, both in the nave and chancel, spring from stone columns with carved capitals and bases; and the whole surface of roof is simply varnished, the principals and carved ribs alone being stained. The windows of the nave are glazed with amber-tinted glass, and fitted with patent ventilators instead of the ordinary opening casements; and the chancel windows are filled with polished plate-glass. The floors are laid with Maws' encaustic tiles. The seats are arranged to give accommodation for upwards of 200 people. The architect was Mr. Henry Blandford, of Maidstone.

Winchester.—Christchurch district-church has been consecrated by the Bishop of Winchester. The architect was Mr. Christian, of London; the contractor, Mr. Bull, of Southampton. The cost of erection has been 3,500l.; and of this sum Canon Carus contributed 2,000l., the remainder having been raised by public subscription. The materials used are Kentish rag-stone, with Bathstone dressings. The church is composed of a nave, 56 feet long by 28 feet wide, with two side aisles, each 56 feet by 14 feet; and of a chancel, 28 feet by 25 feet, with an aisle for children in its north side, and a vestry situated in the base of the tower on the south side. The height from floor of nave to the underside of the ridge of roof is 51 feet. The height from chancel floor to roof is 44 feet, while the height from the floor to the apex of chancel arch is 34 feet 6 inches. The height of tower from the ground to the base of spire, to which point only has it been carried (the funds being wanted to complete the spire), is 55 feet. The spire is intended to be carried up to an altitude of 55 feet also, and is to be furnished with a vane of 7 feet in length, making the entire height from the ground 117 feet. The chancel terminates in an apse of seven sides. The plan of the nave, with its north and south aisles, covers a

square of the dimension of 56 feet by 56 feet, or four squares, each 28 feet by 28 feet. The plan of the chancel is also based on a square of 28 feet, so that the length of the nave is twice its own width, and the total length of the church, including nave and chancel, is three times the width of the nave, or 84 feet, the width being 56 feet. The foundation of the church is a bed of hard chalk. The design of the building chiefly exhibits the characteristics of the Early Decorated style. The nave is lighted from the west by a window of five lights and twelve clerestory windows, six on the north and a similar number on the southern side. The chancel is lighted by five narrow lancet-side windows, each with tracery in the head. The northern aisle has three square-shaped windows of three lights each, and the south has two of a similar character. The aisles also have each one window of two lights in their eastern and western terminations. The nave and aisles are separated by six arches (three on either side), which rest upon pillars of dark-veined Devonshire marble, the caps and bases being of Caen stone. The shafts of the corbels which carry the chancel arch are of the same material as the nave pillars, &c. The pillars are so constructed in the nave that their bases are raised above the pews, thus rendering them somewhat short in appearance. Above the vestry and beneath the belfry floor of the tower there is an opening for an organ. The seats, which are of deal, stained to imitate oak, are open, and will accommodate 452 adults and fifty-five children; total, 507. The roof is of the same material as the pews. The floor is formed of black and buff encaustic tiles, laid in lozenges. The capital of the chancel corbel, on the north side, has been carved to represent hawthorn blossom and sycamore leaves; and that on the south, lilies and ground-ivy leaves. The caps of the two columns of the north aisle represent respectively roses and columbines, and those of the south maple leaves and passion-flowers. The execution of this department of the works was carried out by Mr. Farmer, of Westminster, the carvers being young men and lads from his establishment. The font, which occupies a recess in the west end of the south aisle, is in the Early English style. The pedestal is a cluster of four columns, upon which the bowl, carved out of a block of stone, rests. The bowl is octagonal in shape, four sides being plain, and the remaining ones (the alternate spaces) decorated.

North Nibley (Gloucestershire).—The chancel of the parish church of this place has been rebuilt. The new chancel is built in the Early English style. The architect was Mr. J. L. Pearson, of London; and the builder, Mr. Charles Jackson, of Uley. The carving was executed by Mr. Nicholls, of London. The tiles of the chancel floor are from the establishment of Messrs. Maws.

Aberdare.—A new Unitarian chapel has been opened at Aberdare. The edifice was built from the design of Mr. H. J. Paull, of Cardiff. It is a Gothic structure, 54 feet long, by 28 feet wide, lighted by three windows, of different patterns, on each side, and is capable of seating about 250 persons, irrespective of a singing-gallery at one end. The seats are stained and varnished. The estimated cost, including enclosures, railing, warming, lighting apparatus, &c., is 1,045l.

Fenny Drayton (Leicestershire).—This church, having undergone a general reparation, was reopened on Wednesday, the 2nd instant. It presented a curious example (before the restoration commenced) of the treatment to which such buildings have been subjected for several generations. It was covered, nave and aisles, by one low-pitched roof, and lighted by a skylight! The chancel window was gone, and its place supplied by a square opening; and its walls were dilapidated and patched with stucco: in the interior, also, all the features so well known, and now, happily, so fast passing away, were visible; the low, plastered ceiling, and the high, ugly pews. The old roof has been replaced by new ones, of higher pitch, over the nave and south aisle (the north aisle being left for lack of funds). The walls have been cleared of stucco, and partly rebuilt, with gable copings and crosses, and new east window. Internally the floor has been entirely relaid with Staffordshire tiles, and Nopton stone steps in the chancel. The old pews have been removed, and replaced by carved stalls in the chancel, and open benches in the body of the church. A new chancel arch, with responds, supplies the place of the wooden beam which finished the old ceiling; a new tower arch, that of the old "singers' gallery," and a new porch, built of stone, that of the old brick porch. Fenny Drayton was the birthplace of George Fox, the founder of the Society of Friends. The church contains four very hand-

some alabaster monuments to various members of the Purefoy family. The architect is Mr. W. Jackson, of Leicester; and the works were executed by Messrs. Haddon & Merideth, of Atherstone. The restoration is due to the energy of the new rector, the Rev. J. E. Colyer, assisted by subscription.

TO "THE GARGOYLE OF ST. MARY ANNE'S."

I FEAR that I cannot endorse the application of this griffin to the position he covets in the plate of good grotesques which I recommended the Architectural Publication Society to publish. I shrewdly suspect him to be an impostor,—a restoration at best, or one of the sham gargoyles of the Gothic churches of twenty years ago, to most of which his description of himself will apply, and which need no stomachs, having often no water laid on to them at all.

He evidently forgets his purpose altogether,—I had said his position also, but that he speaks of himself as "flanking the turret that flanks the tower." Now he was banished to that elevated spot simply because he was not "ornamental," nor any personification of Christian graces, but a devil incarnate, abhorred as such, and stuck up as a grim reminder of the sad end that bad men, as well as bad spirits, must come to, if they turn not from their evil ways; and also for the behoof of the passers-by in the "crooked alleys" below, which, by the way, have grown up since the time he purports to be of, and in the true "dark ages," which recked not of art and huddled shops under the very eaves of St. Mary Anne's, and would have, if they might, made merchandise in the nave itself, and even stabled cattle in its choir. Of these dark ages, other than Mediaeval, I may have more to say anon.

Although I cannot deny that some of this griffin's unseemly crew have crept in, unawares perhaps, under sundry stall seats; yet it was no like of such as he that the old church-builders set up where they would have their sculptures to be read. And no "bad lot" were they, as he calls them, of "bare-footed friars," seeking to "scare a brutish and down-trodden people," but the sole guardians in those days of the same true faith which we hold, though it be they mixed error with it, and the sole protectors of the people who were "down trodden" by their kings and nobles. Far more stately than the senseless griffin "janitors of the Augustan porch," stand, in their ordered ranks, within the noble portals of Amiens, Rheims, and Rouen, the whole hierarchy of heaven and saints of earth, in adoration of the sublimest themes our glorious Christian faith can give, sculptured in the tympana with more than all the skill, and ten times the intelligence and true feeling of art, shown by the ornamental compositions of the classic ages.

JOHN P. SEDDON.

THE ARRANGEMENT OF THEATRICAL STAGES.

It is curious that in England, where the application of machinery is more advanced than in any other country, the theatrical stages are perhaps the most ill-arranged and old-fashioned of any part of Europe; and it is more so, since scene-painting is perhaps nowhere so perfect as here. I cannot, therefore, do better than refer our architects to the newest and best Continental stages. The most perfect and simple stage machinery I know is in the new Victoria Theatre at Berlin. Sections and drawings of this stage are published, and of such a nature, that they will fully explain the whole to any architect; hence will not necessitate his going to Berlin. This work might be obtained through Messrs. Williams & Norgate, of Henrietta-street. In this house all is done below the stage, and no workmen are required up above: with one wheel the whole side comes and drops are set in motion, by the aid of weights; the wings are on frames, which go through the stage, and run on a frame below. On each side of the stage there are several shafts, which contain boxes, and which go from the bottom to top of stage. Hence, if a man below requires to go up above, he has only to jump into one and set himself in motion, and in a few seconds he is at the top of the house.

Another new house is at Brunswick. A very interesting theatre is at Mannheim, where Mr. Muhlendorfer is machinist, inventor of the flat stages, and holds the highest reputation in Germany. Also at Munich the theatre is most interesting: there is an immense stage, and as warm and free from draughts as a drawing-room.

This stage is of a peculiar construction, and all its details are published in admirable drawings. The Italian stages are very old-fashioned; but Paris, with its many new theatres about to be built, will be very interesting. Then will be tried an experiment of great interest to actors, viz., of getting rid of the footlights, which are so annoying. I am sorry not to be able to send you the drawings of the Victoria Theatre, Berlin, or of Munich, but should any of your readers have the former, they could not be rendering the architectural world a greater service than by lending them to you, in order that you might publish two sections of the stage.

Any one travelling to see theatres should visit also Carlsruhe, Darmstadt, Hanover, Warsaw (Warsaw has the most perfect garbier arrangement I know), Moscow, Bucharest, and above all, St. Petersburg, for gorgeousness.

The question of flat stages *versus* inclined is an interesting subject: in inclined stages everything is out of perpendicular.

ALPHONSE WASHINGTON.

WOMAN'S AID IN LARGE TOWNS.

DEAR MR. EDITOR.—There is an old Scotch proverb, that "Many a little makes a mickle." Might we not all (we women I mean) try what we could do towards building at least one of your social bridges? I do not venture to ask this with reference to myself; being, alas! very helpless in such matters, though I would thankfully do anything I could; but your correspondent of the 5th instant seemed to limit the work to those women whose friends are more immediately interested in it. Is this necessary? It has often struck me that there are many ladies who have the means who would be glad to give for such a purpose; many who visit among the poor, and many others whose pity would be roused if they were appealed to. Often they are only deterred from giving by not knowing how or where to begin: it is so difficult in London for ladies to know much of their poor neighbours. If you would make a strong appeal to them, as you best know how, I cannot help thinking it would be warmly responded to, and the work zealously taken up by some when once made acquainted with the need. We have sighed long enough over the sad pictures you have been painting for years: it would be a real comfort to feel that we were, at all events, trying to do something more to the purpose. You will forgive me for troubling you when so many others can make far better suggestions; but I have so long felt that we might often be doing while we are only dreaming, that I could not resist asking this question.

E. P.

FIRES IN CHURCHES.

THE harvest season for the usual stove-fire accidents in churches is now in full "swing": the following is a good week's gleanings from the perennial crops. How many winters must there pass before these numerous "accidents" lead to their own remedy? The parish church of Aberlour, in Banffshire, has been totally destroyed, together with the vestry, but not the clock-tower, by a fire which, says the *Banffshire Journal*, "must have been from the stove which heats the church, and which was in operation."—The parish church of Cranston, near Dalkeith, has been totally destroyed by fire, "supposed to have originated in overheating."—A fire occurred in a church in Parliamentary-road, Glasgow, last week, but was extinguished, fortunately, without doing any material damage: "it was found that the alarm had proceeded from the gallery, where the vent leading from the stove beneath, which had been overheated, had ignited a lintel, the flame of which melted a small gas-pipe and ignited the gas." A stove pipe, a wooden lintel, and a gas-pipe, all in juxtaposition! It reminds one of the handy housemaid, who over-night carefully lays the firewood over the paper, and the fuel over the firewood, for the morning's fire!—On the same day, and in the same city, at a church in New City-road, "the bundle discovered that a portion of the wood connected with the stove had taken fire, from the stove being over-heated;" but fortunately the discovery was also a timely one, and the fire was extinguished. Why should "the wood" be "connected with the stove" in any case, except through a considerable and safe intercalation of iron or other incombustible material.—Salem Chapel, Burton-on-Trent, has been completely gutted by fire, and most of the roof destroyed.—The organ at Trinity Church, Bromwich, has been burnt; but in this case a gas jet, carelessly left burning, is blamed.

COLD FROM OPEN CHURCH ROOFS.

CAN any of your correspondents inform me how the inconvenience of an open roof in the very coldest of all parish churches can be rectified? We have lately enlarged and repaired our church at an expense of from 3,000l. to 4,000l., and it is now scarcely bearable from the currents of cold air that flow downward, so that a candle will not burn within a few feet of the roof. A new plan of warming was recommended by the architect, but the flues are so embedded in the earth, and covered by the pavement, that no heat arises, except at the furnace doors, which are placed just at the porch entrances, so that it is soon neutralized.

The restoration committee, all good men in their way, had no experience of contracts, and engaged an architect from London, and then gave the contract to a carpenter who had not 5l. capital, because he offered to perform it at nearly 2000l. less than the other builders: he has become a bankrupt; and, to make things worse, has not even paid his weekly workmen.

This should be a caution to other committees.

DEVON.

* * Is the roof felted? If not, felt would lessen the evil complained of. If that prove insufficient (all openings and crevices having been of course stopped), lathing and plastering between the rafters, so as to interpose a layer of air next the outer covering, is probably the best thing that could be done.

WORKS AT WINCHESTER CATHEDRAL.

SOME of our correspondents continue to complain of unnecessary scrapings and choppings at Winchester, and of the new figure recently put up. We must withhold our opinion at present. One letter, purporting to come from the Cathedral itself, says,—"Painful, however, as all this scraping and patching is, it might be even excusable if the dean and chapter were suffering from a plethora of spare cash, and had completely finished all necessary matters before they looked about them for something to 'repair and beautify.' Unfortunately this is not the case. I am suffering from a chronic internal disease, which prevents my being as useful as I could wish to my friends. In fact, the system of 'respect of persons' is carried out in all its perversity in my interior. It grieves me extremely to be so long a victim to this malady, from which many of my sister cathedrals have recovered; for there is no lack in my native city of those over whom neither I nor my smaller sisters in the parishes have any hold, and whom I would fain invite and welcome.

I say nothing of the unsatisfactory state of my furniture and ornaments; nor of my lantern—which has been put out for many years—a very handsome one, given me in Henry I.'s time, in place of another (by Walkelin & Co.), which I unluckily dropped and broke. But a circumstance which I will now relate to you makes me feel very uneasy about my future, and wish that the money now gone had been spent on internal remedies. A little bird has told me that the present members of the chapter, with a praiseworthy regard to their own interests, have declined burdening their divisible revenues for the repair of the fabric: and that a something has passed between them and the Ecclesiastical Commissioners which will cause their successors to hear another something, by no means to their advantage. I hope, for the credit of this unselfish, earnest, evangelical, tea-and-Bible-loving town, that the little bird was mistaken.

WINCHESTER CATHEDRAL."

ARCHITECTS' ACTIONS.

EXCEEDING STIPULATED COST.

AT the Court of Passage, at Liverpool, on Saturday week, an action was brought by Mr. Thomas Wylie, architect, against Mr. Edward Willmer, proprietor of the local *Chronicle*, to recover the sum of 180l. 18s., being 25 per cent. commission upon 6,350l., the estimated cost of a building for which he had prepared the plans. The plaintiff stated that in August last the defendant purchased from the trustees of the Blue-coat School the lease of a plot of land in School-lane, and engaged him to prepare plans for a building to be erected upon it. He accordingly commenced the preparation of plans; and, whilst he was engaged upon them, Mr. Willmer told him to put himself in communication with the proprietors of the *Mercury*, who had agreed to take a portion of the building, and so to arrange the building as to afford them the accommodation they required. It had previously been contemplated to erect a building of two stories, but Mr. Willmer now said it must be a four-story building, with a cellar. He then proceeded to make fresh plans; and, during their preparation, the defendant came to the office almost every day. When the plans were completed he sent them, under Mr. Willmer's directions, to Messrs. Howarth, of Lime-street, in order that they might take out the quantities. On the 3rd of November he received a letter from Mr. Willmer, in which he drew attention to his having stated that he contemplated expending about 2,000l. on the proposed erection, and having subsequently

extended that sum to 2,500l.; and said he expected the plans to be executed for an expenditure of that amount, and was therefore astonished to find that the tenders which had been sought for carrying out these plans ranged from 6,350l. to 6,450l. The defence was that Mr. Wylie received instructions to prepare plans for a building the cost of which was not to exceed 2,500l.; and, that as he had not carried out these instructions, but made plans for a building to cost 6,350l., which were perfectly useless to the defendant, he had no claim. The jury, after a protracted investigation, gave a verdict for the defendant.

Books Received.

VARIORUM.

MR. WILLIAM CHAMBERS has printed his lecture on Co-operation (noticed on page 773 of last volume of the *Builder*), in the form of a twopenny tract, the first of a series titled "Chambers's Social Science Tracts" (W. & R. Chambers, London and Edinburgh). The subject of Co-operative Associations amongst the working classes, especially with the view of acquiring cheap and good provisions and other requisites, is now exciting considerable attention throughout the country, and Mr. Chambers's is by far the best exposition of this subject which we have yet seen. His tract properly recommends caution in the extension of that branch of co-operation which deals in manufactures, such as that of cotton: nevertheless, it gives a hopeful view of co-operation as an engine of social advancement.—A very sensible little sixpenny tract, titled "Health in Nature: a practical treatise, showing how 'good digestion waits on appetite, and health on both,'" has been "addressed to the common-sense portion of the British public, by A Convalscent" (Davey, Lewes, publisher). We quite agree with the sagacious author in thinking that "anything that will put a check upon the present system of drug medication is desirable," and his object is to show how much can be done by rational and simple means, without resort to drugs. Still he does not go to the other extreme of disclaiming the aid of medicines where really requisite under administration by enlightened medical authority; but, as he rightly remarks, "fresh air, exercise, simple diet, the non-use of stimulating drinks, cleanliness, or that which promotes a healthy action of the skin, and a mind free of care, are the grand points that conduce to health." On the necessity of a due supply of fresh air as essential to a healthy existence, the author more than can impressively expatiates. "That man," he remarks, "will deserve well of his country who will teach us how to warm our dwellings and at the same time ventilate them efficiently and cheaply." This is an important question to which we have repeatedly drawn attention in the *Builder*, as well as to the invisible prison drunk into the lungs in close apartments, and in ball-rooms, theatres, and other places of public resort.—A paper, by Dr. Wallace, one of the surgeons of the Greenock Infirmary, "On some of the Causes of the High Rate of Mortality in Greenock," read at the Social Science Congress, at Glasgow, in September last, as noticed by us at the time, has now, by recommendation of the council, been published for local circulation, together with an able reply to the strictures on its statements made both at the congress meetings, and since, in a printed form. That Greenock is, sanitariously speaking, in a very bad state indeed, has been clearly proved by statistical evidence, although no one familiar with the condition of notoriously unwholesome localities in towns can require any other evidence than that of their own senses to be convinced that it is so; and it is not of late years alone that Greenock has become decidedly bad in a sanitary point of view: it was a very nasty place, so far as we can recollect, some years since; and time seems only to have intensified the causes of its disrepute, notwithstanding its favourable position with respect to rainfall for cleansing operations. That even the Registrar General's adverse statistics are resisted by some well-meaning persons, anxious to redeem their favourite locality from obloquy, is not to be wondered at: there is no place, however bad, however notorious for ill-health, which has not defenders ready to start up in its favour, and to support the dirty and unwholesome side of the question. It is to be hoped, however, that the local authorities and inhabitants will not allow the present state of matters to continue much longer without amendment.—"Who's who, in 1861?" edited by C. H. Oakes, M.A. (Baily, Brothers, Cornhill), is as useful a little work as ever, but it requires extension. Should any one wish to know, for example, who Michael Faraday is, he will find, by turning up "Who's who?" that Michael Faraday is nobody: in other words, he will not find him here

at all. So with Charles Dickens: so with almost every man of talent or genius who has made himself celebrated, but who happens not to have an aristocratic or official handle to his name. Sir John Herschell is somebody,—not because he is a great astronomer, eminent, also, in other sciences; but because he was "created" out of a nobody into a somebody in 1838. This, in short, is a work which regards everybody as nobody, unless he has some special distinction of title or office. It does not include men of mark in science, art, or literature, however well known or celebrated they may be. Surely a few lists, at least, such as those of the Royal Society, and other distinguished associations, might be appropriately and easily added to those already included, such as the lists of military and naval officers, police magistrates, county court and bankruptcy judges, and other legal authorities, assurance companies, railway directors, &c., &c.;—and especially since a good precedent exists in its own pages by the very exceptional insertion of the list of Royal Academicians.

Miscellaneous.

ARCHITECTURAL PHOTOGRAPHIC SOCIETY.—The opening Conversation in the gallery, Conduit-street, on Tuesday evening, was well attended, and passed off agreeably. Mr. P. Anson briefly explained the object of the association, and pointed out a few of the photographs.

FOLEY'S STATUE OF LORD HARDINGE.—We are glad to find that the committee formed to obtain for the metropolis a duplicate of this fine work are proceeding with good success. About 250*l.* have been subscribed by artists only. A general committee will now be formed, and an appeal made to the public. Messrs. David Roberts, R.A., W. Calder Marshall, R.A., Daniel Maclise, R.A., and P. Macdowell, R.A., are the honorary secretaries, and may be addressed at 22, Regent-street.

PURIFICATION OF THE WATER OF LEITH AT EDINBURGH.—This very necessary work is said to be at present under the consideration of the local authorities. A great portion of the west end and new town of Edinburgh is drained into the bed of the very small stream called the Water of Leith, which, in summer, is often pretty nearly dried up, so far as regards its legitimate dimensions; so that the channel then becomes, as it now is, indeed, at all times, a filthy open sewer, which discharges itself into Leith harbour. The greater epidemic mortality of Leith than of Edinburgh, and of Stockbridge and Water of Leith village than of Edinburgh in general, has been regarded at various periods as due in part at least to their situation on the banks of this stream. Such is the view taken, not unnaturally, by the Leith Sanitary Association, who are very properly stirring in the matter.

THE ANCIENT CHURCH OF RECVLER.—Our readers will remember that the now ruined church of Recvler inclosed within its fabric parts of a building far more ancient than the towers and walls which formed the exterior of the structure; in fact, there appears to be no doubt that a portion of a Roman temple or basilica, which was still erect in the thirteenth century, and which, judging from its relics, must have been an important building, was appropriated by the Mediaeval architects, and incorporated in their rising edifice. These portions, consisting of two columns, giving, with the side walls, support to three arches, were situate at the junction of the nave and chancel, the whole structure forming a triple chancel arch of much singularity. At the commencement of the present century the church was reduced to its present desolate condition, parts being distributed to various claimants, and at this time the columns passed into the hands of a citizen at Canterbury, who caused them to be laid on the grass of his orchard, where they have remained to the present day. The orchard, among the long grass of which the columns have for so long a period slumbered, having recently been sold for building purposes, has been made accessible to the public, and here these remains of ancient "Regulium" were seen and recognized by Mr. Shepherd, surgeon, of Canterbury, who immediately communicated with Mr. Roach Smith, and he in turn lost no time in drawing the attention of the authorities to the matter. The result has been that the Dean of Canterbury, conferring with Canons Robertson and Stone, has proposed to re-erect the pillars, which have been freely given by their owner, Mr. W. J. Cooper, in the precinct of the cathedral. It would be better to erect them near the old church whence they came.

GLASGOW ARCHEOLOGICAL SOCIETY.—The usual monthly meeting of this society was held on Monday night; Mr. Sheriff Strathern, V.P., in the chair. Several new members having been elected, the chairman read an elaborate paper "On the Origin, Coronation, and Jurisdiction of the Lord Lyon King of Arms," in which he also traced the history of heraldry in Scotland from the earliest times.

FATAL ACCIDENT.—Last year a quantity of earth having fallen at the Terres, Guernsey, a wall was being built for protection, when, on the 11th inst. another landslip occurred, burying with it three men, who were occupied in building this safe-guard. Means were quickly taken to extricate them, but one was quite dead, another seriously hurt. The father of the dead workman shared a similar fate thirteen years ago. The accident is attributed to the severe frost.

"SAFETY RAILWAYS."—Letters patent have been taken out by Mr. Thomas Wright, of London, C.E., for a system of "safety rails," with safety kerb, external to the rails, for preventing the engine and carriages from running off the line, and life-guard affixed to each corner of the carriages, engines, and tenders, and converting them, in the event of the wheels giving way, into sledges, moving along the safety kerb, the life-guards acting as skids or breaks to aid in stopping the train, while also preventing it from upsetting or quitting the line and falling over embankments, viaducts, &c.

SCHOOLS OF ART.—The first annual meeting of the Bridgwater School has just been held. The committee's report states that good progress has been made; the number of pupils attending the central school being ninety-five, and those in public schools connected with the School of Art, being 220. The annual expenses have been 168*l.*, and the pupils' fees already nearly cover this amount, being 155*l.*—The prizes and medals at the Brighton and Sussex School have been distributed, but the usual annual meeting was not held on this occasion. There are about 1,400 pupils in all connected with the school; but, of these, 800 belong to the National and other schools in Brighton. Eighty-one prizes have been awarded, besides nine medals.

LAMBETH SCHOOL OF ART.—A conversazione was held at the South Kensington Museum, on Saturday evening, 12th January, to promote the building fund of the Lambeth School of Art. The band of the 1st Middlesex Engineer Volunteers, and the band of the 37th Middlesex (the Bloomsbury), played during the evening. It was exceedingly well attended, nearly 3,000 persons being present.

"AUTHORS OF THE AGE."—We are led to mention that the lectures on this subject by Mr. S. C. Hall, the accomplished editor of the *Art Journal*, of the interest of which we have already had occasion to speak in warm terms, are about to be condensed into one lecture, and delivered by Mr. Hall, at the Royal Institution, Liverpool, on Friday, the 25th of January. Although there were redundant words in these lectures, there can be no doubt that a condensation of the whole into one lecture implies a decided concentration of interest as well. It really is startling to find a man who can speak from personal knowledge, and ably too, of so many dead (yet living) worthies, from Hannah More to Lady Morgan. The more enlightened classes among the people of Liverpool have here a treat in store for them, and after enjoying it, they will be grateful to us and all who thus give them timely notice of its approach.

NEWSPAPER STATISTICS.—From the "Newspaper Press Directory" for 1861, we extract the following on the present position of the newspaper press:—"There are now published in the United Kingdom 1,102 newspapers, distributed as follows:

England	791
Wales	28
Scotland	138
Ireland	132
British Isles	13

Of these there are—

39 Daily papers published in England	
5 ditto ditto Scotland	
12 ditto ditto Ireland	
2 ditto ditto British Isles.	

On reference to preceding editions of this useful Directory, we find the following interesting facts; namely, that in

1821 there were published in the United Kingdom	367
1831 ditto ditto ditto	395
1841 ditto ditto ditto	473
1851 ditto ditto ditto	563

but in 1861 there are now established and circulated 1,102 papers. The magazines now in course of publication, including the quarterly reviews, number 481.

PROPOSED MONUMENT TO JOHN KNOX.—Preliminary steps have been taken with the view to the erection of a monument to Knox, at Haddington, which competes with Gifford as his birthplace.

PROPOSED MEMORIAL TO THE LATE LORD DALHOUSIE.—It is proposed to establish at Calcutta a memorial of Lord Dalhousie. The memorial will take the shape of an Athenaeum, or literary institute. The structure is to consist of a central hall, for the reception of statues and busts, and suitable for public meetings and concerts, with lecture and reading rooms, library, orchestra, and organ, together with miscellaneous meeting and accommodation rooms. The building will be located on a plot of ground to the eastward of the government-house gardens. The designs are open to architects both in England and India, and the competition, in connection with which prizes are offered, will be open until the end of March.

THE MAUVE COLOURS.—We have ere now spoken of the wonderful variety of products from coal and coal-tar; but it is well to be reminded of the source of some of the beautiful new colours, as in the *Diletante Review*, which thus speaks of them:—"The great interest that attaches to these colours does not consist in their novelty only, but in the fact of their being produced from coal; and in their importance, technically speaking, as permanent and beautiful dyes. The production of the Mauve dye reposes upon that of a very remarkable substance called Aniline, which is found in gas-tar, but only in minute quantities. A host of curious compounds have been found in gas-tar, and among them Aniline which, in a pure state, appears as an oily transparent liquid, possessing properties such as characterize those substances called "alkaloids," such as quinine, strychnine, nicotine, &c. It would probably form a medicine similar in its effects to sulphate of quinine; but at present science has only called upon it to yield dyes of a beauty never witnessed before its discovery. The great merit of the mauve dye is the beauty and permanency of the tints which it imparts. Its power of coloration is so great that a small quantity of it gives colour to a large number of vats. While coal would hardly sell at one farthing per pound, a similar weight of Aniline dye is said to be worth from 60*l.* to 80*l.* sterling!"

THE CO-OPERATIVE MOVEMENT.—Rochdale appears to be a prominent leader in this movement; which, if discreetly carried out, cannot but be of great and permanent benefit to the working-classes, so far as cheap and good provisions, clothing, and other necessities are concerned; over and above which the co-operative stores enable the workmen to retain for themselves such profits as shopkeepers and other non-producing "middle-men," as they have been called, usually appropriate to themselves out of the hard earnings of their working-class customers. The transactions at the Rochdale co-operative store during the year 1860, as just shown at the annual meeting of the copartners, amounted to 152,063*l.* received for goods sold, being an increase of 48,061*l.* over 1859. The profits for the year had been 15,966*l.* 9*s.* 11*d.*, on a capital of 37,710*l.* 9*s.*, or nearly 33 per cent. Another branch store had been opened within the last few days of the close of the year at Bluepits. The District Corn Mill Society showed at the close of its year, the 22nd December last, a capital of 26,618*l.* 1*s.* 6*d.*, the amount of business done 133,125*l.*, and the profit 10,164*l.* 12*s.* 5*d.* In the butchery department of the store it appeared that 2,485 cattle had been killed, giving 505,532 lbs. of meat. The flour sold at the store and its branches had been 13,162 sacks of 280 lbs. each. The extent to which the store had acted as a savings' bank was shown by the fact that 3,353*l.* 3*s.* 6*d.* had been paid in as deposits by members, and the sums accumulated for withdrawal to suit convenience had been on the year 15,813*l.* 4*s.* 6*d.*—The third quarterly report of the Stockport Industrial and Equitable Co-operative Society, just published, shows how rapidly the system is gaining ground in this borough. The committee announce that 429 new members have been added during the quarter ending 29th December, making the progressive number 754; whilst the receipts have increased from 300*l.* to 600*l.* per week, being exactly doubled, with the addition of 1,270*l.* 6*s.* 5*d.* to the paid-up capital, making the capital of the society 2,112*l.* 9*s.* 1*d.*—The building for the Winsford Co-operative Store, at Warrington, is partly erected, and the working-men are anxiously looking forward for its completion.—At Wigan and at Portsmouth the movement is making satisfactory progress.

ROOFING THE ROYAL EXCHANGE.—It will be remembered that the Committee on Gresham Affairs advertised for designs for roofing the Royal Exchange, London, with glass. Thirty-three designs have been sent in, and it is arranged that the duty of selecting from among them the three most desirable, so as to enable the committee to award the prizes and choose the one for final adoption, shall be confided to the Lord Mayor and the Master of the Mercers' Company, with liberty to call to their assistance Mr. Tite, the architect of the Exchange, and the architect of the Mercers' Company. Why did not Mr. Tite make the design himself?

SWALLOWING A YARD OF LAND!—"Dick, let's have a pint of beer," said a railway "navvie" to his mate. "Nay, Jack, I can't afford to drink a square yard of good land, worth 60*l.* 10*s.* an acre." "What's that you're saying, Dick?"

"Why, every time you spend threepence in beer, you spend what would buy a square yard of land. Look here:—[Dick takes a piece of chalk out of his pocket and begins to make figures on his spade.] There are 4,840 square yards in an acre: three-pence is one-fourth of a shilling: divide 4,840 yards by 4: that gives 1,210 shillings. Now divide that by 20 (there being 20*s.* to the *l.*), and there you have a 60*l.* 10*s.*, which is the cost of an acre of good land, at threepence a square yard!"

—*British Workman.*

EFFECTS OF THE SEVERE FROST ON METALS.—A wrought-iron lever, 24 inches thick, which worked a signal at the Chatham station of the London, Chatham, and Dover railway, snapped in two "like a tobacco-pipe," as the signal-man described it, while in use during the frost; and a large brass bell, at the Woolwich Arsenal, which has rung the labourers to and from their work for 160 years, was split by its hammer about the same time. The breaking of axles and tires, and other accidents, which have been so frequent during the frost, are also partly attributable to the effect of the severe cold on the metals, and so may the running of trains off the rails, from tightness of fit as supposed; the metal of the wheels and axles contracting under the influence of the frost. Such accidents have been alarmingly numerous of late. It is to be hoped iron girders and bridges run no risk of similar disasters. Copper would not be so liable to become brittle in frost as iron or steel, and could no doubt easily be adapted to tires and axles, at least as an additional support.

INDIAN RAILWAYS.—We have already mentioned that the Institution of Civil Engineers awarded a Telford gold medal and a council premium of books to Mr. James J. Berkley for a paper "On Indian Railways, with a Description of the Great Indian Peninsula Railway." The author is chief engineer to the Great Indian Peninsula Railway Company, whose service he entered in the year 1849. The projects comprise the two railway inclines up the Sydhadree or Ghauts of Western India. One of these—the Bhore Ghaut incline—is rapidly drawing towards completion. It contains twenty-five tunnels through basaltic rock within the short space of thirteen miles. Upwards of 32,000 men are employed upon it under Messrs. Adamson & Clowser, the managers for the contractors, Messrs. Tredwell. To give some conception of the magnitude of the works, we may mention that, in the month of November, five tons of gunpowder per diem were consumed, and that work to the amount of 40,000*l.* was executed within one month.

KILKENNY ARCHEOLOGICAL SOCIETY.—The eleventh annual meeting of this Association, was held on the 2nd inst. Several new members were elected, and the report of the committee, for the year 1860, announced the election of fifty-eight new members since the 1st of January, 1860; making the aggregate of members 608, of whom thirty had compounded for life. The committee, it continued, "are glad to report that much has been done during last summer to remove obstructions which disfigured the noble architectural remains of Jerpoint Abbey, and secure their preservation. The wall which stretched across the nave of the abbey church has been removed, thus throwing open the view from east to west. A portion of ground, including the site of the south side aisle of the nave, has been purchased from squatters, enabling the committee to take down the enclosing wall built when the abbey was lately under repair, and to remove it further south, so as to rescue from desecration the entire site of the abbey church: about enough land remains over to supply, by its annual rent, compensation to the caretaker. The thanks of the society are due to James S. Blake, esq., J.P., a member of the committee, for the judicious and careful manner in which he carried out these improvements."

COMPETITION: NEW CHURCH, ISLE OF MAN.—The Committee have selected the design of Mr. Manning, of Mitre-court Chambers, Temple, London. 27 designs were submitted.

THE TYNEMOUTH SURVEYORSHIP.—There were forty-three candidates for this post. Five were recommended to the council as eligible for election, and the decision was in favour of Mr. Robson, a local candidate. Mr. Frederick R. Wilson was second, and lost by two votes only.

THE LYCEUM THEATRE.—If there were nothing else at the Lyceum, the two great scenes in the Extravaganza, "Chrystabelle," would demand a visit. The last of the two, which Mr. Callcott, the inventor and painter, calls "The Vision of the Rose: its fading at Eve; and the May Bloom of the wild Briar," is exquisitely beautiful. The striking effects of colours and mechanical arrangements alike do credit to the inventor.

FREE LECTURES.—A Lecture on Science, Art, History, or Biography, every Tuesday evening, at Milton Schools, Milton-street, Cripplegate; a reading every Monday evening, at the Colonnade Club House, Clare-market; a lecture or oration on Monday evenings, at Surrey Chapel, Blackfriars-road; a lecture every Friday evening, at the Sailors' Institute, Mercer-street, Shadwell; a concert or lecture, on Tuesday evenings, at the School-room, Houndsditch-street, Old-street; recitations, lectures and readings, every Thursday evening, at the Tabernacle School-rooms, Finsbury-street, Fiddlington; all these entertainments are Free, and commence a little after eight o'clock each evening.

CENTRIFUGAL TURBINE.—A machine has been invented by Mr. J. Droctozoe, bailly of Bourges, which consists of a turbine, to which a rotating valve is adapted, furnished with a drum and grooved disc, receiving the paddles or float-boards, and moving with them a fixed distributor, a turrel or screw-ring fixing it to the boards of the water-chamber. The circle of contact is partly of leather, india-rubber, or gutta percha, and partly of segments of oak. The lower end of the hollow shaft on which the turbine is fixed, supported by a pivot, is bored conically to receive three bearings, and cylindrically to receive a disc. The conical-shaped part of the fixed axis rests in a support attached to the stonework, which is solidly cemented to the centre of the water-chamber. There are other specialities in the arrangements.

THE NEW CORN EXCHANGE, BURY ST. EDMUND'S.—The designs for the New Corn Exchange are hung up in the Town-hall for public inspection. There are twenty-one sets of plans, but we believe the committee, on Monday, reduced them to a small number, and we have no difficulty in naming, as in our opinion most desirable in style, those of Messrs. Bacon & Bell, Mr. F. Boreham, and Messrs. Ellis & Woodward, of London; Mr. J. Daymond Ellis, of Ipswich; and one which is subscribed "Invicta." The form generally adopted is a parallelogram, the internal area varying from 9,000 to 10,500 feet, leaving the ground not at present available to be dealt with hereafter for offices, rooms for exhibition of implements, a hall-keeper's residence, or other purposes; and for which front elevations are shown.—*Suffolk Chronicle.*

FINE ARTS IN IRELAND: TAYLOR PRIZES AND SCHOLARSHIP.—By the will of Mr. G. A. Taylor, late of Dublin, the sum of 2,000*l.* was placed at the disposal of his executors for the promotion of art in Ireland. In pursuance of his design, a perpetual endowment has been established for the encouragement of art-students, under the management of the Royal Dublin Society, in conjunction with the executors and trustees of the will for the time being. For the year 1861, the following prizes are offered to be awarded at an exhibition to be held on the 30th of October, 1861, at the house of the Royal Dublin Society:—

1. For the best picture in oil colours, the subject historical or familiar. £10
2. For the best landscape in oil colours. 10
3. For the best composition in sculpture. 10
4. For the best water-colour drawing (subject or landscape). 10
5. For the best agricultural drawing (elevation in perspective, with plans, of some known building, or a design). 7

The prizes may be increased or lowered in amount, or may be wholly withheld, according to the merit of the works exhibited. In addition, a student manifesting high artistic talent may obtain a Taylor scholarship of 20*l.* or more, which may be held for a second and third year, provided a work of adequate merit be produced in each year. All works must be delivered before two o'clock on Saturday, 21st October, 1861, at the house of the Royal Dublin Society, Kildare-street, Dublin, where, in the meantime, further particulars may be ascertained.

RAILWAYS.—The traffic receipts on railways in the United Kingdom for the year 1860 amounted, on 10,270 miles, to 27,576,783*l.*; and for the year 1859, on 9,880 miles, to 25,576,117*l.*; showing an increase of 390 miles, and of 2,000,666*l.* in the receipts, or 7.8 per cent.

PRESERVATION OF IRON PIPES.—A workman of Paris, it is said, has just discovered a means of preserving water and gas pipes from rust, by enveloping them in a thick coating of clay. The city of Paris is said to have granted the man a pension for life. Clay being so great an absorbent of water, there is something odd in this discovery, which, besides, requires some little time to establish ere a pension could well be earned.

TENDERS

For executing the paving works of the Whitechapel District for three years, at their schedule prices:—

West	at the schedule prices.
Mowlem & Co.	11 per cent. under.
Booth (Kingsland)	6 <i>l.</i>
Booth (Bankside)	4 "
Crook & Son	14 "
* Accepted.	

For a new warehouse to be erected at Leicester, for Mr. Joseph Swaine. Mr. Francis Drake, architect. Quantities supplied. After deducting for the materials of old buildings:

Chambers & Son	£297 0 0
Osborne, Brothers	772 0 0
Hill	770 0 0
Shillcock	725 0 0
Cox	750 0 0
Sketchley	720 0 0
Neale	683 0 0
Ashby (accepted)	655 0 0

For building stables and offices for the Yorkshire Coal-owners, at King's-cross. Mr. J. Taylor, architect. Quantities supplied:

Holland & Hannen	£7,280 0 0
Patrick	5,783 0 0
Langston & Co.	5,847 0 0
Langmead	5,500 0 0
Wilson	5,500 0 0
Greenwood	5,300 0 0
Roberts	5,240 0 0

For five houses and shops at Chatham, Kent. Messrs. J. H. Andrews & Son, architects, Rochester:—

Sampson	£3,350 0 0
Tulley	3,750 0 0
Spicer	3,437 0 0
Naylor	3,200 0 0
Pankhurst	3,250 0 0
Jennings (accepted)	3,095 10 0

For Brightingreen Schools. Mr. Charles Forster Hayward, London, architect:—

	School and House.	Fittings	Children's W.C. and Boundary-walls	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Eade	760 0 0	93 0 0	103 0 0	956 0 0
Elkden	72 0 0	7 0 0	7 0 0	89 0 0
Ornn	734 0 0	75 0 0	67 0 0	876 0 0
Aldons, Junr.	728 10 0	76 0 0	7 15 0	879 5 0

* Accepted provisionally.

TO CORRESPONDENTS.

"**AMERICAN NATURAL OILS.**" We see no reason to credit on the fact stated by "W. H. E." that natural oils are obtained in the States of Pennsylvania and New York, either on the surface of water or by igneous wells. The source of such oils is the interior of the earth's crust is probably the carboniferous strata (vegetable in origin, though mineral in nature), and they may be slowly distilled by the heat which prevails at a certain depth, whether from igneous heat or pressure or from central sources. Such oils are not from bituminous shale as Scotland by distillation. Burmah oil of a similar kind is now used, as is this shale oil, and so are various other forms of mineral oil, in this country, as a cheap material for lamps; and it is sometimes called lamp oil. In America it is now also coming into extensive use for lamps.

"**B.W.—J. G. N.—Mr. M.—G. F. T.—J. J.—B. G. H.** (By Tree Tavern, St. Swinburn's-lane). G. W. (we are forced uniformly to decline. There is no copy of the work, but I am on P. G. Jewin, and I think the books may be looked for). J. A. (the note, the statement was erroneous. Proceeding commences at the top). J. H. Hayward, Brothers.—N. S. E. W. G. R. B. A. (next week)—a ("Institute" better be forthwith on Friday last). H. B. (Turkish Bazaar). E. W.—Rev. J. W.—S. W. R. C.—One of the Reviews.—S. G. D.—R.

TO SUBSCRIBERS.

The last year's Volume will be bound (on being sent to the Office), for 3*s.* 6*d.*; or Covers for that purpose may be obtained at 2*s.* 6*d.* each (broad), and 2*s.* (narrow).

It is necessary to state whether the Advertisements are or are not to be bound in the Volume.

NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the Builder," No. 1, York-street, Covent-garden. All other Communications should be addressed to the "Editor," and not to the "Publisher."

Post-office Orders and Remittances should be made payable to Mr. Morris R. Coleman.

The Builder.

VOL. XIX.—No. 938.

*The Condition of our Chief Towns.
Wolverhampton.*



IN quitting Birmingham, after a gas-lit journey of fourteen miles, through a forest of fiery furnaces, past Smethwick—made famous by its manufacture of the glass and iron for the crystal palaces,—with unnumbered stoppages, when we put down and take up passengers, whom we can but regard as salamanders in mortal guise; past Bilston, a region that appears to be like Mount Etna in a permanent state of eruption, we arrive at one of the most plain-spoken railway stations in the kingdom, that of Wolverhampton. A handsome, unmistakable railway station it is, made of the principal productions of the district, glass and iron, with no stint of either, or of anything else, substantial and satisfactory. The road out of the station into the town is bounded by a handsome gateway, or four gateways in one, surmounted by four semi-circular heads, with two clock turrets above them; the *tout ensemble* forming a kind of triumphal archway, in apparent anticipation of the still greater importance Wolverhampton is expected by the railway company to attain. Immediately outside this gateway, which, as we have seen, is an expression of modern resources and foresight, is the old-fashioned, three-storied, many-windowed factory of the Messrs. Chubb, whose well-known name is so intimately associated with the commodity for which the town is famous. We are in the head-quarters of locksmiths. Wolverhampton is especially engaged in smelting iron, in making locks, keys, gun-locks, files, nails, screws, hinges, japanned wares, carpenters' and smiths' tools of every description, and the unobtrusive household items, fire-irons; and earth and sky, as well as men and women, appear absorbed in facilitating the operations.

Wolverhampton is seated on a hill more than 500 feet above sea level, in the very centre of England, and must have been pleasant to behold in bygone days, when Saxon masons built a monastery, and upreared the sculptured cross still standing, spectre-like, in the churchyard; or, in after times, when the market-place was a square of gabled houses, and the church was unscathed, and the corn exchange existed not. But now that the geological formation of the district has yielded up its wealth of coal, iron, diluvial sand, clay, and limestone, beauty has fled, leaving but the slightest tokens that she ever made it her habitation. Robed in sable, starred with fiery spangles, and wreathed in smoke, but little resemblance can be traced to the fair town called Wulfruna Hamton, in remembrance of King Edgar's sister, the foundress of the monastery.

Ten years ago a report was made of the state of Wolverhampton to the General Board of Health, by a superintending inspector; and some of the evils he detailed have been remedied. The burial grounds were then filled; an infiltration from drains, ditches, cesspools, and grave-yards was vitiating the very inadequate supply of water; in ancient ditches and watercourses, deposits accumulated till heavy rains acted as natural scavengers: rows of houses existed with no con-

veniences or ash-pits at all; open middens lay in closed yards; slaughter-houses clustered in the centre of the town, where swine were reared upon the offal boiled with Swede turnips, which diffused an appetite-destroying stench, and a general and demoralizing overcrowding prevailed in the dwellings of the poor. Several of these nuisances have been eradicated; but in ten years the population of a rising town makes a great increase; overlooked trifles generate into monster evils; and renewed vigilance is required. An extra 20,000 persons calls for a great deal of extra accommodation, both in the way of houses and markets, as in churches and burial grounds,—not to mention what we are all beginning to think essential to the health of a community,—a public park.

That the population of this borough has made the rapid stride mentioned, may be best realized by the following figures:—In 1801, it stood at 12,563; in 1831, 48,184; the census of 1841 showed 68,425; in 1848, it was estimated at 82,000.

A residence in cottages that were small and ill-contrived ten years ago, must be more pernicious still, when a greater number of individuals have to be packed into them; and twenty or thirty additional generations of pigs must impart a still stronger flavour to styes that were already old and saturated. Again, habituated disregard does not perceive where reform and renovations are rendered needful: in the same manner that the residents become accustomed to the frequent sinkings of the earth over disused or ill-propped mines, and feel no alarm at them; albeit, the extent of these occurrences has left but few vertical chimneys in the district.

In the centre of the market-place stands a Russian cannon, mounted, and guarded with railings; whence, we have a long perspective down the principal street. To the right we see the church, whither we wend our way, after noting that the market-place is kept neat and orderly, and that there are a drinking-fountain, and a cabstand in it,—all evidences of the effort that has been made to keep pace with modern progress. But the limited size of the space is more in keeping with the period of the one remaining gabled tenement,—the sole foot-print of antiquity,—than with the multitudinous increase of the population since its boundaries were laid down.

The church is cruciform, with a fine ancient Perpendicular tower. The nave, restored in the style of the panelled period of Perpendicular, is decorated with top-heavy pinnacles, which have the leaden sky for a background,—the roofs being of too low a pitch to be visible. The chancel and north transept remain in the churchwarden Norman style of the last half-century. The iron gates, *tempo* Queen Anne, dividing the churchyard from the market-place, are well worthy of preservation; but they have been suffered to decay. They are broken and rust-eaten; which trifling and occasional repairs, and outlay of paint, would have prevented. It is impossible not to regret that the north transept, the chancel, these once handsome gates, and the general condition of the churchyard, were not taken into account during the recent expenditure. The north, east, and south sides of the churchyard are lined with trees, which form a pleasant setting to the Queen Anne-ish houses close by; but there is a public thoroughfare in the north-west portion, which has resolved, or, at all events, is resolving, into a playground for the boys of a large school and very poor quarter adjacent. The wall is in course of destruction; the inscriptions on the horizontal slab tombs are in process of effacement; the ground is trodden to a quagmire—riddled with marble-pools; and filth is strewn around. It is superfluous to say that this license should not be permitted.

Leaning over the churchyard wall at this point, where it is partially overthrown, as described, we look into one of the plague-spots of the town. It

is a quarter of very poor, ill-conditioned houses, built on a gradual slope downwards. At the highest part of it, or immediately under the churchyard wall, is a colony of pigs: whence, through the foundations of these crowded tenements, must percolate the overflowing of the styes. This neighbourhood, so polluted, was probably a promenade in the monkish possession of the district, as it is dignified with the name of St. Peter's walk: and into a walk or open space it would be highly desirable to restore it. Portions are known by such curious designations as Besy's-foal, Black Boy's-yard, and Horse-fair,—irrelevant contrasts to the stillness and decorum implied by the association with St. Peter. However, it matters not under what name, preventible indelicacy and accumulated filth should not be allowed to have legal settlement anywhere. Pigs and nuisances of every description should be compelled to obey the grand dictate of municipal police regulations and,—move on.

Adjoining the west end of the church is the comparatively new corn exchange; in its effect, a huge Noah's Ark with a glass bubble on the top of it; in its proportions, a painful contrast to the sacred edifice. This shows us the great importance of a well-considered scheme in the laying out of public spaces, and grouping of public buildings. A corporation or company, about to lay out funds, has, in this respect, the power of improving or spoiling the aspect of a town; therefore, too much discretion cannot be used. In the instance before us, a monster building in a nondescript style of architecture, by its close contiguity, completely overwhelms the effect of the ancient cruciform church. The ground makes a sudden dip on the site; and in order to obtain a level access from the thoroughfare in the churchyard, the hall has been reared on vaults: thus, though the blank, featureless side facing the churchyard is on the ground level, the entrance on the opposite side is attained by a high flight of steps. This artificially-gained height contributes to the effect we deprecate. The building is surmounted by a glass ribbed dome, a feature that was probably expected to produce a grand effect in the interior, but which, from acoustic or thermometric disadvantages, it has been found necessary to neutralize. The circular opening has been filled in with calico,—a poor expedient,—which catches the drippings from the dome, and forms a dirty balloon-like drop from the centre of the ceiling. The draperies with which the walls are decorated, are, like the interior generally, offensively tawdry and dirty. A corn exchange, which in these days is, by turns, as much a concert-room, lecture-room, and place in which to hold public meetings, should be an example of taste and cleanliness.

A market building flanks this edifice, elegantly covered in with glass and iron, and ornamented with a central fountain. Here we have a praiseworthy attempt to meet the exigencies resulting from the great increase in the population, and a proper regard for the convenience of both buyers and sellers. Until recently, this was a large unprotected area, where the commodities and customers were drenched, sunburnt, or frozen, according to the weather. Grouping with this improvement is the handsome building appropriated to the Police-office and inspector of nuisances; and an extensive, good-looking school-house, the whole being proof of a healthy vitality.

Farther on, in the main street, we pass the building devoted to a school of art. We have indications, too, in distant spires, of additional church accommodation: both commendable efforts. We then come into the fashionable or villa quarter, where the houses are tasteful and unpretending, built of brick, and covered with the ornamental tiles of the Staffordshire district. Thence to the cemetery, which is prettily laid out, and green with its goodly stock of healthy shrubs.

The cemetery buildings, although recent erections, appear to be disproportioned to the uses

required of them. The chapels are so small that, after the not unusual number of twenty coffins are deposited in them, awaiting the last service, there is no room for mourners, who, consequently, have to stand in the grounds, unsheltered from the weather. The great bulk of the population being of a manufacturing order, are for the most part associated in clubs, trade-unions, and benefit societies, the members of which make it a point to follow any respected comrade to the grave. The consequent result of the inefficient accommodation may be guessed. The scene outside the chapels on a Sunday afternoon resembles a wake.

On the day we visited the cemetery a pauper procession defiled, in the fast-falling rain, adown the road, two miles and more long from the town, accompanying the remains of a fellow-inmate of the poor-house to the grave. On arriving at the cemetery the uncovered coffin was deposited on trestles outside the chapel, where it remained, with the rain pelting upon it, till the service began. The chapels being perched on a platform on a hill-side, no hearse or carriage can approach them; consequently, mourners of all grades must alight at some little distance and share the chances of the weather. The graves in the space allotted for the poor are dug 30 feet deep: as the coffins accumulate in them, they are temporarily planked over; when they will hold no more they are covered in. Another ill consequence of a burial-ground being the property of a company is seen in the shape of a huge sand-pit, whence a traffic with the manufactories is kept up. This utilitarian proceeding, with its continuous succession of sand-laden carts, not only breaks up the ground, but disturbs the calm repose that should pervade a city of the dead.

A public park, by providing a legitimate resort for the industrial classes in fine weather and on holidays, would lessen the concourses that now disturb the sadder visitors upon more mournful errands. There is at present no appearance of such an acquisition.

How comes it that the dirtiest, most "tumble-down," vermin-haunted localities always shelter a settlement of Irish? How comes it that, go where you will, in large towns or small, the quarters of the lower Irish are but counterparts of old St. Giles's? How comes it that St. Patrick exerts so little beneficial influence for the poor of the clever, impulsive, warm-hearted children of the Emerald Isle? St. George seems to be always fighting his dragon, thrusting his spear over and over again into every vulnerable part, though it is a long time before good comes of it; but St. Patrick—all chivalrous and devout as he used to be,—appears to have given over every exertion, to have retired upon his miracle-earned laurels. Here in Wolverhampton, as everywhere else, the blackest shadows are cast by the Irish quarter—Caribbee Island. The narrow, irregular, imperfectly-paved alleys and courts, with their tattered fringes of miserable houses, are known to the resident medical practitioners as fearful well-springs of fever. Would that St. Patrick would disentangle the meshes of this rotten network, and send order and cleanliness to its swarming population. Something short of a miracle would do it. And so, as the minute Pepsy would say, to the railway, and on, to Stafford.

ON THE TRANSVERSE STRENGTH OF BRICKS.*

My attention was first called to this subject about ten years since, when I was having some farm-buildings erected; and, as these were several miles from either my residence or the office of the architect, I thought it would exercise a healthy influence over the builder if we could agree upon some standard of quality, or means of testing at any time what the bricks really were.

Having experienced a like benefit in testing for the last thirty years the strength of pig-iron, purchased for my foundry, I desired that thirty

bricks should be sent to me as an average sample of the kind he proposed using: I found that the average strength of these bricks was, as far as I recollect, about 1,300 lbs. When the bulk of the bricks was delivered, from the appearance not being favourable, we passed a number through the machine, and found the average strength was but about 800 lbs.

This same plan I pursue with any bricks I may now have to purchase; and, although the transverse strength may not indicate all that it is desirable to know of the qualities of a brick; yet, if it comes up to a good average strength, the brick is either made of good materials; or, if of bad material, the burning has been very good.

Of course, it is not expected that every brick will be tested; but, as a couple of men with the testing-machine I use can prove at least 300 per hour, that number would suffice to determine the quality of a vast quantity. Of course I do not mean that it can be ascertained what is the breaking point of the bricks, but what is the bearing power up to a certain agreed standard of strength.

If, for instance, you wanted to test bricks at Boston, where the mean strength is 5,064 lbs., it might be considered that 4,000 lbs. was a fair test.

If bricks had been purchased at a tested strength in the year 260, at Uriconium, about 3,000 lbs. might have been named; or, if in London, in 1860, I would advise the brickmaker to limit his guarantee to 360 lbs., because, unfortunately, some have broken at 366 lbs.

The method I have adopted of testing bricks, as we do our girders and beams, has not, I think, been usually adopted by others, the usual test being that of resistance to a crushing force.

The strength of an iron structure is calculated from knowing that a bar of iron, 3 feet long and 1 inch square, will require about 750 lbs. to break it, and its sustaining power may be taken at about two-fifths of the same. If it be known what is the transverse strength of bricks; and if the mortar, after it is thoroughly set, may be taken of a like strength with the bricks (and in those experiments of Mr. Barlow, on the transverse strength of brick pillars tested horizontally, the fracture was not through the joints, but the solid bricks), a calculation may be made as to the sustaining power of brick beams or lintels, whether built as beams similar to the one tested in 1851, at the Great Exhibition, or whether portions of walls from which wood, lintels, door, or window-frames have been removed.

The resistance to a crushing force, as contrasted with the hydraulic press, in which it is said that bricks will resist from 30 to 100 tons, tells you that which you hardly ever want to know; for it would require a wall upwards of 2,000 feet high, before you got a pressure of 30 tons on the surface of a brick; but it might be useful to know that, if in a 9-inch wall you have 40 inches in depth over an opening 90 inches wide, you might distribute a weight of 13 tons over the same, if the bricks be of moderate strength, and the mortar as strong as the bricks.

I think that a comparison of the transverse strength of bricks may be made with much more certainty than their power to resist a crushing force.

That proving machine is best which subjects all that it tests to similar conditions,—to similar punishment.

If it chanced that the upper and lower surface of bricks were as true as the two planed surfaces of the hydraulic press crushing plates, then a fair comparison would be made; but when, perhaps, bricks have a concave lower face and concave upper one, the first effect of the hydraulic machine is to break the brick transversely into several pieces before the crushing begins.

Again, it is a more tedious operation, and requires rather a costly machine, and it would be almost impossible to fix upon any test strength by which bricks should be proved up to a limit, say two-thirds of that which would crush them; for, if the good bricks were not quite true, they would most assuredly break, while a very inferior quality as to strength, but having two flat surfaces, would sustain the pressure.

It will be observed, in comparing the strength of the thin bricks and tiles (say all those whose thickness does not exceed 2½ inches) with the strength of the thicker bricks, that the former much exceeds the latter; for instance, in the thirty-five kinds of bricks, the average of the strongest is 2,855 lbs., the average of the mean strength 2,125 lbs., and that of the least strength is 1,557 lbs., the thickness varying from 3.25 in. to 1.7 in.; while, from the nine thinner descriptions of bricks, none of them exceeding 2.25 in.

in thickness, we obtain 4,088 lbs., 2,954 lbs., and 2,070 lbs. as the greatest mean and least strengths, giving an excess of strength, over the average of the whole, of 1,233 lbs., 829 lbs., and 513 lbs.

Strength of Bricks under continuous Pressure.—The strength of bricks given in the diagram is the weight sustained before the last 10 lbs. are added, such weight being added at intervals of half a minute or less; but it does not give what it is very important to know, for low long a brick would carry a weight without breaking.

One of the common Boston bricks which broke with a weight of 920 lbs., sustained a weight of 690 lbs. for forty-eight hours. Of course these experiments were made upon the half brick, and calculated out at the standard size and bearing.

One of the bricks, from dried ground clay by pressure, sustained a weight of 820 lbs. for forty-eight hours (its original strength being 898 lbs.); weights were then added up to 950 lbs., when it broke.

I have found in several instances that the half brick requires a greater weight to break it than when whole; of course, the difference in the lengths of the bearing is taken into account: indeed, all the strengths are calculated at a bearing of 7 inches throughout.

The Baltimore brick, which broke with 850 lbs., carried 735 lbs. for ten hours and then broke.

In comparing weight with strength, I find that the average weight of twenty-five bricks from different districts is 785 lbs., and the strength usually increases with the weight.

The Tipton blue, which weighs 10 lbs., gives a strength of 5,555 lbs., 3,975 lbs., 2,801 lbs.

The Boston weighs 9.88 lbs., giving 6,100 lbs., 5,064 lbs., 4,126 lbs.; and the Leeds weighs 9.07 lbs., giving 4,133 lbs., 3,198 lbs., 2,616 lbs.; while the lightest London brick, weighing 6.19 lbs., gives 1,496 lbs., 998 lbs., and 366 lbs., not allowing for the frog.

The Calcutta brick, weighing 6.8 lbs., gives 2,850 lbs., 1,411 lbs., and 713 lbs.

The Dutch Clinker is an exception, the weight being only 5.66 lbs. and the strength respectively 4,006 lbs., 3,345 lbs., and 2,542 lbs.

Amongst the experiments were mentioned those on nine pieces of Roman tile, from Wroxeter ("Uriconium"), near Shrewsbury: they were fragments of the 8-inch hypocaust tiles, about 8 inches by 3½ inches by 1½ inch, and gave 4,670 lbs. for the greatest, 3,567 lbs. for the mean, and 2,630 lbs. for the least strength.

The tile, 4 inches by 2½ inches by 1 inch, used in the herring-bone pavements, carried 3,742 lbs., calculated at the standard size.

The colour of these tiles is light red, and they are very sound in the fracture. Nearly all of them had the circular score marks, so common on Roman work. Some of them had the appearance of having been made of two "sheets" of clay, folded one over the other as if the clay had been prepared in laminae, of about three-fourths or seven-eighths of an inch thick; the coating of sand sticking to the separate laminae being sometimes perceptible in the fracture.

Mr. Roach Smith is of opinion that the Roman tiles were burned with wood, but neither he nor Dr. Collingwood Bruce has ever met with a Roman brickkiln.

Mr. Smith writes me, "that in all the modern and Mediaeval examples I have been able to examine, sand predominates: the Romans worked pure clay (or such that was best adapted for the purpose). This would partly explain the superior character and greater durability of ancient bricks."

They were made to last for ever: the modern are made to sell.

I might notice that the tiles in the hypocausts at Wroxeter are set in clay, as recommended by Vitruvius, clay being less acted upon by fire than mortar.

Chimney.—The furnace chimney is one we have had working for a long time. In the interior is a fire-brick lining, 2 feet 7 inches in diameter inside, and 9 inches thick. As this is built quite independent of the exterior casing of red brick, a space being left between the two of half an inch, the interior fire-brick lining is at liberty to expand without raising the red brick which surrounds it. Within about 3 feet of the top of the fire-brick chimney or lining is attached a wrought-iron bar, from the end of which is suspended a wire of about a quarter of an inch diameter, which is attached to an index placed about 36 feet below. The index I use is a light one, about 30 inches long, working upon a centre at one end, and having the lifting wire attached to it at a distance of 3 inches from that centre, giving a multiplying power of 10 to 1; so that, when the

* By Mr. Hawkes. From a paper read at the Royal Institute of British Architects, as elsewhere mentioned.

wire is raised by the expansion of the chimney only one-tenth of an inch, the index at its point shows a space of one inch.

With this I give the results of six experiments, showing an elongation of 1·425, or nearly an inch and a half.

I am aware of the great heat of a furnace chimney for melting iron, compared to the heat which is ever obtained in house fires; but, since the introduction of hot-air cookers and hot-water furnaces (particularly the high-pressure), the heat of these fires is increased five-fold compared with fires from open fire-places: indeed, I suspect an iron bar might be heated to redness in some of these furnace fires.*

GRIMSBY TOWN HALL BUILDINGS, AND CORPORATION SCHOOLS, COMPETITION.

The corporation of this rising seaport, which has quadrupled its population during the last few years, finding their old buildings unequal to their present requirements, advertised for designs, and have received nine sets of drawings, which are now exhibited to the public in the Town Hall.

The proposed cost, as fixed by the conditions, is £500; a sum which, looking to the large amount of accommodation required, would perhaps suggest a more economical application of material than has been generally adopted by the authors of these designs.

A trustworthy correspondent gives us the following particulars.

Messrs. Allom & Clayton send a rather massive Italian Gothic design, to be executed in red and white brick, with stone dressings. There is a deep stone cornice with carved corbels, and an open parapet: the chimneys and roof are concealed. The cells are separated by a yard from police-office and residence.

The schools are to be according to the requirements of the Committee of Council on Education, and consist of two school-rooms, with porches, but without class-rooms.

"Creiens."—In this design the town-hall is a rich and ornamental Italian composition, well drawn and coloured. It is to be executed in red and white brick, with "a small quantity of stone for dressings." This latter item includes the entablatures to ground and first floors, running round three sides of the building, and 5 feet 6 inches and 7 feet 6 inches high respectively; the latter having a carved modillion cornice. Also, a massive group of emblematical figure-sculpture over centre of front, eight stone columns and pilasters to entrance portico, and twenty-eight which have carved capitals between the pedimented hall-windows on the first-floor. The ground-floor is of red and white brick, in alternate bands, with circular-headed windows, having projecting voussoirs and heads upon the keystones. The interior view of the hall shows a coved and panelled ceiling, with centre flowers in all the larger compartments.

These buildings are designed in a bold and unassuming manner: the schools are of plain Gothic character. The author "has no hesitation" in saying that his design can be carried out for the stipulated sum.

Mr. J. A. Davies has an Italian Gothic design, chiefly in red and white brick. Much use is made of columns, and caps are put to piers between windows. There are open-work parapets and corbelled rooves, and a tower at one end. On the whole, this seems to have been carefully designed. The estimates are not mentioned; and, as in the case of most of the other designs, may not have been taken very closely into consideration.

Messrs. Bellamy, Hardy, & Giles send an Italian design in red and white brick. The ground-story is rusticated, and has wide square-headed windows. The hall, on first floor, has circular-headed windows, and a deeply-panelled, coved, and elaborately ornamented ceiling. The chief perspective view differs from the other drawings in having a clock tower over the projecting entrance-portico. They may not intend to include this in their estimate of £500; but the description affords no information on this head.

These drawings were received on the 10th instant, the latest day fixed by the council being the 29th of December, and doubts have been expressed as to the propriety of their being received.

Mr. Thos. W. Horn has an Italian design constructed of red brick, with a large quantity of Portland cement dressings. There is a large tower at one angle. The interior of the hall has richly-coloured decorations, with much moulded ornament in the ceiling, and wall-posts and braces

carried upon corbels. This is the best part of the design. The estimate, which does not include coloured decorations nor upper stages of tower, is £780; but, by "modifying" the ornamentation, this may be reduced to £500.

"G." exhibits two designs: the first is Italian Pointed, in red brick, with stone dressings and bands, and Purbeck or Devonshire marble pillars to the windows. Two dozen excited electors or "runners," in furious combat, are being vainly addressed from the top of the entrance portico. No. 2 is a wildly-ornamental Decorated Gothic design, having a massive angle tower with buttressed pinnacles, which carry full-sized statues of justice, &c. As much ornament as can possibly be placed upon a given number of square inches is carefully drawn on this design. The authors state that this would probably cost a little more than No. 1, which is estimated at £500, and hopes are held out that one of them may be induced to personally superintend the building.

"Stability" is a Gothic design in red brick, with black and other dressings. There is much expensive construction, with little novelty, and the decorations are not very well applied.

Messrs. Rogers & Marsden send a design of ordinary Italian character, to be executed chiefly in red brick. Beyond a small amount of free ornamental treatment about the portico, little is attempted; and the authors have probably felt bound down by the fixed estimate, as they urge economy in the carrying out of this comparatively plain design.

"In God I trust."—A very peculiar production of the Gothic class, without any kind of proportion or arrangement of parts. The hall is entirely surrounded by the various offices, is covered by a flat, with louvred ventilators along the centre, and is lighted by short wide pointed windows. The design is probably of an experimental character.

ROYAL INSTITUTE OF BRITISH ARCHITECTS. A PRACTICAL NIGHT.

THE ordinary meeting was held on Monday last, at the house in Conduit-street.

Mr. G. Godwin, V.P., presided.

Mr. T. H. Lewis (hon. secretary) read a list of donations presented to the library.

The Chairman said, that on the part of the council he had to announce that the discussion suggested by Mr. Tite, M.P., on the various processes for the preservation of stone, would be taken on Monday next (the 29th inst.), when Mr. Tite proposed to give a description of them; and gentlemen concerned in the inventions would be invited to attend and take part in the discussion. He could not say that individually he expected any great results to accrue; but it was desirable the Institute should know from time to time what was going on in reference to the matter. With regard to the late special meeting to take into consideration the question of educational examinations, it was the desire of the council that a correct report of what passed should be made for the professional papers by the shorthand writer of the Institute; but as yet they had been unable to obtain it; and that evening a letter had been received from the gentleman in question, stating that he was suffering from a severe nervous attack. The council desired this to be known, as they did not wish to have it supposed that they wanted to keep the discussion secret. There was another subject to which he was desirous to refer, namely, the inquiries which had been made from time to time with reference to the committees nominated by the council. These committees (three in number) were not new creations, as they had been appointed long ago. It was necessary, however, as time elapsed and the circumstances and engagements of individuals underwent a change, to make some nominal alterations. The object of the "Professional Practice" committee was to investigate and decide upon doubtful cases of professional charges, and to draw up rules and arrange precedents that might be consulted from time to time. The committee had now under consideration several cases sent to them; and, within the last few days, questions of the kind had been submitted to them from Canada. The committee was composed, as the meeting was no doubt aware, of gentlemen of considerable professional experience; and, as their time was much occupied with their engagements, they were unable to meet very often. It was not, therefore, desirable to submit subjects of a trifling nature; but, where matters of real importance were submitted, they would take them into consideration. The committee were also taking steps to frame

what might be called a code of rules to meet difficult questions, and which might be referred to without consulting them, or without a formal application. The "Library Committee" were at present actively engaged in considering what books were required for the library; and it was their intention to furnish a report on the subject. He hoped that the list of books wanted would be printed, as instances would occur in which members would be glad to supply deficiencies. Should these not be sufficient, it would become the duty of the Council to consider whether they should not be purchased by a money grant or otherwise. While upon this subject he might say, that a wish had been expressed that the library should be open every night instead of on certain evenings in the week only. Experience showed that where people had to inquire whether any particular place was open to-night or to-morrow night, it generally turned out that they did not go at all. If, however, it was widely known among the profession that their library would be open every evening, and if some light refreshment, such as tea and coffee, could be supplied to members at their own charge, the rooms of the Institute might become a pleasant and profitable rendezvous, and lead members to take greater interest in the society. The third committee nominated by the Institute was that "On Construction and Materials." This committee required great care in their working, so as not to commit the Institute to new and untried processes. The *Times* and other authorities were sometimes apt to blame architects for not adopting novelties, which, however, if they were to use them without due caution and full consideration, they would be the very first to assail, and would allege that architects were too fond of introducing crude or imperfect innovations. The committee on construction and materials would be very glad to receive any really good suggestions, or to consider any new materials or appliances that might be brought under their notice. Before concluding he might also be permitted to mention, that, through the kindness of Mr. Ferrey, an opportunity would be afforded to gentlemen connected with the profession to inspect some extremely interesting remains of a Doric temple lately discovered in Thebes by Lord Dufferin. These remains were now at the house of the noble lord at Highgate (Dufferin Lodge), and were described by Lord Dufferin as belonging to one of the most curious and ancient of the temples of Thebes. Among the objects brought to England was a wooden table, which had the name of one of the kings of the old empire incised upon it. With regard to the papers announced in the circular to be read that evening by Mr. William Hawkes, he regretted to say that that gentleman was too ill to be present. He had, however, sent his papers to their indefatigable secretary, Mr. Lewis, who would read them. Mr. Lewis had also obtained other matters for their consideration. Mr. Penrose, their honorary secretary for foreign correspondence, would, no doubt, have undertaken a portion of the labour; but, as that gentleman was engaged with the preparations for the oratorio at St. Paul's Cathedral, they were unfortunately deprived of his services,—a circumstance which increased the measure of their obligation to Mr. Lewis.

Mr. Lewis said that, with regard to the relics of the Theban temple sent home by Lord Dufferin, the table referred to by the Chairman was 3 feet 6 inches in length, and that the top and legs were elaborately ornamented in sunk work, similar in manner to that in which the ancient Egyptians carved upon granite.

Mr. Lewis then read the substance of two papers by Mr. Hawkes, "On the Transverse Strength of Bricks," and "On the Expansion of Brickwork in a Furnace Chimney;" part of which will be found elsewhere.

At the conclusion,

Mr. Lewis called attention to some specimens of mosaics from Murano and Palermo, which Mr. Penrose proposed to apply to the pendentives of the dome of St. Paul's Cathedral; also to some specimens of paper with a pressed pattern (resembling leather work), by Messrs. Scott, Cuthbertson, & Co., of Chelsea, which was hung like ordinary paper, and then received two coats of size and two coats of paint; and to some patent bituminized pipes for the conveyance of water, gas, and drainage, and which were intended to be substituted for those of cast-iron. They were made of layers of coarse paper, and had been successfully introduced in France, Spain, and Italy. He likewise brought under notice specimens of a new material resembling marble, by Mr. E. J. Bridell, and which admitted of elaborate mouldings and ornamental forms. The material was manufactured

* To be continued.

to resemble coloured marbles, as well as granite, porphyry, and other substances. The veins and colours were not superficial, but were embodied in the substance. The polish on its surface was represented to be not affected by time or climate, and the material itself was as strong and durable as real marble. Slabs in imitation of marble, but of much less weight than either marble or slate, were manufactured, from three-quarters of an inch to one inch thick, or of any size, shape, or thickness, which might be required for lining the walls of halls, staircases, bath-rooms, &c. The slabs three-quarters of an inch in thickness were from 2s. to 3s. per superficial foot.

The Chairman then suggested that the discussion should be first confined to the subject of bricks.

Mr. Jennings observed that there were some points incidental to the manufacture of bricks not referred to in Mr. Hawkes's paper, but which it was desirable not to overlook. Some English bricks, for instance, did not answer because they absorbed moisture, causing expansion and contraction, which did serious mischief to the building. He had seen some instances of the kind in the neighbourhood of Rugby. Then, with regard to hollow bricks, the French brick exhibited that evening was capable of sustaining a considerable weight; and he believed that the reason was to be traced to the improved burning which they received in the kiln. By that means the perforated became stronger than the solid brick, although the former was the lighter of the two. Another question not touched upon in the paper was the importance of having some acquaintance with materials, so that when they visited a brickyard they might be able to judge of what article the clay was likely to produce. The quantity and quality of the clay, as a matter of course, affected materially the quality of the brick. In London bricks it was usual to mix up a considerable quantity of "breeze," with the brick itself. The question of their expansion under heat was also one of great importance. He would be glad to know what description of brick would expand least when subjected to heat, and also what would be the expansion by anthracite coal.

Mr. Lewis said that, in his experience, he had repeatedly seen work pulled down which was formed of hollow bricks, in consequence of the extreme hardness of the brick not allowing it to adhere to the mortar. The perforated brick would, no doubt, bear great pressure, but if it did not make good work, what was the use of it?

Mr. Rickman said he had witnessed some of the experiments mentioned by Mr. Hawkes. There was one point in reference to the subject somewhat singular, and that was that, although "breeze" was largely used in the manufacture of the London brick, yet the number of bricks now made from a cubic yard of clay was no more than that made at the period of the Great Fire of London, more than two centuries ago. The abolition of the duty made a considerable difference in the size of the bricks. In the neighbourhood of Birmingham, prior to the abolition of the duty, the brick was seldom up to 3 inches in thickness, but it was now 3½ inches, and there were 13½ inches to the four courses. He should be glad to know why it was that the finer sort of facing bricks threw out a green mould if they were not carefully protected from the weather before being used. He supposed there was something in the constitution of the brick which maintained the water. Then again with blue bricks: they admitted the moisture to such an extent that, if an external wall were built with them, it would be next to impossible to keep it dry unless it were made hollow.

Mr. Barry said that the blue bricks in the North were very good, but that they had the defect of non-absorption, which prevented the mortar from adhering. He believed that the damp which Mr. Rickman complained of came through the joints, from the non-adhesion of the mortar to the brick. The information conveyed in Mr. Hawkes's paper as to the transverse strength of bricks was very useful, but it failed to be of great practical utility, for it should be remembered that walls were not made of bricks alone, but of mortar or cement also. The abstract strength of the brick itself was therefore an illusory standard by which to estimate the strength of a wall. The resisting power of a brick to the machine might be easily ascertained, but a similar test could not be applied to the wall, the strength of which would be in proportion to the cement or mortar used in its construction. With respect to bricks being actually crushed in a wall, he doubted whether any gentleman in the room knew of a

case in which bricks had been actually crushed by reason of the superincumbent weight. The only case of crushed brickwork which had ever come within his own experience, was in a building erected about 250 years ago, on swampy ground, and on short piles, and planking apparently used in order to bring the surface to an even line. The piles were made of different sorts of wood, and the mortar was extremely good; but, in consequence of the metropolitan drainage, the water was drained off from the piles, and the air was admitted: the piles then rotted. The building was, however, well bonded; and, although it "settled," there was no trace of it, so gradual, solid, and homogeneous was the subsidence of the whole structure. On an inspection of the bricks, however, they were found to be permeated by cracks in all directions. Some years ago an experiment had been made at the New Houses of Parliament to try the strength of bricks by sticking them against a wall, and adding others until the projecting arm broke. He did not exactly remember what the result was, but this he did remember, that in pure cement the joint broke sooner than in cases where sand, clean and well wrought, was introduced.

Mr. Dines said that he had made a great variety of experiments with bricks, but he generally found that where defects existed in buildings they were to be traced rather to the mortar used than to the bricks. The perforated brick was, no doubt, of great strength: he had himself put 83 tons on a brick and could not crush it; but, as the machine could not go further, he could not test its endurance further. If sand was not used in the construction of bricks, especially in those formed of London clay, they would shrink very much. As to expansion, the chimney at Thames Bank showed ½ of an inch of expansion in 90 feet, which proved that bricks expanded and contracted. He did not refer to settlements caused by foundations or woodwork, for they were common to almost all buildings, but to the expansion of the bricks themselves. With reference to glass, he had tried experiments with the ordinary glass in use, and the conclusion to which he arrived was that there was not very much difference in any glass, so far as the resistance to a blow was concerned. A good deal had been said about mortar not sticking to bricks. He was of opinion that bricks ought to be soaked in water before being used; for experience showed that the mortar would not adhere to the dry brick.

Mr. C. H. Smith said it was difficult to speak of bricks without mortar, for one was of no use without the other. He attributed the fact of the mortar not sticking to perforated bricks to the circumstance that no brick would stick to mortar unless it were coated with sand. The sand generally used in brickmaking was not useful as an improver, but in order to make the mortar adhere to the brick. It had long been a question among builders, architects, and chemists, as to the part which sand played in the manufacture of mortar; and, for his part, he never yet had been able to get a satisfactory answer. Some years ago he made an experiment with a microscope, and he fancied that there was an interpenetration of the sand by the lime. With a view of inquiring further into the matter, he made another experiment eighteen years ago, on a piece of flint similar to that ordinarily used for the repair of country roads, it having a polished surface. Having made mortar of good lime, and having covered the polished surface of the flint half over with the mortar or lime, and having placed it under a shade, subject to the influence of the summer heat and winter cold, but not to the action of water; after the lapse of eleven years he took the flint to a meeting of the Royal Institution, and submitted it to Professor Faraday and Mr. Barlow. A portion of the lime was then scraped off; and, although the lime had been so long on the polished surface all gone, and a honeycomb surface substituted, he was much disappointed; because the polished surface proved to be as polished as ever. He had a piece of the flint at the present moment; and it would be impossible to detect where the lime had been and where it had not. He might be asked why the lime had attached at all? but the answer was, that, if good lime were put between the substances, they would adhere by simple cohesion; but, in the case of the flint, the lime had not made any sensible impression whatever on the surface. He therefore contended, that, unless a coating of sand were put on the brick there would be no real cohesion between that and the mortar. He had made, at various times, a variety of experiments with lime, and he was of opinion that lime was lime all the world over: whether it was chalk lime or stone lime, it was all the same.

The Chairman said he could not agree with

Mr. Smith that lime was lime all the world over; for he fancied that chalk lime, Dorking lime, and liae lime, for example, were, in practice, quite different things. With regard to the Dorking lime, it was as much superior to ordinary chalk lime for brickwork as any one thing could be to another. He was aware of the experiments on the strength of bricks that had been referred to by Mr. Dines, but on the same occasions some bricks had yielded to 2½ tons. He believed cases of crushing to be more frequent than Mr. Barry appeared to think. His own impression was, that a large proportion of the bricks used in the suburbs of London were perfectly disgraceful. He saw no reason why the use of place bricks should be permitted at all: a place brick meant a bad brick. All bricks ought to be properly burned, and all should be capable of bearing a proper amount of pressure. He hoped that the paper read that evening would have the effect of calling the attention of brick-makers to the subject, and induce them to improve, amongst other things, brick-making machines, which were not yet what they should be. The high price of bricks at the present moment was an extraordinary fact; for, when they were trying to get the duty off, he went, with others, as a deputation, to the Chancellor of the Exchequer, and they assured the right hon. gentleman that, if they could but get the duty off the price of good bricks would come down to 16s. per 1,000; but the duty had been taken off, and now good stocks were much more expensive than when the duty was on. With regard to the absorbency of bricks, and the non-cohesion of mortar, it was, he thought, discreditable to us to build a house the walls of which would contain, after every shower, gallons of water. It was destructive to health, more especially in the case of labourers' dwellings in the country, and in the dwellings of the poor. It was discreditable to the science of the day that some means were not taken to make bricks non-absorbent, and yet adhesive. If well wetted he believed there were few bricks that would not adhere. The remark of Mr. Smith with regard to sand was no doubt correct.

Mr. Smith said, in explanation, that blue liae lime was more than lime, because it had clay and iron in its composition. If the clay and iron were taken out of it, the residue would be lime, just like chalk lime. The Dorking lime was also strongly impregnated with iron and clay. Chalk lime was often not properly burnt.

Mr. Brandon, referring to the absorption of bricks, said he knew an instance in which a drift of snow had lodged in the inside of a wall 90 feet long by 3 feet or 4 feet high. The snow nearly covered the wall at one side; the other (next the road), being free; and the absorption of the bricks was such that it upset the wall. On examination it was ascertained that the foundations were perfectly good. The wall had since been rebuilt.

Mr. Baker said he wished to support the view taken by Mr. Smith; and observed that the contractor engaged on the large sewer at the Serpentine had burnt up the clay which he raised, and had worked it up with the mortar, mixing thereby a mortar of great strength. With regard to the crushing power of bricks, an accident had occurred at Victoria-street, Westminster, caused by a pier not being strong enough to bear the superincumbent weight.

The Chairman observed, with reference to the bituminized pipes (specimens of which were exhibited in the room), that some experiments had been made with them at the new Palace at Westminster. He also reminded the meeting that the Chancellor of the Exchequer, in the debate on the paper duties last session, had referred to the many uses to which paper might be applied, remarking that everything might be constructed of it, from houses downwards.

Mr. Woodthorpe inquired what would be the effect of heat on the pipes.

Mr. Alexander Young (managing director of the Patent Bituminized Water, Gas, and Drainage Pipe Company) said that the pipes had been tested in Paris at a heat of 120 degrees, and had stood it very well. The pipes in the room had been washed in water at 90 degrees of heat, and it seemed to have no effect whatever upon them.

Mr. Jennings inquired whether the cost would not be a great objection to their general use. The papier-mâché trays, for instance, were very expensive, but hot water did not appear to injure them.

Mr. Young said that the company with which he was connected would be very happy to supply them at 25 per cent. less than the price of iron.

Mr. Bridell gave some information as to the "Patent Marble," to which we may refer on another occasion.

On the motion of the Chairman, seconded by

Mr. Barry, a vote of thanks was passed to Mr. Hawkes and to Mr. Lewis, for the pains they had taken to bring together so many objects of practical utility.

The following gentlemen were, on ballot, elected Fellows of the Institute:—Mr. John George Knight, of Melbourne, Victoria, Australia; Mr. Robert Lacon Sibley, Associate, of Great Ormond-street; Mr. Francis Edwards, Associate, of Hart-street, Bloomsbury.

The Chairman announced that the next ordinary meeting of the Institute would be held on Monday, 4th of July, when a paper by Professor Donaldson, on "Stamped Leather," would be read.

The meeting on Monday next will be open to all who hold cards of invitation, as usual.

THE ARCHITECTURAL MUSEUM LECTURES.

The second lecture of the series was delivered on Wednesday evening last, by Mr. S. C. Hall, who took for his subject, as announced, the various modes of engraving,—line, aquatint, mezzotint, stipple, and wood-engraving,—and explained their character and differences. The mode of printing was also explained, the whole being practically illustrated with the graver, the plate, and the press. Mr. Hall dwelt emphatically, as may be supposed, on the value of the engraver's art, and referred with strong commendation to the small engravings which were produced some years ago for the "Annals." The lecture was at once instructive and eloquent.

On the motion of Mr. Godwin, who dwelt on the lecturer's long labours in cognate fields, a warm vote of thanks to him was passed.

The next lecture will be given by Mr. John Bell, and will have for its subject "The Four Sisters; or, Some Notes on the Relationship of the Fine Arts."

THE PRESENT DISTRESS: THE "CASUAL POOR."

THE accounts which appear on every hand of sad distress in the metropolis are a fearful verification of the wide extent of poverty, always existing, which, in a measure, is usually hidden from the general view. King Frost, however, has pinched and forced the starving thousands from the back slums and neglected places, to which it has been our duty at times to direct attention.

At the Guildhall, on one day, not less than 1,000 persons rushed to the magistrate for relief. A large portion of those were aged persons; there were also labouring men, of strong frames, who had hunger written on their faces. We chanced to see this large and melancholy group, and can speak of its sorrow-giving aspect. Of those who received small sums, more than half were over sixty years of age. Going to the home of one of these, a woman of upwards of seventy years of age, it was found she had no sleeping-place except a small closet under a flight of stairs. There was a miserable bed, and the water had found its way through the roof. This woman had an excellent character, and had reared a family of six daughters and one son. All the girls are married, and have been throughout life well conducted: the son is well employed. It appeared that the old lady received from time to time small assistance from her children. They, chiefly, had large families themselves. If this poor woman were to apply to the parish for a little out-door assistance, she would be told to go into the workhouse, and then proceedings would be taken against the son for a weekly sum to assist in her support. And this would be but justice.

The mother, however, who so much suffers, does not wish to distress the already-pinched family of her son. Parish relief is not extended, and she struggles on to the end of a miserable existence. Such cases as these demand the attention of those who have influence in connection with endowed almshouses; and, more than that, show the want of some change in the system.

In the Thames district it was estimated, a week ago, that there were 23,000 persons out of employ. In the neighbourhood of the Victoria Docks, and in nearly all the metropolitan districts, thousands are greatly distressed. Besides the numbers who flock to the police-offices, the crowds who come to the workhouses are so great, that a large police force has been necessary to keep back the crowd struggling for a loaf of bread. The hard weather has forced this terrible mass of poverty into view; but, in the best of times, the extent of this evil is much greater than can be appreciated, excepting by those who have carefully looked into the subject. As we have before urged, the matter

should be thoroughly inquired into, in order to learn the extent, to trace the causes of so much poverty in so rich a city, and to discover some means of remedy. There is danger to the State in the increase of large masses of neglected poor.

We have at various times explored some of those most forlorn refuges for the destitute the "casual wards" of the metropolitan workhouses, and certainly never saw anything more disgraceful to a great and civilized city than the condition of most of them. A few years since, in some of these dens, not even a low wooden partition was provided to separate one unfortunate lodger from another. It must be stated that in these places the sexes were separated; but in other respects nothing could be worse than the arrangement of the accommodation provided by many parishes for the destitute poor. We have in our mind fearful pictures of men, women, and children lying at the workhouse doors at midnight, in inclement weather; when, having passed this human barrier, and by the help of the "bull's-eye" of the night watchman, we have with difficulty got through the sleeping bodies of destitute persons who occupied the whole of the long passage, the heads and shoulders raised against one wall, and the knees and feet pressed against the other. On opening the door leading to some of these dormitories, the poisonous atmosphere was almost sufficient to suffocate a stranger, and prevent him from seeing the close pack of human beings who were collected there: not even straw was provided. Until the light of the watchman was thrown into the place it was in total darkness: some of the men were quite naked, having made a pillow of their ragged clothes. Few who have not seen these places would believe that such things could be in our own day in this Christian land; and yet these poor persons were thankful for the shameful shelter, and perhaps thought with pity of those who were lying at the workhouse-gate.

We will not distress our readers by further picturing the appearance of some of these casual wards, in which human beings are huddled together in the most disgraceful manner. The story has been already told. Some improvement has been lately made, and we hope that more will be speedily effected. It is a difficult question, we know. We have no wish to make pauperism pleasant; but men and women must not perish of cold and hunger.

THE DWELLINGS ERECTED BY MISS BURDETT COUTTS IN BETHNAL GREEN.

THE buildings which have been erected under the superintendence of Mr. H. A. Darbishire, architect, stand upon a freehold site bounded by Charles-street and Crabtree-row, on the south-east side of Hackney-road. They are undertaken for the purpose of providing comfortable dwellings for the poorest of the industrious classes in their neighbourhood, at rents suited to their means. They contain dwellings of one, two, and three rooms, furnished with cooking apparatus, cupboards, &c. Lavatories and baths are provided on each floor: club-rooms, washhouses, and large drying-places occupy the topmost story. The buildings are five stories high: they are substantially built, of the plainest and least expensive materials. The living-rooms average 13 feet by 10 feet 6 inches: the bed-rooms average 13 feet by 8 feet 3 inches: the club-rooms average 34 feet by 15 feet; and the washhouses, 32 feet by 8 feet 6 inches. All the rooms are 8 feet high, except the club-rooms, which are 11 feet high.

The tenements are situated on either side of an internal corridor, divided in the middle of its length by an open area, which separates the rear portion of the buildings into two wings. Each wing contains an open stone staircase, which gives access to the corridors, and ensures a constant supply of fresh air to the tenements. Adjoining each staircase are two sculleries; one for the use of the men, the other for the women. Their arrangement is the same, and both contain two latrines, lavatory, with washing basins, a bath, sink, waste, &c., and a plentiful supply of water from cisterns in the attic. In the centre of each staircase a dust-shaft is provided, with a receiver in each corridor. The shaft communicates with a large dust-bin in the basement, to which a separate external access is provided. A resident superintendent keeps the accounts, and acts as general manager; and a porter attends to the cleanliness of the staircases, corridors, lumps, &c. The rents, which are paid in advance, are collected every week; and not more than one week's arrears are allowed.

As Miss Coutts's object in undertaking so large

a work was to provide homes for the very poorest of the industrious classes, it was considered desirable to fix the rents at a rate low enough to ensure the dwellings being taken by these classes, and yet sufficiently high to yield a net return of about 3 per cent. upon the cost. It is right that this should be generally known. Experience proves that if a better class of tenant had been admissible, a much higher per-centage than this could have been obtained. The tenements which consist of three rooms each realize five and four shillings per week, according to their size: those of two rooms realize three shillings and sixpence per week; and those of one room (occupied by widows and persons without children), realize half-a-crown or two shillings per week according to their size. With these rents a net return of 3 per cent. is obtained.

The buildings are always full: there are more applicants for residence than can be accommodated. The tenants are most orderly in their conduct, and regular in their payments; and the general result of this good work, so far as it has proceeded, may be regarded as highly satisfactory. Other buildings of the same description are in course of erection: when the whole are completed, they will accommodate at least 175 families.

BIRMINGHAM DIRT DEFENDED.

THE truth of our recent observations on this important town of course was questioned. *Arist's Gazette* becomes the champion of the existing state of the roads and sewerage of Birmingham; and, in that capacity, represents it to be an "impertinence" to make any remark upon their condition; though he subsequently "perfectly agrees with the Builder" on some points, and "entirely coincides" with us on others.

Our estimable contemporary commences with a gentle sneer at the Editor of the *Builder*:—"The gentleman in question," he says, after a quiet laugh at him, "is the sanitary reformer par excellence; and he takes care not to hide his light under a bushel." We are not offended;—rather pleased than otherwise; and hope our little light, such as it is, may ultimately reach our friend of the *Gazette*. The light is not burning for our own pleasure, we can assure him with an earnest sincerity: let him take it from us and carry it on, instead of trying to put it out.

The writer in the *Gazette* shows some bravery when he denies the truth of our assertion as to the condition of the streets; but can only meet it with the remark that the streets of London are much worse. If it were correct, this would be no reply; but it is ridiculously untrue. Dozens of letters during the recent agitation for the Improvement Bill drew attention to the miserable state of the streets; and only last week the *Birmingham Journal* writes, in an article on their "Own Poor,"—"Recent events have shown that Birmingham men would almost prefer a local insurrection to any attempt to purify their town, and relieve it of the seas of liquid mud which they have learnt, through long endurance, to contemplate with most philosophic apathy."

With regard to the central open space now existing in the approach to the railway station, but which is placarded as to let on building leases, and which we urged the desirability of retaining, he asks "where the money is to come from to rent the land beside the Grammar School,—the rent demanded being 25s. per square yard?" And goes on to inquire,—"Is it likely that a town, already overburthened with rates, can afford to improve the access to a railway station at this enormous cost?" We reply,—that the additional convenience of access given to the station would be but a secondary boon in comparison to the sanitary good gained; and that, as the railway company spared no expense in bringing their line into the heart of the town, it is probable that they would be as liberal in according to any reasonable proposal to rent this space, in conjunction with the municipality; who, being equal gainers by its reserve, should, in justice, bear some part of the charge.

From the superficial reading the reviewer has given our observations, he has carried away an erroneous impression that we compared Digheth with the Old Inkleys; and, consequent upon this comparison, doubts whether we ever visited either of these localities. To couple places does not imperatively infer comparison: it would be as logical to assume that we compared the three statues with each other because we associated them in our enumeration. We would also correct the expression "wholesale condemnation," as applied to our remarks on the general condition of Birmingham;

because we took particular care, in this instance, as we do in every other, to render unto Caesar the things which are Caesar's.

And Birmingham is a marvellous place.

STATE OF OUR POLICE COURTS: MARLBOROUGH STREET.

FROM Regent-street, that place of busy and gay resort, to a considerable distance eastward, is a most peculiar metropolitan district. Here, from Wardour-street, Poland-street, and Berwick-street, branch out various back slums, which have occasionally a picturesque and antique aspect. The arrangement of these narrow courts, alleys, and labyrinths is a very unsanitary one; and, in this Soho district, as our readers know, cholera and fever have been most fatal visitors. Much poverty and vice are to be met with in the locality, and numerous are the delinquents who find their way to the Marlborough-street and Bow-street police-courts. We have before remarked on the condition of the latter, and taken an opportunity of examining the first-named well-known public establishment.

The great width of Marlborough-street contrasts with the numerous narrow avenues through which we first pass; and the street has chiefly been built in the improved manner of Queen Anne's days. No one wandering here, who was not acquainted with the circumstance, would think that an important office of justice was in view, were it not that police sergeants and constables may be seen entering and leaving one of the houses, which has quite the same external appearance as those adjoining. On entering, it is at once seen that nothing can easily be conceived worse adapted to its purpose than this old-fashioned house. We know that in the ordinary routine of a police-court numbers of people are obliged to resort to it, and at times are detained for hours, on various kinds of business, within its precincts. For this a spacious waiting-room is requisite. There are also offices needed for the magistrates' clerks, &c.; and the court, which should be accessible to the public: cells for prisoners, and other apartments, are likewise required.

On entering the Marlborough-street Court-house, we find a narrow passage, on one side of which is a small apartment, used as a waiting-room, and for the transaction of various matters of business. Across the middle of the passage is an iron grating, and on one side is a staircase not more than 3 feet in width. On nearly reaching the first floor the limited space is still further contracted; and, from the dark staircase, a civil policeman opens the door of the court, remarking to us as we go in, "This is an awkward place to get unruly prisoners up." This room is of very small dimensions, not allowing sufficient breathing space for thirty persons. For hours together, in particular cases, this space is crammed with the officers of justice, witnesses, reporters, and others. The atmosphere at such times becomes most offensive. Next the court is the magistrate's private room, and, on the other side of the dark staircase, is the clerk's office. This is an apartment of sufficient size, and is rather elegantly fitted in the taste of the period to which we have alluded.

In the last days of the Prince Regent this court was well known to many people of fashion, who, for drunkenness and disorderly conduct, were frequently brought up to Marlborough-street. Then, and until very recently, the places of confinement for prisoners were in the underground parts of the house; the drainage was bad, and the other unsanitary conditions abominable. On inquiring for the cells now in use, we were shown through the iron gate of the passage into what had been a spacious garden; noticing, in passing, another small office, in which many important police matters are managed. At the further end of the garden is a substantial building, in every way well arranged,—with library and other good accommodation for the unmarried policemen. Near this are the new cells, which are a vast improvement upon those at one time justly complained of. They are well ventilated, and heated when necessary by a furnace in the arches below. Round part of these temporary prisons are strong wooden benches; and in each is water-closet accommodation. In these apartments several persons are at the same time confined: these persons are of different grades, and some of them are innocent; and it might be worth considering whether the closet might not with advantage be in some way screened: there is, however, need for simplicity in the construction of

these unpleasant London interiors; and no projections or other screening can be left which would afford the opportunity of committing suicide.

We learn that of the number of cases brought here a large portion are the result of drunkenness; and that, on the whole, there have been fewer persons charged than formerly. This is, to a considerable extent, caused by the improved habits of the higher and better educated classes, who would now be deeply disgraced by being committed for drunkenness and other disorderly conduct. This was not so in George IV.'s time, when noblemen, statesmen, and men of letters, might be often picked up in the gutter, or found engaged in riot and mischief. This change has had a good effect on the industrial and lower classes.

Remarking that the cells are kept carefully clean, we take a look at the back part of the police-court. Here its narrow and inconvenient proportions are seen: the walls look warped, and show need of care. In every way, if we except the new cells, this police-court is altogether unfit for its onerous purposes, and extremely inconvenient; and, although we have looked at it with some interest as an example of former conditions of the metropolis; when we think of the improved state of the Guildhall and of some of our modern police-courts, we trust that the Marlborough-street police-court will soon, like the manners above referred to, fall amongst the things of the past.

LEAD IN WATER SUPPLY.

At the meeting of the Manchester Literary and Philosophical Society on the 8th inst., Dr. Crace Calvert stated that he had been engaged for the last few months in investigating the action of the Manchester Water-works water on various kinds of leaden pipes, and that he was arriving at such results as would show the necessity for serious consideration on the part of the inhabitants of this city with respect to the evils arising from the introduction of the water into their dwellings through leaden pipes. Being requested by the Chairman to give his opinion, Dr. Angus Smith said that he had never found any Manchester water which had passed through lead pipes to be entirely free from lead. At the same time, the quantity is practically equal to nothing; yet there is a great difficulty in knowing what is harmful: water with as little as one-hundredth of a grain of oxide of lead per gallon was said to have produced lead paralysis; whereas it was considered generally not to be hurtful until it contained one-fortieth of a grain. We have little idea of the extreme susceptibility of some persons; and it is better to avoid lead as much as possible. Long lead pipes should be avoided, and lead cisterns are extremely dangerous, especially with soft waters, including Manchester water. Soft water dissolves lead more readily than many hard waters; and, if the hardness be due only to the earthy carbonates, the lead becomes coated instead of being dissolved. But, if the hardness be due to chlorides or nitrates, the water dissolves lead much more rapidly than pure water. It is a mistake to suppose that pure water dissolves lead more than all impure waters. Some very pure natural waters dissolve lead simply because they contain chlorides, although in small quantities. Some lead pipes, too, are easily affected. He had spent a long time in obtaining a suitable coating for lead to protect the water from its action, and had not quite succeeded; but he had given his results to a friend, who had gone further; and, having obtained great success, patented the process. However, he was told that no one would buy lead pipes of the kind, as they cost half a crown per cwt. more than the ordinary ones.

People complain of evils from which they refuse to escape. It is, however, better to avoid lead than to avoid pure water because of its action on lead.

PROPOSAL FOR A NEW STREET TO CONTINUE PICCADILLY TO THE STRAND, IN CONNECTION WITH A SITE FOR THE NEW NATIONAL GALLERY.

ALL persons that have had occasionally to work their way to that nucleus of the world's commerce, "the City," on that trunk-line of ingress to the metropolis from the west, Piccadilly, &c., &c., and availed themselves of our more speedy mode of street transit—the cab—must have some time or other found themselves in a collision or a dead-lock, or some "hair-breadth" escape from

one or other of these, in the passage of some of the narrow and tortuous straits that occur on the short cut *à la* Hemming's-row, which "Cabby" invariably takes in order to effect a saving in distance of some 700 feet, by avoiding the devious route of Charing-cross.

Coventry-street—inadequate in width to the vast traffic it is subject to—and immediately to have some further pressure thrown on it, through the influence of the new openings into Covent-garden, is constantly being choked up at its narrow next the Haymarket; the inconvenience of which corner has probably been increased of late by a new current of cross traffic from the Haymarket, brought on by the opening of the Marlborough gate passage of St. James's-park: anything more inconvenient cannot be found in London than occurs on this line in the turning from Leicester-square into Green-street; or again in the twist in getting from Green-street into Hemming's-row? And the difficulty of the passage will necessarily become aggravated when the new railway station—the common terminus of all the railway lines south of the Thames—is set up at Hungerford; for the route referred to is also the nearer approach to that point from the great traffic lines of Regent-street and Piccadilly. The Terminus Company, in their prospectus, intimate that 6,000,000 of persons may be expected to pass annually through that portal. This gives upwards of 16,000 for every day in the year. How much of truth or how much of exaggeration may be contained in this statement it is unnecessary here to inquire; but bearing in mind that Hungerford will be the chief point of debarkation and embarkation of the railway passengers between the north-western division of the metropolis, and not only the southern suburbs, but all the southern districts of England, it is certain that a vast influx of persons will be brought this way by it, and these will principally pass the streets, and to and from the terminus, in cabs and omnibuses. The passage-way of ingress and egress of the terminus, it is announced, will be by way of what is now Hungerford-street, direct from the Strand; the opening there being merely widened for the purpose. And it may reasonably be anticipated that when this terminus comes into working, as large an amount of cab and omnibus traffic as was ever concentrated on one spot will be accumulated in West Strand; and the street here will, at particular times of the day, be rendered impassable by it.

Communications in reference to this matter having passed between the parochial vestries of St. Martin-in-the-Fields and St. James's, Westminster, each vestry appointed a small committee of their body (St. Martin's giving Messrs. Rose, Barton, and Dalton, with Mr. Danglefield, vestry clerk; St. James's, Messrs. Bidgood, Beal, Medwin, Clarkson, and Crane), to consider the subject, with the view to the devising of some means of meeting the difficulty, and to confer on the same with the authorities whose province it is immediately to deal with such matters.

In the course of the deliberations of this joint committee, an abortive project of thirty years ago, of which King William-street was an instalment then executed, for connecting Piccadilly with Mid-Strand, by a new line of street to pass through Leicester-square, &c., was brought under consideration, as also was the report of a Select Committee of the House of Commons in 1848, recommending the erection of "an enlarged and improved National Gallery," by extending the present edifice by the addition of new buildings in the rear, on ground to be obtained by the removal of St. Martin's Workhouse, &c., in accordance with designs by the late Sir Charles Barry.

It was now seen that, by adopting certain modifications in the designs of those schemes,—amalgamating the two works, making each in some measure accommodative to the other,—the twofold object could be obtained: first, by having a north frontage in a great leading thoroughfare, and at a moderate cost, as will be seen when compared with the enormous prices now ordinarily set on central building sites; secondly, of opening out a long line of new street of great general utility, and especially calculated to alleviate the pressure of traffic on West Strand; and its formation practicable at an outlay trifling as compared with the expenses attendant on any of the works of the kind of the last thirty years, of no greater public advantage.

Immediately in the rear of the present National Gallery, are situated the Workhouse of St. Martin-in-the-Field,—a large square block of old buildings, standing on an acre and half a rood of

ground,—and the Foot Guards' Barracks occupying an area somewhat larger. Both of these the design here put forth contemplates the removal of by the Government for the purpose of the National Gallery. Together, these sites form an oblong-shaped plot, exactly corresponding in length with the present Gallery, and in average width about one-third its length. The Workhouse abuts to the north on the street called Hemmings-row; the barracks, on another narrow thoroughfare called Orange-street. These two streets are in a direct line. The plan proposes to widen these out to form a portion of the new street by about 40 feet taken from the Workhouse site, and a similar slice from the barrack yard; the whole of the houses, &c., on the north side, as well as the artesian well pumping engine-house, and the baths and washhouse, to remain. And thus, with King William-street and Chandos-street, already in existence, two-thirds of the new line are completed without the expense of disturbing a single brick, or laying one. From the north-west corner of the barrack yard, the proposed line bends to a north-westerly direction, taking the form of a crescent, driven through Orange-street Chapel, and through a small square block of buildings that is bounded by Orange-street, St. Martin's-street, Whitcomb-street, and Spur street, immersing into Princes-street, at the north-west angle of the block, from whence 200 feet of Princes-street, widened out on its east side, forms the continuation to the junction with Coventry-street. Coventry-street is to be widened out to the uniform width of 70 feet,—an indispensable feature in the design,—by the houses on its south side being set back 20 feet, the south-east angle of the street being given a circular sweep, gradually sloping to range with the houses of the west side of Princes-street, at Whitcomb-street.

The line may be considered to commence on the east, at the point where King William-street diverges from the Strand, and to terminate at the corner of the upper end of the Haymarket, a length of about 2,200 feet, and as compared with the Pall-mall East route, will effect a saving in distance of about one quarter of the whole; and the line being also of much less steep gradients, viz., 10 feet only of fall in an incline of 1,000 feet run, the remainder of the line being a perfect level; whilst the Haymarket alone, which is just 1,000 feet long, gives a fall of 29 feet, and the Regent-street route by Waterloo-place, 32 feet. It will, therefore, necessarily become the main trunk line of communication between the City and the West (*via* the Strand), and act to the effect of drawing off from West Strand, all the western "through" traffic, by which, together with the additional great converging line of approach thereto which the new street will open out,—the new terminus will be given much improved general facility of access. The latter a matter of no slight import, viewed in reference to the convenience, comfort, and safety of the public. The accompanying plan will further explain the scheme.

As respects the matter of "ways and means" for this work, it may be observed that there is a fund ready at hand, at once available, with the sanction of Parliament, to the purpose, thus accruing: New Coventry-street and Cranbourne-street were formed by the powers given by an Act of Parliament for the purpose in 1841. In 1850 another Act was passed (13th & 14th Vic. c. 103), empowering her Majesty's Commissioners of Works, &c. to complete improved approaches to Covent-garden, and authorizing the appropriation to that purpose of all the residue or surplus of the "London-bridge Approaches Fund," that would remain after all the liabilities to which that fund had been made chargeable were cleared off, inclusive of the whole of the proceeds of the various dues payable to that fund up to the period set down for the abolition of the imposts, viz., July 5, 1862.

The Commissioners, however, did not carry out this work; but by virtue of a further Act, passed in 1857 (20 & 21 Vic. c. 115), for transferring the power to execute this Act of 1850 to the Metropolitan Board of Works, the new street continuing Cranbourne-street to a junction with King-street, Covent-garden, is now being cut. In consequence of the vast progressive increase in the London consumption of coal, the dues on which constitute the chief source of the revenue, the "residue or surplus" on this "London-bridge Approaches Fund" will, at the period of its expiration, be much greater than was anticipated in 1850, when the Covent-garden Approach Act was obtained. It is ascertained that, after all the claims of the fund have been satisfied, there will

remain a surplus of about 200,000*l.* (*vide* published letter of the chairman of the Metropolitan Board) specially applicable, according to the Act of 13 & 14 Vic. c. 103,—which still remains in force,—to further improvements in this quarter. Coventry-street is a main approach to Covent-garden, clearly as much entitled to be regarded such, as was Moorgate-street and others as approaches to London-bridge, under which category they were executed; and the making of this thoroughfare (Coventry-street) more commodious by widening it out (perhaps the more costly half of the work of the present proposal) would certainly appear a legitimate application of this fund.

As respects the other division of the scheme, the proposition stands thus. It places in the hands of the Government about three acres of cleared building ground for the erection of a National Gallery at a cost not exceeding 75,000*l.*, i.e. 55,000*l.* for the purchase of the workhouse and schools, and 20,000*l.* the cost of providing accommodation elsewhere for the battalion of Guards now located there; for instance, the probable expense of adding to the barrack buildings in Birdcage-walk an eastern receding wing corresponding to the wing recently erected at the western end of that pile, or, at a cost perhaps somewhat lower, extending the barrack works just commenced on the vacant Crown lands at Chelsea, thus offering a National Gallery site of unparalleled eligibility; for that on the one hand it engages the present building to form part of the greater structure, and provides space at the back for its symmetrical enlargement into an edifice of noble proportions on the quadrangular plan; and on the other, that it fulfils the primary requisites of situation of such an institution, viz. general accessibility and nearness to the great thoroughfares and centres of business: and, again, that it offers an extraordinary opportunity for production of a great architectural effect in a façade 550 feet long on a principal street; a position where an edifice erected worthy of the age, the country, and its own destination, would form one of the greatest ornaments of the metropolis.

The vote of the House of Commons of 1856, rejecting the proposition of the then Government,—a proposition emanating out of the recommendation of the select committee of 1853,—to remove the National Gallery to South Kensington, coupled with the effect of the report of the Royal Commission, which sat in 1857, on the same subject, recommending that the Gallery remain where it is,—would seem to have finally settled the matter of site at least, and justified the Committee in assuming that, sooner or later, an extension of the present edifice must be made; and, upon that assumption, the scheme here proposed is based. The applicability of the scheme, however, being dependent, in the first instance, on the Government proceedings in respect to the National Gallery question, the Committee sought (and obtained in July last) an interview with the Honourable W. F. Cowper, first Commissioner of Works, before whom they laid the plans, and put forth every point the matter embraced. The hon. gentlemen at once expressed concurrence in the views of the Committee as to the eligibility of the scheme generally, but at the same time intimated that there was no probability of any immediate grant of Parliament for the purchase of a site for the National Gallery.

In the course of the conversation the Committee, referring to the abortive Government project of 1848, for extending the existing edifice by building on the site of St. Martin's Workhouse, urged that they had reason for stating that that project was abandoned by the then Government, mainly because of the difficulty the buying up of the workhouse presented; the general conviction at that time being, that the taking of the workhouse involved the necessity of another house for the poor being provided within the parish, a matter, considering the dense masses of buildings with which every quarter of the parish was covered, of enormous cost; but since that period the removal out of the parish of workhouses had been found perfectly practicable, several of the great central metropolitan parishes having already adopted the principle; for instance,—St. George's, Hanover-square; St. Margaret's and St. John's, Westminster; the four City of London Unions, &c., &c. And the parish of St. Martin-in-the-Fields, objecting in 1848 to any interference with the workhouse, would now not be unwilling parties to negotiation on the subject, providing they saw the way to a house being provided for their poor, situated within reasonable distance, and the present and future ratepayers equitably indemnified for the small necessarily-increased liabilities the step would entail. And if the Hon. Commissioner

would, in giving the matter his consideration, keep his eye on the sum of 55,000*l.* as the purchase-money for the workhouse block of buildings, he would find himself not far out when the purchase had to be completed.

This revelation, by showing facility where previously apparent insurmountable difficulty obtained, as well as something of an authoritative approximate estimate of cost, seemed to have the effect of throwing a new light on the subject, the Government having evidently been contemplating a far larger expenditure as necessary to the providing a site for a new building.

Since that interview with the Chief Commissioner, other circumstances have transpired which have tended to arouse Government action in the matter. First, the fix at which things at the Gallery are found to have arrived—a fix it is plain that must necessarily carry with it the lamentable consequence of the accumulative progress of the institution brought to a stand, at least so far as relates to that, its most prolific source of supply, viz., gifts and bequests: for who would present or bequeath pictures to the nation with uncertainty existing as to the period of their meeting exhibition? The fact having become sufficiently public of every foot of hanging space throughout the occupancy being taken up, as also every contrivance for temporarily eking out the means of exhibition exhausted, leaving it an impossibility that even a single picture more could be received; and this notwithstanding that more than half the collection, for want of accommodation in the main building, is inconveniently located three miles off,—the latter arrangement, by the way, as respects the greater portion of the works so excluded, being clearly a violation of the conditions of their possession. And, secondly, the tenour of the debate which took place in the House of Commons at the close of the last session, incidental to the vote of the National Gallery item in the Civil Service Estimates, showing it pretty manifest that a general feeling prevailed in that quarter that the time had arrived when the providing a suitable building for the national institution could be no longer deferred. And the result—as there is now reason to know—is, that the question of the National Gallery will largely engage Government attention during the present recess, and that a measure, comprising the essential preliminaries to the erection of a great edifice at Charing-cross, will be prepared for laying before Parliament in the forthcoming session.

It will have been very generally observed that extensive alterations in the interior arrangements of the edifice are now in progress at the National Gallery, on account of which it has been closed for the last two or three months, and will probably not be re-opened to the public before May or June next. This work—for the expense of which the sum of 11,000*l.* was voted in the last Civil Service Estimates,—consists in the carrying into execution a plan projected by Mr. Pennethorne more than ten years ago (see Report of Select Committee of the House of Commons, 1850, p. 2), for utilizing the lost space contained in the entrance-hall, a vast apartment open to the main roof occupying the whole central division of the edifice, by bridging over that apartment, on a level with the Gallery floor, connecting the exhibition-rooms of the Royal Academy with those of the National Gallery, on one continuous flat,—thus converting that which heretofore was mere vacancy, into a grand top-lighted picture-hanging room above, *en suite*, for the use of the National Gallery, and a spacious well-lighted sculpture exhibition-room for the Royal Academy below. The work also includes a further economizing of space, by throwing the two small first rooms, formerly known as the Hogarth-room, on the right, and the Lawrence-room, on the left, into one, including therein the space occupied by the great staircase which passed up between them, removing the staircase into the angle formed by the outer front wall and the massive tower that carries the great dome, with a duplicate arrangement, less the great room, carried out on the Royal Academy side. It is thought by many persons, that the intent of these works is to enable the Government, by thus giving considerably increased accommodation to the Gallery, to postpone for a time the consideration of the greater question of the providing of the new edifice. Such inference, however, it is asserted, is not correct. The works in question are merely an expedient by the Government to temporarily relieve the difficulties at which the management of the Gallery has arrived, and enable the institution to carry on (in its existing dismembered character, nevertheless) for the few years that must yet necessarily elapse before a new edifice can be ready for occupation.



PROPOSED PLAN TO CONTINUE PICCADILLY TO THE STRAND; IN CONNECTION WITH A SITE FOR THE NATIONAL GALLERY.



THE PROPOSED CLOCK TOWER, HEREFORD.—MR. C. H. EDWARDS, ARCHITECT.

HEREFORD CLOCK-TOWER.

THE view here given is from the design chosen in the recent competition, under the motto, "I make Aim for the Mark," which is by Mr. C. H. Edwards, architect, of Brunswick-square, London. The tower is to be erected upon, and to commemorate, the site of the Old Townhall, in the centre of the High-square of Hereford. In three of the angles, and between the buttresses, are placed drinking-fountains; whilst the fourth angle contains a turret, and forms an entrance to the clock-chamber, and thence to the balcony, from which a fine view of the surrounding country will be obtained. The work will be commenced in the spring of the year under the superintendence of the architect, by Messrs. Pickard & Co., of London. This erection will chiefly be built of stone; the steps ascending to the observatory will be of iron, supplied by the Butterley Iron Company, and will be built into the walls. The exterior will embrace much carving in stone, composed of subjects in imitation of natural foliage. A structure of this description, 110 feet high, must form a striking feature in the view of Hereford, from many points in the vicinity.

We do not cease, however, to regret the intended unwise destruction of the old Townhall.*

THE ARCHITECTURAL EXHIBITION.

WE would remind the profession generally that drawings for the approaching Architectural Exhibition will have to be delivered at the galleries in Conduit-street on the 18th of March, and urge that each architect who recognizes the advantage of such an exhibition should this year, while there is plenty of time before him, resolve on sending perspectives or elevations (even if only tracings, so that they be mounted and with gold beads round them) of the best works which he has executed during the past year. Up to this time the Exhibition has not afforded a fair view of what is doing; but we hope that, by giving this timely notice, we shall, when we review the collection, find very few architects whose works are not on the walls. It is expected that a good card of lectures will be arranged for.

DISCUSSION OF THE ARCHITECTURAL EXAMINATION QUESTION.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At a meeting held January 14th, the results of which we recorded in our last number,—Mr. M. D. Wyatt, V.P., in the chair,—the hon. secretary, Mr. T. H. Lewis, read the replies which had been received from various London and provincial architectural societies.

Mr. J. W. Papworth said that all the replies assumed that the propositions printed and circulated were sanctioned by the whole body of the Institute. This was not the case, nor was it so stated in the circular issued by the hon. secretary.

The Chairman said that the replies had been carefully considered by the council, who felt that the only decided opinion expressed was, that it was desirable to afford an opportunity for a voluntary professional examination. They had not given their attention to the separate propositions in the replies, but only to the broad aspect of the question. On the 25th June, 1860, the Institute, after much consideration and discussion, had resolved, "That it is desirable to afford an opportunity for a voluntary professional examination." The proceedings would now, therefore, commence *de novo*, with the simple fact that the above resolution had been carried unanimously. In accordance with this proposition the council (he thought, wisely) limited their present consideration to a point which they had expressed in a resolution, which he proceeded to move as follows: "That the examination be open to all members of the profession, and that candidates not members of the R. I. B. A. do produce a recommendation, signed by three members of this Institute (one to be a Fellow), and subscribe the declaration as to practice which is signed by members of this Institute."

Mr. Godwin, V. P., seconded the motion, which he considered at all events carried the question one step further. He fully concurred in the resolution that the examination should be voluntary. He was not one of those who desired to close the profession to all who had not obtained a diploma from a certain body of men. He had looked into the foreign systems of compulsory examination, and did not think they had been favourable to art. Neither George Stophan nor Michelangelo would have succeeded in producing their great works if they had been compelled previously to submit to an examination. But the system of pupillage in England should be altered. He himself

was frequently asked by young students what course of study they should take, and what they were to strive for, and was forced to receive complaints of inattention on the part of masters. If voluntary examinations were established, and if the council would shadow out a line of study and reading, and suggest what course of learning they should follow, they would do good to the profession, and would also materially benefit the public. There was no desire by the step now proposed to force people into the Institute. The resolution proposed was only for a general demand, and in the case of a man coming there and paying the fees which must be paid to obtain the services of proper men for the duty, he would be examined, and if found competent in the various branches of knowledge prescribed, he would obtain a certificate that he was so. He viewed the matter entirely as an educational question, wholly without regard to any forced diploma, and on that ground warmly supported the proposition.

Mr. J. W. Papworth thought the resolution should be preceded by a statement that the council had done the best they could to obtain the opinion of the profession generally. They should then specify the bodies which had replied to the circular, and then state that the Institute would proceed to take upon itself the responsibility of the examination. At present the resolution already passed merely affirmed that the examination was desirable, and the resolution before the meeting proposed that it should be open to all the profession. But the council had not yet taken upon themselves the responsibility of the examination. After some discussion as to an adjournment,

Mr. Godwin said the original proposition had been very much altered. It was at first proposed that "the examination should be applicable to the Associates and future Fellows of the Institute."

The Chairman said that the words quoted had been passed as a resolution.

Mr. Jennings said the question was whether the examination should be open. His own opinion had been, that it was desirable to require that all persons intending to offer themselves for a voluntary examination should be students of the Institute; and that by doing so, and paying the fees, they should be entitled to an examination. He thought this particularly desirable, because a temporary connection would partly tend to a permanent connection with the Institute. The tendency of all examinations was to indicate certain books and subjects; knowing that the candidates should have the advantage of saying that they had read up those subjects. The question for the Institute to determine was whether the examinations should be thrown open to all, or whether the candidates should be required to become students of the Institute.

Mr. Papworth said that when it was resolved to afford an opportunity for a voluntary examination, it had not been resolved that the Institute should take that examination upon themselves; neither was anything resolved as to the mode of examination. He wished, therefore, if possible, to modify the resolution to that effect, without violating the principle.

The Chairman, Mr. Godwin, and Mr. Penrose explained the terms of the resolution as proposed by the council.

Mr. G. E. Street inquired whether the Institute had not already established an examination for the election of district surveyors.

The Chairman stated that in that case the candidates for district surveyorships were obliged to declare that they applied to be examined with a view to the district surveyorship alone.

Mr. Papworth moved—"That this Institute, by the publication of the resolution of the 25th June, 1860, and the publication of the circulars submitted by it to the council at that time, having, to the utmost of its power, ascertained the views of the profession thereon, and having taken into consideration the replies forwarded by the various societies, does, in conformity with the wishes expressed in these communications, take upon itself the labour of constituting an examination tending to promote a systematic professional education."

Mr. Kerr seconded the motion.

It was then agreed that the motion proposed by the council should be withdrawn for the present, and the resolution proposed by Mr. Papworth, and seconded by Mr. Kerr, was put and carried.

The Chairman said that the original motion proposed on behalf of the council would now be put as follows:—"That the examinations be open, &c., &c."

This had already been proposed by himself, and seconded by Mr. Godwin.

An inquiry was made by Mr. Boulnois as to what was meant by "members of the profession,"—an important question as affecting those who assumed the title of architects without authority, but who might set the examples of these respectable architects or surveyors, in order to obtain a certificate.

The Chairman said that the Council had relied, to a certain extent, on the necessity of procuring the recommendation by members of the Institute. The examination itself must settle the value of the individual ability of the candidate.

Mr. Kerr said the question now raised must be considered, in the present early stage of the matter, as entirely one of detail. The recommendations appeared to have been settled, but not the extent to which the recommendations should go. At present the recommendations were to be made by the Institute itself, but now a very different affair was to be entered on. To him it appeared likely that if any one could come here and pass such an examination, and receive a ticket of proficiency, it would be entirely prejudicial to the interests of the Institute, because a person signing a declaration and getting a certificate might afterwards do anything contrary to the right mode of the profession. The object was to provide a better and more solid education for students, and instead of a discursive education, such as there was now. Then

as to a compulsory examination. There were many members present whom it would be absurd to ask to pass an examination; but after a certain time it should be made a compulsory examination for all. It had to be settled whether they were ultimately tending to a diploma or not. All these points required thorough ventilation.

Mr. C. Mayhew thought the examination should be for future Associates and Fellows, and that it should not be commenced till some time after the 1st of January, 1863, in order that the candidates should have time to qualify themselves. The present Fellows should receive the certificate forthwith, as well as architects who had been seven years in practice, or had erected some building which the council approved of, as a qualification. He thought it would be better to adjourn the question, and appoint a committee to consider the views that had been expressed. The resolution now proposed would in his opinion be injurious.

Mr. Kerr thought it would be best to refer the matter back to the council or a committee; and if it were again brought forward as a perfect working scheme, there would be very little objection to it. But it was desirable to settle the broad question that the examination should be as little restricted as possible.

Mr. Jennings thought it would be unwise to limit the examination to members of the Institute. It ought to be thrown open to the public under some restrictions. He would move, as an amendment, "That the examination be open to any British subject," making such declaration of his intention to follow the profession of civil architecture as may be determined by the Council, producing the recommendation of three members of the Institute, one being a Fellow. The objection that persons obtaining certificates might act contrary to the rules of the profession was of little importance, and was never taken into consideration by the medical colleges,—many of whose members turned out badly after obtaining their diplomas.

Mr. Papworth said it was equally disregarded in examinations for the civil service. He would second Mr. Jennings's amendment; first, because it was impossible to confine the examination to their own members; secondly, because they had a right to demand a declaration that the candidate positively intended to become an architect; and thirdly, because he believed, if the candidates must have a recommendation from three members of the Institute, they would get up preliminary examinations of their own, and very few candidates would be accepted. He held that they would have no right to exclude a builder's clerk, if he appeared to be examined.

The Chairman said he thought that there would be no reluctance on the part of the Council to adopt the alteration proposed.

Mr. Godwin considered that course far preferable to an amendment.

Mr. Street concurred in throwing the examination open, if there were to be an examination at all. The builder's clerk might become an architect, and the painter or sculptor should have an opportunity of practising also as an architect, if duly qualified. But he had strong doubts as to the propriety of the examination. The resolution as prepared by the Council appeared to aim at the establishment of an academy of architecture and the divergence of science from art, and nine out of ten people would ignore such an academy.

The Chairman reminded Mr. Street that the Institute had flung unanimously that it was desirable to afford facilities for a "voluntary" examination.

Mr. Gray hoped to see the Institute in the same position with regard to the profession as the Law Institution held with regard to the law. If a lawyer turned out a scamp, the Law Institution turned him out, and the Institute might do the same. The Institute should be dealt with not as a private society, but as representing the profession; and ultimately the examination should be compulsory on all.

Mr. Lewis, hon. sec., said, that if a candidate obtained a certificate, and afterwards acted contrary to the rules of the profession, the council, on its being represented to them, might give him proper notice; and, on his still continuing so to act, might publicly withdraw their certificate.

Mr. Hayward thought that a certificate once granted could hardly be withdrawn. The thing should be done publicly, or not at all. He was of opinion that the examination should be limited to members of the profession.

Mr. Morris observed that the Institute would act unjustly to the profession if it were to grant certificates to tradesmen.

Mr. T. Roger Smith called the meeting back to the educational question, as enunciated by Mr. Godwin. Any restriction on the examination would be disadvantageous in that respect. The candidates should be examined on the contents of certain books, and should be required to show their acquaintance with those books. He earnestly pleaded for an educational treatment of the subject, and thought it would be a great advantage if architecture became popular as a branch of polite education, and he knew that this view would be acceptable to the Architectural Association.

Mr. Burgess said, that, in the sketch of the subjects for examination which had been printed and circulated, there was no provision made for drawing the figure. He thought that the real fact was that the principals had not done their duty to their pupils,—and this involved the question of premiums, because one would be too much for a bad teacher, and too little for a good one.

The Chairman said the sketch referred to had not yet been adopted.

Mr. Jennings, in calling attention to the resolutions immediately before the meeting, pointed out that the object at present was to make the two resolutions coincide without the necessity of an amendment.

The Chairman was about to put the altered resolution, when

Mr. Hayward moved an adjournment of the discussion, and said that he stood upon his right to do so in behalf of absent members, although only an Associate.

Mr. Street seconded the amendment.

The Chairman thought it would not be desirable to adjourn. The two propositions were very nearly in consonance, and the council did not object to either.

The motion of adjournment was put and negatived.

Mr. Street then moved as an amendment, that the words "British subject" be altered to "any person."

Mr. Pearson seconded the amendment, which was put to the vote and negatived.

The resolution, as altered and agreed to by the council, was put to the vote and carried, as follows:—"That the examination be open to any British subject, and that candidates, not members of the Royal Institute of British Architects, do produce a recommendation,

* It appears to have been sold to Messrs. Davis & Downie, the present lessees of the market tolls, for 200*l*.

signed by three members of the Institute, one of them being a Fellow, and subscribe a declaration of their intention to practice, as architects, in accordance with the usual rules of the Institute."

The Chairman said that the council would now feel bound to bring the examination into operation as soon as possible. To do this it was necessary that they should have distinct freedom of action; and he therefore moved, "That the council be empowered to carry the said resolution into execution."

Mr. Penrose seconded the motion.

Mr. Kerr moved as an amendment, "That the council be instructed to proceed with the preparation of a curriculum and bye-laws, and be recommended to appoint a committee to this end, to report to a general meeting."

Mr. Burges seconded the amendment.

The Chairman said the council would naturally appoint a committee to work out the plan. Even if the council were willing to do so, they could not by themselves carry it out, and he did not think the general body of members could do so satisfactorily. The council wished for power to appoint a committee without recurring again to the body at large.

Mr. Papworth presumed the committee in that case would consist of members of the council.

The Chairman said there was nothing to prevent its being so constituted, but he found that the majority of the members of the four committees recently appointed were not on the council. He thought it was not expedient that the details of the scheme should be laid before the members until the whole scheme had been prepared. The members might either give the council an outline upon which the committee could act, or they might (which he thought the better course) give the council power to go on and try some experiment. This would be better than having a cut-and-dried scheme, which would be sure to be afterwards pulled to pieces. The council, however, were in the hands of the members, who might themselves appoint the committee.

Mr. Burges suggested that the curriculum adopted should be circulated among the members a fortnight before the meeting at which it was proposed to be confirmed.

After some conversation, Mr. Godwin said he was sure no member of the council would vote against Mr. Kerr's proposition.

It was accordingly put as a motion, and carried unanimously.

The thanks of the meeting were voted to the chairman, and the proceedings terminated.

NOTES OF SOME OF THE PIONEERS OF ART IN ENGLAND.

To Holbein, Rubens, and other foreign painters of Henry VIII., Edward VI., Elizabeth, and James I.'s reigns, we are greatly indebted for the introduction of a special style of art into this country. Then the Gothic school of painting and sculpture had declined, and a new style, more consistent with nature, and having to a greater extent the true principles of art was introduced. It was not, however, until Charles II.'s time that good examples of painting, sculpture, and engraving, began to be spread over England to any great extent. In this reign several foreign artists of distinction came from Italy and France. Hubert le Sueur was the chief of those who practised sculpture. This artist executed many works in bronze, of which the chief was the famous equestrian statue at Charing-cross.

The monumental works of Nicholas Stone (chiefly of James II.'s reign), especially the elaborately-wrought tomb of Sir Thomas Sutton, in the Charter House, are well known, and are remarkable for their transition from the Gothic to a Roman style.

For some time after the Restoration sculpture was almost exclusively applied to architectural decoration. Cibber executed many works, but his fame chiefly rests upon his two figures of "Raving Melancholy" and "Madness," which are now in the South Kensington Museum. Amongst the sculptural productions of Grinling Gibbons may be mentioned a marble statue of Charles II., for the Royal Exchange, and the bronze figure of James II. in the Privy-gardens, Whitehall. This statue stands close to the spot on which the scaffold was raised for Charles I.'s execution.

The cause of art was much advanced by the purchase by Charles I. of the cartoons by Raffaele, and many works by Titian, Correggio, Giulio Romano, Guido, and others.

During the troubled times many of the rare paintings which formed this Royal collection were unfortunately sold: it is, however, to the credit of Cromwell, that, as soon as he came into power, he bought the cartoons for 300*l.*, and put a stop to the further dispersion of the pictures.

Amongst the best native artists of these times was George Stephenson, a Scotchman, who studied under Rubens.

Vandyke's favourite pupil in England was William Dobson. Amongst his scholars was Robert Walker, the chief portrait painter of Oliver Cromwell. In miniature painting, during the Commonwealth and Charles II.'s reign, we were unprovided. The Olivers, father and son, and Samuel Cooper, whose monument is in old St. Pancras Church, have left many truthful portraits.

At the Restoration, French taste for art pre-

vailed to a considerable extent, and the pictures of Antonio Verrio were much in fashion; so were those of Sir Peter Lely, a native of Westphalia; several Dutch painters of no great note; and Sir Godfrey Kneller. Several still-life painters were in repute; and the animal painter, Vandevelde. Then followed Sir James Thornhill and Isaac Fuller, the scene painter; John Freeman, Robert Strater, sergeant painter to the king, who, as did Sir James Thornhill, executed wall paintings. There were also the portrait-painters Wright, Anderton, Riley, Flatman, and Greenhill.

The earliest English copperplate engraver, whose name is known, is Thomas Geminus, who executed the plates for a medical work about the close of the reign of Henry VIII. There is an English work published before this by Thomas Raynold, in 1540: the engraver's name is not attached to the plates. Very rapid, however, was the advance in skill in that art; so that before the end of the sixteenth century the English engravers had acquired sufficient skill to be employed abroad. In Queen Elizabeth's reign we had many foreign engravers in England: the most celebrated was Ralph Aggas. We must not, however, forget, amongst the old engravers, famous old Hollar, Robert de Voerst, and Luke Vosterman.

AN ARTIST.

PROGRESS OF THE SOUTHERN HIGH-LEVEL SEWER.

METROPOLITAN BOARD OF WORKS.

At a recent meeting of the Board, Mr. Bazalgette reported that on the south side of the river the Southern High-level sewer is now in progress at five different places,—three on the main line, and two on the Dulwich or Effra branch. Some remarkable strata of concreted shells and fossil bones were found during the progress of these works. The Southern Outfall sewer, which was commenced in April last, continues to be carried on in a business-like and satisfactory manner. The tunnel under Woolwich is about one mile in length, and varies from 45 to 75 feet in depth. Four shafts have been sunk, and 2,253 feet of tunnel completed, the headings being lighted with gas, and the miners working day and night. The tunnel will probably be completed next autumn. At the east end of Woolwich they were working in sand, and at the west end in chalk. The shaft in Sun-alley is 55 feet deep, and is sunk into the chalk, and but little water is met with here. That in Howard's-yard, Powis-street, is 60 feet deep, and the lower half of the sewer is constructed in the chalk, the upper half in sand. The rest of the work is, with trifling exceptions, being constructed in open cutting; and about 6,257 feet had been completed, making 8,510 feet in tunnel, and open cutting. The value of the work done is about 80,000*l.* The contractor has provided twelve steam-engines, a steam-hoist, a tramway across the marshes, from the outfall to Woolwich Arsenal, and a locomotive for the conveyance of materials, also three observatories for setting out the tunnel. The average depth is about 25 feet, and the cutting generally is through sand and peat, but the sewer is mostly built upon concrete, resting on the gravel, and much water has been encountered. The marsh ditches are being carried over the sewer in channels of brickwork in cement. The land purchased by the Board at the outlet for the engine-house, engines, &c., is about 34 acres.

THE BUILDING TRADES.

We have received a report of "a Conference of Delegates from the Building Trades" held in the Temperance-hall, Derby, on January 1st to 4th, "to consider the best means to be adopted for obtaining the proposed reduction in the hours of labour." The following is the principal resolution passed:—"That the object and purpose of the Association be defined generally to be, the reduction of the Hours of Labour in the Building Trades to fifty-four hours per week, either as a uniform maximum of nine hours as a day's work, or otherwise, as each locality shall determine. That each member belonging to the association contribute one penny per week to a common fund in furtherance of that object. Should any societies or branches prefer retaining such contributions, they shall pay a proportionate share of the expenses of the association; or societies not so contributing shall pay their share of expenses as their members may determine." There were 19 delegates present, five being from London.

The masons and wrights in Edinburgh have made a demand that the number of their working hours be reduced to nine, and that on Saturdays work be dropped at one o'clock instead of two. The

Edinburgh men do not ask any difference on the rates per hour in the various branches of the building trade. The men have given notice that they intend to carry their proposals into practical effect in March next. The employers are of opinion, however, that in a short time the men will demand increased rates of wage per hour, as is alleged was done in the case of the masons some time ago. The masters held a numerous meeting, and a deputation from the master builders of Glasgow also attended. A resolution was agreed to, that steps should be taken to induce the men to depart from their intention, as it was the opinion of the meeting that, if the new proposals were gone into, and an increase of wages took place, the result would be, that the building trade in Edinburgh would, in a great degree, be stopped, and the men, as well as the masters, be sufferers thereby. A strike may probably ensue. If the movement succeeds in Edinburgh the same steps will be taken in Glasgow and other places.

THE STONE OF THE HOUSES OF PARLIAMENT.

THE following statement appears in the Rev. John Raine's "History of Blyth," in the counties of Nottingham and York,—a quarto volume, just published:—

"It is known to most of my readers that from the quarries of the Duke of Leeds and of Charles Wright, Esq., adjoining the village of North Anstey, in the West Riding of the county of York, and touching each other, was obtained the stone with which the new Houses of Parliament were built, and that it is beginning to perish. Mr. Wright gave me recently, on the spot, the following explanation of this fact. In the first place, the contractors took stone, from quarries of the duke, which was visibly unsound and of inferior quality, although soft to work. 2. They won stone too near the *basset-edge*—to use Mr. Wright's own expression—that is, they won it from the surface forwards, driving, so to speak, the quarry before them, instead of working deep from the first. And 3. The quarries of the Duke were, in several instances, marked by fissures, which had become filled with soil; and the consequence was, that the stone in contact with these fissures was soft and bad. Mr. Wright's quarries were deep, perfect, and sound, and the stone thence taken good. This explanation of a practical man, in itself interesting, will, I think, answer the purpose for which I give it, and elucidate the word *bereset*, *basset*. It must mean *sloping*, and this interpretation corresponds with the actual character of our *Bassetlaw*."

Mr. Raine had previously remarked that *Bersetlaw*, the *Berset* hill, is the most remarkable feature of the limestone district of North Nottinghamshire. It gives name to the Hundred of *Bassetlaw*.

SCHOOL-BUILDING NEWS.

Liverpool.—It is proposed to erect Wesleyan day-schools in Erskine-street and Prince Edward-street, each building to accommodate between six and seven hundred children, and to cost, inclusive of the land, about 4,500*l.*, or a total of 9,000*l.* Mr. C. O. Ellison, according to the local *Journal*, is to be the architect.

York.—New Wesleyan Sunday schools, &c. have been opened here. They were built under the superintendence of Mr. Edward Taylor, of York, architect. The contractors were,—Messrs. Young & Biscoe, builders; Shaw & Young, joiners; Close, Ayre, & Nicholson, ironwork and hot-water apparatus; W. Hartley, plumber; H. Rayson, painter; and F. Rawling, plasterer.

Sheffield. The Wicker Congregational church schools have been opened. They have been erected at a cost of 2,000*l.*, of which 1,750*l.* had been contributed at the time of opening. The schools, backed by the church, form a group. The principal front, towards Gower-street, is 138 feet long, and the flanks at either end, forming the gables, are 36 feet wide. The end next the church, fronting to the Barnsley-road, presents three two-light windows, of simple design, extending from the ground to the upper floor, the intervening space being filled with tracery panels. In the lower portion of one of these windows, a door is introduced, which opens into a porch giving access to the vestry of the church. The length of the Gower-street front is relieved by a gable, broken up into the roof at the junction of the schools, with bedrooms for the chapel-keeper, whose house is placed there. The windows on this side are plain, of two lights, except those to the house, which are ornamented with cusped heads. The

end towards Ellesmere-road is plain, being only broken by one window, with tracery head. The schools are arranged to fit the peculiar shape of the ground. On the basement story is the lower day-school, for 400 children. Immediately over this room, and entering from Gower-street, is the principal school-room, about 60 feet long, with accommodation for 400 children in classes. From the same entrance the lecture-room is approached, with room for 250 scholars. There are also four class-rooms for about 150 scholars. Messrs. J. & A. Craven were the contractors, and the architects were Messrs. Hadfield & Goldie.

Bradford.—St. James's New Schools, erected by the patron of St. James's Church, have been formally opened. They consist of three principal rooms,—viz. boys and girls' schools, each 60 feet by 20 feet; infant school, 80 feet by 20 feet; and three class-rooms, one to each school, 15 feet by 14 feet. The schools have separate entrances, cap and cloak rooms, and lavatories. There is also a special entrance, 21 feet by 20 feet, communicating with the different school-rooms by separate doorways. The roof is constructed of principals formed by a circular arch with collar-beam over: the principals carry rafters and purlins in the usual way. All the internal woodwork is stained and varnished. The principal front is 140 feet long. The principal entrance in the centre projects 4 feet before the main walls, terminating with a gable, and having a bell turret 44 feet high. The style of architecture is Gothic. The whole cost of the buildings, with playgrounds, and conveniences, will be about 3,000l. The schools were built, from the designs of Mr. S. Jackson, architect, by Messrs. J. & W. Beauden.

Hulme.—The main building of St. Paul's New Schools, Hulme, occupies a site 53 feet 8 inches by 39 feet. The site being small and expensive, and the accommodation required being too great to allow for a playground, the difficulty has been met by the introduction of lofty and well-ventilated rooms. The building is constructed in two stories. The lower or ground floor is portioned off;—firstly, into an infant school-room, 52 feet 6 inches by 25 feet, inside measure, and occupies two-thirds of the space; secondly, with a stone staircase, offices, and committee-room. The upper room measures 52 feet 6 inches by 87 feet 6 inches, and is divided into four bays and three principals, of simple construction, the tie-beams being supported by ornamental brackets springing from the side walls. The roof is not entirely open to the ridge, but the upper part is celled off, leaving a space in the apex for ventilation. The height of the wall-plate from the floor is 14 feet, and the height to the centre of the ceiling is 23 feet. The whole of the roof timbers are stained brown oak. The general character of the architecture is Gothic. The Mulberry-street front is the only one exposed to view, and possesses few ornamental features, except those attainable from a mixture of red and white bricks and Yorkshire stone dressings. There are five windows in the front, and side windows. The whole building is surmounted with a small bell gable and gilt vane. The contractor is Mr. S. Bramall, Hulme; the architect is Mr. R. Moffatt Smith, Manchester.

CHURCH-BUILDING NEWS.

Maidstone.—St. Paul's Church, in the northern district of Maidstone, has been consecrated by the Archbishop of Canterbury. A separate district, formed from the parish of Holy Trinity, will be assigned to it. The site was presented by the Conservative Land Society, and land for a parsonage-house has been given by Mr. Randall. The original estimates were 5,000l. for the church, 1,000l. for the parsonage, and 4,000l. for the endowment: 1,200l. still remain to be provided before the parsonage and endowment can be carried out. The church will accommodate 800 persons, 400 free. The plan of the edifice consists of nave, with clerestory, north and south aisles, chancel, vestry, south porch, and tower. The aisles are gabled, being divided into five bays, with three-light windows in each. The tower is at the north-west angle, and consists of three stages, the upper portion being octagonal, with canopied pinnacles at top of buttresses. On the cardinal faces are large three-light windows, with cornice over, from which will rise the spire (the erection of which has been delayed by the weather). Internally, the nave is divided into bays by arches rising from carved columns. The chancel is separated from the nave by an arch springing from carved capitals, supported by sculptured angels. The east and west windows are in geometrical tracery. The roofs are of lofty pitch, and formed with curved ribs and ornamental tracery, the

principals being supported by columns, with carved capitals and corbels. The church is fitted for gas, with standards of brass. The warming apparatus is that of Mr. Hayden, of Trowbridge. The architects are Messrs. Peck & Stephens, of Maidstone. The work has been carried out by Messrs. Sutton, Walter, & Goodwin.

Liverpool.—A new Roman Catholic church, house, and schools, are about to be erected at Houghton, on land given by Major Seel. The Rev. M. Holmes, the present pastor, intends commencing the work in the spring. The new building will be erected from the designs of Mr. Pugin.

Bradford.—Amongst the improvements already effected in the parish church, the west gallery has been removed back to the tower arch, thereby adding two bays each to the north and south galleries; the floor of the tower and the baptistery have been fitted with appropriate seats; a ringing chamber has been constructed higher up in the tower, in order to expose the west window to the interior of the church; the stonework of the inner face of the tower walls has been re-dressed, and the mural tablets from the nave affixed thereto; the old oak roof has been opened and restored; and the east gallery has been removed; 350 new sittings have been gained. The committee had 1,056l. to go on with; but the expense (including 250l. for re-hanging the bells, and 200l. for the purchase of the chancel) has now considerably exceeded that amount, and the following works remain to be effected:—Restoration of the chancel; enlargement and re-erection of the organ; and re-pewing of the nave. To effect these improvements a further sum of 2,000l. will be required.

Ripon.—The unsightly tomb placed over the vault of the late Dean Erskine, at Ripon, has recently been removed, and there has been erected in its place a tomb (of Portland stone), from a design by Mr. Scott.

High Harrogate.—It has been resolved to enlarge High Harrogate Church. Starting at the corner on the east side, it is proposed to throw out transepts on the north and south sides, and thereby gain fourteen commodious pews on one side and sixteen on the other. Each pew will be 3 feet wide and 7 feet 6 inches long, and accommodate five persons. Next, it is proposed to throw back the east end as far as the boundary wall of the churchyard, which will give a chancel measuring within the communion-rails 48 feet; and from the nave to the chancel will be 21 feet. It is also intended to improve the entrance into the galleries; and, instead of the present cramped and dangerous spiral staircase, to erect a commodious one on the zig-zag principle. The free sittings will be altered. There will be in all 240 new sittings, and the entire cost will be 1,480l. The ceiling will be removed, and the church opened to the roof. The architects are Messrs. Lockwood & Mawson, Bradford.

Bramley.—A new church is about to be erected at Bramley. The committee invited Messrs. Lockwood & Mawson, Messrs. Mallinson & Healey, and Messrs. Perkin & Backhouse, to send in competing designs. The choice has fallen on that by Messrs. Perkin & Backhouse, of Leeds, and they have been appointed the architects. The church is to seat 1,000 persons, and the design chosen is in the Geometric Gothic style.

Newcastle-upon-Tyne.—The Clayton Memorial Church, erected in honour of the memory of the late Mr. Richard Clayton, who was the incumbent of the church of St. Thomas, has been consecrated by the Bishop of Durham. The erection of the building, says the *Gateshead Observer*, has been carried out by the direction of Mr. John Dobson, the architect, but the immediate superintendence has been by Mr. D. Birkett, one of Mr. Dobson's pupils. The church consists of nave, north and south aisles, communion recess, tower and south porch. The style of architecture is the Geometric Gothic, and the east window is of five lights. There are north, south, and west galleries, lighted from gable windows. The length of the building is 110 feet; width, 54 feet; height from floor to apex of roof, 54 feet; height of tower to top of pinnacles, 100 feet. There are 849 sittings on the ground-floor, and 491 in the galleries; making a total of 1,340 sittings, of which 453 are free. The church is warmed by hot-water pipes. The nave and galleries are lighted by Messrs. Farraday & Son's patent sun-lights, suspended from the roof, each containing eighty-one burners. The cost of the site and building has been about 6,700l. The contractor for the masons' work of the building was Mr. W. C. Robson; and the contractor for the joiners' work, Mr. James Dunlop. The church is situated about 300 yards along Jesmond-road, and will be known as the Jesmond Church.

PROVINCIAL NEWS.

Willenhall.—A market-hall has been erected and opened at Willenhall, at the expense of a private individual, a wine merchant. It is situated in the centre of the town, and is approached by a colonnade, in the market-place. The colonnade is 52 feet long, and on either side there is a suite of shops, which on one side are occupied as one large spirit shop, and on the other are intended to be devoted to the purposes of a restaurant. Above the colonnade there is an assembly-room, 42 feet by 30 feet, and 16 feet high, and above this room a suite of six offices. The market-hall, which is immediately behind these buildings, is 80 feet by 40 feet, and is about 20 feet to the apex of the Paxton light, which runs along the entire length of the roof.

Chester-le-Street.—The mansion of Lambton Castle, the seat of the Earl of Durham, near Chester-le-Street, is undergoing extensive repair and renovation, under the direction of Mr. Dobson, of Newcastle, architect. The foundations, which had given way and damaged the interior, have been restored, and many important additions are being made to the original erection, which is about 200 years old.

THE "BUILDER'S" LAW NOTES.

Master and Apprentice.—An apprentice filed a bill in Chancery against his master, praying the cancellation of his articles of apprenticeship, and the repayment of the premium, or an injunction to restrain the master from doing anything contrary to the articles in the deed of apprenticeship. It was held by the Master of the Rolls that there is no jurisdiction in Chancery to interfere between master and servant, or master and apprentice, except under very extraordinary circumstances. The bill was dismissed. — *Webb v. England*.

Bankruptcy—Separate Estate.—Where creditors of a bankrupt firm hold securities which are the separate estate of each partner, they are entitled to prove against the joint estate for the full amount of their debt, without first realising or giving up the separate securities. But they must give up or realize securities which are clearly joint property, before they can prove against the joint estate. — *Re Streetfield, Lawrence, & Co.*

Trade Representations.—A. and B. separately carried on business of the same kind. A's lease expired, and B. procured a lease of the same works fifteen months afterwards, excepting certain mines, and issued a circular calculated to lead the public to think that he had succeeded to A's business, and was using the same material which had been used by A. An injunction was granted to A. against B., as B's circulars were calculated to mislead the public. — *Harper v. Pearson*.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of members was held on Friday evening, the 18th instant, at the house in Conduit-street. The chair was occupied by Mr. T. Roger Smith, president.

The President referred to the special general meeting of the Institute, held on the 14th instant, to consider the question of architectural examinations. The substance of what passed at the meeting, having been recorded in the *Builder*, was, he said, no doubt well known; and it was evident, from the resolutions carried by the Institute, that the scheme would be brought to maturity. In connection with this subject, the Polytechnic Institution had announced their intention of including architecture in their Educational Department. It was proposed to have three courses, one on the essentials of building (materials and construction); one on architectural character (the history and practice of Classic, Medieval, and Modern styles of architecture, with notices of distinguished architects and their works); and, thirdly, a course on modern practice (requirements and methods of working). The President also expressed a hope that gentlemen would, if possible, attend the modelling class, which he described as a useful and practical auxiliary to the student of art.

Mr. Arthur Smith (honorary treasurer) then read the report of Mr. S. C. Capes, on the register. It stated that within the last year seventy-five applications had been made by assistants, and twenty-seven by architects; but that as the machinery was far from complete, it would be desirable to refer the whole subject to the committee, with the view of ascertaining in what manner the register might be made more generally available for those requiring its assistance.

A short discussion ensued on the subject; and some suggestions having been made, on the motion of Mr. Arthur Allom, the subject was referred to the general committee; Mr. Druce suggesting that the register should be kept at Conduit-street in the charge of the honorary treasurer or secretary, and that all applications should be made on the ordinary evenings of meeting.

Mr. Arthur Allom then read a paper on "The Battle of the Styles," to which we shall return.

At the conclusion the President observed that Mr. Allom seemed rather the advocate of peace than of battle between the styles. He hoped, however, that the time would come when all the styles would be fused into one, which might be termed the national style. Such a style would depend in a great degree upon construction; and there were new elements—such, for instance, as the use of iron, glass, &c.—which would enter largely into it. He believed that the change which had taken place of late years from the Classic to the Gothic was to be attributed

very much to the literature of the age. In the last century, the poets and writers of the time took their illustrations from the Classic, and the style of our public foundations showed that Greek and Latin types were the most popular. In later years a reaction took place. In Germany, Götthe, and in England, Sir Walter Scott, did much to bring about a taste for the Medieval and to encourage antiquarian predilections. We were now again in a transition state: we were no longer a nation of antiquaries, but we were endeavouring to form what might be called a national style. He agreed with the lecturer, that the time had arrived for fusing the animosities that prevailed on the subject of style, and he was sanguine in the hope that a style would be established of a distinctive and national character. He would, however, impress upon students the necessity of devoting themselves to some particular style. To be Ital an architect they must be very good, for the mine of Italian art had been worked so much harder than the Gothic, that an architect must be a Barry in talent and industry to succeed. If, however, they would study the works of that great master, as also those of Professor Cockerell, they could not fail to derive the most beneficial results.

Mr. Bruce said he quite concurred in the desirability of students devoting themselves to one particular style, for experience showed that the best works had been designed by those who had applied themselves exclusively to either Gothic or Classic. The next best works were, in his opinion, those buildings which ignored both styles, and I left the spectator in doubt which style the architect himself inclined to.

Mr. Blashill thought we were at length getting out of the period of "copyism;" he could not, therefore, agree with those who held that, as art had worked itself out, there was nothing left but to fall back on copies.

A vote of thanks having been passed on the paper, The President announced that at the next meeting a paper would be read by Mr. J. A. Bunker on "Foundations." The subject for the class of design would be a villa.

RAILWAY WHEEL TIFES.

SIR.—Scarcely a week passed after the fearful accident on the Hereford and Shrewsbury railway, before we had another from the same circumstance, "the tire breaking," on the Ross and Hereford line. When asking the cause of these accidents, you merely receive in reply, "Oh, it was through one of the tires breaking," and there the matter rests, no one inquiring into the cause of the breaking, or seeming to care about knowing. A most searching inquiry is required on this point. In the first place allow me to inform you that the tire of the wheel is cast separately from the spokes and box: the spokes also are all separate, representing a loop of iron, driven into the box, but made to fit closely together; and any one, without looking closely into them, would think they were all in one. The tire of the wheel is fastened to the spokes by three rivets only, and these rivets are only five-eighths of an inch in diameter: there are nine loops to the wheel: three of these only are fastened, the other six being loose, and those three which are fastened are only secured by the rivets being stubbed into the tire for about half an inch. Did any one ever hear of such monstrous work for a railway carriage wheel? I would propose, through your valuable paper, *immediate alterations* in the manufacture, which, if adopted, would at once stop any more accidents from the tire-breaking; thus, these, that *every loop should be secured to the tire by a mode to be determined on, the loops to be riveted together as near the tire as possible: should the tire then crack or separate at any point, the fastenings would prevent its flying open, and hold the wheel together until the accident were discovered.* G. R. B. A.

WHY THE EARLY MOSAICS ARE MORE DEFECTIVE THAN FRESCO.

NEARLY all observers must have noticed that fresco painting does not strike the eye at a distance in the powerful manner of the Byzantine mosaics. The fresco paintings of Giotto at Padua one is able to go close up to, and one enjoys them; but, if viewed from a distance, they become indistinct. How much more effective, when thus seen, are the works of Chabaz and the Byzantine painters, who have more analogy with the mosaicists. This seems to me to arise from the peculiar manner of drawing. Of course, as painting advanced, more care was given to detail, perspective treatment of the round and careful shading; whereas the early artists produced their effects purely by strong lines: they were unacquainted with the fineness of later art, but certainly, in their ignorance, produced works which at a distance are plainer and more striking. Might I, as a comparison, take the mosaics at St. Mark's, Venice, and the fresco works of Mr. Dyce at All Saints', Margaret-street? I do not for one instant deprecate the merit of these latter paintings, but I maintain that fresco painting, as it is now practised, and was by Giotto and the painters after his time, is not carried out in a manner suitable to mural painting when placed at a distance from the spectator. The thirteenth century glass-painters, as well as the early mosaicists and decorators, produced, by their thick lines and absence of fine shading, a work at once

majestic and plain to the sight of the distant beholders, and I would suggest to modern frescoists that they should draw their figures in that same pronounced vigorous thick-lined style, but of course without that stiffness and incorrect anatomy which arose from the ignorance of that which is now known to all artists. The works which come in the immediate neighbourhood and are close to the eyes of the beholders might be treated in their present fine style, but for the distant works I claim a treatment of thicker lines and less shading. I trust some of our eminent artists may take up this subject at greater length.

ALFRED WILKINSON.

ASSOCIATION OF ASSISTANT ENGINEERS IN GLASGOW.

SIR.—In your issue of the 5th inst., after noticing the formation of an "Association of Assistant Engineers," in Glasgow, you ask,—"Is there any good reason why it should not form part of the Institution of Engineers, which could be made to include assistants and pupils?" Allow me, as briefly as possible, to state what appears to me "good reason" why it should not.

I may remark in the outset that the Institution of Engineers in Scotland provides for receiving assistants and pupils as graduates. Suppose, then, that a young man—be he assistant or pupil—joins that institution: what follows? First of all, he has an annual subscription of one guinea to pay, and then, he is entitled to attend the meetings. We shall suppose that on the first night of his appearance there a paper is read, maybe on some simple subject, in respect of which, however, he is a profound ignorance, or knows but little. What is he to do? "Get up and ask for information," you say; and the suggestion seems quite a natural one; but, in the mind of a "naughty Scot," another thought springs up, "Perhaps they laugh at me," and so he gets into a fix. But apart from that, altogether, there is the idea in his mind that he is amongst men who are his superiors in point of knowledge, and that it would be unfair to answer them with what to them might be a paltry though to him a puzzling question.

But in what respect will matters be mended in the "Association of Assistant Engineers?" Let us see. A member of the Assistants' Association will be a gainer to the extent of 18s. 6d. per annum; and I think you will admit that that amount is not exactly a title to a young man—either a student or pupil—against long, low pay, and having all sorts of demands on him, in many instances, rather slender purse for books, class fees, &c. Then, again, the members of this Association are more on a level one with another: they have not the inequality of master and servant meeting together on equal terms.

Let it not be supposed from what I recite that there is anything approaching to jealousy or ill-feeling to the Institution of Engineers in Scotland, in the minds of those who originate, or of those who are low connected with, the Association of Assistant Engineers. Alas! but proof to the contrary may, I think, be found in the fact that W. M. Neilson, esq., president of the former, occupied the chair, and Dr. Rankine (professor of civil engineering and mechanics in the University of Glasgow), the late president, delivered the address at the inaugural meeting of the latter, held on the 11th inst. Moreover, it is not at all improbable that some privacy may be desired, in any address, in which the two societies may be associated, and it is not for the purpose of stating that the subject is before the minds of some, at least, of the members of each society.

President of the Association of Assistant Engineers in Glasgow.

P. S. I have written the above in my unaided but in my official capacity.

* This amalgamation is precisely what we suggested. There is a reason, however, why the assistants and pupils should not, on certain evenings, hold meetings of their own, for discussion amongst themselves.

Books Received.

Ure's Dictionary of Arts, Manufactures, and Mines. New edition: chiefly rewritten and greatly enlarged. Edited by ROBERT HUNT, F.R.S. Illustrated with nearly 2,000 engravings on wood. London: Longman & Co. Parts 13th, 14th, and 15th.

PART 15th concludes this valuable work, and contains the preface and title-pages to the three volumes of which it consists. The last three parts include articles of some length on the Safety Lamp, Suitability Economy, Steel, Stone—natural and artificial, and the Preservation of Stone, Stones, Tubular Bridges, Turbines, Varnishes, Ventilation of Mines, Vitriolable Pigments, Water, White-lead, and Zinc; besides other more or less extended ones also, on Printing and the Printing Machine, Putrefaction, Pyrotechny, Quinine, Refining Gold and Silver, Rifles, Rope-making, Salt, Sewing Machines, Silk Manufacture, Silver, Soap, Soda, Spinning, Starch, Sugar, Sulphuric Acid, Textile Fabrics, Tin, Wax, Wearing, Wine, and Woollen Manufacture; with many others of minor importance or of shorter length.

There cannot be a question as to the great superiority of this work over that of Dr. Ure; and indeed it is not with strict propriety that it is now called "Ure's Dictionary" at all: it is, to all intents and purposes, Hunt's Dictionary; Mr. Hunt having not only been the editor, but, to a great extent, the compiler; although with

important aids, of such men as Dr. Herepath, Dr. Angus Smith (who wrote the article on "Sanitary Economy," a somewhat new feature in such works), Sir William Armstrong, Mr. Alfred Tylor, Professor Voelcker, of the Agricultural College, Cirencester; Professor R. D. Thomson, the chemist; Mr. G. Ansell, of the Mint; Mr. Dafforne, assistant editor of the *Art-Journal*; Mr. Fairholt, Professor Frankland, Dr. Normandy, Mr. Linton, Dr. Noad, and many others,—all able and competent men in their several callings, as the editor himself is well known to be, not only as the keeper of mining records, but as a man of science generally, and, therefore, specially competent as the editor of such a work as this.

The book, on the whole, constitutes an important and standard addition to the records of the arts and sciences.

Laxton's Builder's Price-Book for 1861; containing upwards of 30,000 Prices. By W. LAXTON, Architect; and F. W. LAXTON, Barrister-at-Law. London: Kent & Co.

The fortieth edition of this well-known Price-book appears to have been carefully revised by the Messrs. Laxton to meet present circumstances, and several useful additions have been made to it. It contains, amongst other things, after the text of the Building Act, reports of decisions in the superior courts, illustrative of its operations. A student, who should make this book his pocket-companion for a month, and at odd hours read it through from beginning to end, would find the time had been well employed. It is not possible to know everything, but it is absolutely necessary to know where to look for information when needed.

VARIORUM.

IN "The Proposed North Fleet Docks" (Edinburgh Witness), Mr. Lionel Talbot further advances the scheme, and gives some observations on the past, present, and future wet and dry dock accommodation of the port of London. We took a favourable view of the proposition when it was first published, and see no reason to alter our opinion.—"The Handy Book on the Relation of Landlord and Tenant," by Mr. J. H. Williams, does not go far enough. If there is any branch of human knowledge in which "a little learning is a dangerous thing," it is *law*.—Amongst the books which have reached us is "Garibaldi, and other Poems," by M. E. Braddon (London, Bosworth & Harrison). We like the "other poems" better than "Garibaldi," and have no hesitation in saying, notwithstanding some weaknesses, that they have the ring of true metal. They are the work of a poet. We shall hear again of Mr. E. Braddon.—The current *Quarterly Review* has an article on "The Iron Manufacture," wherein stress is very properly laid on the importance of obtaining iron of the best quality, especially with reference to the defence of the country. The writer justly says:—

"As far as the pressure of competition has induced the makers of first-class iron to lower their standard, it has worked ill for the public and for individual traders. That each district should make the best iron of which its materials are capable is the interest of the country, whose quality of its iron; and it is a miserable policy for the midland manufacturer, who is possessed of good materials, to compete in the sale of low-priced iron with the workers of inferior materials who have a bad advantage of a export. He is beaten by the latter in price, even when the demand is plentiful; and, when it slackens, he is left without a market and without a character."

Much very bad iron has been used, often with disastrous results. Low-priced iron is not often the cheapest.—The *New Quarterly* gives its readers a thick and thin paper on "English Gothic Architecture," apparently by an amateur.

Miscellaneous.

THE LATE MR. H. H. PICKERSGILL, ARTIST. We record with great regret the death of Mr. H. H. Pickersgill, eldest son of the Academician, in the forty-third year of his age. He was a highly accomplished man, and began his career as an historical painter. Circumstances, however, led him to portraiture, in which he had completed some excellent works just previously to his decease, including a full-length of Mr. Lees, of Wolverhampton, intended for the Orphan Asylum of that town. He had suffered long from ill health, and died worn out. He leaves much artistic property behind him, including several of his best pictures, "The Right of Sanctuary," "Faust and Margaret," and others. His amiability and goodness endeared him to all who knew him.

MEMORIAL OF THE LATE AUGUSTUS W. PUGIN.
We are glad to see that the list of contributors has been greatly increased, and trust that all members of the profession will aid in bringing up the amount to the sum required for the contemplated endowment. The total received to this time is 910*l*.

GAS.—A successful effort has been made on the Lancashire and Yorkshire Railway to light a passenger train with gas. The invention is Mr. Newall's (the inventor of continuous railway breaks), and the gas is kept in a flexible receiver, in the guard's van. From the van iron tubes carry it over the tops of the carriages, the connections being made of flexible tubing. Short suspenders drop into each compartment of the carriages to brackets and glass globes. The works for the lighting of Jarrold with gas have just been completed by Messrs. H. & J. H. Little, of Newcastle, the engineers and contractors. The works are from plans by Mr. John H. Little. Improvements are being rapidly made in and about the town of Tuam, according to the *Galway Indicator*. A few months ago the Athenry and Tuam Railway was opened, and buildings, in connection therewith, erected. Mr. F. Nicoll, the secretary of that company, started a gas company, with a capital of 3,000*l*. A site for the works was obtained, and the directors advertised for plans, offering a premium of 15*l*. for the best. The plans of Mr. W. Daniel, of Dublin, obtained the premium. Mr. Daniel also obtained the contracts for the erection of the works, which he has completed, and the town was lighted on the 7th inst.

LEAVING WORK WITHOUT NOTICE.—William White, a mason, who had been engaged upon the extensive erections going on at Welbeck Abbey, was the plaintiff, at Workson, in a case in which he sought to obtain from Mr. A. Dennett, Gipsy-hill, Whitwell, contractor, a sum of 13*s*. 1*d*. wages he alleged to be due to him. The defendant is the contractor for some portion of the premises now in course of erection at Welbeck Abbey, and the plaintiff was employed as a mason. According to the plaintiff's own showing, he had left his work without giving the latest notice, in consequence of a dispute that had taken place between one of the foremen and his brother. He did not return to his work again, but sued for the amount due up to the time he left. Mr. Dennett, who was present to answer the charge, was not called upon to reply, his Honour remarking that if a man chose to leave his work without a word having been spoken to him he could not support his claim, and he must be non-suited. White was nonsuited accordingly.

A YEAR'S TRADE.—In 1859, says the *Times*, the American continent, with Cuba and the West Indies, took 40,000,000*l*. of our produce and manufactures; and India, Singapore, and Ceylon, with Australia and China, 37,000,000*l*. more. To these countries we disposed of nearly 30,000,000*l*. of cotton goods and yarn out of the whole 48,000,000*l*. exported. For our iron we found our principal market in the United States (3,000,000*l*.), and also for tin (plates) and hardware (above 1,000,000*l*. of each); for our leather and saddlery in Australia (1,000,000*l*.); agricultural implements in Australia and in Russia; beer in India (777,378*l*.), and Australia (660,358*l*.); butter in Australia (342,914*l*.); earthenware in the United States (600,000*l*.). Our exports to the whole world, however, made no progress in 1859. In most European countries the demand for our produce was slack. France took 1,391,000 tons of coal, and 493,083*l*. worth of copper. There was a considerable increase in our trade with Sweden, Norway, and Denmark; and Russia took more of our produce by nearly 1,000,000*l*., raising her demand for machinery to 1,000,000*l*. and for iron to 1,200,000*l*. Our entire imports for 1859 (179,182,355*l*.) were not far from 15,000,000*l*. above those of the previous year, and our exports (our own produce 130,411,529*l*., foreign and colonial produce 25,281,416*l*.—in all 155,692,975*l*.) were 16,000,000*l*. above those of the previous year; the returns of the value of our imports including freight. In conducting this trade 26,520 visits were paid to our ports by British vessels, and 22,351 by foreign. The totals require such figures to express them as were never until now employed to set forth a year's trade of a nation. The world beyond the seas, civilized and uncivilized, sent to our shores on an average every day merchandise of the value of nearly 500,000*l*., and to bring it to us nearly 1,000 ships came into our ports every week. The exports of our produce in 1859 amounted to about 4*l*. 10*s*. per individual inhabitant of the kingdom: twenty years ago they were not 2*l*. A more wonderful story was never told.

ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION.
On Tuesday Mr. Joseph Bonomi read an able paper "On the Egyptian Photographs in the Exhibition,"—being the first of the series. We are forced to postpone notice of it. On Tuesday next, Mr. l'Anson will comment on the photographs of French Renaissance architecture.

VANBRUGH.—In the course of some very interesting papers from Kimbolton Castle, Mr. Hepworth Dixon prints in the last number of the *Athenaeum* (1734) several letters from Sir John Vanbrugh. Some of our readers who collect matter concerning the dramatist-architect may be glad to know where to find them.

FALL OF A GIRDER PLATFORM AT LIVERPOOL.
The traffic of the dock branch of the Lancashire and Yorkshire Railway, at Liverpool, has been impeded in consequence of the fall of a high level platform, upon which, in shunting, an engine and tender had been allowed to pass, along with some waggon. The unusual weight caused the girders (brittle with the frost, perhaps) to give way, and a portion of the platform, with the engine and tender, were precipitated into the street below. The fireman was killed on the spot, and the engine-driver severely scalped. From the adjourned proceedings at the inquest, it appears that the driver was quite aware of the risk, and very properly refused to place his engine on the platform, which was only intended for waggon; but he was ordered by the banksman to do so. Mr. J. Newlands, engineer for the borough of Liverpool, said he had made a rough calculation sufficiently near to guide him in the opinion he was about to offer. He was of opinion that the girder, taking into consideration all its circumstances of dead and passing weight, had not a great amount of strength to spare beyond what was required to support the dead weight of the superstructure. It required no proof to show what would be the effect of a heavy moving load upon the girder. Mr. Newlands said he would present the exact details at the next meeting. An important question would be raised by the inquiry, because such structures as that platform were specially exempted from the power given to the local authorities by the Building Act. In this Mr. Rishton, the borough surveyor, concurred. He said he raised the question some years ago as to whether such structures were exempt from the operation of the local authority, and it was ruled against him. Since that time he had never taken any supervision of the buildings of the whole of the railway in the borough.

STATE OF MONTROSE: DEFEAT OF ATTEMPT TO DRAIN IT.—A ten days' conflict, says the *Montrose Review*,—speaking sally and somewhat abashedly, in regard to this important question,—has terminated in the defeat of the proposed drainage scheme, and the probable delay of all schemes for some time to come. The excitement equalled that of the Reform Bill time, as the *Review* ironically and bitterly remarks. There was this difference, however, between the Reform and the drainage questions, that the majority were Reformers in the former case, but obstructives in the latter. The bill-sticking exhortations of the dirty party were stunning and sublime. "Ratepayers! You are called to come forward! Do so nobly (!) and use your influence to put a check on the prevailing tendency which exists to lay burdens on the people, grievous to be borne!" and all for "whims or doubtful experiments,"—"mere delusion,"—"cunning device of the enemy," and so on. These "noble" fellows might be fairly asked whether the typhus and other fevers which have been so fully proved to prevail in undrained and dirty towns like Montrose be not "burdens" and "grievous to be borne;" but the pachydermitous hides of these blind leaders of the blind are far too thick to be pricked to the quick by any force of evidence of this description. That class of animals too much loves to "wallow in the mire," for any hope of ever cleansing them, otherwise than "against the grain." Such was the impatience of both parties, when the votes were taken, to anticipate the result, that "the boxes, which were understood to be of equal bulk, along with the contents, were weighed, when the one containing the votes for 'no drainage' was found to have a preponderance of four pounds!" Loud huzzas greeted the announcement, with "three cheers for the champion,"—"of dirt and disease,"—"Mr. John Dow." There were 229 votes (rental 6,173*l*.) for drainage, and 1,326 (rental 8,934*l*.) against it. The local police commissioners have therefore felt obliged to abandon the attempt, for the present, to scrub the uncleanly Montrosians; and a place more uncleanly—we may add, speaking from personal observation—does not exist between that and this so far as we have seen.

CORN EXCHANGE COMPETITION: BURY ST. EDMUNDS.—The designs sent in Competition are now before the Town Council, who, it may be hoped, will call in professional assistance to adjudicate.

THE BRITISH MUSEUM.—The Department of Antiquities at the British Museum is to be divided into three sections, which will be placed under the care of Mr. Birch, Mr. Newton, and Mr. Vaux respectively.

GATEWAY, READING ABBEY.—Once more the authorities of Reading have decreed that the ancient Abbey gateway, to which we have several times directed attention, shall be taken down: 1,600*l*. are needed, it is said, for its restoration, and the subscriptions amount to only 600*l*. If the people of Reading would but reflect on the value of old landmarks,—of objects which serve to distinguish their town from the new settlements of the day,—there would be no difficulty in raising the money required. Better do the work partially, and wait to get more money, than irretrievably destroy. A fancy fair, a ball, or concert, would do something to increase the funds.

ARCHITECTURAL INSTITUTE OF SCOTLAND.—On the 21st a meeting of Fellows of the Institute was held, for the purpose of resuming consideration of the propositions made by the British Institute of Architects on the subject of a diploma for the profession. Mr. J. Dick Peddie presided. After considerable discussion, it was remitted to a small committee to prepare a series of resolutions, to be submitted to a general meeting, embodying the unanimously-expressed opinion of the meeting, to the effect that the profession should be regularly organized by the constitution of a chartered body or otherwise, membership being open to Fellows of this Institute and other architects possessing like qualifications. It was also the opinion of the meeting that a curriculum of study and an examining body should be instituted. —*Scotsman*.

IMPROVEMENT OF COTTAGES FOR AGRICULTURAL LABOURERS.—The Premier has given a decided push to the movement for the improvement of country cottages, by his advocacy of it at Romsey, in conjunction with his able relative, the Right Hon. Mr. Cowper, who also delivered an excellent address on the subject, in which he urged it mainly on the ground of its profitable nature to the improvers no less than to the dwellers of the cottages, instancing the proceedings of the Hastings Society, that at Redhill, and the Windsor Association, all of which have been returning good per-centages of free profit. The improved health and increased energies of the labourers would constitute a no less important and profitable result to farmers and landed proprietors. The movement is now in active progress in Scotland, and a large and influential meeting has just been held at Edinburgh, where resolutions in favour of its objects have been passed; and, to carry out these objects, a committee has been appointed, including influential names, such as the Earl of Southesk and Lord Kinnaird, Mr. Wemyss, M.P., and various others. The annual meeting of the Association for Promoting Improvement in the Dwellings and Domestic Condition of Agricultural Labourers in Scotland has also been held at Edinburgh, the Duke of Buccleuch presiding.

THE LATE STRIKE: CONSPIRACY OF WORKMEN.
In the Court of Queen's Bench, on the 19th inst., the case of the Queen v. Walsby came again under review. This, it may be recollected, was a conviction under the Combination Act, 6th of George IV., cap. 129, before Mr. Corrie, the police magistrate. The information charged the defendant with endeavouring by threats to force Philip Anley to limit the description of his workmen; and the point reserved for the consideration of the court was whether what passed between the convicted workman and his master amounted in point of law to a threat. After a protracted argument, their lordships delivered judgment *seriatim*, to the effect that the conviction must be upheld. This was clearly an attempt to coerce a master by a threat of doing something which was likely to operate to his injury. It was not the case of one man going to his master and saying, if you don't discharge So-and-so or such and such persons I must leave you, but it was the joint declaration of several persons placing before their master an alternative that must work injuriously for him. Inasmuch as it purported to drive others out of employment the combination in question clearly amounted to a conspiracy, and therefore to an illegal proceeding. It was a well-known rule of law that what one man might do a number of men could not do. Conviction upheld accordingly.

ARRANGEMENT OF THEATRICAL STAGES.—An interesting problem for architects is the adaptation of hydraulic pressure to stage machinery, to which we take this opportunity of calling their attention.

FREE LECTURES ON MUSIC.—The Gresham lectures on music will be delivered by Professor Taylor in the theatre of the college, Basinghall-street, on the evenings of Tuesday and Thursday next, the 29th and 31st instant, each evening at seven precisely. The lectures will be illustrated by a choir of vocalists, accompanied by Mr. Turle (organist of the Abbey) on the pianoforte. The doors open at half-past six, and no tickets are required.

FOREIGN COINAGE.—The Government of Victor Emmanuel has determined to issue a new bronze coinage, which is to be struck in Milan. The number of coins required is far greater than the amount of our own coinage of bronze now executing. Messrs. Ralph Heaton & Sons, of the Mint, Birmingham, have obtained the contract, and will require to produce 732,000 pieces per day, commencing on the 1st of April, 1861.

MR. THOMAS J. HILL'S DRAWING CLASSES.—The drawings by pupils of Mr. Hill's establishment, recently exhibited, were about 700 in number. Prizes were allotted as follows:—1st prize. For the best architectural drawing, Mr. Ballie. 2nd prize. For the best perspective drawing, Mr. Seaman. 3rd prize. For the best ornamental drawing, Mr. S. Pipe. 4th prize. For the best constructive drawing, Mr. A. Herlaga. Amongst the other advanced pupils were Messrs. Walton, Webb, Lawrence, Rivett, Winter, Henderson, Willefer, Brittain, and Brawn.

COAL-CELLAR PLATES.—It is satisfactory to observe that attempts are now being made to improve these frequently dangerous nuisances. The many serious accidents that occur through the ordinary coal-hole plate, either from the plate itself being worn thin on the edges, or from the edges of the stone being rounded from use, causing it to shift and turn up when trodden on, have induced Messrs. Hayward, Brothers, of Union-street, Borough, to draw our attention to an improved patent coal-hole plate, in which a flange is designed to prevent the chance of such mishaps, by rendering it impossible for the plate to turn on one side, until it has been raised perpendicular for more than 2 inches; and this, it seems, cannot take place unless released from below, as the play of the chain would never exceed half an inch; and, as a further improvement, they suggest the use of a cast-iron ring, which is cemented into the pavement, thereby preserving the edges of the opening.

A NEW ARCHEOLOGICAL ASSOCIATION IN HANTS.—At Christchurch, in Hampshire, a meeting was recently held for the purpose of forming a new archeological association, at the suggestion of the Rev. Mackenzie Walcott. Sir G. E. Pocock, Bart., was in the chair. Mr. Walcott pointed out the many objects of archeological and literary interest in the neighbourhood, and it was unanimously resolved that an association be constituted, to be called the "Christchurch Archeological Association." Sir George E. Pocock, Bart., was elected president; the Rev. Z. Nash, vice-president; the Rev. Mackenzie Walcott, M.A., hon. secretary; Mr. J. Drutt, local secretary; Mr. J. Lemmon, curator. The ordinary meetings of the association it is proposed should be held quarterly. Many members, effective as well as honorary, have joined the association.

PROPOSED ENLARGEMENT OF THE SUFFOLK GENERAL HOSPITAL.—Very considerable and costly alterations and additions are contemplated at the Suffolk General Hospital, including the erection of a range of buildings extending nearly the whole length of the ground from east to west, or about 240 feet, the present frontage being about 120 feet. This range will consist of a ground and first floor, having at the west end a female ward for eighteen beds on each floor, and at the east end a male ward for twenty beds on each floor, the former measuring 69 feet by 23 feet, the latter 78 feet by 23 feet. Each ward will be provided with a nurse's room, scullery, and apparatus-room, and also with a bath-room and other conveniences. They will be approached by one central staircase. The result of these alterations, if carried into effect, will be to give the hospital 100 beds, with 1,300 cubic feet of air to each patient. The insufficiency of space, it is stated, is now known to be the cause of the erysipelas and hospital malaria so often prevailing. We are unable to judge from these particulars if the plan proposed be a wise one and likely to lessen the "erysipelas and hospital malaria so often prevailing." We sincerely hope that the latest teaching on the subject has been or will be listened to.

TOWN TELEGRAPHING.—The London District Telegraph Company now have upwards of fifty stations open for messages in and around London, and about ten more ready for opening as soon as the out-door work can be completed. The company's works are being proceeded with rapidly, but they have necessarily been delayed by the severity of the weather. About 150 young women will be employed as clerks.

THE 1ST MIDDLESEX ENGINEER VOLUNTEER CORPS.—This corps is now nearly 600 strong, and it possesses a band of upwards of thirty volunteer musicians. The major commandant, MacLeod of MacLeod, states, in a printed circular recently issued, that the 1st Company, in which are many architects, civil engineers, &c., is at present below its full complement. It is desirable (he adds) that the vacancies should be filled, as far as possible, by gentlemen holding these professions, as their education renders them specially qualified for the kindred duties of military engineering; but others of liberal education are invited to volunteer. The 2nd, or Art-Students' Company, is also, it seems, below its maximum.

"STEAM SPERSEDED."—A French experimenter, M. Hirn, according to the *London Review*, has devised a mechanical arrangement, by means of which he proposes to make use of the enormous power exerted when a mixture of coal gas and air is set fire to. The violent explosion, which it is well known takes place under these circumstances, is to be confined in a strong cylinder fitted with a piston, and the latter, being driven up and then drawn back again at each ignition, communicates motion to the other parts of the machine. The gaseous mixture is exploded by means of the electric spark. Explosive sources of motive-power, however, are not very manageable in connection with mechanism.

MAN OF MANY TRADES.—The *Worcestershire Chronicle* mentions the death, at Abbott's Morton, in that county, of Mr. Richard Garfield, aged 61 years, a man of varied abilities. He was born and bred at Abbott's Morton, and was chiefly self-taught. He could perform excellent work, either as blacksmith, carpenter, joiner, cooper, stone-mason, bricklayer, painter, whitewasher, or paper-hanger. He could dig out the foundation of a house, perform all the stone-mason's and bricklayer's work, make all the door frames and window frames, make all the doors, put on the roof, lay all the floors, whether of brick, boards, or stone, put on all locks, do all the blacksmith's work required for every part of the house, paint and paper the house, and make it fit for the residence of a genteel family: all this he would perform in the most workmanlike manner. He might be seen one day hanging very heavy gates, and the next day executing very nice joiner's work, painting, &c. Had Garfield lived in a more thickly-populated place, he might have achieved great success in business, but living in a quiet country village like Abbott's Morton, his talents were almost buried. He was greatly respected by all.

THE STREET TRAMWAY MOVEMENT.—The Lambeth vestry have resolved, by a majority of twelve, "That Mr. Train be allowed to lay down a single line of rails, with proper sidings, from Westminster-bridge, as far as St. George's parish, Southwark, to Newington, upon the conditions set forth in the report upon the subject submitted to the vestry, and such other condition as the vestry may consider necessary." Adjoining parishes, it seems, have been awaiting the Lambeth decision, and will now probably also agree to the laying down of Train's tramways. That a system of street tramways throughout the metropolis would be a decided convenience to the public, there can be little doubt; but whether Mr. Train's present plan be the best remains to be seen. A plan whereby omnibuses could run either on or off the tramways would perhaps be the most convenient for the public; but this is not the case with Mr. Train's arrangements. His omnibuses at Birkenhead have been provokingly delayed by ill-natured cabmen, walking their cabs in front, and by waggon standing across the line; and, as the omnibuses or cars can only run in the grooves, their course in these cases is liable to be purposely and unnecessarily checked. Could they run off or on, as suitable, as it is, it may not be easy to put a complete stop to it either at Birkenhead or in London. The Metropolitan General Omnibus Company will have no scruple in "nursing" the new cars and carrying such annoyance and obstruction to any extreme, as long and as provokingly as the law will allow; at least, such is the reputation their peculiar style of management has earned for them in the public estimation.

TENDERS

For the New Corn Exchange, Leeds. Mr. Cuthbert Brodick, architect. Quantities not supplied:—

For Bricklayer's and Mason's Work.

Nichols	£7,880	0	0
Wood	5,592	0	0
Shattoe	7,584	0	0
Whitley	6,300	0	0
Addy	6,114	0	0

For Carpenter's and Joiner's Work.

Winn & Paws	4,444	0	0
Whit	3,999	10	0
Britton	3,922	0	0

For Painter's Work.

Wood & Son	222	0	0
Kershaw	200	0	0
Jackson	190	0	0

For Plumber's and Glazier's Work.

John Hall	1,200	0	0
Braithwaite & Myers	1,020	3	6
Story	957	0	0

For Iron-founder's Work.

Wilkinson	1,102	0	5
Nelson & Sons	650	0	0
Singleton & Tennant	589	10	7

For Plasterer's Work.

Branton & Son	510	0	0
Branton	380	0	0
Randles	374	0	0
Garlick	340	0	0
Mountain	335	0	0
Wilson & Son	318	15	0

For Slater's Work.

Watson	350	0	0
Ellis	301	6	6

Tender for the Whole of the Work.

Thorp	£13,599	10	0
Whitley	13,000	0	0
Addy (accepted)	12,520	0	0

Amount of lowest separate tenders. £12,393 1 1

For alterations and additions to premises, High-street, Deptford. Mr. H. J. Lanchester, architect. Quantities supplied:—

Richard & Shelton	£640	0	0
Lester	599	0	0
Thompson	596	0	0
Coleman	589	0	0
Penny (accepted)	587	0	0

TO CORRESPONDENTS.

J. C. B. shall have attention. W. D. E. T. M. (the suggestion does not seem to us to meet the case)—One Behind the Scenes. V. W. V. J. B. H. T. S. E. M. H. H. (Kamptulic would probably answer the purpose)—W. M. M. N. L. W. V. (does not seem to us to belong to the class of "plato" building let (next week)). D. M. (H. H. V. J. C. Q. E. D. (it is well spoken of)). J. B. Salford—S. T. (to late). G. G. E. P. A. B. J. (Chirk Silver & Co.) A. Conspirator (in type). G. R. T. L. B. D. S. (the direction was as on our first). N. G. S. S. E. (there is not an architectural circulating library). Its desirability has been often urged. A. B. (our list is a very complete pack of snuff). L. J. P. (our publisher's rule as to dates has been laid down). No "d. images" must be done to single by art.

Post-office Orders and Remittances should be made payable to Mr. Morris R. Coleman.

[ADVERTISEMENT.]

At a Meeting of the Board of Works for the Whitechapel District, held at the Office of the Board, No. 15, Great Alic-street, Whitechapel, on Monday, the 21st day of January, 1861, at 6 o'clock, p.m.

It was moved by Mr. Jenkins, seconded by Mr. Thompson, and

Resolved unanimously, that, having heard Messrs. Mowlem's statement, the Board is now convinced that the declining Messrs. Mowlem's contract arose out of mistake, and that Messrs. Mowlem's honour as practical men remains unimpaired.

It was moved by Mr. Outlaw, seconded by Mr. Simmons, and

Resolved, that a copy of the foregoing resolution be certified by the Clerk and sent to Messrs. Mowlem & Co., to be by them used in such manner as they may think proper.

I certify the above to be a true extract from the Minutes of the Board.

(Signed) ALFRED TURNER, Clerk.

FINE ART ORNAMENTATION OF WATCHES.—“Perhaps there is no article of personal ornament and utility that admits of greater scope for the display of a cultivated artistic taste than the ornamentation of the dials and backs of watches. Countless designs displaying the greatest ingenuity are still the characteristic of the English manufacturer's productions, while designs of a higher order of merit are but rarely to be met with. The buyer's desideratum is to find an establishment where will be presented to him ample choice of artistic designs. It is, therefore, with pleasure that we can name the *focale* of such an establishment. It is that of Mr. J. W. Benson, situate at 33 and 34, Ludgate-hill.”—*Morning Herald*.

Benson's Illustrated Pamphlet, post free for two stamps, is descriptive of every construction of watch now made. Watches sent by post to all parts of the globe.—*Advertisement*.

The Builder.

VOL. XIX.—No. 939.

*The Architectural Publication Society: the
"Dictionary of Architecture."*

BO regularly have the proceedings of the Architectural Publication Society been noticed in these pages, during the last few years, that our readers scarcely need to be reminded of the high claims which it has upon the support of all classes of persons connected with the art and science of the architect. At the present moment, however, it seems to be desirable that an account of the Society and its operations, somewhat more in detail, should be laid before the public; more especially with reference to an announcement which will be found in our advertisement columns. The great work of the Society is the well-known "Dictionary of Architecture," now in course of publication in parts; and the question raised by the announcement just spoken of is no less than this:—How far future subscribers can be assured against the past publications getting out of print.

The Society was established in 1848 for the purpose of publishing architectural matter generally of a high class; and it received at once the patronage and support of most, if not all indeed, of the leading architects of the country. The scheme of membership was the usual one,—a subscription of one guinea, entitling the subscriber to one copy of the issues for the year.

The commencement of operations consisted in the publication of a succession of miscellaneous original essays by writers of eminence, accompanied by about an equal proportion of lithographic plates of architectural examples, also of miscellaneous character. A very convenient quarto size was selected for letter-press and lithographs alike; and, by the simple expedients of printing the essays separately, and classifying the lithographs in sheets under definite headings, the foundation was laid for a serial work of any magnitude to which it might be found desirable to carry it. Before long the committee of management began to take into serious consideration the possibility of constituting this a cyclopædia of architectural knowledge. The great length to which a complete work of this kind would extend was seen to be an insurmountable obstacle; but so strongly did the necessity for a standard book of general reference become impressed upon the mind of the committee, that a similar project on a smaller scale was forthwith drawn up. This met with approval on every hand; and, since that time, the letter-press issues have been confined to the "Dictionary of Architecture," and the lithographic sheets on the original system have been continued by way of miscellaneous illustrations thereto.

The "Dictionary" has now attained more than half its ultimate bulk, and its pretensions are fairly before the critic. In its long list of contributors are, more or less openly acknowledged, such names as those of the late Sir Charles Barry, R.A., the president of the Institute, Mr. Cockerell, R.A.; Mr. Sydney Smirke, R.A., professor; Mr. Tite, M.P.; Professor Donaldson, Messrs. Ashpitel, Nelson, Panson, Garling, J. W. & W. Papworth, Pocock, Burnell, Lockyer, Wyllson, Dr. Hughes, Dr. Lübke, and many others of distinguished merit in their several departments. The illustrations,

on the other hand, forming a still more bulky aggregate, are exceedingly valuable, and often unique in their character, carefully selected from the best private portfolios in the profession, such as those of Messrs. Ashpitel, Barry, Bell, Burges, Cockerell, Christian, Donaldson, Falkener, and so on, all through the alphabet, to Scott, Smirke, Waring, and Wyatt at the end.

The wide embrace of both "Dictionary" and illustrations, under such auspices, and the Catholicity of spirit and depth of resource exhibited throughout, combined with that almost fastidious system of revision which is known to be the boast of the Committee of Management, give us to expect in this elaborate work a production which shall be abreast of the time. But the best proof of excellence is, perhaps, to be looked for in the actual list of those who purchase the book. Here we have H.R.H. the Prince Consort (three copies); the Royal Academy of Arts, the Institute of France, the Commissioners of her Majesty's Works and Public Buildings, the South Kensington Museum Department of Science and Art, the Bengal College of Engineers, the Athenæum Club of London, &c., together with all the chief architects of the United Kingdom, and a fair sprinkling of other kindred spirits; the last sufficient to indicate the success of the work in its endeavour to be no mere collection of matter for the professional or antiquarian architect, but a more expansive "Dictionary of Architecture," and of all that pertains to it, which shall interest the engineer also, the builder, the amateur, the artist, the student of science, the inquirer into history, topography, biography, and all else, as affecting architecture in its widest sense. That the work is already frequently quoted as a standard authority is well known; and a fact may be mentioned than which nothing could be more interesting or indicative of practical success, namely, that the Art Library at South Kensington has found it necessary to purchase a second copy.

The number of subscribers is somewhat over three hundred; and that this figure has been kept up pretty equally from year to year, in spite of the decrease of members, removal, retirement, change of purpose, and other diminishing influences, is encouraging. But one other circumstance, equally satisfactory, although now at length becoming embarrassing, is this,—that new subscribers, as a rule, require to be furnished with complete sets of the back publications, whereas the copies which were issued to the retiring members cannot be re-purchased. In these circumstances the Committee necessarily feel considerable anxiety lest their lists should become practically closed against increase; for they are now obliged to meet the demand for past issues by the reply that the offer of full price for these, which has for some time been a standing rule, and even the offer of a premium which has sometimes been made, fail to meet any longer with response.

As we are given to understand, the proposal which is now made to the profession is as follows: Of the letter-press a moderately-sufficient stock is in hand. As regards the illustrations, where there is no such stock, the lithographs are as yet not effaced. The Committee are prepared to renew the stock of illustrations so as to meet future demands, provided the public will come forward with a number of additional subscribers at once, sufficient to provide for the mere outlay. For this purpose a modest augmentation of members will be enough; and it would seem odd if the Society, even by the personal influence of its three hundred present members, is not able to secure their recruits without much trouble. It is, moreover, understood that the back payments are not expected to be made up in full on entrance, but may be made according to convenience. Another liberal arrangement is, that a subscriber is to be allowed to take the Dictionary alone, if he can dispense, as many may, with the lithographs; these being not plates of reference in any case

(woodcuts being inserted in the text), but altogether separable matter.

We have frequently pointed out, as we do once again, that in societies of this kind the more subscribers there are the more does every individual receive for his money; and we hope, especially in view of the liberal mode of dealing which appears to actuate the committee, that instead of an extra score of members the society may now have an extra hundred. It is to be borne in mind that the chance which is often reckoned upon of obtaining, at the close of a serial, complete copies at a discount price is here very small indeed, inasmuch as the dealers are already asking a premium for loose and even soiled numbers which casually come into their hands. On the contrary, it is an additional inducement to new subscribers to be reminded that the small stock of surplus copies which is kept up is in fact a constantly increasing capital, of which the society will one day reap the benefit. In fact, as matter of account, we are informed that the contemplated proceeding of completing this stock in the imperfect portions will place it even now at a value of probably 1,500*l*.

It need scarcely be said that the management of the society is gratuitous, and the expense of the publications closely cared for. The number of actively interested officers is also large, embracing no fewer than thirty-two influential metropolitan architects as the committee, with forty-one provincial colleagues as local secretaries. The society has a habitation in the architectural societies' house in Conduit-street; and the administration of its affairs is more particularly in the hands of Mr. Wyatt Papworth, as honorary secretary for the "Dictionary;" of Mr. Octavius Hansard for the illustrations; and Mr. Arthur Cates for correspondence; and we are requested to state that the last-named gentleman will be always happy to answer any questions, or to entertain any proposal bearing upon the scheme above spoken of, with regard to which we once more wish the committee all the success that is due to a straightforward and practicable project, of which the object is a public benefit and the motive unaffected and practical.

This is a matter that concerns architecture as well as architects, and we make our appeal prominent and emphatic.

LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY, BY MR. SYDNEY SMIRKE, R.A.

COLOUR ON EXTERIORS.

On the 24th ult., Professor Smirke delivered the following lecture, the first of the present course:—

In a former lecture I addressed to you some observations on the application of colour to the purposes of internal decoration. I propose this evening to pursue the subject of colour as applied to architecture, confining, however, my views on the present occasion to its use on the exterior of buildings.

It is very obvious that there is, in many respects, so wide a difference between the requirements and capabilities of external and internal decorative architecture, that very different rules must guide us, and very different circumstances have to be taken into consideration. Within the four walls of a room we can generally command our colours; we need introduce no inconvenient or discordant combinations; and although there may be, and undoubtedly are, various difficulties to contend with, it may be said that they are not insurmountable, inasmuch as the room is at our own command; and, if we introduce discords, or otherwise displeasing effects, it is, generally speaking, our own fault. But it is not so in the case of exterior architecture: there the difficulties are real: we have to design the colouring of our building with reference to circumstances over which we have no control whatever.

Our building may be required to be placed in juxtaposition with other buildings or objects already existing which we may not disturb; or it may be surrounded by natural objects to which our building must, per force, to some extent, be in subjection, or at least on terms of amity and co-operation. Moreover, colour is closely allied to light. Within a room the light is strictly under

our control: we can subdue it to any extent: we can render its influence as partial as we may think proper, and cause it to enter the room in whatever direction it may be expedient that it should enter. Quite otherwise is it out of doors. The exterior of our building is exposed to the searching light of day; and the sun's rays will come, in whatever way, and with whatever intensity they please, upon the surface of our work. Hence, therefore, it is, that we find ourselves compelled to be guided by very different principles in the two cases.

It was on this account that the observations which I had the honour to make to you two years ago were expressly, and almost exclusively, confined to the application of colour to the interior of buildings.

I have said that colour is nearly allied to light: hence bright colours seem to harmonize especially with a bright light, and brilliant colours have ever been regarded as congenial to brilliant climates. This remark is no doubt trite: it must have occurred to almost every observant person, that most of the productions of nature, in those climates where the sun is powerful, are distinguished by more intense colouring than elsewhere. In an ornithological collection we are almost able to pronounce with some precision, whether a bird is a native of an Arctic, temperate, or intertropical climate, by applying to it the test afforded by the relative brilliancy of its plumage; and the same would seem to apply to the furs of other animals. We see how colour graduates, from the intense markings on the tiger's back to the dingy, or even colourless, coverings of the animals living in Polar regions. No doubt there are exceptions; but the general prevalence of this apparently fundamental law cannot escape our observation, or be attributable to mere caprice or accident. I would not dwell on this law of nature did it not appear to me to be well calculated to throw light on the special subject of my present observation.

In the regions of the East men's eyes are early educated to the appreciation of colour, by having natural colours constantly before them; whilst amidst the grey mists of the North we may, it is true, learn to appreciate colour; but the education must be artificial, and hence, perhaps, it is that when we do indulge in colour, we are apt to run into some preternatural, and even painful, excesses; and, prompted rather by fashion than by instinctive or natural feeling, our fancy becomes capricious and ill-regulated, rushing from white-wash to polychromatic ebriety.

This is not as it should be. If we are not by nature endowed with a delicate perception of the niceties of colour, we should, at least, learn to understand the principles which regulate it; for colour, like a sharp weapon, needs to be used with that caution and dexterity which knowledge and experience alone can give.

But I am, perhaps, prematurely entering into my subject, before urging on your attention those principles which, I think, should regulate us in our attempts to avail ourselves of those beauties which our art can certainly derive from a judicious and well understood use of colours. Before, I say, we descend into a detailed consideration of these principles, we should, I think, look back cursorily over the works of our predecessors; review the progress of the art of applying colour as a means of exterior architectural decoration; and take a glance at the experiences and practice of other times and climates.

In Egypt, the cradle of art, it is beyond dispute that brilliant colouring pervaded their architecture. Egyptian artists used profusely a few positive colours, for they had not learnt to derive pleasure from those niceties which more advanced art delighted in.

The uneducated eye, like the eye of a child, is sure to be captivated by brilliant colouring. Hence we might fairly expect, *a priori*, that such would be the character of the colouring adopted among those earlier pioneers of art who peopled the East. I do not think that it will be a profitable or an appropriate topic of inquiry here—to investigate the principles which guided the Egyptian and Assyrian builders,—if, indeed, principles they really had to guide them. It seems probable that motives of taste regulated their choice of colours less than certain considerations of a religious character; and these involve archaeological inquiries which are quite foreign to our business here.

When, however, we advance to the period of Greek art, we are bound to believe that art (although, no doubt, still influenced by the traditions of their predecessors in civilization), was allowed more freedom, and that the Greek artist sought to gratify the natural good taste of his countrymen, liberated from mere conventional forms, and disregarding prescribed dogmas in the

adoption of colour. Unfortunately, time has spared us so few indications of original colour actually existing, that modern artists and art-writers have been tempted, by the paucity of ascertained facts, to indulge in theories of colour not based on any sound authority; and the somewhat vague and accidental expressions of ancient authors have been called in aid to supply the place of the more exact and satisfactory information to be derived from actual observation.

Without embarrassing ourselves with the very discordant views of the different archaeologists who have written on this subject—and the subject of ancient polychromy has, indeed, been most fruitful of controversy—I will content myself with simply stating the convictions which I have myself arrived at.

My own belief is, that the external architecture of the Greeks was enlivened by a considerable amount of strong colour in the details, and that even the broad surfaces were occasionally, perhaps often, stained with fainter tints. That the details were so enlivened we have the undeniable evidence of surviving fragments; and we need go no further than our own national Museum for such evidence. In the Xanthian examples the late Sir Charles Fellows has satisfied us that the tombs of early Greek workmanship were profusely painted. Colour was traceable when these remains were first explored; although the climate of this country has, perhaps, effaced in most cases the indications of it. Nor can it be with truth in all cases asserted that the colours observed might have been the dawning of later and degenerate days; for an example occurs in the British Museum where the softe panelling has had its enrichments marked in preparatory outline, to be filled in at a future time with colouring, of which some accident seems to have occurred to prevent the completion.

That the general surfaces were stained occasionally, perhaps often, we may infer from certain expressions that have been detected in ancient writers, and from the fact that many of the most authentic, and some even of the purest examples, of Greek architecture were executed in a coarse limestone, coated over with a thin covering of stucco, the crude whiteness of which would not have been tolerable, and which, therefore, we may very reasonably and safely assume to have been subdued by at least a certain amount of colour. But it by no means necessarily follows that, because colour was, in such cases, always resorted to, it was, therefore, habitually applied to all architecture, and that the beautiful crystalline Parian marbles, so highly prized by the Greeks themselves for their purity and transparency, were thus habitually discoloured. Although we know well that early Greek art was greatly influenced by Egyptian and Assyrian practices, leading to what we may now regard as an excessive use of colour, I can with difficulty bring myself to believe that the fine æsthetic sensibility of the Greeks could ever have been reconciled, by any amount of respect for their predecessors in art, to the destruction of the pure translucency and to the obliteration of the delicate natural tints of their marbles, by painting over the columns and broad surfaces of their buildings with strong opaque reds or blues, as some would wish us to believe. Upon the whole, I should say that the wide diversity of opinion among the writers who have discussed this difficult subject of Greek polychromy is somewhat disheartening to those who are simply in search of the truth; but, perhaps, encouraging to those who, whilst reverencing Greek artists, are shocked at the rank colouring attributed to them, and would fain disbelieve that such outrages were ever committed, and hope that they were, in their best days, more temperate in the use of colour than some of the able advocates of glypto-chromism* are wont to represent them to have been.

So destructible and evanescent as all artificial and superficial colouring is, it is not to be wondered at that we are as much at a loss for reviving Roman examples of exterior colouring as we are of Greek; but we may very safely assume that the love of ornament and splendour which especially distinguished Roman imperial art is more likely to have led to an increased than to a diminished resort to colour on the exterior of their buildings.

It was at this period that the use of marbles of various natural colours dispensed with artificial pigments. Even as early as the date of the Greek remains at Halicarnassus, there is strong evidence

* I have been reprimanded, since the delivery of the lecture, by a very distinguished art-scholar, for coining this word. I may, perhaps, have been misled by Bayesian authority into using the term; for which, in deference to him, I would substitute *αγαλματοχρωσις*, or statue-colouring.—S. S.

that the natural diversities of colour in the material were resorted to as a means of giving variety to exterior architecture.

That such was the case may be inferred from the fact that the blocks of marble recently obtained in great abundance by Mr. Newton from the ruins of Halicarnassus differ considerably in colour. Some are as pure and as white as the Parian itself; other blocks are of a dark slate colour, and there are various intermediate hues. How these variously-coloured marbles were arranged with reference to each other it may now be very difficult to ascertain; but the effect that would unavoidably result from using them indiscriminately would be so bad that it is not to be supposed that any Greek artists could have so employed them; and we are thus inevitably led to the conclusion that the arrangement of these light and dark coloured marbles was probably made in conformity with some principle or method adapted to impart variety of effect to the architecture.

At Rome, so great became the passion for coloured marbles, that Ovid says, "Decrescent effosso marmore montes;" and artificial processes, therefore, for staining marbles were adopted for the sake of giving them a more ornamental character, processes which lapidaries of the present day are known to practise.

Indeed, the use of coloured marble became so universal that Pliny seems to hint that the known available sources of ornamental marble were becoming exhausted; and to this he attributes the invention of marbling, although it seems more likely that this fictitious splendour was one of the significant signs of the decay of taste in the empire. It was at this period, also, that the practice of veneering stone and brick with thin laminae of marble took its rise. In the portico of Octavia, in Rome, I observed the exterior face of the brick-work lined with slabs of marble, scarcely two inches thick; but, in the great theatre in Taormina, in Sicily, I found marble veneering executed with really wonderful dexterity; the thickness being scarcely more than that of ordinary card. The dexterity, indeed, which this veneering required in its execution affords strong ground of presumption that the practice was common.

In what way and to what extent the architecture of the later Roman empire was affected by the contemporary style of design prevalent in the East is a question of undoubted interest; but it is one upon which those who have treated on the subject seem to entertain by no means clear views; a difficulty arising perhaps in great measure from the uncertainty that hangs over the dates of early eastern buildings. But it would hardly be germane to the subjects of these lectures to enter into inquiries so exclusively historical.

It may suffice to say that, either through the fusion of the decaying Classic style with some other style that may have pre-existed, owing its origin to Oriental artists; or through the direct changes effected in the Roman manner; when the task of building fell into the hands of the predominant races of the East, even without assuming the influence of any pre-existing style; certain it is that a very readily distinguishable change took place; and one of the most marked characteristics of that change was the extended application of colour to architecture.

The use of mosaic work is especially a marked feature in this new phase of art. Although this work was the invention of an earlier age and was very largely used by the Roman architects in pavements, I am not aware of any evidence of the application of this species of work being applied as a mural decoration in any building of positively Classic date; and I presume that this latter use of it may be confidently regarded as originating in the Byzantine school. The practice of inlaying and panelling marbles as an incrustation on the surface of walls is also another very prevalent mode of ornamentation marking the period; much resorted to, no doubt, by the Romans even in the best periods of the empire, but received in the Byzantine school with particular favour, from the facilities it afforded of coloured enrichment, in which that school, as we have seen, so greatly excelled.

I need not remind you that Byzantium, during the least cultivated periods of European history, was the sole asylum of the arts; and it was thence that the earliest rays of a revival dawned on Western Europe. Italy, Sicily, and Spain were the first countries to catch these rays. Hence it is that we there find the earliest developments of this new feature of architectural ornament. The new buildings of Venice and Pisa became resplendent with coloured marbles, both internally and externally applied. Then, too, arose that parti-

coloured system of decoration which, in our ceaseless aspirations after some new beauty, has of late found some favour in our eyes. The Duomo at Venice is a very early and remarkable example of the adaptation of coloured materials to external architecture. The shafts of the small pillars are of various coloured marbles, whilst incrustations of porphyry and other precious materials of like nature enrich the surface of many parts of the building.

Florence affords many notable examples; and, in Giotto's celebrated campanile, the practice of panelling and otherwise intermixing variously coloured stones was extensively adopted, and treated with admirable taste and skill.

Indeed, throughout this period of Mediæval architecture, in Italy the practice prevailed of building in courses of coloured masonry; and it became, in truth, a characteristic feature in the buildings of that age in Italy.

Doubtless, these alternating courses of coloured stones came to Italy from the East; for they have there been a passion; originating, perhaps, in the deep-seated love of colour which marks Oriental taste.

There is no denying the extremely pleasing effect of many of the Mahomedan buildings so ornamented; and it affords a striking instance of the simple means by which beauty may be attained.

Whether the motive was purely æsthetic, or whether the occasional courses of coloured stonework had their origin to any extent in some constructive requirements, we have, perhaps, now no means of determining. The latter supposition seems not altogether improbable, at least in Italy. The green marble from Polcevera, in the north of Italy, is an extremely hard substance, and the occasional introduction of courses of it, properly cramped together, would, no doubt, form a useful tie, and contribute much to the stability of a wall.

It is, however, to be remarked that, even in Italy, this mode of construction was only of local prevalence. It is far more frequent in the north and middle of that peninsula than in the south. Instances in other parts of Europe are comparatively more rare; and, as far as my knowledge extends, very few instances of regularly banded or striped masonry, where different coloured stones are used in alternating courses, occur in our own country.

The nearest approach to external polychromy in England is, perhaps, the intermixture of ash-laid stone and square flints, which occurs so frequently in the ecclesiastical architecture of the eastern counties, and by which a pleasing variety of tone, if not of colour, is often produced.

There is no reason to believe that external colouring, whether by the use of naturally-coloured materials or by superficial painting, was ever extensively practised in this country during the best periods of Mediæval art. Perhaps the most usual application of the practice was in the shafts of columns: a blank spandril or gable was occasionally relieved by a coloured panel; but this occurs rarely, sculpture being ever considered as the readiest resource whenever a blank space is to be lightened or an enhancement of the effect is desired.

But probably in no country on the Continent has the mode of producing a rich effect of colour, by the use of bricks and stone intermixed, been better understood, or more effectively carried out, than in England during the Tudor period.

In the wide, alluvial tracts of Germany, where the use of bricks was earlier introduced than in England, quite as widely disseminated, and as generally practised; I have not myself seen, nor have I been able to ascertain, that others have met with, that regular and systematic use of the interlaced courses of dark bricks on a red brick ground with which we in England are so familiar, and which so admirably attains the object of relieving a plain surface of wall without labour or effort; at the same time lowering and qualifying the general tone of colour in a highly picturesque manner.

It is not unworthy of note that at a period when in England we were thus struggling to relieve the monotony of red bricks, our more advanced and ingenious contemporaries in Italy were stupefied by the surfaces of their palaces to receive fresco painting, and often employing the very highest available art upon the plain surfaces so obtained. Vasari relates many instances of this employment of the painter's art; and it seems highly illustrative of the universal prevalence of a taste for painting in that country when we find men like Perino del Vaga, Garofolo, Gherardi, Bramante, and very many others I might name, zealously engaged in painting historical subjects, on a

colossal scale, upon the exterior surfaces of ordinary street architecture.

They could not but have been perfectly conscious of the perishable nature of their workmanship; but it was enough for them that the all-prevailing admiration for art was gratified, whilst they found a wide scope for the exercise of their fertile invention and for the display of their admirable powers.

You are no doubt well aware of the great efforts that have for some time past been made in Germany to revive this mode of exterior decoration.

The whole façade of the newly-erected picture-gallery at Munich is converted into one vast historical picture: the figures are so colossal, that in order to appreciate them one needs to retire to the remotest distance that the surrounding buildings will admit of. That veracious geographer, Leno Gulliver, tells us of a book he met with in his travels, so large that he had to erect a scaffold in front of it to read its pages. So in this truly great work at Munich we have to take a considerable walk in order to examine the opposite limits of the picture.

But without reference to such extreme cases, I leave it for those who practise the sister art to determine how far historical painting is rightly applied as a mural decoration in the open air. I am disposed to think that the practice will not spread very widely. It seems to me calculated to lead to the degradation of art; for what artist is there, at least in these degenerate days, and in the inclement atmosphere of Northern Europe, who would not feel the warmth of his genius chilled by the reflection that his works could expect only an ephemeral celebrity. Exposed to the vicissitudes of climate, such works could hardly live to be fully appreciated before they must perish. Such, certainly, has been the fate of nearly all, if not of all, the external frescoes of the great masters of the fifteenth and sixteenth centuries. But so great was the wealth of genius in the palmy days of Italian art, that painters were willing to waste their brightest thoughts, and bestow the exquisite products of their art on the mere pageants of a day.

But somewhat before the bright period I have referred to, the love of coloured architecture in Italy had found another and more legitimate development.

In the fifteenth century was introduced, originally derived, no doubt, from the East, a new manufacture by which a far greater permanency could be imparted to colours. In the alluvial plains of Italy arose a passion for glazed terra-cotta work; and in this instance, also, the most gifted artists did not disdain to impart the Promethean touch of their genius to these fictile productions. Passero, a learned historian of this art, gives 1393 as the date of its introduction; and the eminent names of Della Robbia, and even Raffaele, are identified with its cultivation.

Though limited at first to small fictile works, such as tazzas, ewers, and the like, it was not long before artists found that the art was applicable to the nobler purposes of architecture. Friezes, panels, and many of the minor features of architectural composition, were thus enriched by colours of the most durable nature.

There are, in fact, few substances less perishable and less liable to injury from chemical and atmospheric action than the vitreous glaze on this terra-cotta work. There are many interesting specimens of glazed fayence ware of a green colour among the Assyrian remains in the British Museum. Those from the north-west palace at Nimrud, and from Koyunjik, date, according to the trustworthy authority of Mr. Birch, as far back as the year 750 B.C.

There are also many examples of glazed ware from Babylon, especially I would name the glazed coffins from Warku: these Mr. Birch is inclined to assign to the days of Nebuchadnezzar. You will find none of these specimens materially affected, except by external violence.

The Italian artists of the quattro-cento period highly appreciated this material, and used it in their buildings with admirable effect, as at Alberti's Church, at Rimini, and elsewhere. Its application, however, declined in the sixteenth century, a fact, perhaps, mainly attributable to the more general and closer adherence to classical forms, which did not lend themselves so readily to terra-cotta as to stone. Much also may be ascribed to the introduction, at that period, of external stucco work.

Coloured terra-cotta never attained to much favour in this country. We see some few examples of glazed earthenware in heraldic shields, and other details on the exterior of Wolsey's portion of Hampton Court Palace, and a few other scat-

tered examples may be met with; but it would appear that the gloominess of our English climate and the noxious influence of our smoke are not favourable to the cultivation of taste for external coloured decorations, and cause timidity in its application. I would by no means advocate an extravagant use of this vitreous manufacture: such excess would be as little in keeping with the grave and sober character of the English on the subject of art, as it would be unsuitable to our climate; yet glazed and coloured terra-cotta work deserves the attention of every English architect. Its remarkable permanence is a most valuable quality; and its capability of resisting the disfiguring effects of soot seems strongly to recommend it to favour in our larger towns.

Reverting now to the brilliant quattro-cento period of Italy, from whence I had deviated in order to sketch the progress of terra-cotta as a building material, I should remind you that it was not only in the use of this artificial material that the love of colour in architecture showed itself in Italy. The use, in the time of Giotto, and still earlier, of coloured marbles in the enrichment of external architecture, to which I have already adverted, seems to have revived in the fifteenth century, and especially in the north of Italy. In Venice we find few buildings of that period which are not characterized by a profusion of coloured marble panels, friezes, medallions, and the like. Neglect and exposure have contributed seriously to efface these beautiful decorations; but enough remains to enable us to form some conception of the gorgeous effect of the Canal Grande and of the Piazza di S. Marco in the fifteenth century; adorned as they were by the fresh glow of colours in the stately structures then newly erected, as well as by the more subdued embellishment of the rich marbles, mosaics, and tessellations of the earlier buildings of that city. When we recall to our imagination these gorgeous buildings; enlivened as they were by the rich costumes which figure in the paintings of Giorgione and Veronese; the brocaded hangings, the gay standards, and gilded metal-work which must have then everywhere met the eye; I believe we shall all admit, without a doubt, that no city in the world, at any period of its history, ever offered such a sumptuous feast of colour as Venice, in those her palmy days.

No doubt many of these marble inscriptions were the spoils of war in the East; for specimens of the deep red granite, and other precious materials, may be found among them, which are not known to occur in any European locality; so that, as in ancient Rome, the pride of conquest, mixed with the æsthetic predilections of Venetian artists, conducted to promote the use of colour in their architecture. These panellings, however, gradually fell into disuse in the progress of art. More strictly architectural forms came to prevail; and columnar architecture becoming almost universal, the opportunities for the use of coloured marbles became necessarily restricted to the friezes of entablatures and shafts of columns: even this soon ceased to be common in exterior works.

It cannot be denied that there is, in the nature of most coloured marbles, an inherent defect which may have largely contributed to bring it into disuse in situations exposed to the external atmosphere. The colours of most marbles depend for their depth of tone and richness of effect on their polish; and that polish is sure, sooner or later, to be destroyed by exposure to damp air. This is not the case with respect to granite, of which siliceous forms so large a component part; nor perhaps to serpentine; but the polished surface of probably no limestone, however compact and however crystallized, will long resist the effects of exposure.

I have now, in a slight, hasty, and somewhat disjointed manner, sketched the history of the use of coloured materials in exterior architecture. It remains for me now to consider the principles which, I think, should guide us in their use.

This consideration is an important one at the present day; for a fashion—I might almost say a passion—is growing up among us for indulging in this kind of embellishment.

Of all novelties, especially in matters that come within the dominion of taste, the tendency is to degenerate into extravagance and excess. A speculative chemist, or an inventive manufacturer, has no sooner devised some new modification of colour, than the world of fashion becomes steeped in the favourite dye, till our eyes are tired of the novelty.

The leaders of *ton* in the fourteenth century bethought them to prolong the toe of their shoes to an inordinate length. The servile crowd of imitators followed: the passion grew with the growth of this superfluous appendage, till we find

that by the middle of that century the toes of any well-dressed gentleman were tied up to his waistband.

Again, some unsightly excrescence is supposed to have suggested to the coiffeur of Louis XIV. a structure of artificial locks; and not many years had elapsed after its adoption before the heads and shoulders of all Christendom were oppressed by the superabundant load of adscititious hair.

It seems an instinct of the human mind, when a new enjoyment or fresh object of admiration is found, to exceed the limits of moderation in the indulgence of it.

Whitewashing was once a passion, especially among churchwardens; and the rigid saints and painted purgatories with which it had pleased our ancestors, before the Reformation, to cover their walls, for the moral improvement of a staring but unreading generation, all became obliterated by the clerical wash of lime-white; and the facility with which that dazzling production could be yearly renewed, and the economical cleanliness which it introduced, seemed to favour its perpetuation; but whitewash had its long day, and lost its hold on the public favour; and there is every prospect that we are now about to enter upon the reign of intense polychromatism.

It behoves us, therefore, to be very careful that this new-fledged zeal shall be kept, more especially in the exterior of our buildings, within a just and reasonable restraint.

Let us not lose sight of the principles that should guide us, and let us be guarded in the application of those principles; remembering well how often the worst of all things is the corruption of the best, and that the idol of yesterday is the laughing-stock of to-day.

I will not say, with the ancients, that nothing is permanent but mediocrity; but I am convinced that the most lasting praise is reserved for those only, whether architects or artists generally, who will not risk their reputations by extravagant flights of fancy, either in design, composition, or decoration.

What, then, are the principles that should guide us in the treatment of colour in external architecture?

1st. Whatever colours may be used, they should not be so used as to detract from the harmony and unity of the general effect.

For this reason violent contrasts are seldom attended with good results: when such strongly-marked contrasts are not offensive, it is when they are uniformly spread over a whole composition. Thus, when, in a red brick building, stone dressings are used throughout for the quoins, window jambs, cornices, stringings, &c.; or when, on an exterior of red bricks, there are reticulations of black bricks over all the plain surfaces, these strong contrasts of colour do not offend the eye, because of the intimate and general intermixture of them: the only effect is, that in the one case the light stone dressings lighten the effect of the building, and in the other case the dark reticulations, being disseminated over the whole, lower the tone without disturbing the unity of the building. But scatter these white stones or black bricks here and there, sparsely and at irregular intervals over the front, and the general effect will assuredly become spotty and disorderly.

2nd. In the distribution of coloured materials regard should be had to the retreating and advancing qualities of colour. Thus white, and bright yellow, and bright reds appear to stand forward, whilst black, blue, and greys retire. Care should be taken not to outrage these prejudices of the eye: for example, when dark and retreating colours prevail at the lower parts of an architectural composition, and the upper parts are of bright-coloured materials, the latter will inevitably appear to advance and overhang the former, producing a false effect that cannot be agreeable.

So, when buttresses are built of a darker stone than the intervening wall, they seem to sink into instead of advance from the face of the wall, and the eye gets puzzled and offended; for an effect is produced at variance with what we know to be the fact. For the same reason I have seen a very bad effect produced by a black marble frieze introduced in an order built in other respects of light-coloured material. When viewed at some distance, or with half-closed eyes, the cornice seemed suspended in the air; or at all events the means of its support were not obvious; and, generally, we may regard it as a rule in matters of this nature that constructive doubt and uncertainty produce an unpleasant impression, like that produced by the concealment of the feet of figures in a picture.

So also dark marble columns in front of a light wall, unless brought out by polish, or by a considerable depth of shadow behind them, lose that

prominence and æsthetic value which should belong to them: reverse the arrangement and all ambiguity vanishes: each part then takes its right place in the composition, and the eye consequently rests satisfied.

It ought not to be necessary to dwell on a principle that appears, I think, so obvious; but it is too certain that the principle, obvious as it may be, is often lost sight of.

3. Special care is needed, in the introduction of dark bands and other features of like nature, that they do not interfere with the architectural shadows of the composition. Nothing, perhaps, in architectural design, is more important than to preserve its outlines and masses distinct and unambiguous; and as these outlines and masses are best brought out and rendered intelligible by shadow, whatever interferes with the due force of these shadows must detract from the effectiveness of the work.

There is great danger in using those dark streaks and chequered courses which are now gaining so much favour; lest the shadows of the building in which they occur should lose their value. For when not seen so near as to allow of a clear perception of details, these bands are hardly distinguishable from shadows.

However easy it may be to cite old examples as a justification, reason ought ever to prevail over precedent. I know that these zebra stripes occur in many parts of the peninsula of Italy and in Spain, as well as elsewhere in Europe and in the East. As I have already said, they may have originated in some constructive requirement, no doubt adding to the strength of the wall.

We have no such valid reason to urge in favour of our dark streaks: at all events they constitute, I think, one of those eccentricities of the past which scarcely deserve to be disintegrated.

4. There is another principle, of paramount importance in the treatment of colour in the exterior of architecture; viz., that the colouring should be consistent in character with the purposes of the building itself. Our ancestors correctly appreciated the cheerful character of white by frequently designating halls erected for festive purposes Whitehalls.

The hall at Kenilworth Castle was called the "whitehall." "There was a 'whitehall' in the Old Palace of Westminster; and the Whitehall of Charles's intended palace is familiar to us all. There is also a 'whitehall' in the Royal Palace at Berlin. Even our cousins across the Atlantic have taken over with them the tradition; and they have their 'whitehalls' for festive and popular gatherings. It is a fact, not without interest to any true-born Londoner, that the lofty building, called the White Tower, in the Mediaeval citadel of this port of London, seems likely to owe its name to having been whitewashed externally. In a very fine illuminated manuscript of the fifteenth century, preserved in the British Museum, a carefully executed view of London is introduced, in the foreground of which appears this great fortress; and, while the general masonry of the building is coloured naturally, and in a somewhat low tone; the tower, with its four angle turrets, stands out, prominently and conspicuously, white. So marked is the distinction that it cannot have been so represented in the manuscript without a special purpose, which was probably that of identifying the building.

If, as I have said, white is calculated to produce in the mind a cheerful impression; black, on the other hand, has ever been viewed in an opposite sense. Thus, from remotest times, black was typical of mourning. Atra and lugubria were synonymous words. Even the sacred rhapsodist, when he would describe a scene of terror and despair, says, "All faces gathered blackness."

The same distinction is alike applicable to those colours which, on the one hand, partake of the character of light, and those which, on the other hand, are characterised by an absence of light. It is not for us here to inquire whether there may not be physical causes assignable for this mental phenomenon; but that the animal spirits may be raised or depressed by the mere contemplation of different colours; that colours, according to this quality, may be productive of positive pleasure or pain, irrespective of any considerations of harmony and discord, are facts within the reach of every man's experience, although probably it is beyond the reach of human intelligence satisfactorily to explain them.

The power of colour to produce strong emotions of the mind has been at all times recognised. Thus, when the sacred writer desired to raise in the mind a picture, in the highest degree poetical, of the holy city, he represented that the building of its wall was *jasper*, and its foundations as

being garnished with *sapphires*, with *calcedony*, *emerald*, and all other stones of resplendent colours: the gates were of pearl, and the streets of pure gold. No doubt the value and rarity of these precious substances were also calculated to excite the imagination; but their beautiful colours were evidently an important ingredient of the vision. Sometimes our admiration of an object is excited by describing it to be "like unto a jasper" or "to a Sarden stone," or even to "a rainbow." The Bible is indeed full of evidences of the high appreciation of colour as a source of beauty and pleasure. In the Homeric writings also we may find abundant evidence of this natural and pervading feeling. Azure and vermilion are constantly used as typical, as it were, of regal splendour. No doubt every classic scholar can greatly extend these illustrations.

I will not detain you with quotations from Chaucer, Spenser, and others of our poets, in whose minds rich colouring seems ever to be associated with ideas of magnificence.

I do not know how far I shall have been justified in so long a digression; but I trust that I have at least established enough to warrant me in saying that the poet, of whatever country, or age, or creed he may be, will be always found to regard colour as an important means of raising in the mind an image of beauty or magnificence.

I am very sensible that there is a vast—an almost incalculable—difference between the works of the poet and of the architect. The one has but his imagination to draw upon, whilst the other has to seek the materials of his work from a very different source; and too bold a draught upon his imagination would be the likeliest means of bringing his career to an untimely end. Still there is an analogy, remote it may be, but real, and, I think, manifest.

I have said that I regard it as a principle of our art, in the treatment of colour in exterior architecture, that the colouring shall be consistent in character with the purpose of the building itself; and I have adduced various notable instances of the adaptation of colour to the nature of the building. The subject is, indeed, fruitful. I might easily adduce abundant proof to show that, as bright colouring has ever been regarded as productive of a gay and cheerful effect, so dark or sombre hues are equally effective in raising feelings in harmony with the grave and serious purposes of some buildings.

This, indeed, seems obvious. Who would not be at once struck with the excessive inpropriety of bright coloured decorations on the exterior of a prison, or a cemetery? and, may I not add, too, of a church? For, however becoming it may be to lavish on a building destined to the service of God, all the best offerings of art and genius, I am by no means convinced of the propriety of chequering over the exterior of a church with bits of bright coloured materials.

Even in the interior of a church it is, to my mind at least, open to question, whether a true religious feeling is not better expressed by the grey, sombre tints of old stonework, than by the gorgeous paintings of gilding and painting, inlaying, and polishing, by which piety is supposed by some to be measured. Beautiful as are the Ste. Chapelle and the church of Ste. Geneviève, at Paris, and the Hof Kapelle, at Munich, it is impossible not to regard them rather as æsthetic triumphs than as evidences of the devotion of the builders.

It is very long since I saw the church of Sta. Maria Maggiora, at Rome, prepared for the midnight ceremonies of Christmas Eve; but I have a vivid recollection of the enchanting effects of the bright polished marbles and the gorgeous gilding, the crimson satin-embroidered banners, and the green festoons; yet the impression produced on my mind was that I saw before me the most elaborately beautiful *salle à danser* in the world.

It is, I repeat, a principle of paramount importance that every building should be conformable, in the character of its architecture, to the nature of the purposes to which it is destined. There is, in the treatment of colour in exterior architecture, yet another consideration, which must by no means be overlooked; viz., that treatment should always be influenced by the *site* of the building. The *genius loci* must be consulted. The strong positive red of bricks, for example, extending over any bulky object, presents an unpleasant contrast when surrounded by a green foliage; and, when these bricks are of a dark dingy tone, they sink into the landscape, and the building, as such, loses proportionately its value.

For this obvious reason stone is a very preferable material. We must all have often had occasion to observe how a white building brightens up a

landscape; how the white cottage sparkles in the distance when set off by the surrounding deep green tones.

It is true these white buildings may cease to be so pleasing when they occupy too much space in the eye: a great white mansion is always best seen when half-concealed by foliage; and this may suggest more artificial modes of subduing the intensity and breaking up the monotony of these large white masses. For this reason the intermixture of stone and brick is often far preferable to the use wholly of one or the other; but the use of two qualities of stone, the one of lower tone than the other, is perhaps a still more unobjectionable measure, provided the difference in tone be not too violent.

In civic architecture, other special, local considerations have to be taken into account. There are in towns seldom any pleasing natural accoutrements to assist us. House is opposed to house: each has to contend with the damaging effects of its neighbour. In fact our most frequented streets present, for the most part, a very inharmonious medley of sizes, forms, and colours; like a Dutch concert, where each performer, it is said, plays his own particular tune.

Still it is very questionable whether even this scene of confusion may not be regarded as less objectionable than the insipid uniformity of some modern German towns, such as Stuttgart, for example, where it would appear to be almost impossible for a man to know his own house from his neighbour's, unless assisted by some private mark or some familiar badge. The severest military discipline seems to pervade even the architecture of the town; and the houses are drawn up in array like soldiers on parade. We might say of them (taking a little liberty with a well-known text)—

"House nods on house, each column has a brother;
And either terrace just reflects the other."

Such dull uniformity seems to me more offensive than the most tumultuous disorder.

In the architecture of towns and cities we are seldom called upon, as in rural situations, to subdue or neutralize any excessive whiteness. In the large towns of England, at least, *root* soon clothes the nakedness of a new stone building, and too effectually lowers its tone. This might suggest the expediency, in such a climate and with such an atmosphere as ours, of avoiding the use of any coloured material of too low a tone. Those who have seen Schinkel's elaborate work in deep red terra cotta—the Bauschule, at Berlin,—will have regretted that so much intricate and beautiful workmanship should result in producing so ponderous an effect. Light loses its quality of brilliancy, and shadows lose their force and distinctness, when the façade is veiled, as it were, in this monotonous, deep tone.

I think, then, that it will be admitted by all that a certain amount of a variety of colour, in a piece of architecture of any considerable extent, adds to its power of pleasing by giving it spirit and animation.

But it is in this as in most other matters dependent on human judgment; the greatest difficulty—that which is the real touchstone of talent—is to know where to stop, and to determine how far to carry this variety of colour.

In some towns on the Continent we see washes of green, yellow, red, and other gaudy colours, used to an almost ludicrous extent; and in nothing does the Asiatic origin of a large portion of the population of Russia show itself more than in their love of gaily-coloured architecture, both domestic and ecclesiastical.

At Moscow, near the Kremlin, is a church dedicated to St. Vassil, whose fantastic and indescribable architecture is rendered still more barbaric by the brightest colouring, up to the very summits of its highest towers. The bulbous-shaped domes that, in singular profusion, surmount the towers of the adjacent palace—or group of palaces—designated the Kremlin, glitter with gold and paint; whilst the iron roofs throughout the city seem all to be green or red.

In their country-houses, too, I hear of an excessive use of bright greens and reds.

These are, it is true, the excesses ever attendant on an uncurbed, uncultivated taste; but perhaps on that very account they the better illustrate the natural tendency of all minds, both the wise and the simple, to derive pleasure from colour.

Let us, however, be moderate in our indulgence of this pleasure; and let us be discreet in the manner, as well as in the measure, of our indulgence.

My own predilections are certainly in favour of almost limiting the varieties of colour on the outside of a building to those which are afforded by the natural hues of the materials themselves.

I feel averse to resort, in exterior architecture, to the use of artificial colouring, except for temporary or experimental purposes, when, of course, the practice is quite admissible; but I would never willingly resort to painted external decorations as permanent work; if, indeed, any work so executed can be called permanent. Where oil is the chief vehicle adopted for the colour, no doubt it resists the weather for some, even for many years, perhaps, although its purity and brilliancy may speedily depart; but if oil-painted decorations be objectionable for their deficient durability, how infinitely more so are the ephemeral decorations of other pigments. I well remember when at Munich my great concern to find that, by casually leaning against the wall of a great public building, I had transferred on to my coat no inconsiderable portion of its Pompeian ornamentation.

I hope we shall never be driven, by the urgency of other demands on the public purse, to resort to such means of beautifying our public buildings. There, at all events, let our colours be natural. Nor will this obligation impose on us any inconvenient limits. Nature is rich in coloured materials of various hues: we have in common building stones a wide range from red sandstones to chalk, and our marbles are almost endless in their variety of colour.

I would, however, except from this condemnation of artificial colouring one most important source of beauty. I refer to the use of those earths that, by burning and vitrification, and by chemical processes, are brought to the condition of naturally-coloured substances. There need be no apprehension as to their permanency: they will outlast most stones; and their colour never fails them. I have already adverted to the use of this artificial material, and I now only remind you of it to show what abundant means we possess of colouring our architecture, without resorting to the paint-brush and to the wash-pot.

I have now touched upon most of the salient points of the subject to which I have appropriated this evening. I feel too well aware how little can be effected within the narrow compass of a single lecture; but I believe the value of such remarks as I may address to you depends wholly on their suggestive nature. Whatever truth there may be in the thoughts expressed, they are wholly inert and valueless unless they are made by you the groundwork of further thoughts, and excite in your minds a desire to pursue farther the inquiry into the subjects touched upon.

The seed that falls upon barren ground will take no root, and be productive of no good result; whilst that which falls upon good ground is at once kindly received, and springs up and brings forth fruit, some twenty-fold, some fifty, and some one hundred-fold, according to the richness of the soil and to the care of the husbandman.

To quicken the energy, to smooth the path, and to facilitate the progress of the really studious learner, is the anxious desire and aim of this Academy: you will accept this my assurance that the student who, in his earnest exertions to improve himself, shall seek such aid and advice as I feel myself competent to give, will find in me no grudging or unwilling, but rather a most ready and cheerful adviser.

STONE PRESERVATIVE PROCESSES.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL meeting of members was held on Monday evening last, at the house in Conduit-street.

Mr. Digby Wyatt, vice-president, occupied the chair.

Mrs. F. H. Lewis, honorary secretary, read a letter which had been received from the Town Clerk of the Corporation of Hereford, in answer to a communication addressed to the Corporation by the Institute some time since, on behalf of the ancient Market-house or Townhall, then threatened with destruction. The letter stated that the Corporation much regretted that they could not comply with the wish of the Institute to see the Market-house restored; that its position was extremely inconvenient, blocking up in part a narrow thoroughfare; and that the present state of the city funds would not allow of their restoring an edifice which, when finished, could not be turned to any useful purpose.

The Chairman said, with regard to the special business of the night, namely, the consideration of the various processes which had from time to time been submitted for the preservation of stone, that four years had elapsed since they had an animated discussion upon a paper read on the subject. During the interval time had been afforded for practically testing the merits of the

various processes, and it would be interesting now to learn the actual condition of the surfaces which had been subjected to their action. With this view Mr. Tite invited their attention to the observations which Mr. Tite was about to make.

Mr. Tite, M.P., said,—I have to express my thanks to the Council of the Institute for the opportunity they have given me of promoting the discussion of this evening; and, on my own part, for their permitting me to open it. In a meeting like this, composed mainly of professional architects, the great importance of the subject we have met to discuss will be sufficient justification for the step I have taken. For I think, as a profession, we must feel that nothing can be of more importance to us than to endeavour to discover the causes of the failure of the principal material employed in the construction of the Palace of Westminster, and to inquire into what steps ought to be taken to arrest the decay which, at so early a period of its construction, has manifested itself, in a manner so marked as to render it an object of European notice and of national regret. A building of vast extent, just finished, built without reference to cost, and, as far as possible in construction, of materials intended to last for an indefinite period of time, to defy the ordinary causes of accident in ordinary edifices;—a building of which we are justly proud as a nation for the combination of artistic learning and science, with the greatest skill of the best of English artificers, acknowledged by all to be the best in the world. And yet, when the sound of the finishing strokes of the axe and the hammer have hardly ceased, it is found externally in a state of lamentable decay;—a decay so extensive that I think the professional experience of any architect cannot find any parallel whatever. It is true we have seen, and are constantly seeing, in this and other countries, the necessity for restorations, various in extent and character, and many of them due to the same cause as that we are now about to consider. And in this I may quote the cases of Notre Dame, St. Denis, Chartres, Reims, and other continental celebrities; or, in our own country, the very familiar ones of Henry VII.'s Chapel, and Redcliffe Church, Bristol. But then, these cases of decay are found after the lapse of centuries, and not of years, and are due to causes perfectly intelligible. Not so with the case before us. Here science and caution have been exhausted; and at the outset no probable foundation for the result which has followed was allowed to exist, and no expectation of failure could have been reasonably surmised. Under these circumstances, I have asked for the present meeting. It is a question which concerns us not only as architects. Though we may refuse to allow ourselves to be involved in the reproaches so ready to be cast upon us, yet we must amongst the ranks of our profession have all the experience which exists among living men on the subject, with the technical skill best able to appreciate any proposition which may be made for the amelioration of this great evil. For myself, in proceeding, let me say, I have no personal object to serve; I have no theory to maintain; no likings or dislikings of individuals. I will endeavour to state everything candidly and fairly, and without bias, with a view to promote discussion in the widest and most friendly spirit; and I trust the spirit I desire myself to show I may be enabled myself to realize; and in so doing I feel I shall best promote the object I have in view,—the obtaining of some practical and useful result on this much-vexed question.

Mr. Tite then proceeded to observe that the notice placed on the paper suggested that he intended to give some account of the processes used by the ancients for the preservation of stone. If last year he had been told that such a practice prevailed among the ancients, he might have been inclined to deny the statement; experience of their buildings induced him to believe that they made no such attempts, because none were necessary in their climate. That they decorated their buildings, and, in some cases, their statues, with colour, no one could doubt for a moment; but the marble of which they erected their public buildings and houses required no artificial covering to protect it from the ravages of time. Recently, however, notice had been drawn to two processes,—one known to the ancients as Zopissa, and the other as Eneastic. With regard to zopissa, he could not find that any reference had been made as to its use in connection with stone; but Dioscorides and Pliny had referred under that term to some process by which the ancients used to coat their ships. Noah, no doubt, coated the ark, as he was directed, with the pitch and bitumen of the country; and the

Greeks and Romans seem to have done the same. In fact, he had no doubt that the process of "paying" vessels, adopted by the fishermen of the present day at Brighton, was precisely similar to that in vogue among the ancient Greeks and Romans. In the 98th chapter of Dioscorides, a statement was found that the Greeks scraped the pitch and wax off their old ships; remelted it; and then applied it as paint; by which means it acquired greater resisting power to the action of the water than ordinary pitch. The same stuff was also recommended as a medicine for the cure of boils. Pliny gave pretty much the same account of the process, which it was evident was used exclusively for the protection of ships, and not for the preservation of stone. He now came to the process used by the ancients, and known as encaustic. Vitruvius had left a very full account of the mode in which it was applied. It appeared that they burned marble into a quick lime, and then used it as a plaster, very much as we ourselves did; and, after the third coating, painted the fresco. Vitruvius also described the manner in which white lead and verdigris were made; and any one who had ever been in a white-lead manufactory would see that the plan adopted in the present day was precisely similar to that of the ancients, with this exception,—that we used tan instead of the twigs as mentioned by Vitruvius. With regard to the process which appeared to have been known to the Assyrians, Sir Henry Rawlinson mentioned having met with a solution of Silica, applied to give a finish to the surface on which was described the cuneiform inscription of Darius Hystaspes. This silicious varnish was thus described by Sir Henry Rawlinson:—"It would," he said, "be very hazardous to speculate on the means employed to engrave the work in an age when steel is supposed to have been unknown; but I cannot avoid noticing a very extraordinary device which has been employed apparently to give a finish and durability to the writing. It was evident to myself, and to those who in company with myself scrutinized the execution of the work, that, after the engraving of the rock had been accomplished, a coating of silicious varnish had been laid on, to give a clearness of outline to each individual letter, and to protect the surface against the action of the elements. This varnish is of infinitely greater hardness than the limestone rock beneath it. It has been washed down in several places by the trickling of waters for three and twenty centuries, and it lies in flakes upon the footledge like thin layers of lava. It adheres in other portions of the tablet to the broken surface, and still shows with sufficient distinctness the forms of the characters, although the rock beneath is entirely honeycombed and destroyed. It is only, indeed, in the great fissures, caused by the outbursting of natural springs, and in the lower part of the tablet, where I suspect artificial mutilation, that the varnish has entirely disappeared." The coating described by Sir Henry Rawlinson could not, in his (Mr. Tite's) opinion, be a varnish, as varnish was composed of gum and spirits of wine, or gum and turpentine, neither of which was sufficient to resist the action of the elements for any great length of time. He fancied that the rocks were composed of sulphate of lime, and that the trickling of the water had produced the appearance, described by Sir Henry Rawlinson, and also the polished coating. The carving discovered at Nineveh had, he understood, a somewhat similar coating, which, however, might have been a silicate artificially applied by the ancients at a very early period; and, admitting such an hypothesis, it was a remarkable application of a scientific truth. He would now proceed to consider what, under the present state of circumstances, ought to be done to arrest the decay of stone in our public buildings. The stone we now used was limestone, stone bound together by carbonic acid. We found our building stones, as the French did, at the top of our tertiary system; we also used the oolite, such as that found at Bath. The Portland stone was found in one of the upper beds. When it was proposed to build the new Houses of Parliament, we were not content with the excellent stone which had been tried successfully in other public buildings in the metropolis, but we desired to get better. In the words of the Italian proverb, we wished to do better than well; took physis, and,—here we are. A royal commission was appointed to select the stone; and, having visited almost every quarry in the kingdom, they at last hit upon one between Derby and York, which they fancied to be indestructible. It was called a dolomite, but it was in fact the magnesian limestone from which magnesia was manufactured. An elaborate and able report was

issued by the commissioners; and the suggested cause of failure now appeared to be, that, whereas the stone in its crystalline form is all but imperishable, no stone decays more rapidly in cases where crystallization has not taken place. It was evident, therefore, that a great deal of care should be taken in selecting the stone. This remark also applied to other descriptions of stone. The Caen stone, for instance, if well chosen, would last a long time; yet, at Buckingham Palace, it decayed in a few years; whereas a similar description of stone at Rochester Cathedral had stood for ages. The same remark applied to Bath stone and to Portland stone. With regard to the latter, he knew an instance in which the stone brought from the west of the Isle of Portland gave the greatest satisfaction; while that from the Bill of Portland had decayed in a short time. The architect, however, was not to blame; for all he could do was to recommend a certain quarry, and direct that a competent person, like Mr. Smith, should be appointed to mark every block. An illustration of the advantage of selecting the stone with care was supplied in the case of the Geological Museum in Jermyn-street. The stone used there was a magnesian lime-stone, and it showed no sign of decay, because it had been carefully chosen. (The honourable gentleman then proceeded to make a number of experiments to show in what manner sulphuric acid acted upon lime-stone, and liberated the carbonic acid).

These experiments were, he said, sufficient to show the manner in which the acid in the atmosphere destroyed our calcareous stone. The extent of the decomposition thus going on was further proved by the fact that, whereas, in the pure air of Switzerland and Canada, ridges and pinnacles of public buildings, tipped with black tin sent from England, endured in a burnished state for years, the same material would become black and corroded in a few months if used in England. With regard to the remedies to prevent decay, three different kinds had been suggested from time to time, which might be described as bituminous, oleaginous, or partaking of oil, and silicious. About five-and-twenty years ago, when some of the great streets in the City of London were laid out by Sir Robert Smirke, a very curious cement, known as Hamlin's, of a very beautiful colour, was brought under his notice, which he eventually adopted. It was composed of sand or ground stone, grey and red oxide of lead, and was made into a paste by the addition of linseed oil. Being curious to know something of the properties of this compound, he submitted a portion of it to Mr. now Professor Faraday, and he told him at once that it was too decay in the course of time. He asked Mr. Faraday to show him how it would go; and, therefore, he stuck a bit of it in a candle, and it blazed away like so much firewood. Experience showed the truth of the criticism. The particulars of several patented inventions for the preservation of stone might be ascertained on reference to the Patent Office. He had obtained several. Of these the first in priority of date was that of Mr. Bethell, the brother of the Attorney-General, for preserving timber by steeping it in creosote. Mr. Bethell claimed a right to use his invention for hardening stone, but he (Mr. Tite) was not aware that it had ever been applied to that purpose. Next came the patent of Mr. William Hutchinson for making pasteboard and waterproofing for the roofing and the sheathing of ships, &c. He also proposed to apply it to stone. Then came the invention of Mr. Daines, which consisted of sulphur boiled in certain proportions with oil. This compound was named in the "Pharmacopoeia" as a medicine, under the designation of *oleum sulphuratum*. After mentioning Mr. Daines's, then came the patent of Mr. Szerelmey, dated in the year 1851. He described it as a preparation for rendering walls and other structures waterproof; and the materials included water, blood, ground brick-powder, copper and iron slag, and other ingredients, mixed in certain proportions, and boiled together. A substance consisting of resin, oil, grit, and calcined flint, was subsequently added; and, when ready, the stuff was applied as a paint. Mr. W. E. Newton's patent ranked next in priority; and it might be described as a silicious substance, uniting the inventions of Fuchs and Kuhlman, as set out fully in the Journal of the Society of Arts, of July, 1859. The last invention was that of Mr. Ransome, which was a preparation for the manufacture of artificial stone. Having described at some length the German process, which, he stated, had been successfully applied at Lille, Berlin, and other places, and which consisted of a liquification of glass, Mr. Tite inquired whether it might not be possible, in an age so fruitful of scientific

results as the present, to apply this water-glass to dry stone, so as to coat and protect it. He confessed that he looked forward with some hope to water-glass being eventually the medium for preserving stone from decay, because he considered that it offered the greatest prospects of success. Before concluding, however, he wished to say that he thought they were much indebted to the late and the present Chief Commissioner of Works for the schemes with which they had considered all the finances recommended to them; and he earnestly hoped that something might yet be done to remove what might be called an architectural disgrace. Mr. Smirke had, in a letter which would be read, thrown out a suggestion, that the whole subject should be referred to a select committee of the Institute, to examine specimens and hear the explanations of the various parties interested. Such a committee might, no doubt, be productive of good; and, if one or two chemists of eminence were requested to give the committee their assistance, it might be more satisfactory. The inventors, whether foreigners or Englishmen, need not, however, be afraid of any injurious results arising to them; for, although, in the present state of chemical science, it was absolutely impossible to keep a secret; still, if any inventor had a valuable remedy to offer, he might depend upon being treated with justice and consideration by the Government and the country.

Mr. Lewis then read a communication which the Council had received from Mr. Sydney Smirke, containing the expression of his regret that he was prevented from being present that evening. Mr. Smirke said,—

"I deeply regret my inability, through indisposition, to attend at the Institute this evening; not only because the subject is of vital importance to our art, but because every member ought, by his presence, if possible, to express his sense of gratitude to Mr. Tite for undertaking so difficult, and, in some respects, so tedious a task as that of canvassing the relative merits of rival processes."

Of the three principles, that of laying on zopissa ranks lowest in my estimation: there has been so much mystery and mystification about it, and there has been so much vain boasting about it, that I own I have acquired a prejudice against it, which may warp my judgment. I will, therefore, not say more than that no client of mine will use the zopissa by my recommendation.

With respect to the silification process it is simple, intelligible, and purely scientific in principle; and, if the theory of it can be practically and satisfactorily worked out, it would leave nothing more to be desired. If a piece of pure silica can be made permanently to adhere to the face of the stone, so transparent as not to affect the colour of the stone, and so thin as not to destroy the sharpness of the carving on the stone, what more do we want? But I have not yet been satisfied that all these desiderata have been secured. It would, indeed, be a triumph of art if nature's process could be so effectually re-created. The mechanical deposits of carbonate of lime in the interior of boilers and pipes; of sulphate of lime on stalactites; and the deposit of the salt of lime on urinals, &c., are all *zopissa* at first, and only become laminated after the process of deposition has been so largely continued as to have accumulated a considerable thickness of solid matter on the surface receiving the deposit.

These analogies are discouraging; and so many years have now passed since the scientific world was first put upon this scent, that I begin to fear that a perfectly satisfactory result is not forthcoming.

With regard to the sulphur process I need not say much; for the results of my experience, such as it is, are faithfully and exactly stated in the printed papers circulated by the inventor of that process.

The forty days of experiment on the north side of the Conservative Club are within the reach of every one's observation; and, as far as three and a-half years' experience, proves the experiment is satisfactory; of this I will only say *quantum valent*.

Should the discussion this evening result in the appointment of any committee to prosecute this important inquiry, carefully and systematically, the Institute may rely on my zealous services, whether on the committee or otherwise."

The Chairman said that, as they could not hope to conclude a discussion of so much interest that evening, so as to do justice to the subject; he had to announce that it would be resumed at the next ordinary meeting, on the 4th instant. He hoped, however, that, as some little time now remained for discussion, the meeting would be favoured with observations from some of the many eminent scientific gentlemen who had done them the honour to attend.

Mr. Burnell said he had devoted special attention to the subject, and had been afforded peculiar facilities for forming an opinion upon the various processes submitted to the public. He had for years been connected with the application of building stones, and he had seen in what manner they had decayed, not only in England, but in all portions of modern Europe. The subject, however, to which he had chiefly and more immediately directed his attention, was the lamentable decay in the stonework of the new Houses of Parliament,—a building upon which modern science had been exhausted, but which, unfortunately, while yet new, was beginning to decay. This might be regarded almost in the light of a national misfortune. With regard to the various processes for preserving stone, he was of opinion

that we had fallen into a mistake, because we ought to have addressed ourselves at first to the task of finding out a stone which would not decay. We had already, as Mr. Tite had well remarked, an excellent stone which would bear the London atmosphere, but we were not satisfied with it. It should be remembered, in discussing a question of this nature, that the crystalline condition of stones had a great bearing upon the question of their existence. The crystalline stone did not decay like that of an earthy nature. The stone used in the construction of the new Houses of Parliament was not the real dolomite, but an amorphous or earthy one, and hence the decay in the building. The question now was, what was to be done with the building. The amorphous or earthy stone was rapidly decaying: the sulphate of ammonia in the London atmosphere was acting upon the carbonate of magnesia. If they looked all through the new Houses of Parliament, they would find that the decay was not in the string-courses, but upon the small bead underneath, which was worn away in several places. The decay might also be detected about the line under the mouldings of the parapets, but not on the parapets themselves, or where moisture lay upon the buildings. It was at the point that might be called between wind and water. The question was, how was this to be prevented; and his own impression was, that the only way would be to devise a cement which would prevent the disintegration of the stone. With regard to applied coatings, it would be found that, wherever the stone was hermetically closed, the process of throwing off the salt had gone on under the coating. In the Speaker's Court the inside front had been coated no fewer than five different times; and yet the exfoliation was going on as before, and flakes of the stone might be picked off the ground. Some time since he had, in conjunction with Mr. Bidder and other gentlemen, examined the stonework in process of decomposition; and Mr. Szezelmeijer had inserted a letter in a newspaper to the effect that the process had not been repeated so many times as was alleged, and had added, that Mr. Bidder and the other gentlemen were ignorant of what decomposition meant. This, however, was a personal matter, to which he would not again refer. The great point to be achieved was to arrest the decay; and he fancied that might be accomplished by painting the stone with some insoluble cement. The next question then was, what would make such a cement? He firmly and conscientiously believed that some precipitate of silicate of lime was the only one which would answer the purpose. There were, however, difficulties in the introduction of it. The question was essentially a chemical one, requiring great skill, science, and delicate manipulation. The whole subject was, it must be admitted, involved in doubt and obscurity; but he thought that of all the inventions referred to that evening, Mr. Ransome's was the best, although he would not pin himself to it until full opportunity had been afforded to ascertain what further experiments might effect. He was in favour of referring the whole subject to a committee, composed of eminent chemists and architects, who, when brought together, could mutually assist each other in arriving at a satisfactory solution of the difficulty.

The Chairman said, that, as the head and front of the offending appeared to centre in the new Houses of Parliament, and as they had the honour that evening of seeing among them the Chief Commissioner of Public Works, he hoped that right hon. gentleman would state what course the Government felt disposed to take in reference to the matter.

The Right Hon. W. Cowper, M.P., said he was much gratified by the able comments which his honourable friend, Mr. Tite, had made on a subject which was well worthy the consideration of the Institute; for it was entirely to such a body as that which he had now the honour of addressing, that the Government and the public looked for guidance and help. Having, as Chief Commissioner of Works, the care of the new Houses of Parliament, he was anxious to avail himself of all the advantages which science and experience could yield with regard to the preservation of the fabric. The late Sir Charles Barry was the person to whom he had naturally looked for advice and assistance; and he found him extremely anxious that something should be done with reference to preventing the decay of the stone. Sir Charles Barry seemed to be well aware that the stone would not be found to answer the expectations formed of it; and he regarded with some favour the invention patented by Mr. Szezelmeijer. Under these circumstances he (Mr. Cowper) had the pro-

cess submitted to Professor Faraday and Sir R. Marchison, and ultimately Mr. Szezelmeijer's process was applied to that portion of the building which was most in want of it. In his (Mr. Cowper's) opinion it was not what should be applied to the whole of the building; and, for his own part, he would rather wait until scientific persons had reported upon what covering or coating would be most desirable for the rest of the building. He for one would therefore be very glad if a committee of the Institute would go fully and carefully into the subject. From what he had been able to gather (and his opinion was much confirmed by the remarks which had fallen from Mr. Tite), he thought the application of water-glass would be the direction in which they were most likely to find what was wanted. It might be remembered that an application of it had been made to a portion of the river front some time ago; but he believed the experiment was not made under very satisfactory conditions. It had been used, however, lately, on the frescoes of the House of Lords, to the satisfaction of the artists themselves. Upon the present occasion he would rather not go into the scientific branch of the subject, but would confine himself to saying that the Government were anxiously looking forward with anxiety to the discovery of some proper and satisfactory means of preserving the walls of this magnificent structure. With regard to the observations of Mr. Burnell as to the places in which the decay had arisen, the subject had not yet met with sufficient attention. It was under the string courses that it occurred, but it was a very partial decay. He would not detain the meeting by any further observations, except to say that the Government were extremely solicitous that something should be done, and that as Parliament had liberally voted a sum of money to defray the expense of coating the building, it would be highly satisfactory to them to know that Science had discovered some means of effectually rescuing a noble public structure from the decay which seemed rapidly descending upon it.

Mr. G. G. Scott, in proposing a vote of thanks to Mr. Tite, observed that he had brought the subject forward in a very fair and complete form. When he said "fair," he did not mean to convey that Mr. Tite had not denoted the direction to which his own mind gravitated; for he had inclined to one particular view, and it was desirable he should have done so, because the man who had no opinion to offer one way or the other was not precisely the authority whom one would wish to consult. He (Mr. Scott) thought it was quite as likely as not that Mr. Tite was right in the view which he had taken. The mason attached to Westminster Abbey had tried a long series of experiments, and the time over which they were made extended from two to five years. This person (Mr. Poole, of Great Smith-street), who was most intelligent and experienced, would, he was sure, be happy to afford an opportunity to any member of the Institute to examine the results of his experiments; which, however, were rather hard to get at; as the stones operated upon were on the highest parts of the building. Of these experiments he might say that no one had been thoroughly satisfactory; all having failed, some slightly and others entirely. He was bound, however, to admit that all had been tried under great disadvantages; having been tried on Caen stone in rapid course of decay. With regard to the suggestion of referring the subject to a committee of the Institute, nothing could be better as far as it went. There was already a standing committee, the formation of which he himself had proposed four or five years ago, which had met but two or three times, but which had not made any report. He thought it would be desirable, should a special committee be appointed, to work in unison with the Institution of Engineers, who felt almost as great an interest in the subject as the architects. A joint committee, composed of members of both Institutes, would, he thought, be very desirable, as also the assistance of eminent chemists acquainted with the properties of the stone and the chemical action of the atmosphere upon them. It also occurred to him that they ought not to saddle the Royal Commissioners with the failure of the stone used in the New Houses of Parliament; because the stone so used was not, in point of fact, that which they recommended. The stone recommended was the Bolsover stone, of which they said the Norman tower of Southwell Minster was built. The commissioners, however, finding that the quarry from which they hoped to get the stone did not contain a sufficient quantity for their purpose, applied to another, a mile or two north of it, called Mansfield Woodhouse Quarry, from which the stone was taken, which

was subsequently used in the lower portion of the New Houses of Parliament. It had since transpired that this was the very description of stone of which Southwell Minster had been built; and a mason who had been employed on the lower portion of the New Palace at Westminster had informed him that the Mansfield stone had stood, while the other had decayed. He remembered a circumstance occurring, of some interest in connection with the subject under discussion, to which he would refer, as showing the necessity of selecting stone with care. About the time when the New Houses of Parliament were commenced, he was employed to design what was called the "Martyr's monument," at Oxford. The committee were divided in opinion as to the best stone to select; some being in favour of the Roche Abbey stone, and others of the Bolsover stone. He suggested that perhaps they might be able to find a stone which would unite the good qualities of both quarries; and, after some search, he was fortunate enough to find an old quarry at Mansfield Wood (that, perhaps, from which the stone had been taken for Southwell Minster), which he had no hesitation in saying was the finest stone in the country.

Mr. Godwin, V.P., said that the effect of the processes to which the New Palace at Westminster had been subjected were most distressing; in some parts, it looked as if it had been white-washed; so that, to all intents and purposes, he might as well have had combed Houses of Parliament. He thought, therefore, that the Government would do well to pause before they allowed any further application of washes on large surfaces, until they were in possession of a report from a competent and disinterested committee of architects and chemists. The great misfortune heretofore was, that the discussion of the relative merits of competing inventions had been carried on by gentlemen who were to some extent interested parties. There was a certain reason why they should see things in a certain light; and the consequence was that no result satisfactory to the public had been arrived at. When, some time ago, Mr. Burnell read a paper on the subject at the Society of Arts, he (Mr. Godwin) ventured to urge strongly that time should be given to test the merits of the several inventions; and nothing that had since occurred tended to alter the opinion that he then formed, in favour of a full, calm, deliberate, and disinterested examination. To Mr. Tite their best thanks were due, not only for the able and elaborate manner in which he had introduced this subject; but for his uniform attention to every subject calculated to advance their art; and he begged cordially to second the vote of thanks proposed by Mr. Scott.

The Chairman in putting the motion (which met with a unanimous response from the meeting) said that he hoped it would be in Mr. Tite's power to attend the next ordinary meeting of the Institute (February 4th*), when the subject would be revived. He also trusted that the many eminent scientific gentlemen now present would make it convenient to attend, and use the cards of invitation already forwarded to them. With regard to the committee, he was sure the council of the Institute would be very glad to give any assistance in the same power to the House of Commons: at the same time, he thought that public expectation should not build too much upon the report of any committee which the Institute might appoint. If Mr. Ransome's remedy (which appeared to offer the greatest advantages) was in reality the best, it would be desirable to verify it; and, with that view, the best committee that could be appointed would be one by the House of Commons, including architects, engineers, and men of science; whose report would have far greater weight than any report could emanate from a committee of the Institute alone. This, in his opinion, would be the most feasible and satisfactory manner of arriving at a practical remedy, for an evil the magnitude of which they all deplored.

NOTES ON ARCHITECTURE IN RUSSIA.

ST. PETERSBURG.

THE approach to St. Petersburg by sea, which is the usual access from Western Europe, though not grand or majestic, is peculiar and interesting. As soon as the Gulf of Finland becomes narrow enough to allow both its shores to be visible at once, the first object which strikes the eye is the Toll Beacon, a tall tower standing alone amidst the waste of waters, as an advanced sentinel, to give the alarm on the approach of danger. The

* The paper on "Stamped Leather," announced in our last, will, in consequence of the adjournment, be postponed.

island and town of Croustadt, with its bristling batteries and crowded docks, next leave in sight, and the panorama gradually closes in. On the right shore, Oranienburg and Peterhoff, with their palaces and villas embosomed in trees; on the left the external fringe of the numerous islands at the mouth of the Neva, low and flat, but covered with verdure. The centre of the picture is still vacant; but, if the day be fine, and the sun unclouded, a distant bright spot may be descried shimmering on the horizon like a star of the first magnitude. This marks the golden dome of St. Isaac, and is the dazzling reflection from its glittering surface. As we steam along, turrets and spires gradually arise out of the deep; the shores converge; the green roofs of the buildings are discernible; small steamers are darting about; the huge hulk of a three decker looms large on the view; and, at a sudden turn, the Neva, with its broad quays lined with lofty buildings, seems to open to receive us. We pass the dockyard and Arsenal on the right; and, threading our way along the crowded river, run alongside the quay opposite the Custom House depot.

The first appearance of the city from this access is very effective; from the expansion, the breadth, the colossal scale on which everything appears to be set out; and, even after a few days' sojourn, the impression made by the first *coup d'œil*, remains as striking as ever.

There is such a width about the streets, and the size and number of the public buildings are so great, as to give a gigantic character to the whole. The river Neva, at St. Petersburg, is about the width of the Thames at London-bridge. Standing on the only permanent bridge which spans its waters, the eye ranges on each side along a succession of enormous blocks of building devoted to public purposes, which it would be difficult to parallel elsewhere. Similar huge piles are found in all quarters of the city, to an extent, that, if the epithet be worth anything, St. Petersburg may, with truth, be styled a city of palaces. The whole of the buildings are white or stone colour, and apparently robed with copper, which adds much to the effect, which is heightened greatly by the number of gilded domes glittering in the sun's rays. On a nearer survey, much of this apparent magnificence sadly deteriorates. The streets are wide, it is true, but most execrably paved with the roughest description of boulders, which are sunk into large holes, and seem as if they had never been repaired within the memory of man. Strips of the Nevskoi Prospekt, and other principal streets, are paved with wood in hexagons, some of which is new and in good repair; but, where it has been worn for some time, it is nearly as bad as the stones. This may be accounted for by the fact that, in this metropolis of a great empire, the primitive system is still maintained of every man paving the street before his own door in his own way. It need scarcely be added, that the dust in dry weather and the mud in wet, bid defiance to all scavenger operations, which are accordingly never attempted. The palaces and buildings, which look from afar so grandiose, on a nearer inspection turn out to be only plaster; columns, cornices, enrichments, statues, and all, this might be borne if the material were of good quality; but it is bad plaster, badly designed, and execrably executed. The general style is Italian, of a very poor and commonplace description. In some cases the pure Greek has been attempted, as in the School of Mines, on the north bank of the river, which is fronted with a decastyle Doric portico à la Parthenon, flanked by colossal groups of statuary. All this looks very imposing at a goodly distance, but on approach it is found to be constructed of brick and plaster of the most wretched kind, and the groups of statuary to be plaster casts in a state of rapid decomposition. The green roofs of the buildings, which give the notion of an expensive construction in copper, are merely sheet-iron painted green. In fact, were the buildings in St. Petersburg left to the tender mercies of the elements for a few years, they would for the most part be reduced to their original mud, and leave few traces of their existence behind. Of course, there are exceptions to this, which I will now proceed to notice.

The sham character of the public buildings generally is redeemed, in the case of St. Isaac's church, the architectural glory of St. Petersburg. In this edifice the realistic principle of expensive material has been carried to its utmost limits. Polished granite, polished marble, bronze, and plated gold, compose the exterior; whilst the interior is one blaze of marble, mosaic, malachite, lapis-lazuli, bronze, gold, and painting. The alleged cost of the building is something fabulous;

but as, in all Russian transactions, a large allowance has to be made for leakage, or, in other words, for the nefarious peculation of the officials, it is impossible to arrive at any just conclusion.*

The principle of the plan is the Greek cross of four equal arms. Each of the arms is covered by a barrel vault, and over the centre is raised a large tambour and dome. The square spaces at the angles are formed into chapels, covered with domical vaultings and cupolas, and opening into each arm of the cross by arched apertures. The east and west ends are prolonged one bay each, with similar vaulting and apertures, thus giving to the whole mass the form of a parallelogram, with projecting octastyle Corinthian porticoes on each face. The building stands on a polished stylobate of red Finland granite in three stages. The walls are faced with polished light-coloured marble. The column shafts are monoliths of granite, about 6 feet diameter and 50 feet high. The capitals are bronze. The pediments are filled in with bronze sculpture. Above the entablature of the main order a very lofty attic is carried to the summit of the pediments. The tambour of the central dome is very lofty, encircled by a ring of columns and surmounted by a gallery and attics, from which the dome springs. This, as already mentioned, is covered with burnished gold plates. Above the dome rises a small cupola, crowned with a golden ball and cross. The four corner chapels are crowned with bell turrets and cupolas, also covered with gold. Bronze statues of colossal size ornament the sky-line of the attic, and the entrance doors are bronze, richly filled with sculpture. The whole of the parts are good in design and of excellent workmanship; but, on the whole, it must be acknowledged that the proportions are not harmonious. The three-staged stylobate does not raise the edifice sufficiently out of the ground. The columns and entablature above, though of large dimensions, are dwarfed by the extreme height of the attic and the predominating magnitude of the dome. Internally, the proportions of the building are much more pleasing. The coffered vaults are encrusted with gilt bronzes and enrichments. The tambour of the dome has the corners supported by colossal figures in gilt bronze. The walls are lined with costly marbles, inlaid and panelled. The easternmost bay forms the sanctuary, which is cut off by a screen called in Greek churches the Ikonostase. This portion is always the culminating point of decoration. Gold, silver, and precious stones are often profusely employed to add to their attractions. In the present instance the sanctuary gates are very elegant works of metallic art, and richly gilt. The screen is faced with ten fluted malachite columns, the shafts about 18 feet high. There are also two-column shafts of lapis-lazuli, about 12 feet in height. In the interspaces are pictures of saints beautifully executed in mosaic.

The Sepulchre of the Saviour, always a prominent object within the sanctuary, is of solid silver. The whole of the work is in good taste, and beautifully executed; but the general effect is rather too ostentatiously rich. The display wants repose, and gives rather too much the idea of *parvenu* finery. The ensemble is hardly equal either to the Madeleine at Paris, or the Basilica at Munich, though very good of its kind, and the best to be found in Russia.

The Kasan Church or Cathedral, situated in the Nevskoi Prospekt, was, until the erection of St. Isaac's, the great architectural feature of St. Petersburg. It is in plan a Latin cross; the nave seven bays in length, the choir and transepts three bays each. Internally, the nave is divided into five aisles by four rows of monolithic polished granite columns, about 30 feet in height. The central aisle is barrel-vaulted, without a clerestory. The intersection is crowned by a lofty tambour and dome. The architecture of the interior, with the exception of the noble granite columns, presents nothing remarkable. The altar, balustrade, gates of the Ikonostase, the gigantic candlesticks, and other ornamental portions, are solid silver. The profusion of this precious material in many of the churches, at a time when metallic currency has all but disappeared from the country and the paper circulation is absolutely irredeemable, cannot but suggest ideas of utilitarian appropriation, similar to what has taken place in other countries. The success of such a scheme in Russia, at present, would be extremely doubtful and perilous.

Externally, each arm of the cross is faced by a hexastyle Corinthian portico. From the portico of the north transept a semicircular colonnade of

double columns sweeps forward, apparently in imitation of the fore-court of St. Peter's, at Rome. Although this colonnade is of considerable extent, the effect is small and feeble. The whole work looks low and stunted: the material is only brick, covered with plaster, of which patches have fallen off in places, displaying the spurious nature of the construction underneath.

The great majority of the churches, both in St. Petersburg and elsewhere, are built on the Byzantine model of the Greek cross, with the angles filled in, forming a square on plan, with a large tower and dome over the intersection, and four smaller ones over the angles. These are varied in form—round, square, or octagonal; sometimes low, just rising above the roof of the church; at other times taking the form of a lofty slender minaret. The domes are usually bulbous in form, generally overhanging the turrets on which they stand. The material is usually brick, covered with stucco; the detail and design exceedingly poor.

The church within the citadel deserves notice, both on its own account, and for its associations; being the burial-place of Peter the Great, and of all the succeeding monarchs. The architecture is common Italian, but of good proportions. At the west end rises a square tower, crowned by a metallic spire of the slenderest possible proportions. This spire is gilt; and, being very lofty, and crowned with a ball and weather-vane, in the form of a flying angel, is a very conspicuous object from every part of the city. The sanctuary screen and gates of this church are very splendid specimens of gilded metal-work.

From Peter's tomb a walk of a few hundred yards leads to the little wooden cottage which he built and resided in whilst carrying out his grandiose designs in the foundation of the city. It is a one-story cabin of three small rooms, preserved in much the same condition as he left it, with his chair, his table, some of his tools, and specimens of rough carpentry constructed by himself. Outside is preserved his boat, with a portion of its ragged sails. Over the whole a brick building has been erected to preserve the building from decay. His little reception-room has been converted into a chapel, hung round with votive offerings, some of considerable richness and value; for Peter, though not canonized,—which would hardly be decent, remembering his antecedents,—is still almost worshipped as a saint by his countrymen.

The church of the Preobajenskoj Guards has all its decorations of a military character. The interior is crowded with captured standards, principally from the Turks. The balustrading of the enclosure has the standards constructed of captured cannon, clustered together, from which are stretched massive chains, forming a succession of arched curves. The clustered piers are surmounted by eagles.

The streets of St. Petersburg are all spacious; the leading thoroughfares very broad, and the alignment of the buildings for the most part regular. The numerous open places and squares, combined with the width of the streets, extend the area of the city much beyond what might be expected from its population, and render riding indispensable to every class of the population, except the lowest. Locomotion is provided by an innumerable amount of droskies, little four-wheeled open vehicles, into which two persons can barely squeeze. These carriages are drawn by very active, spirited horses, usually not more than thirteen or fourteen hands high, and swarm in the more frequented parts of the city, darting about at a breakneck pace over the rough pavement, which is enough to dislocate the bones of one unaccustomed to the infliction.

The leading thoroughfare in the city is the Nevskoi Prospekt, which extends in a direct line from the Admiralty-square to the monastery of Alexander Nevskoi, about four miles.

A few of the leading shops are handsomely fitted up and furnished; but the greater part are poor, and conducted without much enterprise or spirit, with a great lack of booksellers' shops and respectable hotels. The street architecture of the private dwellings is brick and plaster, with little or no pretensions to architectural design.

The palaces of the Imperial family, those of the nobility, the government offices, public institutions, and barracks, are very numerous; and, being large in their extent, and lofty in their proportions, form very striking and prominent objects in the city. They are nearly all of brick and plaster, badly executed.

The earlier constructions are Italian or French of the Louis Fifteenth style, such as the Winter and Annitekoff palaces, overloaded with ornament

* Illustrations and full particulars of St. Isaac's will be found in the *Builder*.

of very debased design. To these succeeded attempts at the pure Classical, such as the School of Mines and the Academy of the Fine Arts. The baldness and poverty of these designs are made more striking by the slovenly state of dilapidation into which they have been allowed to fall. Of late, it must be admitted, there has been a scintillation of a better state of things. The new palaces of the grand dukes, the rebuilding of the Hermitage Palace, the mansion now in course of erection by Baron Stieglitz, on the English Quay, and several private mansions, display better workmanship and material in construction, and a simpler and better feeling of the nature of architectural design.

The Winter Palace is an enormous building overlooking the Neva, built in the usual manner, faced with rough compe, in a very debased style. It must at the same time be admitted, that the variety of breaks and curves, and the sky-line fringed with statues, give a certain amount of picturesqueness to the mass, when the spectator is sufficiently distant to overlook the bad taste of the detail.

The interior comprises a wonderful succession of corridors, galleries, reception-rooms, throne-rooms, halls, &c.; many of very magnificent dimensions. These are in general sufficiently common-place in design, though good taste has been shown in the decoration, which is probably the emanation of another mind. In one of the reception-rooms, malachite has been profusely employed in the columns, chimneypieces, and elsewhere. The paintings in this palace are for the most part the merest daubs, with the exception of one, which is either a true Murillo, or a very good copy.

The greatest wonder about this building is the fact that, after the fire which consumed its predecessor, the present palace, which covers several acres, was erected and completed within two years. We can therefore feel no surprise that much of the work has been "scamped," or that the roof of the great St. George's hall fell in the evening after it was opened. The crown jewels are kept in this palace, not guarded with any very peculiar care, two sentinels merely keeping the door of the apartment.

The regalia consist of crowns, coronets, sceptres, strings of precious stones, comprising the usual paraphernalia, the great Pitt diamond being the most conspicuous; with other diamonds, pearls, amethysts, sapphires, emeralds, opals, &c., in great profusion and of priceless value.

The most interesting parts to me were the private apartments of the imperial family, occupying only a corner of this immense building, and of very moderate dimensions. The emperor's chamber is the only one which can be called very rich or large. The others might well become an English nobleman in point of size and the substantial elegance of their fittings and furniture. The bath is situated in a grotto to which there is a descent by a flight of marble steps, ornamented by fountains, niches, statues, &c., which display considerable taste. The architectural features of the interior are, for the most part, of plaster and scagliola.

The Palace of the Hermitage adjoins the Winter Palace, with which it has a communication by a common corridor. This immense building was erected by Catherine II. as a sort of Sans Souci, or retreat from state cares; but was subsequently occupied by the art-collections procured from various sources. The greater part was rebuilt by the late Emperor Nicholas about ten years ago, on a plan better adapted to its present destination than the old building, which was of the usual brick-and-mud-like stucco of which the older part of St. Petersburg is composed. The present building is of good design and construction, classical in style, with a decidedly German character.

The entrance portico has the entablature supported by ten colossal human figures, about 18 feet high, in polished grey porphyry. The vestibule into which this gives admission is adorned with rows of columns, having polished granite shafts. From this entrance is given, right and left, to the sculpture galleries; and in front the grand staircase is carried up in one straight long perspective. The walls bounding the stairs at each side are surmounted by ten polished porphyry columns supporting the roof, and serving as screens to the return galleries at the head of the flight. These entrances and staircase are bold in conception, and noble in size and proportion. There is no littleness of any kind. Every thing is grand in scale, and satisfies the fullest idea of imperial magnificence.

The upper floor contains the gallery of pictures, which is well known in the artistic world, and

which is particularly rich in the Dutch and Flemish schools. The rooms are lofty and of good proportions, and neatly embellished with arabesque ornament, but are most unfortunately designed as regards their purpose. With the exception of three large rooms, occupying the centre of the building, which are lighted from above, the whole of the vast range is lighted by side windows, low down in the walls. The consequence is, an amount of reflection which renders it scarcely possible to get a good view of any picture placed opposite the light; whilst, in other parts, the light is so deficient by contrast as to render the pictures in such positions equally invisible.

In some cases there are windows on both sides of the galleries. The cross lights thus caused create an amount of confusion which is distracting and painful to the eye. There are two long corridors lighted by windows, and ceiled with a succession of arches, and domed compartments; the pilasters decorated with arabesques, à la Raphaële. These corridors call up reminiscences of the corridor of the Pinacothek, at Munich, painted by Cornelius.

The *rez-de-chaussée* is vaulted, and occupied by sculptures, a great proportion of which are either casts or copies from well-known antiques, with a few modern specimens. There are also a few specimens of ancient tombs, altars, and other reliques. One of the most interesting of these is an ancient Roman tomb, with the wooden coffin still existing, taken out and placed beside the stone sarcophagus which contained it. This specimen of ancient joinery exhibits the same mode of construction as that used at the present day. The stiles and rails are framed together with mortise and tenon, and the dovetail joint is used at the angles. Carved enriched mouldings are planted in the panels, and carried round as a cornice. Sooth to say, however, the work is roughly done, and somewhat flimsy in point of strength, having very likely been procured from some advertising cheap coffinmaker of ancient days. The tomb is curious as illustrating the practice, very rare in the Classical period, of interring the body without combustion. The number of specimens of Russian minerals in porphyry, marble, granite, and malachite vases, and other things, is very large, and deeply interesting.

The Marble Palace, the Taurida Palace, and many of the other public buildings, are large and imposing, but present no features worthy of special notice.*

J. A. PICTON.

COMPETITION.

Greenock.—The congregation of Free West Church (the Rev. Mr. Nelson's) having received designs, for their proposed new church, from several Glasgow and Edinburgh architects, have selected the design submitted to them by Mr. Honeyman, of Glasgow, under whose direction the work will be commenced, as soon as the season permits.

ARCHITECTURAL EXHIBITION.

THE committee have published a report in which they say they "have resolved to relax regulations hitherto in force, as follows, *viz.*—to pay the carriage to town, and back again, of all drawings from the country, and they have also determined that Exhibitors shall have free tickets of admission during the day, reserving only the evening meetings and lectures for subscribers exclusively, and holders of season tickets." The next exhibition will open at the *conversazione*, on Tuesday, the 2nd of April, and on the following day to the public. The account shows a balance of 65*l.* 1*s.* 3*d.* in the hands of the treasurer, and 100*l.* invested by donors in the Architectural Union Company in favour of the Architectural Exhibition.

CHANGES IN POPULAR AMUSEMENTS.

AMONGST those practices and observances which are rapidly changing, in these our days, are town and country fairs, which, half a century or less ago, were thought of and talked of almost all the year round with much interest by pleasure seekers and persons in various lines of business. The decline of these ancient institutions, however, will be noted with but little regret, since the purposes for which statute fairs for general merchandise were instituted have been in other ways better met; and their disorderly assemblages led to much immorality, dissipation, and mischief. At some of these fairs took place the hiring of servants; and, in the spaces set apart for this purpose, men and women, and young lads and girls, stood in rows (as in some places, indeed, they still do), to be bargained for like herds of cattle.

With the decline of fairs the wandering exhibi-

* To be continued.

tions, once so familiar, have also fallen considerably out of use; and travelling giants, dwarfs, and performing animals are now at a discount. In connection with the old-fashioned fairs may be remembered the charlatans, mountebanks, and quack doctors, who would tell the natives of their wonderful abilities. This one had cured the Emperor of China of a fever and ague at Peking in one day, and drawn a tooth of the Great Mogul of India at Delhi on the next. The distances even from continent to continent were as nothing to these professors, who would undertake the cure of all the ills of suffering humanity, in the most rapid and oil-hand manner. There were also galante and peep-shows, and puppets, which were worked to the great amusement of many. The exhibition of puppets in England seems to have been of considerable antiquity: in Queen Elizabeth's reign they were common in this country: at Bartholomew Fair they were famous. Ben Jonson makes his puppet showman at that place say,—“Oh, the motions that I, Lanthorn Leatherhead, have given light to in my time, since my master Pad died! Jerusalem was a stately thing; so was Nineveh and the city of Norwich. But the Gunpowder Plot,—that got a pretty penny . . . Your home-born subjects prove ever the best: they are so easy and familiar. They put too much learning into these things now-a-days!”

Of late years the puppets in use were of small size, and their performance was of but a commonplace description: they were of much more importance, however, in Charles the Second's reign. In the summer of 1662 Samuel Pepys saw the puppet plays in Covent-garden; and, in the autumn of that year, they were exhibited before King Charles and the court, in the palace of Whitehall. These puppets were about the size of life. Although this exhibition was originally introduced by Italians, one Mr. Powell, an Englishman, made improvements so great that he defied all competitors. This puppet showman exhibited the drama of “Dr. Faustus” to crowded houses throughout two seasons, to the utter neglect of good plays and living players. In Queen Anne's reign Powell exhibited his puppets under the piazzas of Covent-garden. Respecting this, the ancient under-sexton of St. Paul's Church, Covent-garden, says, to the *Spectator*, that he now found his congregation take the warning of the church-bell, which he had rung daily for twenty years for morning and evening prayers, as a summons to Powell's puppet-show under the piazzas, instead of a summons to church. “I have placed my son,” says the bellman, “in the piazza, to acquaint the ladies that the bell rings for church, and that it stands on the other side of the Garden; but they only laugh at the child.”

After a long term of fashion, and great success, the grown-up sight-seekers got tired of the puppets, and they were considered only fit for the amusement of children. In the early part of the present century, however, there was a theatre of this kind in the vicinity of Fleet-street, where “Roméo and Juliet,” “The Brides in the Wood,” &c., were represented. Now, with the exception of some very small puppets danced on boards by boys, almost the only remnants of this once common amusement, besides the lately somewhat celebrated Marionettes, are Mr. Punch and his wife Judy; and these are also likely, before long, to become amongst the things that were. A few tumblers, of no great skill, Ethiopian serenaders, of modern date, and the organ-men and other foreign musicians, may still be seen in our streets; but generally the old exhibitions in the streets are no longer visible, and the “fun of the fair” no longer grows “fast and furious.”

Of one very ancient species of popular amusement, which had just become obsolete in this country, after a “run” of many centuries, there has recently been rather a curious revival, in connection with, *par excellence*, the most advanced place of amusement for the people which till now has ever been conceived,—namely, the Crystal Palace: we allude to the “shadow pantomimes.” Something very similar, if not the same, was long popular in this country, as it still is in Algeria, Arabia, and other countries in the East, under the name of “the Chinese shadows.” Not many years since this exhibition stood its ground in England even against the magic lantern, in the shape of “My Mother's Shoe,” “Hob in the Well,” and other approved children's “dramas;” and in horripiles, such as that of the sailor, who danced till each limb separated from the other, and “went on as before,” on its own hook. The “dissolving views” were thought to have extinguished the “Chinese shadows;” but here they are again, in the Crystal Palace, with modern modifications it is true, though scarcely as yet with modern improvements.



THE CONDITION OF THE CLERKS' WELL, CLERKENWELL.

THE CONDITION OF THE CLERKS' WELL, CLERKENWELL.

We cannot willingly lose old foot-prints. We have before directed attention to the Clerks' Well, and regret to find that each week it seems to be in a worse state. So ruinous has now become the place, that it may be feared this interesting record, which takes the mind back to many past events of our history, will disappear. For more than a thousand years this site has been well known to Londoners. Our engraving will show the state of wreck now presented there. The inscription which sets forth the situation and former fame of the Clerks' Well is left almost alone; the building in which the inscription was placed, in the year 1800, by two worthy churchwardens,—William Boud and Joseph Bird,—has fallen to pieces, and the background is a receptacle for nuisances. Many of the old London marks have, to the regret of all right-thinking persons, passed away, and others have been destroyed. Let us hope this fate will not befall the Clerks' Well. The well is one of the three in the neighbourhood to which, according to Fitz-Stephen, the scholars and youths of the City, in days long past, did go to take the air abroad in the summer evenings.

Stow gives the names of several wells not far off "Skinners' Well,"—"Eng's Well" (otherwise Ladwell), and "Rede-well,"—adding that, in his time, they were so filled up "that the places where they were are not now to be discerned." From these wells, as appears from the same historian, the "River of Wells" took its name; "for, having the overflows into the aforesaid river, they much increased its stream, and in that place gave it the name of Wells." Notwithstanding the importance of this stream, the cluster of houses which, in course of time, formed a little village in the neighbourhood of the Clerks' Well, was so called, and gave name to the now extensive and populous parish in which it stands.

The custom of meeting at wells or fountains, for conversation or amusement, is one of very high antiquity, and may be clearly traced to an Eastern origin. Fitzstephen has made express mention of this custom in the suburbs of London. Among the recreations here adopted upon such occasions, or more probably on public holidays, were, it seems, dramatic entertainments. Fitzstephen tells us that "London, in place of stage plays and scenic decorations, hath dramas of more sacred subjects,—representations of those miracles which the holy confessors wrought; or of the sufferings wherein the glorious constancy of martyrs did appear;" and it is an undoubted fact sacred dramas were performed on this spot before

the reigns of Henry II. and Richard I., which were the era of Fitzstephen. Cramwell, in his history of this parish, suggests that the observance of this custom here may be of more remote antiquity;—that *Clerken* being an Anglo-Saxon compound, the custom must be referred to that period.

To this place, when all was green and pleasant around, and the river Fleet ran clearly along,—centuries before Shakespeare's days,—many a gay cavalcade has come on high days and holidays to see the acting of the clerks: frequently Royalty and the Court have come here; and the merry citizens, in the picturesque costume of former times, have wandered from the City over the fields to see the bravery. But we have before more particularly referred to this history, and would now remark, that in 1673 the Earl of Northampton presented the parish with a spring, during pleasure, for the use of the poor. The overseers, and, as it seems, much to their discredit, immediately leased it to John Cross, brewer, for twenty-one years, at 40s. per annum. This seems to have been the original Clerks' Well.* To the observation by Stow, already mentioned, Stowe, writing about a century and a half ago, after mentioning the damming up of the wells, added, "and so remained and altogether unknown until within these forty years or thereabouts, when, upon some occasion, they, or some of them, were discovered; and, being found mineral waters, of the nature of Tunbridge, they became greatly frequented by citizens, and used as chalybeate waters, for correcting hypochondriacal distempers." The same writer then gives the relation, showing that this is the spring which was presented to the parish by the Earl of Northampton in the above-named year, and from which presentation the parishioners derive the ownership of the well, together with the adjoining ground. He says:—"The old well of Clerkenwell, and from whence the parish had its name, is still known among the inhabitants. It is on the right hand of a lane that leads from Clerkenwell to Hockley-in-the-Hole, in a bottom. One Mr. Cross bath this well inclosed; but the water runs from him into the said place. It is inclosed with an high wall, which formerly was built to bound in Clerkenwell-close [this was the Nunnery Close, the west wall of which is known to have taken this direction, leaving the reservoir of the fountain just outside]; the present well being also inclosed with another lower wall from the street. The way to it is through a little house, which was the watchhouse. You go down a good many steps to it. The well had formerly

* In the account of the parochial estates of the parish of Clerkenwell, 1835, is "Clerks'-well, in Ray-street, and building over the well."

ironwork and brass-cocks, which are now cut off. The water spins through the old wall. I was there, and tasted the water, and found it excellently clear, sweet, and well tasted. The parish is much displeased, as some of them told me, that it is thus gone to decay, and think to make some complaint at a commission for charitable uses." Mr. Cramwell is of opinion that the last words should be "the stewards for promoting charity," and says,—"Though the water is now recovered for general use, there is reason to believe that the causes of its decay are rather increased than removed. There is some apparent obstruction at the fountain-head, as at present it cannot be so much as said to *spin* through the old wall, but to make its way with great slowness and difficulty. The spring," continues Mr. Cramwell, "is approached from its receptacle by steps erected no doubt at the well's restoration, since the time of Stowe." The inscription mentioned has been placed, and we trust, particularly as the property belongs to the parish to which it gives name, that it will be duly cared for.

THE ROYAL ACADEMY.

At a meeting of the body, held on Tuesday last, Mr. Poole was elected an Academician, and Mr. E. M. Barry (architect), Mr. Faed, Baron Marrochetti, and Mr. Richard Ansell, were elected Associates.

Mr. Poole gained his election by one vote against Mr. Boxall.

LIVERPOOL ARCHITECTURAL SOCIETY.

The ninth meeting of the session of the above society was held on Wednesday, the 23rd ult. Mr. J. M. Hay, presided. Mr. J. A. Pictou laid before the society the designs, plans, and photographic views of the new building which Mr. William Brown is now erecting on the west side of the Town-hall. The structure will be in the Italian style, and will cover 1,850 square yards of ground. The whole of the basement is granite, and the remainder of the building is of Welsh stone, from the neighbourhood of Ruabon. After some other matters had been disposed of, Mr. Pictou read "Notes on Architecture in Russia," part of which will be found in our present number. The next paper will be by Mr. W. H. Hay, on "The Construction of Turkish Baths."

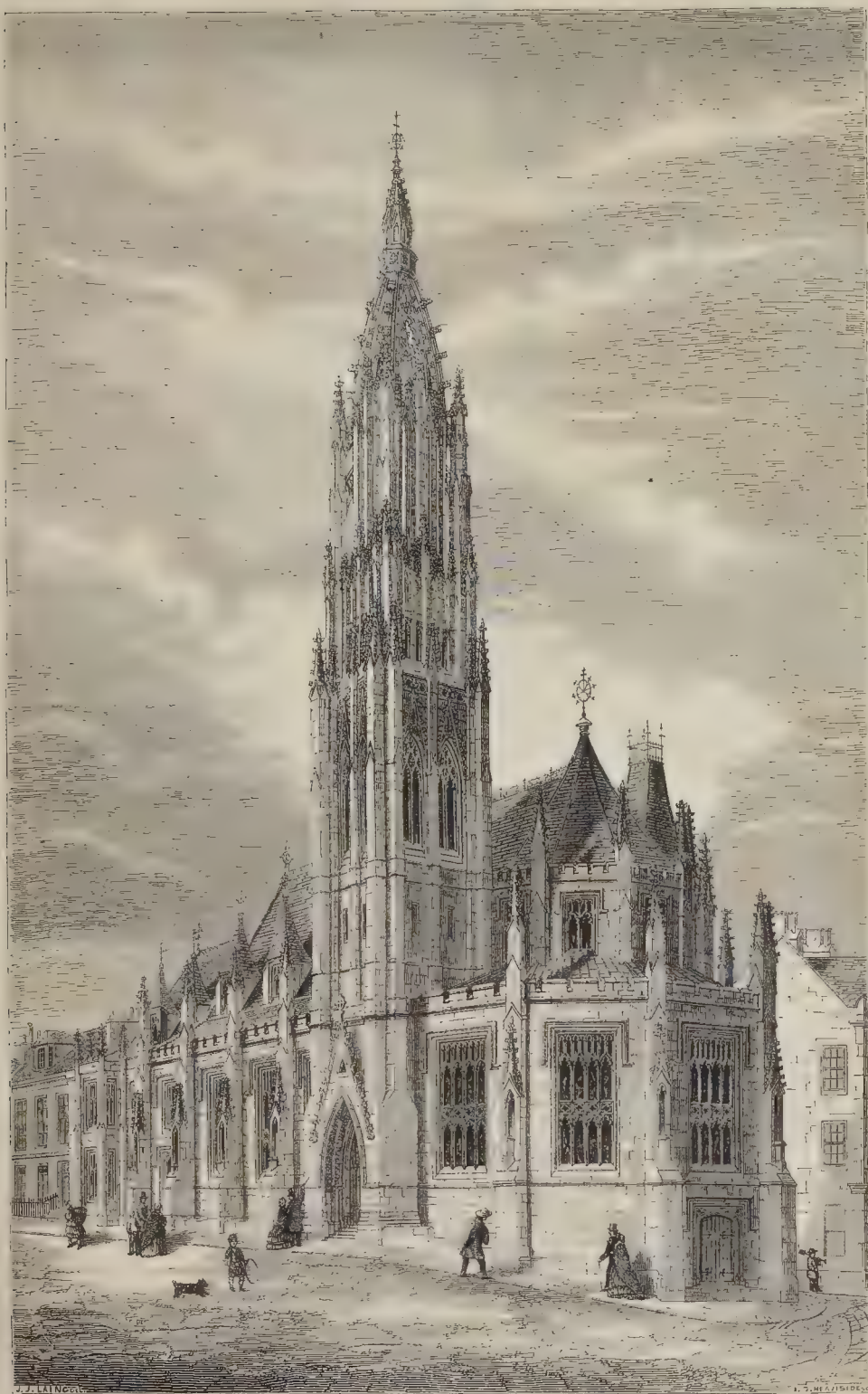
ST. MARY'S FREE CHURCH, EDINBURGH.

This church, now in course of completion, stands at the east end of Albany-street, and when finished will be one of the principal ecclesiastical ornaments of Edinburgh. The congregation had, since the Disruption, worshipped in a small unpretending place in Barony-street, but increased so much that they determined to expend a sum of 5,500l. for a new church, towards which the late pastor gave 550l. Ultimately it was resolved to increase the sum to 7,000l.; but, owing to increased height of spire and other additions, it is thought that the total expense cannot be less than 10,000l.

The design was selected from about twelve competition plans, the prizes being 50l., 30l., and 20l. The site was one extremely difficult to deal with, requiring a great amount of underbuilding; and, from the steep descent, demanding some skill in being usefully and effectively treated. The style adopted is the mixed Perpendicular Gothic or Tudor of the time of Henry VII. The doorway in the basement of the tower forms the principal entrance, the arch mouldings of which contain some bold carving. It has but recently been decided that a clock is to be placed in the tower, the gift of the late Mr. James Buchanan. From the top of the belfry rises the spire of four bold, richly-moulded ribs, filled in with foliated tracery. The whole height is 164 feet from the pavement. To the west of the church a small piece of vacant ground has been used for the erection of a dwelling-house, with oriel traciced windows and dormers in the roof.

In the interior of the church are end and side galleries, supported on iron columns, which extend up to support the roof, terminating in foliated capitals. Accommodation is provided for 1,000 persons, and below the church are classrooms, and a house for the bandle.

Mr. J. T. Rothead, of Glasgow, who is the architect, gained the third premium for the War Offices in the great Government competition, and is also the author of the first prize design for the Wallace monument.



ST. MARY'S FREE CHURCH, EDINBURGH. — MR. RECHHEAD, ARCHITECT.

GEMS AND GEM-ENGRAVING.

THE engraving of gems was a department of art which the ancients excelled, and in which they have bequeathed to us exquisite specimens of their genius and skill. To the historian, archaeologist, and artist, the minute but comparatively imperishable records of ancient glyptic art have subserved important uses; and it is surprising that so interesting and valuable a branch of art should have been so long neglected, as it has been, in this country, except by the gem-collector: it has not even met with a historian, it may be said, till now that a very competent author, the Rev. C. W. King, has published his own memoranda, as an amateur and collector of ancient gems, and given us something like a history and general account of art-works of this interesting and valuable description.*

The origin of the art of gem-engraving was undoubtedly Oriental and of extreme antiquity; and it was not till a comparatively late epoch that it was introduced into Greece and Italy. The Greeks laid no claim to its original invention; and while, in early Greek times, there is no trace of such uses of engraved surfaces as that of sealing up treasures or tablets, or investing with official dignity; we find, in the further East, as far back as historical records go, that signets held an important place, as among the Assyrians and the Egyptians: Pharaoh's signet, given to Joseph as a token of official investiture; Rhamsinitus's treasure-cell secured by his seal (Herod. ii. 121); Judah's signet given as a pledge; the temple of Belus sealed with the royal signet, &c. &c.; all go so far to prove that such uses of engraved surfaces were known in the East from time immemorial, although they do not distinctly prove the extreme antiquity of gem-engraving. Seals of vitrified clay, such as those of Assyria and Egypt, may or may not have been the forerunners of engraved gems; but at all events we have no such indications among the Greeks of early practices such as these, akin as they were to those which engraved gems have always been put, ever since such gems have been known to have been produced. The very forms of the Egyptian scarabs in clay and soft stone look like the prototypes of those of engraved gems. These and other early signets, too, were carved or engraved by cutting instruments, though on comparatively soft material; the earliest Assyrian cylinders being of serpentine, and the Egyptian scarabs of steatohiet and clay.

The invention of the beautiful art of gem engraving is confidently ascribed by Mr. King to the seal engravers of Nineveh, shortly before the reign of Sargon, the date at which cylinders first appear, made out of the "hard stones,"—crystal, onyx, and agate,—charged with engraving, executed precisely in the style of the Archaic Greek intagli, and marked by the same minuteness of detail and elaborateness of finish; and amongst these the signet of Sennacherib is quoted as an example fully illustrative of this assertion, being made of one of the hardest substances known to the lapidary, namely, the Amazon-stone, and bearing an intaglio which, by its extreme minuteness, and the precision of the drawing, displays the excellence to which the art had even then already attained. It may be questioned, however, whether this do not prove rather too much for the decision of the point maintained; since such perfection in an art implies a still more distant and indefinite origin; and ought rather, one would think, to lead the careful archaeologist to the safer conclusion that the Ninevites possessed the earliest known examples of gem-engraving, of which they themselves were, probably, the artists; but that whether they were the original inventors of an art which had already reached so high a degree of development does not appear. It may even be doubted whether either the Assyrian or the Egyptian clay signets were really of more ancient origin than the invention of gem-engraving under such circumstances. At all events, the Egyptians (if not, too, the Assyrians themselves) for ages practised the art of carving signets, &c., on soft materials, after the date of the production of the Assyrian stone signets just referred to, and although there is abundant evidence of a close commercial intercourse between Assyria and Egypt in these ancient times. Even in the era of the Ptolemies the Egyptians had not generally adopted the more laborious process; and the signets of the kings and nobles were engraved on gold, and those of lower rank on still softer material. In

the age of Theophrastus the best stones for engraving gems were still imported from Armenia.

The Phœnicians, while allies or tributaries of the Assyrian and Persian kings, took up the art of engraving on hard stones, although the Egyptians neglected it; and they diffused the knowledge of this and other arts among the Asiatic and Insular Greeks. Thence to Greece proper the transition was rapid, and the signet came into general favour, especially as a finger-ring, instead of, as in Asia, a bracelet or necklace. Signet rings must have attained universal popularity in Greece before 600 B.C. About this time Solon prohibited gem-engravers from keeping impressions of signets once sold. Herodotus also speaks of the famous emerald of Polyxenes, and the reputation of its engraver, Theodorus of Samos. Camei were first introduced in the time of Alexander.

Etruria, like Greece, derived the art of gem-engraving from an Asiatic origin; and, like the Phœnician, the Etruscan retained to the last the beetle or scarab form.

The Romans derived the scarab signet from the Etruscans, and the finger-ring from the Greeks. Gem-engraving, like the cognate art of die-sinking, however, attained to its highest perfection first in Magna Græcia and in Sicily. It was doubtless from Sicily that the use of gold rings was introduced amongst the Romans. Engraved gems then also began to be admired by the latter, and employed for signets. Under Augustus, gem-engraving in all its branches reached a high point of excellence, especially in the department of portraiture; although the Roman never equalled the Greek in the best gem-engravings of each. Under the patronage of Mæcenas flourished all the glyptic talent of Greece,—Dioscorides, Solon, Aulus, Gnaeus,—either attracted to the metropolis of the world, or brought there as the freedmen of those nobles whose family names they assumed. This also was the age *par excellence* of camei, whether portraits or groups, or single figures: the sardonyx was supplied for them from the interior of Asia. The trade of paste-making was also then carried to an enormous extent for the poorer classes. This trade ceased quite suddenly in the third century, together with the productions of the gem-engraver himself. Camei were often reproduced in pastes while the paste trade flourished: many of the paste camei of this era are admirable imitations, especially those reworked; but camei in sardonyx were also produced in large quantities, and many of them are extraordinary for art and material.

At length, in the fifth century, Roman gem-engraving entirely vanished, its last traces fading away in the swarms of ill-cut and worse drawn Abraxas, jaspers, and Manichean amulets. The signets of the Byzantine nobles were of metal. The sole remaining evidence of the existence of the Byzantine school is a few miserable camei of religious subjects.

Throughout the west, for ten centuries (from the fall of Rome to the Italian Renaissance), gem-engraving was entirely unknown. The signets were all seals of metal or antique intagli set in rings. Official seals, in the Middle Ages, were large and elaborate designs cut upon a metal matrix. The demand for antique intagli to be set in personal signets and as talismans, however, was enormous.

But with the first dawn of the revival in Italy the art,—totally extinct in the West, and confined in the East to convolutions of cyphers and monograms, as in the Persian empire,—not only woke up but attained to its second maturity in a single generation, rivaling its ancient parent in beauty and skill; and, in one class, the camei, far surpassing her in numbers, and perhaps in excellence. In the fifteenth century, however, the art was simply imitative of the antique, although the nielli of that period were quite on a level with the ancient work of Dioscorides or Aulus, as far as drawing went. In the next, or cinque-cento century, the best lapidaries did not servilely copy the antique; but during the century last past the engravers contented themselves chiefly with making repeated copies of certain celebrated gems, and placed their highest ambition in the ability to pass off their own work as true antiques. The principal engraver, John Pichler, was an exception, and so were Natter, Rega, and a few others. On the whole that was the age of forgeries, pastes, and tamperings with the genuine antiques,—defiling the pure course of the art, and puzzling the modern archaeologist. Hence, probably, the sudden and total decline of the taste for engraved gems since the beginning of the present century.

The few English gem-engravers who have ever attained to any celebrity all flourished during the

latter half of the eighteenth century. Brown, Wray, Marchant, and Burch may be named. Their works were all in intaglio, but inferior to those of the Italian school, the last of whom, Piattucci, survived till within a few years of the present time. Even in Rome, all that remains of this once numerous profession are a few mechanics, rather than artists, who manufacture the cameo onyx studs so largely purchased by visitors, and which are mere trade articles finished off by the dozen at the lowest possible expenditure of time and labour. There are also some who still forge the mediocre antique intagli to order. The only class with any pretension to taste and skill are the cutters of camei in shell.

Thus the art of engraving designs upon hard and precious materials may be said now to have closed its career of thirty centuries in a phase similar to one of those in which it first started in the dawn of western civilization.

The author of the work before us, to which we are mainly indebted for the materials of the preceding brief sketch, gives some interesting information as to the means adopted, both in ancient and modern times, in the engraving of gems. In treating of proofs of antiquity, he says:—

"A very satisfactory proof of antiquity is found when the engraving appears to have been executed almost entirely with the diamond-point; that is to say, when all the hollows seem cut into the stone by a succession of little scratches repeated one upon the other, while the deeper parts of the design show that they have been sunk by means of the drill, a tool with a blunt and rounded point, producing a succession of hemispherical hollows of various dimensions. Some intagli even occur, entirely scratched into the stone by means of the diamond-point alone, especially the signs in shallow relief of the Etruscan and early Greek epoch; and, as a general rule, according to the observation of the famous gem-engraver Natter, the extensive use of the diamond-point is one great distinction between the antique and the modern art. The use of the diamond-point is particularly observable in the execution of the hair of portraits, when a good deal, of almost every epoch of antiquity, where it produces an admirable and natural effect which cannot be given by the modern instruments."

As to these latter, we are told that,—

"The principal among them, by means of which all the above-named operations, both of producing lines and hollowing out depressions in the design, are carried out, is the wheel, a minute disc of copper, fixed on the end of a spindle, which is put into rapid motion by means of a lathe. The fine edge of this tool, moistened with oil and emery or diamond dust, speedsily cuts into the hardest gems; and, by repeating and prolonging the lines thus produced, the minute portions of the design are executed. The larger and deeper hollows are still sunk by means of a round pointed drill, substituted for the cutting disc, and acting just as the ancient drill; which last, however, appears to have been always worked by the hand, by means of a bow, in the same way as the similar tool still used by jewellers. The modern method, though greatly expediting the operation—for Mariette speaks of Smart, a celebrated English engraver of the last century, finishing several good portraits in one day,—yet renders the operation more mechanical and stiff; whereas the ancient sculptor, working with his diamond-point, like the etcher with his needle, had all the freedom of hand and boldness of the latter art."

The peculiarities and modes of cameo working are thus described:—

"On minutely examining a really antique cameo, the design will appear to have been cut out of the coloured layer by the repeated strokes of a tool of the nature of a chisel, which left a series of uneven surfaces, to be polished down more or less by a subsequent operation. The outline of the figure always fades away into the field of the stone, which often shows minute traces of the upper layer not completely cleared away from it, and the design is never undercut, as it often is in modern camei, for the purpose of throwing it out more from the field. The ground itself is often left uneven and not completely cleared of the upper layer, having evidently been scraped down by means of a narrow cutting instrument, which could not be made to bear upon a large surface at one and the same operation. Hence these works, though extremely effective at a distance—the purpose for which they were intended by the engraver—appear rough, and, as it were, lumpy, on too close an inspection. This unevenness of the ground of the design has been pointed out by some writers as the unvarying test of antiquity in a cameo; but this is not exactly correct, as the same peculiarity is equally manifest in the works of the earliest artists of the revival."

We fear, however, that we have already expended too much space on Mr. King's very able volume, and its no less interesting subject. The work contains many engraved examples in illustration, and is altogether a very choice and instructive one, and stands alone, as almost the only one of its kind. Whether it will tend to the revival of the ancient art remains to be seen: a more elegant and fitting one than cameo-cutting, or even gem-engraving itself, as an employment for educated and tasteful womankind, in our advanced era of the world, cannot well be conceived.

YORKSHIRE ARCHITECTURAL SOCIETY.—The annual meeting of the members of the Yorkshire Architectural Society was held in the School of Art, Minster Yard, in the city, on Wednesday 23rd; the Ven. Archdeacon Churton in the chair. The Rev. T. Bayly (one of the local secretaries) read a report.

* Antique Gems; their Origin, Uses, and Value, as Interpreters of Ancient History, and as Illustrative of Ancient Art; with Hints to Gem Collectors. By the Rev. C. W. King, M.A. London: Murray, 1860.

"THE BATTLE OF THE STYLES."*

IN making some observations upon what architects may with justice call "The Battle of the Styles," I am not actuated by a desire to encourage the combatants, as I consider that already in the discussion of this subject too much warmth has been evinced on both sides. The arguments brought forward have occasionally savoured of the bitterness of personal enmity, and have consequently lost that power of conviction that a calmer tone naturally exercises over reflective minds. Nor is it my intention, by recapitulating the numerous arguments that have been deduced in favour of the Classic or the Gothic styles, to reopen the whole subject, and thus break the apparent truce that at present happily exists between the parties. I feel that, in bringing forward this subject, I am exposing myself to the critical acumen of the enthusiasts of both sides; but I shall endeavour so far to generalize as to avoid the necessity of quoting the opinions or mentioning the names of any particular individual. By adopting this course, I hope to avoid giving offence to the champions of either side; and, although I shall be compelled, in the course of the following remarks, to differ from some of my professional brethren, I trust that they will give me credit for the desire not in the slightest degree to hurt the sensibilities of any one. I feel that in the discussion of a topic of such importance to us, and also to the progress of architectural art in this country, the more calmly we can study the points of the question, and the less the argument from that selfish view of the subject, the more likely we are to arrive at a conclusion that shall reflect honour on ourselves as a profession, and prove a real impetus to the original and tasteful development of our art. At the same time, I believe it to be in the true interest of art to state with boldness such views with regard to it as appear to me to be grounded on common sense, and a knowledge of those principles which govern its practice. And as it is despicable to permit the judgment to be biased by interested motives, or envy to dwarf that appreciation of the works of others which is inherent in generous minds, I trust that whatever opinions may be advanced by me this evening, you will give me credit for perfect sincerity when I say, that in dealing with this subject I have simply a desire to promote the successful study of our noble art.

Unfortunately the battle that has raged between the advocates of the Classic and the Gothic styles, has not been confined to members of the profession, but has been taken up with even greater virulence by those who do not belong to it. The champions on both sides have too often shown evidence of being partisans rather than true lovers of art, and have often unworthily availed themselves of the mere illogical reasonings or chronological errors of their opponents instead of confining their argument to the discussion of the true principles of art. Nothing, perhaps, will prove the animus of some writers upon this subject more than the vituperations and sneers with which they have frequently interlarded their literary efforts to prove the correctness of their opinions. This shows itself in the mere descriptive terms applied to the various periods of art, such as "Pagan," "Christian," "National," "Ecclesiastical," &c. &c.

In dealing with this subject, it will, perhaps, be convenient to consider the question, firstly, as it affects the architectural profession; secondly, as it affects architecture and the public generally.

In treating of the first division of my subject, I feel that I am addressing those who have the same interest in the advancement of the true principles of art as myself, and that, therefore, however we may differ in views as regards the details of the question, our main effort should be in the same direction. Until within the last day or two I was unaware that Mr. Kerr had, during the last session of the Institute, read a paper upon the "Battle of the Styles," and having perused a report of it, I may here state that I almost entirely concur in the views therein expressed. There are some points, however, upon which Mr. Kerr has not touched, concerning which I trust I may have something to say that may interest you. Those who have watched the various phases of the argument, will have observed that both sides have shown some qualities to be admired and encouraged, and also unmistakable symptoms of other qualities to be condemned as unworthy of the votaries of a

liberal profession. If we look at the ability with which the whole question has been discussed, I agree with Mr. Kerr in thinking that it augurs well for the future study and practice of our art. But on the other hand, when we reflect upon the bitterness and sarcasm that have too often prevailed, we are led to infer that there is some hidden motive for such unwonted excitement.

I would ask, why all this acrimony and anxiety—Why this desire to raise up one style of art at the sacrifice and ruin of all others? How is it that there are those among us who are so blinded by enthusiastic bigotry that they deny the beauty of those periods of art which produced the monuments of ancient Greece and Rome, of Herculaneum and Byzantium, of modern Rome, Venice, and Florence. Again, on the other side, there are some who look upon Gothic architecture as the barbarous growth of the dark ages,—as "the child of Fendalism nursed by Popery." But why persist in applying irrelevant and ungenerous terms in conducting an argument that should have for its sole aim the establishment of the true principles of taste and the successful development of architecture in this country? The temporary triumph of the pamphleteer of to-day over him of yesterday will only be gratifying to his immediate partisans. Such literary "escapades," although they may affect a few, are not destined to influence art to any extent in coming generations; and I fear we may sometimes measure the interested motives of their authors by the amount of vituperation heaped upon the heads of those who are unfortunate enough to differ with them on this subject. It is much to be regretted that the very terms that have been applied, or rather misapplied, during the discussion have been the indirect cause of much misunderstanding on the part of the public, and of ill-feeling amongst members of the profession. We should endeavour to consider this subject in the most liberal and cosmopolitan spirit. To be really great in our profession, we must set aside all mean or sordid views. To be learned in art, the mind must be carefully stored with examples of the styles of every period. To be successfully original in art, the mind must be prepared with a true knowledge of the principles of composition and proportion, combined with an unfettered imagination. To be chaste in art, both the mind and the hand must be highly cultivated. These remarks may be considered by some as so many truisms, and I freely admit that they are; at the same time I humbly submit that they are truths which are sadly overlooked in the education and practice of modern English architects.

From what I have just said it would appear that an architect, to be successful in the practice of his art, should be liberal, should be learned, should be original, and should be chaste in design. Of the first-named quality I am sorry to say there are too few instances. This does not proceed from the want of this quality in the minds of the majority of architects, but from the exceedingly restricted means of professional education that students generally have at their command. In all probability a young architect enters the office of his master, who may be principally employed in designing Gothic churches and chapels, or Italian banks or warehouses,—or, what is more fatal still, is engaged in the more mechanical part of his profession as a district surveyor, or surveyor to some public company, and who, therefore, cannot be expected to devote much attention to the higher branches of art. Neither of these opportunities is favourable to the development of liberal or cosmopolitan ideas of art. With regard to the second qualification,—that he should be learned,—I will only remark that this is a matter of previous education and persevering industry. As respects originality, I do not mean that eccentric originality so distressing to those of refined taste. With regard to chasteness in design, I consider this a portion of the argument that has not hitherto received the attention which it deserves. To those who have observed many of the executed and unexecuted designs of the present day with a critical eye, I think that it will be admitted that there has grown up among some of our younger men a tendency to a flaunting style of designing, without pretension to any degree of elegance, which asserts itself by what is called "striking the eye" of the beholder. But I may even go further, and say it occasionally presents itself in the shape of some hideous eccentricity, adopted solely, in consequence of the novelty of the pattern (for such only we call it). This kind of art never yet made a Phidias, a Michelangelo, or a Raffaele, and is in total opposition to the chasteness to be found in the best schools of Classic and Gothic architecture. We need not seek far for the probable cause of

this (which has been aptly termed "Jemmyism" in architectural art), when we reflect that the authors have, for the most part, been deluded into the idea that they could learn the whole art and mystery of architecture in the short term of three years. Although I feel that I am moving on tender ground, I cannot help observing on the very careless style of drawing that has been lately introduced into our Architectural Exhibition. I refer to the cross-hatching pen-and-ink style so freely used and abused. There are some who, from their real knowledge of art, can handle this manner of drawing in a masterly style; but unfortunately there are many imitators who, although they may be unable to deceive the profession, yet with these scratchy attempts at the picturesque, they succeed in misleading the uninitiated, as they exhibit the proposed design in such a state of confusion that what should represent ornament is taken for accidental blotch, and what is intended for blotch proper is supposed to be ornament. As I have before stated, perhaps the excuse is to be found in the very short period for which article pupils are now taken rendering it impossible for them to master the mere mechanical difficulties connected with their profession, much less those great principles of art, without a knowledge of which they can never be expected to attain success. I have before referred to the fact that there are many amongst us who, from studying under architects who were essentially one-style men, have naturally a strong feeling in favour of that style to the prejudice of all others, and who decried the modern eclecticism, not only from bias of old associations, but perhaps from the interested motive of self-preservation.

In passing to the second division of the subject, namely, as it relates to architecture and to the public generally, it will perhaps be useful to devote a little consideration to the origin and development of the various styles of architecture throughout the civilized world. And I would first ask what it is that constitutes a style of architecture? A column does not constitute a style, as there are columns in all styles. A roof does not constitute a style, as there are roofs in all styles. A window does not constitute a style, as there are windows in many. A string course does not constitute a style, as it is common to many. Mere ornamentation does not constitute a style, as all styles are more or less ornamented. And if none of these things constitute a style of architecture, what does? Here it becomes necessary to think with deliberation, as we are now entering upon the threshold of those great principles of art which are universal in all styles and in all ages. It becomes most difficult in speaking of this subject to avoid mere generalising. But I require, if possible, to go further into the consideration of this question, and to state what I believe to be the peculiar characteristics of the various styles of architecture. In the first place let us note the necessities of mankind under various climates and degrees of civilization. Let us reflect upon the vicissitudes of climate necessitating shelter. But, above all, let us consider that wonderful instinct of our nature that whispers to the soul of the savage that there is a greater and more terrible Being than himself, that disturbs sleeping consciences, and speaks to thinking men. To this wonderful instinct we owe the glorious examples of ancient and modern art. From the early Hindoo temples down to the exquisite culmination of Greek art in the Acropolis of Athens, and the luxurious profusion of ancient Rome, dates a period of upwards of 3,000 years, during which time the various phases of art had appeared and disappeared, to be again resuscitated from the ashes of ancient Byzantium by Constantine, in the fourth century, when he moved the seat of government from Rome to Constantinople.

The fears of a superstitious mind induce the savage to carve with a certain degree of rude elegance the idol which he is about to set up for worship. The mysteries of a solemn ritual lead the Buddhist to carve and to decorate, from the base to the crown, with silver, gold, and precious jewels, the temple dedicated to his gods. The dictates of a purer faith induced Christian nations to offer better and grander works to an Omnipotent Creator; and thus we find that art has its origin in the expression of some abstract idea of the beautiful existing in the human mind; and when we reflect upon the variety of faiths that have, and now exist, in the world, we can easily discover the origin of the various forms into which this abstract expression was thrown by the respective nations of the earth. And, taking this view of the question, how very mean appear the efforts that have been made of late to restrict art. These would-be critics on art seem to forget that

* Read at the Architectural Association, by Mr. Arthur Allom, as previously mentioned.

it has been practised in all its various forms of beauty for thousands of years, in the same way that language has been spoken, occasionally with the force and vigour of an intuitive taste, but frequently with all the eloquence and grace of a more refined education.

The revival of any style of ancient art does not always arise from a conviction of its intrinsic beauties and merits, but is more often the result of fortuitous circumstances favouring the development and knowledge of this or that particular period. To such circumstances we may trace the revival of Palladian and Greek architecture, which prevailed in this country from the time of Wren to the present. All the publications during this period were devoted to the delineation of examples of classic art. The students of the Royal Academy were sent to study the glories of past ages in Greece and Italy; and perhaps not a little of the patronage given to the revival of Greek art in this country owed its origin to the keen appreciation of men of refined taste for the unexampled specimens of Greek sculpture that have from time to time found their way into this country. During my short experience, "Gwilt's Chambers's Architecture" has been a common text-book for young architects. From its pages we have learned that a door, or a window, or a room, must be of certain proportions, to be within the strict rules of taste, with sundry other fallacies concerning the origin of the five orders of architecture which are now happily, to a great extent, exploded. In speaking thus of a most valuable work upon classic art, I would still wish it to be clearly understood that I would rather place in the hands of a pupil this book, with all its faults, than let him wander through the more picturesque but less strict works on Gothic architecture. In the one case he is, by gradual steps, advanced to a true knowledge of the proportion of the whole, as well as most minute parts, and is thus disciplined into a keen appreciation of those exquisite proportions to be found in the works of ancient architecture and sculpture; in the other he is too frequently allowed the license of the amateur in art, who always sketches, but rarely finishes.

The revival of Gothic architecture has, in like manner, derived a great impetus from the numerous and valuable publications of such men as Pugin, Pugin, Collins, and others. But, unfortunately, the knowledge thus offered to the young architect has not always tended to the advancement of art, but has rather acted as a restriction. I say this because it is not long since (according to the views propounded by certain critics on architecture, who were then looked up to with considerable reverence), the use of a moulding or a window-head was restricted to those forms only for which a precedent could be found in some ancient examples, and the unfortunate tyro who had the temerity to be guilty of originality, was visited with condign punishment by these would-be Mentors of Art. This is art in leading strings indeed: I would ask these persons whether they consider art in this country to be in its infancy, or in its dotage. No wonder that we, as a profession, have been content for some years past to witness the erection of a series of copies from ancient examples without a single good or original idea about them, and thus assisting, as far as lay in our power, to puzzle the New Zealander who at some remote period is to visit the ruins of this metropolis.

Having taken a brief glance at the probable origin and development of architectural art throughout the civilized world, let us consider the present state of architecture as a fine art in this country. To fully appreciate the merits and beauties of any particular style, it is desirable to consider the uses to which the building has been devoted. From what I have before stated, it will be seen that religion or feelings of a kindred nature have, according to the history of past ages, proved a fruitful incentive to the production of art in the erection of places of public worship, either Pagan or Christian. It will be found that the higher the degree of civilization the greater the efforts which have been made in the direction of high art; and although, according to the taste of the present time, these efforts may not always have been successful in keeping pace with civilization, yet it must be allowed that high mental attainments in some form are necessary to the encouragement of the fine arts. By studying the various styles of architecture which have for the most part been devoted to religious purposes, we perhaps the greatest merit of each is found to consist in the perfect adaptation of all its various parts to the particular requirements of the form of worship for which it was intended.

The growth and perfection of all styles of

architecture have been the result of the perfect adaptation of form and ornamentation to the requirement of the times and circumstances under which they were developed. In the architecture of the Egyptians, the Assyrians, the Greeks, the Romans, the Moors, the Venetians, and some other styles, we can discern no attempt to do more than to fulfil the necessities of each period; and it must be clearly observed that these styles were in no case the result of revivals, although we may plainly trace the influence that early periods of art had in moulding some of their forms and ornaments. This engrafting of the beauties of one style upon the vigorous shoots of another, is a healthy sign that should be encouraged, if only in opposition to the tame revivalism of either the Classic or the Gothic, which can alone lead to servile copying, to the inconvenience of the public and the permanent depression of pure æsthetic feeling in this country.

The perfect fitness of a style of architecture to the requirements of the age under which it has been developed and perfected, should be a subject of thought and example to the young architects of the present day. For although we can mark a decided improvement in the progress of art in this country, we can also discern frequent attempts to force the details and characteristics of past styles into the façades of modern buildings without reference to their original adaptation and the requirements they were intended to fulfil. Such attempts have produced many failures in art, and, if persisted in, will result in a Victorian style that will be quite unworthy of the education and present enlightenment of this country.

To those who are anxious for a distinctive nineteenth century style, or what has been termed a Victorian era of architecture, I would say that no individual ever yet succeeded in originating a combination of beautiful and original forms of such a homogeneous character as to constitute a complete style. There is a well-known proverb that "fools rush in where angels fear to tread," and the truth of this saying is sometimes exemplified in the introduction of colour and coloured material in some of our modern domestic and public buildings. The application of colour as an auxiliary to architectural form and design requires to be executed with the delicacy of a woman's touch, and not with the coarseness of a clown's. In the one case the mind sympathizes with the graceful pencillings of art, in the other the feelings are excited to mirth, or more frequently disgust. To all who have devoted even a moderate amount of attention to the science of colour that study is found to be one of an exceedingly difficult nature. The student, after having made himself acquainted with the names and the natures of the primary, secondary, and tertiary orders of colour, has yet to attain the knowledge of those varying circumstances which should govern their successful application. In the painter's art this is to be obtained by a careful study of nature and close observation of the practice of the best masters. But we have only to note the numerous failures of those who attempt the practical application of the science of colour to discover the difficulties attendant upon its judicious treatment. All art is dependent upon a few great principles, as are in fact all sciences founded upon an accumulation of facts from which their leading truths are deduced. But in the practice of Polychromatic decoration in architecture we cannot exactly copy nature, because our art has something in its forms and principles which are opposed to those of nature. The prototype of a Greek temple has never yet been discovered in the works of nature, and I think we may safely apply the same observation to a modern school-house, and, whatever may be said by those who so frequently tell the young student to follow nature, I much fear that the teachers themselves are not prepared to point out the road which he should take.

Before bringing these few imperfect remarks to a close, it would, perhaps, be desirable, in a practical way, to attempt a solution of the difficulties connected with this subject. I had cause to lament the bitterness of feeling that existed between the belligerents, partly arising from enthusiasm and bigotry, the result of a peculiar bias acquired in the early education of the architect, and partly owing to the less estimable, but necessary motive of self-preservation. If the principle of eclecticism were possible to all architects, we should probably hear no more of the Battle of the Styles; but unfortunately there are many who, from circumstances over which they had but slight control, have been compelled to devote their studies to one style solely. It may have been Classic, or it may have been Gothic, and consequently they are frequently almost insensible to

the beauties of any other. They must live: they have no choice; and hence their anxiety for the success of their (yet because their only), style of art. If we could only bring our minds to believe it, this mere revivalism is but a lazy and a lifeless way of practising art. The facilities offered in our time by the immense increase of architectural publications, principally devoted to the delineation of mere ornament, encourages a slavish copying, resulting in a tame, not to say fraudulent, practice of palming off the work of past centuries as the invention of the present day, I do not pretend to say that there are not signs of living art in some of the productions of modern times. We have only to walk through the metropolis to discover many examples of real thought and genius in the works that have been erected within the last few years; but we may also discover some that tell, as it were, of the paste and scissors; and many again that are so painfully erratic in their forms and ornaments that we might, with considerable justice, class them as belonging to harlequinade style of art. Turner was once asked by a tyro in the art of painting, on what principles he worked to obtain the glorious results which are now so highly prized in our public and private galleries. His answer, although disappointing to the young aspirant, was full of meaning. He said,—"I do exactly as I please;" and so it should be with us. Our minds should be so well stored with the forms and spirit of past periods of art, our judgment so well balanced by artistic study, that we should be able to handle the pencil in the same way that he did the brush; and although we may be using the same materials and means that have been used for centuries, yet by the power of imagination, guided by æsthetic feeling, we may so use them that the work shall bear the stamp of our individual minds, and remain an example, not of our powers of mimicry, but of the works of a bygone age, but of our successful progress in architectural art during the nineteenth century. In its development at the present time there is much to be admired, and perhaps we may congratulate ourselves upon a move in the right direction, more particularly as respects our modern secular buildings. There happily exists a growing desire on the part of the public for an improved construction and a more tasteful embellishment of both private and public structures; and although the effects of eclecticism may be to give too great latitude to original thinkers, yet we have only to adopt an improved and more complete system of educating the young architect, to perhaps eventually rival the glories of both Classic and Gothic art.

LECTURES: ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION.

On the 29th ult. Mr. Edward T'Anson lectured on the Photographs of French Renaissance Architecture now in the Gallery, referring particularly to those of the staircase at the Château of Blois, and those of the Louvre, in support of the good opinion he entertains of much of the architecture of that period.

Mr. George Mair presided, and introduced the lecturer to the meeting.

AWARD OF PRIZES. ARCHITECTURAL MUSEUM.

THE prizes to artist-workmen have been awarded as follows:—

For designing and modelling in clay a medallion of the head of the late Duke of Wellington. First prize of 5*l.* 5*s.*, to J. Allen, of Wellesbourne, Warwick; second prize of 3*l.* 3*s.* (given by Mr. S. C. Hall, F.S.A.), to J. Hatchett, of 8, Sutherland-square East, Walworth; third prize of 2*l.* 2*s.*, not awarded, but 1*l.* 1*s.*, adjudged to H. O. Dale, of the Terra Cotta Works, Stamford.

For carving an oak panel of original design, for one side of the binding of a Church Bible. First prize of 3*l.* 3*s.*, to H. Reynolds, of 42, Kirby-street, Hatton-garden; second prize of 2*l.* 2*s.* (given by Mr. S. C. Hall), to B. L. Boulton, of 40, New Church-street, Birmingham; and 1*l.* 1*s.* awarded to J. Seymour, of Tower-lane, Taunton.

For an original cartoon of a canopy for painted glass. The prize of 3*l.* 3*s.* to J. J. Laing, of 19, West Preston-street, Edinburgh; and 1*l.* 1*s.* to E. Sedding, of 5, Upper Victoria-place, Clifton, Bristol.

The awards of 1*l.* 1*s.* were not included in the offers of the council of the Museum, but have been added, in cases showing merit, though not entitled to prizes.

It is the intention of the council, this year, if their funds will allow, to offer larger prizes, and

to present smaller snus, or books, is an encouragement to those competitors whose specimens, although not rewarded by prizes, deserve some mark of approval.

For coloured d'coration. (Prizes of 5*l.* 5*s.* and 3*l.* 3*s.*, offered by the Ecclesiological Society, and Mr. Baresford Hope), Mr. Simkin, of 20, Palace-road, Lambeth, and Mr. A. O. P. Harrison, of 337, Euston-road, having been considered equal in the competition, the second prize has been increased to 5*l.* 5*s.*, and prizes of that amount have been awarded to both the above competitors.

For the prizes of 5*l.* 5*s.* and 3*l.* 3*s.* offered for a key, either Mediaeval or Renaissance in style, no specimens have been sent in, being the second occasion on which the metalwork prizes have not been responded to.

The prizes, with certificates of merit in deserving cases, will be distributed at a public meeting, in the Theatre of the South Kensington Museum, on the evening of Wednesday, March 6, by the President of the Architectural Museum, Mr. Baresford Hope. Until that time the specimens will remain on view in the Museum.

THE EGYPTIAN PHOTOGRAPHS IN THE EXHIBITION OF THE ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION.

MR. BOVONI, in his lecture on the 22nd ult., confined himself mainly to the admirable Egyptian photographs of Mr. Frith; and made, amongst others, the following observations:—

The first in order, as they appear on the wall, is No. 125. The capital of a column, from a remarkable structure behind the large Temple of Karnak. Columns of this order are found in no other building. Upon the shaft of two of these columns are representations of the figures of SS. Peter and Paul, now almost defaced. I mention this circumstance in the hope that some traveller will make the relics of Christian art yet to be found in the Temples of Egypt his particular study. There is scarcely a temple either in Egypt or Nubia, which has not some indication of its having been adapted to Christian worship, by filling up the incised ancient sculptures with soft clay, and covering that with a coating of plaster, on which may still be discovered the pictures of saints, and very frequently one of St. George and the Dragon.

I should have observed, that the diameter of the lower part of the shaft of this column is a little less than the upper diameter.

No. 126, is the capital of a column of one of the forms peculiar to the more ancient temples. It represents eight buds of the papyrus, bound together with flat bands. The shaft of this column is also divided below the pendant terminations of these bands into eight compartments, representing the stalks or stems of the eight buds. These stalks, after growing considerably wider as they approach the base, at last contract, as does the natural plant just before its insertion into the ground, and here the natural plant is furnished with a thin leaf, which closely surrounds the stem. This feature is also given in the stone imitation; so that in this form or order of Egyptian column, there may be said to exist a certain consistent harmony between the capital and shaft, which we fail to recognize between the capital and shaft of a column of the Corinthian order. Perhaps the most elegant examples of this order are those of the ruin at Soleb, of which there are three views in this collection.

No. 127 is not, properly speaking, a column, but more closely resembles an obelisk, deprived of its apex. It is of the rose-coloured granite of Syene, and is the obelisk at the south of the entrance of the granite sanctuary at Karnak. Two of the four sides are decorated with representations, in Egyptian relief, of the king being received by the deity. I may say in a most cordial manner) by the divinities of the sanctuary. The remaining two sides of the square monolith are occupied by three figures of the papyrus, which represent, perhaps, a variety of the plant belonging to the southern region; while, on the obelisk to the mouth of the entrance, is sculptured the papyrus of Lower Egypt.

No. 128 is a specimen, from the west bank of the Nile at Thebes, of the form of column already described. It is from a temple in and about which there used to be a village, Ertehek, in which word is recognized the ancient Egyptian name of the temple; for the temple is dedicated to Re, the sun, and the word *hek* signifies house, as in the word Baal-*hek*. This temple has anciently undergone several changes and additions, by the successors of the original founder Osmenephthah I., whose tomb Belzoni discovered in the Benau-el Mohak, and whose sarcophagus is now in the Naum Museum.

No. 129 is likewise a specimen of one of the more ancient orders; the capital representing a single bud of the papyrus, and the shaft the stem or stalk. Now, in order that a characteristic feature of this important plant, namely, the triangu- larity of its stalk, about the shaft there are several architectural modifications of its form, it is to be observed that there is always left on the shaft three rings extending from the five flat bands down to those close-fitting leaves at the base of the shaft.

No. 130. The column I have next to describe is of an order never found in any of the more ancient temples now existing. It may be said to be of the composite order; for the capital is composed of papyrus leaves, in the several stages of growth, placed in exactly successive round, a common centre.

First, we have four of the fully expanded flowers, then four larger half-expanded, then eight lesser half-expanded; and lastly, sixteen buds. The stalk of each flower and bud is to be traced for a short way down; that is to say, as far as the first flat band, of which there are always five. From this point the shaft enters the column a single stalk, gradually enlarging, till, within about one-sixth of its height, it begins to contract, and is encompassed by those close-fitting leaves previously described. In the temples of the later Ptolemies and the Romans, the shaft is frequently continued in a straight line down to the base. The leaves at the base are, however, never omitted.

The columns of an Egyptian portico are always connected by a dwarf wall, and those that sustain the entrance are further strengthened by a massive construction which sustained the two vanes of the gate. In the case of Dendera, the stones into which the papyrus of the capital were inserted are of black granite; the rest of the temple being of sandstone, as indeed are all the columns hitherto described.

No. 137 exhibits the details of some of the shorter columns of the great chamber called the Hall of Columns, at Karnak. The roof of this chamber was supported by not less than 152 columns of the bud-shaped capital, and twelve of the fully expanded flower, making in all 154 columns.

No. 138 is a view taken across the Hall of Columns at Karnak. Here the intercolumniation is considerably increased; making a transverse avenue across the Hall, from north to south, corresponding with the north and south gates. The great avenue of axis (all the buildings connected with this Hall is at right angles with this view; and the columns which support the higher roof in that axis represent a single, fully-expanded papyrus. These columns are about 60 feet high, while those which support the lower roof are not 10 feet high.

No. 139 is a view of one of the most interesting ruins in the Plain of Thebes. It is surrounded by a series of crude brick arches, like our railway tunnels. For what purpose these extensive arched constructions were made still remains a mystery; but it is tolerably certain that they are of the same age as the Temple, which is of the time of Rameses II.

No. 141. View of the Plain of Thebes looking across the Nile. The towers of the great propylon of Karnak are visible in the distance.

No. 142. This newly excavated figure is the last one of the row close to the second propylon. In my time it was buried up to its shoulders in the unburnt bricks and fragments of stone which encumber the ruins of Mdmet Habu.

It represents the great Egyptian conqueror Rameses II., the Sesostris of the Greeks, and two of his children. This is a particularly interesting view, showing the beautifully finished and deeply-cut hieroglyphs with which the walls of this Temple are covered where they are not occupied by representations of battles and processions of the greatest historical interest.

No. 143. This view of the wall of the Temple of Karnak would next call your attention to No. 139, representing the recent excavations in the inner part of this temple, carried on by M. Mariette. It shows the bases of walls and columns of a chamber recent to the Hall of Columns. In my time the wall of the west of the space was covered with the accumulation of the ruins of successive villages, built one over the other, above the remains of this palace or temple of one of the greatest conquerors of the world. There is reason to believe that the ruined and deserted villages which have been so recently removed have not been inhabited since Thebes was a Christian city, when the great court of the temple to which the gate gives access was converted into a cathedral church. There are some beautiful drawings by David Roberts, showing this court, and the Christian additions to it, by which means it was adapted to Christian worship. A singular fact in this view is that we see no remains of the superstructure; and we naturally inquire, "Where are the architrave and roof stones? When, and by whom taken away?" These are questions which, in the history of the great capital of Upper Egypt, it would be highly desirable to answer, and which I hope the learned excavator will have found sufficient evidence to elucidate satisfactorily.

It will be understood, from what has been said, that all the varieties of capitals and columns, excepting three, are derived from the papyrus, and all, when we reflect on the material of the past in ancient times, as for building material for the transmission of thought, we shall cease to wonder why its figure was so often portrayed, or why it should have been chosen as the type of the column—a feature in all tabernacled buildings, and especially in those of Egypt.

MANCHESTER ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held at the Church Institute's rooms, John Dalton-street, on the evening of Wednesday last, January 23rd. Preliminary business having been transacted, the proceedings of the Association were formally opened by the president reading the inaugural address, in the course of which a sketch was given of the favourable circumstances under which architecture at present exists, in spite of the many misconceptions with which the general public regard it.

In inquiring into the probable cause of such misconceptions, the writer asked the question,—"Is the history of architecture inadequate to furnish material for suggestion, instruction, and incentive; that, profiting by the experience of the erections of past times, we may avoid the defects, imbibe the spirit which breathed into their architecture the breath of art-life, or catch from them the mantle which shall enable us to infuse into our works power and beauty, or seize that golden cord which, in not a few instances in the progress of style, has been left incomplete; and carry to a successful issue the perfection of styles in so far as perfection is attainable?"

"Or is it that the architectural mind, intent on reaping the rich fields already tilled with autumn hues, and gathering the luscious fruits, abundant and luxuriant, flits amid the bewildering scenes of beauty, experimenting with one thing, capriciously adopting another, seizing with excited grasp the apparently excellent and worthy; carried away by the vastness and richness of his resources, in despite of the judgment that cooler research would secure to it?"

The essayist, in alluding to the many failures, artistically and constructionally, of buildings of modern times, ascribed such defections in great

measure to improper early training in regard to matters of professional education; and censured in the following terms the architect who, in despite of all accepted standards of taste, thrusts the crude creations of his brain on the public:—"Does it, then," he asks, "become our province to censure?—have we any right to indulge in strictures and charge with a weighty responsibility those who incur them; seeing that after all it may be a mere personal matter affecting, in his professional reputation, the individual more immediately interested? If he be willing to bear the censure of the public, to whose criticism the work is, by the fact of its erection, submitted—if he choose to stand on his rights, as a private citizen, on the peculiarity of his standard of taste, or on his privileges as a professional man better informed than the uninitiated portion of society, can requirement go further? We believe it can: convinced that, as in literature, so in art, the works of the refined and skilful have their tendency in elevating intellectually those who come under their influence; that, on the other hand, coarse, tasteless, and ill-adapted productions have not merely a negative impression; exciting no emotions of pleasure, no sense of contentment with the work thus presented, but one positively demoralizing; giving to architecture a depressed standard of taste, weakening the sympathies, stultifying the imagination, and extinguishing the life-spark of the appreciation of the beautiful possessed and enjoyed in a greater or less degree by all." The line of argument chosen embraced the necessity of careful art-education, and also proved that an association like that just established was one of the most effective means to secure such training.

The hon. secretary, Mr. R. K. Freeman, having intimated the business of the next three meetings, namely,—A paper by Mr. Thomas, on "Timber;" a paper by Mr. Alfred Darbyshire, on "Michelangelo, the architect, sculptor, painter, and poet;" and one by Mr. Webster, on "The Science of Architecture," the meeting was concluded by a vote of thanks to the president for his paper.

THE "AMATEUR MUSICAL SOCIETY."

WE record with regret the dissolution of this excellent Society. The cause of this sudden termination of its career, at a time when it was, to all appearances, as flourishing as ever, was a temporary and trifling embarrassment, induced, ostensibly, by the diminution of its subscribers, but, in reality, by the listless apathy of the orchestral members themselves, who, with a few exceptions, were content to enjoy simply the benefits of the institution without moving a finger to aid in increasing its funds beyond the amount of their own subscriptions, by seeking subscribers amongst their friends individually. The immediate embarrassment was paltry, and numerous well-wishers to the Society would willingly have supplied the means for its liquidation. But the prospect for the ensuing season was not encouraging, and so, at a general meeting of the members, held on the 15th ultimo, the Society was dissolved.

This precipitate step will create a blank in the musical circles of the metropolis not easily filled up, and all who have watched the doings of the Society for the last fourteen years will bear testimony to its merits, and perceive how far easier it is to destroy than to form a society of such pretensions. For the performers themselves a greater loss is involved, and the means once placed at their command for a practical acquaintance with the highest class of orchestral writings in their integrity must now be supplied by any chance opportunity that may present itself. Whatever other causes, independently of the apathy of the members, may have conducted to the breaking up of the Society, suffice it to say that we consider the resolution was premature, and that the effect is likely to be mischievous. The Society, it has been said, has in some respects fulfilled its mission, in leading to the formation of private societies, and to increased appreciation of their professional brethren by the amateurs of the metropolis. We do not think so, and believe that its dissolution must exercise, to some extent, a retrograde effect upon our amateurs.

Of the origin of the society, in 1846, through the joint labours of Lord Gerald Fitzgerald, Sir A. K. Macdonald, bart., Mr. E. Jekyll, and Mr. H. Leslie, we have before spoken, and a few lines may suffice to record its rapid growth to maturity from its first conception in the salons of the Duke of Leinster.

The two first years already included in the orchestra the principal amateurs, both noblemen and gentlemen, of the metropolis; and the support

of his Royal Highness the Prince Consort and the late Duke of Cambridge set the example for the subscription-list. The meetings for the first year were held in Store-street, Bedford-square.—Mr. Balfe officiating as conductor,—and consisted entirely of rehearsals, terminated by a concert to private friends; but in the second year the society moved its *salones* to Hanover-square—where they have ever since been held—alternated concerts with rehearsals, and opened a public subscription-list. After Mr. Balfe's withdrawal Mr. O. Lucas, Mr. Negri, and Mr. G. A. Osborne, successively wielded the *bâton*, and in 1855 Mr. Henry Leslie was requested to undertake the arduous duties of conductor, which post he retained to the last, with what efficiency we have often testified to.

The *prestige* of fourteen seasons was surely worthy another effort to retain. If called on for a verdict on the dissolution of the body, we should certainly say, *felo de se*. There must be an Amateur Society in London, and the sooner a committee be formed to re-establish it the better.

THE SANITARY CONDITION OF SUNDERLAND.

FROM some statistical details given in the *Gateshead Observer*, it appears that the total mortality in the borough of Sunderland is being gradually reduced. Within the last three years there has been a reduction of 10 per cent.,—that is, ten persons out of every hundred have been annually saved. The total annual mortality had been so high as 26 per 100, but it is now reduced to 22. This however, be it noted, is still a far way off an exemplary limitation of mortality. But what shall we say of the amount of infant mortality in this same borough when regarded *per se*? Were it not for this black spot in its mortality bills, Sunderland might, perhaps, be almost an exemplary borough in respect to health. The destruction of infant life here is scarcely credible. Out of every 1,000 infants born, how many do our readers think die (still infants), within the limits of this borough of Sunderland, the whole average of deaths, be it remembered, being 22 per 100? Say 30, and add a cypher for the thousands, and with 300, you will still be far below the mark! Yes, 500! Out of every 1,000 infants born in Sunderland, 500 die before they grow up out of infancy! Could this wholesale annual massacre of innocents only be made palpable to the eyesight, as a bloody business carried out by means of swords and spears, like the infernal work accomplished 1,800 years since by the soldiers of Herod, how the world would reverberate with the utterances of horror to which it would give rise! Yet what is the difference? The process is much the same, only more quietly and secretly carried on: that is the only chief difference: death is not less cruelly and wantonly at work in the modern instance than in the ancient. At Newcastle, the infant mortality is not much less (440 per 1,000), while in Halifax, Bradford, Derby, and Birkenhead, it falls to 176 per 1,000.

AMUSEMENTS FOR THE WORKING CLASSES.

LOCAL BANDS OF MUSIC.

THE competition of local musical bands which took place at the Crystal Palace in course of last year showed how very considerable an amount of progress has already been made in the formation of such bands, and in the quality of the music with which they are capable of entertaining their fellow-workmen and others. It was a very interesting feature, indeed, of that competition, to find a few workmen, belonging to some obscure factory, in a provincial town, vying with the best and most skilled musicians among the local bands, and even carrying off prizes awarded by competent judges. The annual recurrence of such competitions would greatly promote the extension of this branch of entertainment for the leisure hours of the working classes. Local concerts, too, amongst the bands, must do much good in promotion of the movement. A bill and programme of one of these is now before us. This one, however, has the peculiar advantage of being got up by Mr. F. Leslie, brother of the well-known composer, Mr. Henry Leslie; but his connection with it is an entirely legitimate and natural one, from his position as regards the management of the works to which the band belongs,—namely, the Bristol Gas Works. Mr. F. Leslie is the honorary bandmaster of the band, at the Avon-street works of this company; and the concert, which takes place on the 11th inst., is

being got up in aid of the band fund, and under the patronage of the mayor of Bristol and the directors of the gas company. The programme comprises pieces of music by Mozart, Verdi, Rossini, Mendelssohn, Leslie, Wallace, Weber, and various other composers; and mutual aid and good-fellowship are displayed in the gratuitous co-operation of the Clifton Vocal Association; and other artists, female as well as male, have kindly promised their assistance. The gas-work men alone have purchased 600 tickets, saloon (2s.) and gallery (1s.). To show how such bands are established, we may here add that, under the guidance of Mr. Leslie, twenty-four of the workmen united and subscribed no less than 110*l.* for a set of Distin's instruments. The band meets twice a week for instruction after working hours; and, since April last, when it was established, great progress it appears has been made, and the players have become very proficient for so short an apprenticeship. Mr. Leslie is anxious to show, in this way, "what can be done, with a little method and thought, to improve the condition of the workman, by diverting his thoughts, during his leisure hours, from low ideas and associations." The example is about to be followed at the Canon's-marsh Station of the same company.

SCOTLAND.

Edinburgh.—Professor Syme, of Edinburgh, writes to the *Times*, giving a very bad account of the accommodation provided for the troops in Edinburgh Castle. The married men, he states, are stowed away on the ground-floor, in low, narrow, ill-ventilated rooms, of which the area is equal to 20 feet square: the walls are only 6 feet high, with the ceilings slightly arched towards the centre, and the solitary window, about half the size of an ordinary one, is placed at the end, opening into a corridor. Each of three visited contained three married couples, with from six to ten children, of ages between three months and twelve years. Of the single men, a large portion are packed into storehouses, with crazy skylights and stone floors, in numbers so disproportionate to the space, that when the beds, which stand close together, are let down at night, they overlap each other at the feet, and thus convert the whole surface into a uniform plane, whence the lights being extinguished at nine o'clock, none of the twenty soldiers who form its complement can escape for any purpose whatever, except by stumbling over the bodies of their sleeping comrades.—A piece of screen-work has been erected round the spot where the old City Cross stood, for the purpose of showing the extent of space it would occupy in the event of re-erection. It would seem, according to the local *Post*, to affect, in some measure, the proper width of this central thoroughfare; but if the basement were somewhat contracted and made to rise in a gradual form, this objection, it is thought, would be obviated; and otherwise the restoration of this ancient relic would be rendered a characteristic ornament to the principal street of the Old Town. At a public meeting of the citizens, we observe, it has been resolved to urge the re-erection of the cross.

Glasgow.—The granite fountain, gifted to the city some months ago by Mr. James Crum, of Busby, has just been erected on the edge of the pavement on the west side of George-square. The design is simple. The material of the fountain is Peterhead granite, polished; and there is a dog-trough below of another description of granite. The fountain is the work of Messrs. McDonald & Leslie, of Aberdeen.—The Roman Catholic church of St. John, in Portland-street, Gorbals, has been enlarged by adding the adjoining schools to it, and new schools have been erected. The cost of enlarging the church, according to the local *Free Press*, was about 500*l.* The front of the new schools is in Warwick-street. The building is in the Italian style of architecture; and, in most of its features, according to the paper just named, corresponds with the design of Vignole's invention executed by him in the cornice of the castle of Caprola, built by Cardinal Alleprando Farnese, on the Viterbo road, about thirty miles from Rome. The building itself is 100 feet long and 48 feet broad; while, to the rear, and running along the public lane, there is an area 100 feet long by 17 feet wide, which is divided into two yards, for the male and female pupils, and in each of which are built suitable water-closets, ash-pits, coal-collars, fountains or lavatories, with space convenient for a play-ground. The boys' school-room is 76 feet long, 22½ feet wide, and 15 feet high. It has nine windows and two fireplaces. The upper hall, or girls' school-

room, is 78 feet long by 42 feet broad, and has sixteen windows and four fireplaces. There are other class-rooms in the building. There is also a round tower, terminating in a cone and spire, and containing apartments. The cost of the school-building is said to have been about 5,000*l.*

Jedburgh.—The Commissioners of Supply of Roxburghshire have resolved to erect a new courthouse here; and a committee appointed to carry this resolution into effect have requested Mr. David Rhind, architect, Edinburgh, to prepare the requisite plans and specifications. The proposed building will be erected upon the site of the infant school in Castle-street, adjoining the existing County-hall; and the latter will be altered internally, and converted into police-offices, and chambers for the procurator-fiscal and other public officers.

DOINGS IN IRELAND.

Londonderry New Bridge.—At about 10 a.m. on the 7th inst., the third cylinder pier gave way, and two of the cylinders are lying on their sides, level with the water. The cause has not been made public.

Belfast.—The most striking event is the increase in the number of Presbyterian places of worship. The Sandy-row Presbyterian church has just been completed, and was to be opened on Sunday, 13th inst., by the Rev. Dr. Hanna, of Edinburgh. Mr. McNea, architect; Mr. Fullarton, builder. It is unpretending in style, and ornamented solely with white bricks and a little cement on the street front, and will accommodate about 800 persons. The Queen's Elms Presbyterian church is of a more pretentious character, and might be, perhaps, called Norman, having an arcade in front, supported by thin columns of polished granite, with capitals, each differing from the other, a square tower on the southern angle, and the principal façade and tower built of cut stone. The roofing is nearly completed. We believe the design was furnished by Mr. Corry, one of the chief promoters of the building.

The Presbyterian church at Sydenham is in progress of erection. Mr. Barre, architect; Mr. Armstrong, builder. We hear it is to have a spire, and will probably be in the Gothic style.

A Presbyterian church is also to be erected at Duncairn, on Mr. Macrory's grounds, for the accommodation of the inhabitants of the north-west quarter of the town.

The Ulster Club advertise for tenders for a club-house. Messrs. Lanyon, Lynn, & Lanyon, are the architects. A double villa is to be erected on the Falls-road; Mr. W. T. Matier, architect, Belfast.

A new Coast-guard Station is about to be erected at Baldoyle, near Howth, under the Board of Works. Mr. J. H. Owen is the architect.

STAINED GLASS.

Hanley Castle Church.—Messrs. Clayton & Bell have completed a window for the church of Hanley Castle, Worcestershire, recently restored by Mr. Street. The subject of the glass is the "Last Judgment," the treatment comprising a great number of figures in groups, and otherwise occupying the entire area of the window; all canopy and ornamental divisional features being omitted. In the upper portion of the centre light is introduced a figure of Christ, enthroned in regal and jewelled vestments, as judge, surrounded by choirs of angels. The next range of groups beneath represents the Apostles, six arranged on each side, with St. Michael and trumpeting angels in the centre, St. Michael bearing the balance of good and evil, and the sword of punishment. At the base of the window, in the centre, are introduced various groups of figures rising from their graves, illustrative of the resurrection of the dead. On each side are other subjects, illustrative in the one case of the Fields of Paradise, with the Blessed escorted by angels; and in the other of the Fate of the Condemned. At the extreme base of the window runs the following inscription:—"To the glory of God, and in memory of Sir Anthony Lechmere, Bart., and Mary his wife, this window is erected by their daughters, Sarah and Eliza. Christmas, 1860." The window is a rich and creditable piece of work: we should admire it still more if the same scale had been preserved in all the figures, excepting that of our Lord, perhaps. Moreover, some white glass would have aided the effect.

Church of Upper Sapey.—A painted east-window has just been erected in this church. It is the gift of Mrs. Newman, being a memorial. The designer was Mr. Freedy, of London. The prin-

principal subject represented is the Resurrection: our Lord rising from the tomb and clothed in white, occupies the centre; below are two of the Roman soldiers. In the north light are St. Peter and St. John; in the south, the three Marys. In the quatrefoil at the top of the window is the fish casting out Jonah. In the lower part of the window are three circular medallions: in the centre one is St. Michael (to whom the church is dedicated), slaying the dragon; in the side ones are angels holding scrolls.

Wellington Parish Church.—The apse of the parish church of All Saints, in this town, has been enriched with a memorial stained-glass window, at the expense of James Oliver, esq., of Springhill. The window consists of three lights, the two outer ones being narrow compared with the centre one, which is of an unusual width. The architecture of the church, which is of the worst period of the Georgian era, rendered the treatment of this window a matter of considerable difficulty. Messrs. O'Connor, of London, were the artists. The panel of the centre light depicts the Crucifixion. The Virgin, St. Mary Magdalene, and St. John the Divine, are the figures composing the group at the foot of the Cross; while in the upper part, angels, in acts of adoration, fill in the panel. The side lights are charged with the figures of Saints James, Thomas, Peter, and Paul.

NEW SUBSTITUTE FOR MARBLE IN WALL-LININGS AND ELSEWHERE.

REFERENCE was made in our last report of proceedings at the Institute to Mr. Bridell's patent marble. This material is applied not only to the same purposes as scagliola, but in chimney-pieces and chiffoniers; and bears heat, cold, and exposure, it is asserted, without injury. For wall-linings, it is about half the price of scagliola. It may be applied as large or small panels of one colour, decorated with styles of a darker tint. It is made in slabs, to be fixed afterwards on the walls, so that each slab has a veining and character of its own. It is made chiefly of Keene's cement, and there is no plaster used in it; but the manner in which it is worked is the invention of Mr. Ellison, the patentee.

The panels of self-coloured materials for walls is a fresh notion. The proprietor asserts that it can be executed successfully, and that the ultimate cost would be even less than that of graining. We may mention that the dado and other decorations of the dining-room in the new wing of the Tavistock Hotel, Covent-garden, are of the patent marble, and are now being fixed on the walls, under the direction of the architect.

PRESERVATION OF STONE.

SIR,—The preservation of our buildings from premature decay is a matter universally admitted to be of the greatest importance, and our highest authorities concur with yourself in the opinion that time should be the most highly esteemed test. This test is now to a certain extent available; and if, anterior to the next discussion at the Institute of Architects, those gentlemen who feel an interest in this important question would personally inspect the buildings already operated upon, they would be the better prepared to receive assertions or explanations respecting them, and be enabled to form a correct conclusion as to how far any of them—if any—fulfil the necessary conditions of success. AN ENGINEER.

Mr. Page, in 1857, operated on the 7th, 8th, and 9th buttresses, pinnles, and dies, with intervening bays, to the same extent of the river front of the Houses of Parliament (counting from the south end).

Mr. Daines, in 1854, operated on the bay facing Old Palace-yard and adjoining the Victoria-tower and the battlements of the quadrangle of the Commons inner court; in 1856, on a portion of the parapet on the river front; in 1857, on a portion of the large cornice of the Conservative Club, St. James's-street.

Mr. Ransome, in 1857, operated on the pinnles and dies of buttresses on either side of the Commons' entrance on river terrace of the Houses of Parliament; in 1858, on the pinnles and dies on either side of Peers' entrance on river terrace of Houses of Parliament; in 1859, on Bloomsbury Chapel; in 1860, on the Marquis of Westminster's residence, Grosvenor-street; and on the Institution of Civil Engineers, Great George-street, Westminster.

Mr. Szereclney, in 1858, operated on the south side of the Star Chamber-court of the Houses of Parliament; and in 1859 on the Speaker's-court, ditto; in 1860, on Salter's Hall, City; on the statue of Victoria I. at the Royal Exchange; and on part of Spurgeon's Tabernacle, in the Borough.

SIR,—In the excellent and practical exposition of Mr. Tite, M.P., in the discussion at the Royal Institute of British Architects, he alluded to a defect in silicate of lime, due to a coating to stone for its preservation, viz. the pulverulent character of the precipitate formed by the mutual decomposition of the silicate by chloride of calcium, and you may, perhaps, deem the result of practical

experience in the matter worthy a place in your columns. If the precipitate formed by the above combination be washed until the whole of the uncombined silicate is separated, an impalpable powder remains, so fine as to resist neither the mallet nor the palette knife to crush it. This powder has been tried for water-colour painting in the usual mediums—so beautifully fine is it, though without success, owing to its rapid transparency, while attention is, however, worth notice, and is placed beyond a doubt by the facts mentioned. T. WRIGHT.

WORK FOR LADIES.

SIR,—In a recent number of your journal a correspondent, "E. P.," asks for some practical objects to be set before ladies who are desirous of useful employment. May I be allowed to mention that one opening recently made for occupying the leisure hours of those who desire something better and more satisfying than "morning visits," is that of visiting workhouses.

The "Workhouse Visiting Society" has gained admission into many unions, both in London and the country; and more visitors are still desired in some of them, both on Sundays and week-days. The occupation suits some ladies better than that of visiting the poor in their own homes, especially in London; and those who have once entered upon it become much interested in their labours.

I may perhaps be allowed to add, that the office of the Society is at No. 3, Waterloo-place, S.W., and that I shall be very glad to receive any communications upon the subject addressed to me, either there, or at No. 13, Bedford-place, W.C. L.

THE PREVENTION OF DAMP IN STONE FLOORS.

HOWEVER ornamental or useful stone may be when used for staircases, or as a flooring for lower rooms, there is nevertheless little doubt that its employment has destroyed many lives, and in other cases induced a helpless state of bodily disease. This may arise from various causes; to adults, from kneeling upon it to clean it, or by sitting with the feet upon it, as is often the case in kitchens when paved with it. Even if a piece of carpet or mat be placed on it for protection, the danger is not overcome, for the cold will strike through these. It is suggested that one or more coats of oil brushed over it would, by preventing the absorption of moisture or water, remove the danger. Animal oils would, perhaps, be the best to use, though vegetable oils have the advantage of being thinner and cleaner to use; besides, perhaps, they would be more readily absorbed. As far as practicable, the stone should be rendered as dry as possible by removal of earth from below, proximity to a fire, or selecting a time after the continuance for some days of warm or dry weather, before washing or brushing the oil into it. Probably no other of the chief materials used in building imbibe moisture so readily, or part with it so slowly, as stone; and it is believed that, by adopting the process suggested, not only might much ill-health be prevented, but a saving perhaps effected with respect to repairs. M.

LIVERPOOL CEMETERY COMPETITION.

SIR,—It is now upwards of two months since I sent in plans for the Liverpool Cemetery; and, as I have not received any information, I have discussed in my own mind the propriety of applying to the secretary of the Board; but it occurs to me that an inquiry through the *Builder* would answer the purpose much better, as it might induce something from the Board, and be at the same time an acceptable medium to other competitors. I have seen your review of a number of the plans exhibited, given in the *Builder* of some weeks past; but I have sought in vain for any other allusion to the plans. I hope shortly to be enlightened as to the result. While on this subject, allow me to remark on the very unsatisfactory turn which competitions seem to be taking. There appear to be less of the excitement, and a great deal more of the unfairness which occasionally characterize horse-racing.

It is lamentable to see talent thus riding itself to death. With some, competitions may be recreation, or a filling up of time for themselves and their pupils, and also serve a good purpose in the practical knowledge, which the requisite study of each particular subject must necessarily impart; with others it is the prospective source of a livelihood; but none can rest content with the worse than lottery system which prevails with regard to the adjudication of merit. There must be many who plod the pencil with weary hands and cheerless hearts; and to them, small inadequate premiums, long delays, and unjust decisions, must be a subject of many regrets.

The advertisements for plans which are constantly to be found in the *Builder* are (with few exceptions) an index of the low appreciation of the outside world for art; and the greedy manner in which the bait is swallowed by a score or more of architects shows something wrong in the profession, and makes one almost fear that the offer of a tin medal would induce a certain amount of competition. 25 2d. would seem to be the liberal outpourings of some corporate and other bodies to tempt talent to expend in their behalf; and then they must needs insert a clause, that this paltry premium is to be merged in the commission if the successful competitor is employed to carry out the work. Allow me to conclude this subject

for the present by a request that in future those who make the *Builder* the medium of advertising for plans will make use of it to inform competitors as briefly as they think well, as to the conclusion arrived at. I really think some such information, and a polite acknowledgment, should accompany returned plans. It does appear very ungenerous, after putting architects to great labour and expense, to keep them ignorant of what reception their plans have met with. A COMPETITOR.

CAMBERWELL BANK COMPETITION.

SIR, Can one of your correspondents give me any information about the Chamberwell Bank competition? The committee advertised for designs at the beginning of December, and promised to return the unsuccessful competitors' drawings after the 17th of December. They have not done so; nor have they selected any design, as far as I am able to judge. VERITAS.

THE COINAGE RETOUCHEE.

IN your article on the "Coinage, New and Old" (p. 27, January 12), you draw attention to the beauty, both in design and execution, of the coins of Charles II.'s reign; and it may be interesting, as also an incentive to emulation, to remind your readers that the excellence was attained by a French artist, and not by our own countrymen. Lord Macaulay, in his interesting chapter on the state of England in 1685, draws attention to the fact that "even the designs for the coins were made by French artists." It is also singular that the coins that were made by the first coining mill or press should be so remarkable for their excellence, as it was about this period, namely, 1624, that Briot, a French artist, had his coining-press first erected at the Royal Mint in England, the proposed introduction of which in France had been the cause of his expatriation. It is some consolation to know that, for once, our Government was the first to take advantage of a new mechanical invention. A. T. C. E.

Books Received.

VARIORUM.

ANOTHER of Mr. William Longman's excellent "Lectures on the History of England," given to the Clerks' Association of Working People, in whom he takes an interest, has just been published. This is the third of a series, and it comprises the reign of Henry III. (A.D. 1216 to A.D. 1272). The lecture is given in the same clear and appropriate style as the previous ones, and is illustrated by *fac similes* of some curious ancient engravings, and by other sketches, together with a coloured map of the ancient English possessions in France.—"The Economy of Cookery, for the Middle Class, the Tradesman, and the Artisan; containing the most easy, practical, and economical preparations ever yet introduced, to complete the domestic education of the English housewife and the cook. By Volant & Warren, many years assistants to the late Alexis Soyer, and compilers of his *Memoirs*." (Diprose & Bateman, Portland-street, Lincoln's-inn-fields), is, we dare say, a very good little book of the kind; but we much fear the title is a misleader: at least the artisan, and even the tradesman, would, we fear, be much more likely to be led into extravagant habits through his many tempting dishes, than into habits of economy and moderation in their style of cookery by its means. It would seem to be an incompatible task to endeavour to bind up the artisan in a cookery-book along with those who have, in general, better means than he has to give heed to the great, and often, for him, the far too costly, variety of recipes of which such books (and this one not excepted) are mainly made up. What artisan is he who is likely, for example, in boiling a fowl, to have really sufficient means, fairly consistent with "economy,"—on which Messrs. Volant & Warren so emphatically dwell,—to enable his wife to "soak it in milk one hour?" Why, in London, it would cost many a poor fellow at least one-half of his day's wages, as an artisan, to effect this one process of "economy."

Miscellaneous.

FIRE FROM WATER.—Last week some lime in a bag was left on the floor of a shop in Brook-street, Manchester. The frost had burst some of the water-pipes on the premises; but the thaw had not reached them, so as to show their defects. This happened, however, during the night; and a portion of the escaped water got into the bag of lime, which rested against a partition. The result was, that about half-past one o'clock the shop was discovered by a policeman to be on fire; and, although the officers worked energetically, the flames were not extinguished until damage to the amount of 20*l.* had been done.

THROWING A CHIMNEY OVER.—A few days ago a chimney, belonging to the Midland Company's coke ovens at (Houseton, was thrown down purposely. The operation was performed in about twenty-five minutes; and the chimney, the weight of which, it is calculated, was nearly 300 tons, fell in one mass, not a single brick being displaced, and within a foot of the intended place.

THE TURKISH BATH.—Mr. Urquhart has recently delivered a lecture on the Turkish Bath, at Newmarket-on-Tyne. The object in view was to correct misapprehension and prevent perversions in reference to the introduction of this bath amongst us. Some people are running; and on the subject and may find out their mistake too late.

GRIMSBY TOWN-HALL COMPETITION.—With reference to a correspondent's remark last week on the date at which the design sent by Messrs. Bellamy, Hardy, & Giles, arrived, these gentlemen state, that it was simply the "tower perspective" which, being packed separately, was lost by the railway people, and did not turn up until the 10th ult. Even it was delivered before the town surveyor unpacked the designs. Their other drawings were delivered within the time fixed.

ST. PAUL'S CATHEDRAL.—The performance of Handel's "Messiah," which took place in this cathedral on the 25th ult., under the dome, in aid of the cathedral fund, and especially for the purchase and erection of the new organ, was very successful in a musical point of view, and will, we hope, add considerably to the funds. Madame Lemmens Sherrington and Mr. Sims Reeves were the principal vocalists. Some of the choruses were magnificently given. The arrangements, which were chiefly made by Mr. Penrose, the architect of the dean and chapter, proved to be very efficient. We shall take an early opportunity to speak of the alterations that have been made in the cathedral and the works that are going on.

MRS. HALL'S MAGAZINE.—Some of our readers will have heard that Mrs. S. C. Hall, the esteemed authoress of "Marian," "Midsummer Eve," "Tales of Irish Life," and scores of other charming books, has undertaken to conduct a Monthly Magazine, of the size of *The Cornhill*, addressed more particularly to her own sex; and that the first number will be published for the beginning of March. As to its title,—"The Household Magazine" was first talked of, but has long since been dropped. *James's Magazine* is now suggested, and is not a bad name. A right Ryalady rules at St. James's: ladies aspire to be seen there, and the name would not repel male buyers, who must of course be also looked for. Let the name be what it may, all who know what Mrs. Hall has done will know that a better conductor for such a work,—a work just now much wanted,—could not be found. Essentially feminine; not claiming to be amongst the "strong minded;" but yet having clear convictions of woman's rights, duties, and power, with ripened judgment and cultivated taste; Mrs. Hall, we may rest assured, will produce a miscellany that will be warmly welcomed into every home in the kingdom.

THE LATE MR. WILLIAM WILSON, C.E.—On the 24th ult., the remains of Mr. Wm. Wilson, late of Haggerstone, and formerly of Stratford, Essex, were deposited in the city cemetery at Ilford. His career affords another example of what self-culture, coupled with perseverance and industry, may accomplish. Deceased was born in the year 1768; and, his scholastic education being of a very limited kind, he set about to remove this difficulty by means of self-culture; and, ere he had scarcely reached the age of manhood, he was familiar with many branches of science and the arts, and which it would appear in after years he was destined to become more thoroughly and practically versed in. He became a member of the London Mathematical Society (established in 1719), and was elected president, discharging the duties of that office for more than forty years. The public were admitted to these lectures by tickets, and in one season he delivered a series extending over twenty-six consecutive weeks. For a long series of years he was analytical chemist at Guy's Hospital; and, during his engineering pursuits, he was the projector of the canal tunnel at Ilington, the East London Water Works at Old Ford, and several other important undertakings. For twenty years he was chief engineer of the Gas Works at Haggerstone; and it may be mentioned, to the credit of the directors of that company, that, on his retirement from the active pursuits of life, they settled on him a handsome annuity, which he enjoyed up to the period of his demise, which took place on the 17th of January, at his residence at Haggerstone, having attained the advanced age of 93 years.

A NEW TRADE FOR COVENTRY.—We are informed a correspondence has been carried on between the Vicar of St. Michael's, Coventry, and a leading proprietor of extensive iron works, the result of which is the immediate formation of a company, to be called "The Art Manufactures' Company."

SANITARY STATE OF DEVONPORT.—The condition of some parts of Devonport was brought before the local commissioners, at a recent meeting, by Mr. Swain, junior, who complained of the neglect of sanitary measures, and reminded the commissioners that summer might produce fearful consequences unless something were now done. Even as it was, he said, pestilence had been raging to rather an alarming extent in Devonport for some time: they had had small-pox in the town for more than eighteen months, and it seemed to be increasing rather than diminishing. Fevers were also prevalent. And no wonder, if the following be an indication of the state of matters in the poorer districts of this town. In directing attention to the imperfect sanitary state of the houses in Webster's Ope, Cornwall-street, Mr. Swain stated that several houses there had but one convenience, though each contained about fifty inhabitants. There was a large gutter in the passage of one of the houses in which the people emptied their nuisance, and by this means it was conveyed to the cesspool alluded to.

LECTURE ON THE CHEMISTRY OF WATER, AT WARRINGTON.—Dr. F. Crace Calvert has given a lecture on this subject to the Mechanics' Institution, Warrington, in the Music-hall there, to a very fair attendance. In course of the lecture Dr. Calvert reviewed the question of the mutual action of lead and water, which has recently been re-exciting the public attention. Many people, he said, had acquired the very bad habit of using rain-water as a beverage. He said it was a bad habit, because that kind of water, especially in large manufacturing districts, got thoroughly polluted with sulphurous acids, and these acids acted most violently on leaden cisterns, making the water unfit for drinking purposes; and the worst of lead poisoning was that it undermined a person's health before he became really aware what was the matter with him. The numbers of cases that he had known of this was positively frightful; and great care should be taken never to drink soft water, rain water, or, in fact, any kind of water preserved or collected in leaden tanks. To discover whether water contained lead in a state of solution, there were several most valuable tests. [The lecturer here showed the effects of bichromate of potash and sulphuretted hydrogen on a solution of lead.] Zinc, he said, was almost, perhaps quite, as dangerous as lead; and its presence in water could be discovered by liquor ammonia. Water also contained copper, though very rarely.

BREAKAGE OF WATER-PIPES THROUGH FROST. This is a subject we have again and again, not only recently, but year after year, pointed attention to; but our present object is merely to correct an error into which a correspondent of the *Times*, calling himself "a Civil Engineer," has fallen, in blaming architects, in a wholesale way, for what architects have but seldom anything to do with, as "a Civil Engineer" must well know: we allude to the placing of service pipes to houses. Even the houses themselves are but too often built without consulting any architect, far less arrangements made as to water-pipes; and, considering that water supply is an engineering affair, as "a Civil Engineer" naively admits, it would be a little less incorrect had he blamed the civil engineers than the architects in the stupid way he has done. "Knowing," as he, doubtless quite truthfully, observes, "that winter will come once a year; knowing that with winter comes frost; knowing that frost causes ice; knowing that water expands when converted into ice; knowing that lead and iron pipes are not elastic; knowing that one or other must give way, and that it will be the pipe; the simple means adopted is to place the service pipes so that the water in them is not exposed to the cold, and therefore cannot freeze." And this immense amount of knowledge leads "a Civil Engineer," correctly and logically, to a further conclusion, which he might have obtained from a very recent number of the *Builder*, stripped of all the learning through which alone he could at last arrive at it,—namely, that this annual disaster may, in our mild climate, be easily prevented, by laying the service-pipes from the main at a sufficient depth under the surface, and further protecting them along the walls. A tin or wooden casing, stuffed with sawdust, he suggests as a good way of protecting the service-pipe where other protection is deficient.

SHIPS IN ARMOUR.—It has been decided to increase the number of our iron-cased ships of war without more delay, according to the *Globe*; and letters, therefore, have been issued to private firms, inviting tenders for the construction of two immense vessels of the "ram" class. Each ship will be 280 feet long, and will carry about 1,000 tons. The vessels are to be very similar in construction to the *Resistance* and *Defence*, now nearly complete. They are to be plated with iron slabs fore and aft. The angular principle will not be adopted in this instance, notwithstanding all that has been done and said upon the subject.

VALUE OF BAROMETRICAL INDICATIONS.—Admiral Cator recently reported to the National Life-boat Institution that, at Cullercoats, near Shields, in the beginning of October last, the fishermen had expressed to him their gratitude for the barometer which the Duke of Northumberland, president of the Institution, had presented to them. A fearful gale from the westward had about that time somewhat suddenly sprung up. The fishermen were preparing to go to sea. Some of them observed the fall of the barometer, while others disputed its utility and value, and even treated it with derision. The majority of the fishermen, however, decided that they would not go to sea while the barometer was falling, although it was quite fine at the time. A few hours afterwards a terrific gale of wind from off the land came on, when they expressed their firm conviction that every one of them would probably have perished had they gone to sea, as most assuredly they would have gone, in the absence of the barometer.

CURIOUS DISCOVERY AS TO SPIRALS.—It is a well-known fact that certain plants tend to spiral action, some to the right others to the left. We are of opinion that a new light will be shed upon these tendencies by a discovery announced by the foreign secretary of the Royal Society at their meeting last week. The discovery referred to has been made by Professor Wiedemann in a series of interesting experiments on the magnetisation of iron and steel. The professor has discovered that, if an iron wire be twisted during, or even after, the passage of a voltaic current through it, the wire becomes magnetic. When the wire is twisted in the manner of a right-handed screw, the point at which the current enters becomes a south pole: in the opposite case it becomes a north pole. If, during the passage of the current, the wire be twisted in opposite directions, the polarity changes with the direction of the twist: if it be twisted in opposite directions after the interruption of the current, the magnetism produced by the first twisting rapidly diminishes.

A SCHOOL OF ART FOR HERTFORD.—A crowded meeting was held in the Townhall, Hertford, on the 18th ult., under the presidency of the mayor (Mr. J. Gripper), to consider the propriety of establishing a school of art for Hertford and its neighbourhood, in connection with the Committee of Council on Education. The Right Hon. W. Cowper, in moving the establishment of a school of art at Hertford, said,—We have heard of many instances in which artisans, from their knowledge of drawing, have very greatly improved their positions; and it is quite clear that persons who are employed in building in any of its phases—whether as architects, surveyors, bricklayers, or carpenters—must be greatly benefited by having the power of drawing clearly and systematically the objects with which they are conversant, and the knowledge which is necessary to understand the drawings of others. How very few there are who take very much pleasure in artistic buildings! But we have in this town a proof of good taste in the shop which Mr. Raymond has produced in Railway-street; and every one will admit that such a building differs widely from the ordinary brick wall with square holes for the windows and doors. One great object for which schools of art have been fostered is the desire to raise the taste of the community at large; and we have of late years seen a vast improvement in the ordinary decoration of houses. The papers upon our walls, all our articles of furniture, have been greatly improved; and all this is, I believe, very much attributable to these schools. They have told upon the manufactures of Manchester, upon the hardware of Sheffield, and upon the potteries of Staffordshire. I believe that the remarkable way in which our English china has got ahead of the French and German china is very much owing to the fostering aid of the School of Art at Stoke-upon-Trent. The resolution was adopted, and, on the motion of Sir M. Farquhar, M.P., a subscription was entered into to defray the preliminary expenses.

THE COTENTRY SCHOOL OF ART.—Lord Leigh has offered, through the local School of Art, two medals,—a gold one for the best fancy ribbon, in style, make, and harmony of colour; and a silver one for the best six designs for ribbons; and Lady Leigh, according to the local *Herald*, is about to give a prize for the best plain ribbon, having special reference to cheapness as well as quality.

PETROLEUM, OR MINERAL OIL, IN OHIO.—This useful material has been discovered, according to the *American Gaslight Journal*, in another of the (dis) United States. Two hundred rock-oil wells, as they are called, have been sunk in Warren County, Ohio, of which fifty to seventy-five are said to pay well. Thirteen steam-pumps are in operation, and more are being set up. The average yield is 3,000 gallons per day, and more wells are being sunk.

STOCKBRIDGE CO-OPERATIVE SOCIETY.—The members of this new co-operative society held their first quarterly meeting a few days ago. The accounts showed a clear profit on the quarter's business of 637, which enabled the committee to return to their members 1s. in the 1l. on the amount of their purchases from the society's stores, and add 1s. 6d. to each 1l. share, making a total profit of 12s. 6d. on the quarter, being at the rate of 50 per cent. per annum. The society commenced in a grocery establishment only, under the management of Mr. Jas. Hoult, but have since added drapery and butchery. The members expressed satisfaction at the result of the first quarter's operations, and thanks were awarded to the chairman and committee for their services. New shares, to the number of 140, were taken; and the increase of custom having been so rapid that the stores of the society were inadequate, it was agreed to look out for a site for the erection of new stores.

DEATHS IN A WELL.—Two well-sinkers have met their deaths in a well they were sinking on a branch line from the West Midland Railway into Stourbridge. The well was for the purpose of feeding a stationary engine. One of the men had descended to drive in some stays to support the trunk of the pump. He had not been long there, before he gave a signal to the men above to pull him up, as there was foul air. He was raised some nine or ten yards, when he fell from the frame on which he was to the bottom. The other man descended to his aid, but had not been down a minute or two before he also, of course, gave the signal to be raised. They had scarcely begun to do so before he fell back from off the frame on which he had been lowered. Means were resorted to in order to disperse the foul air, but it was about an hour before the two unfortunate men were raised, when life was extinct. One of them had his skull fractured from the fall.

IMPROVEMENT IN STRAINERS, ESPECIALLY FOR RIVERS AND LAKES.—At a late meeting of the Scottish Shipbuilders' Association, in Glasgow, there was a long debate on the fitness of the American river and lake boats, with their one, two, or three stories, and hurricane decks, for our waters; when it was unanimously agreed that they were well adapted, and ought to be introduced here, as giving quadruple passenger accommodation, and protecting those on deck from the rain and spray. Mr. Robertson read a paper on the subject. The meeting were afraid lest these improvements should be measured in the tonnage; as, if so, it would add to their port charges and dues; when it was resolved to petition the Board of Trade to exempt all our decks from measurement, as the improvements would be for the benefit of the cheaper classes of passengers, who hitherto have had to endure so much suffering.

OPENING OF A NEW STATION AT DARLINGTON. The new station on the North-Eastern Railway was opened on New Year's Day. The station may be said to be divisible into three compartments. The north wing is composed of refreshment-rooms, a smoking-room, dining-room, second-class refreshment-room, kitchen and three bed-rooms, and other conveniences. The centre, which recedes 30 feet, comprises first-class ladies' and gentlemen's and general waiting-rooms, and booking and parcels' offices. The south wing is occupied by the telegraph and station-master's offices, porter's lodge, public conveniences, and two other rooms. The entire length of platform is about 560 feet. The contractors were—for the excavation, brickwork, masonry, and plastering, Wentherley, of York; carpenter and joiner work, Kirby, of Scarborough; slating, Sanderson, of York; plumbing, glazing, and gas-fitting, Walsby, of Halifax; and painting, paperhanging, and decoration, Moore, of York. The clerk of the works was Mr. J. Edwards, of York.

MIDDLEBRO'.—The new hall of the North York Lodge of Freemasons, has been formally and officially opened. The hall is a plain building, and was designed by "Brother" John Dobson, of Newcastle.

INSTITUTION OF CIVIL ENGINEERS.—On the 22nd of January, Mr. Bidder, president, in the chair, the paper read was, "On the Rise and Fall of the River Wandle: its Springs, Tributaries, and Pollution," by Mr. Frederick Braithwaite. This history was compiled from a survey of the River Wandle, made early in the spring of the year 1853, from its rise at Carshalton, and at Croydon, 111 feet 2 inches and 123 feet 10 inches respectively above Trinity high-water mark, to its outfall in the Thames, at Wandsworth.

RIGHTS OF THE PUBLIC TO INLAND WATERS. The Statistical Society of Dublin have disapproved of a late Act of Parliament, doing away with the prescriptive rights of the public to fish in the lakes and rivers. It is to be hoped Mr. Cardwell, the Irish Secretary, will have the law amended on this point, and the Crown, as trustee of the people, hold inland navigable waters on the same footing as tidal. There must be no such injurious monopoly upheld, such as was not thought of in feudal times.

RAILWAY STATISTICS.—The traffic returns of railways in the United Kingdom, for the week ending January 12th, amounted to 415,900, and for the corresponding week of last year, to 448,050, showing a decrease of 2,150. The gross receipts of the eight railways having their termini in the metropolis amounted to 191,712, and for the corresponding week of 1860 to 197,276, showing a decrease of 5,564. The receipts on the other lines in the United Kingdom amounted to 254,188, and for the corresponding week of last year to 250,774, showing an increase of 3,414. It appears that, of a total of 334,000,000 paid up as railway capital in various forms, 23,000,000, (of which about 6,000,000, were in course of expenditure on extensions and new lines) remained unproductive; nearly 5,000,000, realized less than 1 per cent.; between 4,000,000, and 5,000,000, realized from 1 to 2 per cent.; 25,000,000, from 2 to 3 per cent.; 25,000,000, from 3 to 4 per cent.; 153,000,000, from 4 to 5 per cent.; 74,000,000, from 5 to 6 per cent.; 20,000,000, from 6 to 7; and about 9,000,000, from 7 to 10 per cent.

ELEMENTARY SCIENCE FOR ELEMENTARY SCHOOLS.—The aid offered by the Science and Art Department, in their minute of 2nd June, 1859, has not yet been taken advantage of by certificated teachers and others to the extent that is desirable; and Mr. J. C. Buckmaster, a certificated teacher, and an Examiner in the Royal College of Preceptors, who has long striven in behalf of some scheme to supplement the education given in our elementary schools, lately delivered two addresses on the subject, at the Society of Arts, before the United Association of Schoolmasters; which addresses have since been published, at the request of the Association, by Stevenson, Paternoster-row, in a fourpenny pamphlet, to which we would wish to point attention; since we cannot but feel that the education of the working classes would be greatly improved were the minute referred to brought into more extensive application; as it could easily be, for example, in the evening classes connected with mechanics' institutions and working men's colleges. With Mr. Buckmaster we believe that in every large town there are numbers of young men and apprentices who are well deserving of having their education improved; and it is precisely in the direction indicated by the minute in question, that of practical science and art, that this requires to be done. Mr. Buckmaster's addresses are explanatory of the aid given by the Department of Science and Art, under the minute of June, 1859, and on the industrial and educational importance of elementary science; and these addresses well merit a considerate perusal by all interested in the advancement of the working classes, and of the arts and sciences as well.

THE WOOD TRADE AT QUEBEC, 1860.—There were (says the *Eastern Counties Herald*) loaded at Quebec during the last season 1,056 vessels of 580,796 tons register. Of these, 161, measuring 76,221 tons, were foreign, the remainder British. The six largest shippers were:—

Messrs.	Vessels.	Tons. Reg.
E. Burdall & Co.	148	79,510
C. E. Levy & Co.	141	79,015
G. B. Symes & Co.	132	69,303
A. Gilmore & Co.	107	65,363
C. and J. Sharper & Co.	112	52,484
Benson & Co.	83	39,379

The remainder by thirty-nine different parties.

IMPROVIDENCE OF THE BUILDING TRADES WORKMEN.—In a leading article on the recent distress from want of work during the frost, the *Morning Post* especially instances the bricklayers, masons, and others connected with the building trades, and asks,—"How comes it that the bricklayers, who withstood so well the pressure of the strike of '59, begin to starve outright if winter bring a few short weeks of seasonable frost? The very possibility of existence, week after week, month after month, when work is tabooed, placed under the ban of a strike committee, proves that artisans are not in all cases improvident. If an artisan once concede the postulate that the future, being from its very nature uncertain, needs providing for; that existence, like the fly-wheel of a steam-engine, has its 'dead points,' only to be turned by force reserved; if it be deemed a good and wise and proper thing to lay aside a certain small fraction of present earnings to meet so improbable a contingency as might justify a trade-strike; would it not be a better, wiser, and in every respect more proper thing to set aside a fund specially destined to relieve the pressure, not improbable and very reasonable, of wintry frost and snow?"

TENDERS

For additions and alterations to Baptist Chapel, Charles-street, Leicester. Mr. H. J. Pault, architect, Barley. Quantities supplied:—

	With concrete in Foundation.
Ruskin & Son	2,860 0 .. 2,890 0
Wykes	709 10 .. 741 10
Groves	689 0 .. 784 0
Osborne, Brothers	585 0 .. 754 0
Collins	645 0 .. 677 12
Cox	645 10 .. 645 10
Russell	621 15 .. 692 15
Porter	618 0 .. 643 0
Duxbury	597 10 .. 682 0
Ashley	580 0 .. 610 0
Hutchinson	575 6 .. 605 6

For four new houses in the Lea-Pale-road, Galford. Mr. Henry Peak, architect, Galford. Quantities supplied:—

Contract, No. 1.—Excavator, Bricklayer, and Plasterer.	
Pollard	2,704 5 8
Lee	659 0 0
Garnett	649 0 0
Mason (accepted)	627 0 6
	584 0 0
Contract, No. 2.—Carpenter, Joiner, Slater, and Mason.	
Moon	2,845 0 0
Pollock	631 1 10
Lee	626 0 0
Garnett	616 0 0
C. South	595 10 0
Patrick	580 10 0
Nye	579 0 0
Stradwick	562 0 0
West (accepted)	497 0 0
Contract, No. 3.—Plumber, Glazier, Painter, Grainer, Smith, and Bellhanger.	
Ravallid	2,158 6 0
Pollard	147 1 0
Lee	126 0 0
Sturt	125 10 0
Hatty	123 10 0
Nye	122 8 0
Edmead	119 10 0
Cooke	118 3 0
Gyatt	116 10 0
Miler (accepted)	114 7 3
Total	2,195 7 3

For the heating apparatus, of the conservatory in the new garden of the Royal Horticultural Society, Kensington-gore, W.—

	Stone	Brick
	Externally.	Externally.
Bacon	2,183 17 0	0
Dennis	1,745 0 0	0
Taylor & Sons	1,581 14 2	0
Potter	1,497 14 6	0
Ormon	1,400 0 0	0
May	1,400 0 0	0
Jeaks	1,357 18 0	0
Smith	1,350 0 0	0
Barwell & Co.	1,321 0 0	0
Cotton & Co.	1,307 0 0	0
Taylor & Sons	1,300 0 0	0
Shanks and Son	1,250 0 0	0
Hood	1,216 0 0	0
Weeks & Co.	975 0 0	0

* Including gratings, which are not in the other tenders.

For Glamorganshire Lunatic Asylum. Mr. Richard Bell, architect, London. Quantities supplied by Mr. E. J. Austen:—

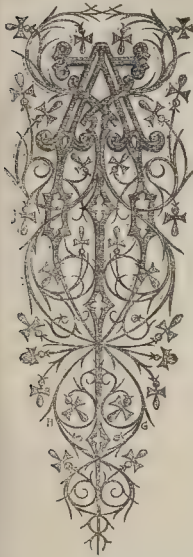
	Stone	Brick
	Externally.	Externally.
James & Price, Cardiff	2,255,500 0	429,215 0
Church	1,885 0	0
G. Myers & Sons, London	27,901 0	27,900 0
Church	1,416 0	0
Hardwick & Sons, Birmingham	55,700 0	25,320 0
Church	1,180 0	0
Wm. Baker, Bristol	2,535 0	27,132 0
Church	1,616 0	0
Webb & Sons, Cardiff	22,550 0	22,733 12
Church	1,335 0	0
Barnsley & Sons, Birmingham	21,985 0	22,195 0
Church	1,400 0	0

* Accepted.

The Builder.

VOL. XIX.—No. 940.

The Designs for the Opera House: Paris.



N exhibition of preparatory sketches or designs for the Paris Opera House was opened, in the Palais de l'Industrie, on Tuesday last. There are 179 sets of drawings. They were delivered on the Thursday previous, pursuant to the advertisement of the 29th of December, which we noticed at the time. The collection possesses considerable interest, not only as falling within the range of our subjects connected with progress on the Continent, and as elucidatory of a branch of architecture to which we have been lately called upon to give considerable

attention, but as exemplification of the manner in which competitions can be managed by a Government in a country where they are somewhat less frequent than in England. The drawings do not induce the belief that such competitions are more productive of intended results with our friends the French than with ourselves. Comparing these designs with such as have been seen on the occasion of the principal English competitions, we find few of an absolutely worthless character, a bulk of the mediocre class, and a proportion, in the same comparison, of designs which we should think had claim to deliberate consideration. However short the time from the end of one month to that of another, this is surprising, considering that the subject of a new opera-house has been for some time discussed in Paris, and that projects for buildings of the same character constantly occupy the attention of French architects, as in the system of education, which in many respects deserves our attention, at the Ecole des Beaux Arts. The occasion offered some advantage to architects of the class we have referred to; since the building was intended to be isolated, and there was little further restriction to form on plan by the surrounding streets. The space which could be afforded was a general oblong of 150 metres by 70 metres, with some retrenchment of the angles. The intended site was particularly described in our recent article on Paris in 1861,* in which the central position, and the radiation from it, of the principal new routes in the capital, were also explained. Some time back, it was understood that the work had been assigned to M. Robault de Fleury; afterwards with his name was associated that of an architect of much longer standing, and a plan with segmental projections in the flanks, by whatever author, and which we find repeated in designs in the present exhibition, has been for some time noticeable in maps of Paris which profess to show the intended improvements.

The programme of December last did not profess to indicate all the requirements to be attended to. These were to be rather the subject for a

definitive design to be made by the author of one in the present collection, which might appear the best in point of construction and art. The author of the second-best design was to receive 6,000 francs (240*l.*); and the author of the third best, 4,000 francs (160*l.*) The objects to be provided for included, as regards the public, porticoes or peristyles, so that carriages might set down under cover; vestibules with the bureaux for tickets, "and receiving the public before the opening of the bureaux;" staircases serving commodiously all the stories; the different "dependencies," including those of the police, the "corps de garde," &c.; a "salle," capable of containing 1,800 to 2,000 persons (the present house having 1,700 places); the principal boxes with salons; a separate entrance for the subscribers; and that for the Imperial box so contrived as to avoid setting down in the street, as well as to provide space for the carriages and escort in waiting: whilst as regards the stage and other departments, the objects included a proscenium of about 14 metres in breadth, and a stage of 32 metres depth, capable of containing about 400 persons. The space for decorations in store, was to be about 150 square metres. The artists were to be provided for, as singers and dancers, with separate green-rooms, and the requisite arrangements for dressers; and the administration would include the *concierge*, the box-office, the rooms of the director, cashier, and others; the *ateliers* of the tailors and dressmakers, the warehouses of costumes and properties, and the *poste* for firemen. We have given these heads at length; and it may be observed that no allusion is made to some of the chief desiderata in a theatre, though these have been prominently before the French public of late, as we have already noticed, in connection with the subject of the defects of the French theatres, and the unusual opportunity in the intended removal and reconstruction of several buildings of the class.

The designs were required to be sent under mottoes. If anything more were required to show to English architects the uselessness and positive disadvantage of this system, we should be able to afford it in stating that the names of intending competitors and the character of their designs were talked of in Paris for many days before the time of the exhibition; and, though heretofore we have met with some abuse for an endeavour to stop the system, we can hardly now be considered to do wrong in furnishing, as a specimen of what was known in two days, the names of competitors as we have them at present, namely, those of Messrs. Clement Parent; Bourgeois; Sechan; Baillet; Hue; Laisné; Sibert; Nicolle; Horeau; Thierry; Morin; Saulnier; Tetaz; Esperandeu; Viollet-le-Duc; Henard; Nolan; Diet; Simonet Duponchel & Crepinet; Train; Ginain Haller; Stilleire; Robault de Fleury; Trellat; Mimay; Salleron; Bourla; Jacot; H. Parent; Azemar; S'Aignan Boucher; André; Garmand; Destors; Louvet; Picard; Bell; Delorme; and Uchard. There is only one design which we have at present recognized as from England. It is one originally made for the theatre at Rio Janeiro, photographs of which appeared in the Architectural Exhibition.

It happens that designs which we suppose to be amongst the best are shown in drawings executed in the faint though neat and clever manner of the French architects. We must, therefore, not attempt to particularize. But, whatever the merit of many of the designs in point of art, we do not think that the stipulations and points, equally important, which we have alluded to, as having regard to very serious defects in the theatres, have been sufficiently responded to. It is right, however, to say that the *mémoires* or other documents, some of which we happen to know were very elaborate, are not hung with the drawings. Few of the authors give means of finding readily what may be the attention they have paid to ventilation; or to another subject which has occupied attention, the means of lighting, dispensing with the "ramp" or "float": whilst we should say that the majority

have neither the construction nor the number of staircases required: the latter point is very important, especially in a French theatre, where the divisions of the auditory are so much more numerous than in English theatres. Still in these points there is much that is particularly interesting just now in connection, as we have said, with English theatrical architecture. There is a very general disposition towards the semicircular form of the *salle* on plan, or of an oval with little depth given to boxes at the sides, or, in short, a better consideration of the importance of a good view of the stage. The semicircular form is frequent in the plan of the chief front. The "foyer," or saloon, gives occasion to some excellent devices of plan. One author places the orchestra above the proscenium, and another, in what is altogether a very meritorious production, adopts the plan and section of the ancient theatre, to which we have so often called attention, but which we might allow would require to be considered in reference to sound. The Exhibition is to close, we believe, this week.

THE BUILDING FOR THE INTERNATIONAL EXHIBITION OF 1862.

We are forced to view the first important step taken by the Commissioners for the Exhibition proposed to be held in 1862 as an unwise one. Without any appeal for suggestions to the country in general, or to the architectural profession in particular,—without a hint to the guarantors of the fund to provide against loss, or even a single note of preparation, the public suddenly learn that the design is agreed on, the plans made, the specifications written, and that tenders for the erection of the building are being sought for. The transaction has an aspect of alyness, to say nothing of its doubtful wisdom, and will tend to arouse a feeling we should be sorry to see prevail.

The following conditions, with a form of tender, have been forwarded to a limited number of contractors:—

"Tenders for the Building of the International Exhibition of 1862.

I. The Commissioners for the International Exhibition of 1862 propose to invite, from a limited number of persons, tenders for the erection of the buildings and works hereafter described, in portions, and marked on plans as A, B, C, D, E, and F.

II. The tenders must be for the whole of the works. They must be made under two heads,—one for purchase and the other for use, waste, maintenance, and removal. They must be made out on the accompanying form, sealed, marked "Tender for Buildings," addressed to E. R. Sandford, Esq., and delivered at the Council office, Whitehall, on or before the 9th of February, 1861, at twelve o'clock, noon.

III. The buildings and works are divided into the following portions, respectively marked A, B, C, D, E, and F. A consists of about 2,300 feet length of picture galleries, varying from about 55 to 35 feet wide, and from about 70 to 60 feet high, to be built in brick.

B is a hall, about 550 feet long, 250 feet wide, and 220 feet high, to be built chiefly of iron, wood, and glass.*

C includes the nave and transepts, about 2,200 feet long, 80 feet wide, and 100 feet high, and polygonal entrances, about 150 feet high, to be erected in iron, wood, and glass.

D consists of about 500,000 superficial feet of buildings, about 50 feet high, with galleries, built chiefly of iron, wood, and glass.

E consists of sheds of wood and glass, about 4,000 feet long, in widths of about 50 feet wide, and about 35 feet high.

F. Drainage, water supply, hydrants, heating for use and for prevention of fire, with hydrants, heating apparatus for offices, gas fittings, waterclosets, urinals, &c., to all portions above named; turnstiles, fittings at entrances, and boundary iron railings and gates, &c.

IV. Drawings and specifications have been prepared, and may be seen at the Works-office, South Kensington Museum, from the 1st of February to the 8th of February inclusive, between the hours of 10 and 4. Each portion is to be considered as including all works proposed to be constructed upon the respective area of each, whatever may be their height or depth, and every tender must be accompanied by a schedule of prices, fully priced, on the form supplied.

V. No bills of quantities will be furnished.

VI. It is requisite that the buildings, especially the picture galleries, shall be covered in as early as possible, and parties tendering must state the respective dates at which they will be prepared to guarantee that each portion of the buildings shall be roofed in. The whole of the buildings must be completed before the 12th of February, 1862, when they must be delivered over to the Commissioners; and this must be guaranteed.

VII. The works must be executed in the best manner and of the best materials, and must be completed in every respect and particular to the satisfaction of the Commissioners; and their decision in all cases shall be final. The contractor must undertake to keep all the works in thorough repair until the 31st of December, 1862, as part of the contract.

VIII. Payment for the works will only be made on the certificate of the *engineers* appointed by the Commissioners; and the contractor must specify in his tender the time of payment he is prepared to accept.

IX. The contractor must be prepared to find satisfactory security for the due performance of the works.

* These dimensions are somewhat startling.

* See page 17, ante.

X. The Commissioners reserve to themselves the power of accepting any portions for purchase, and any at use and waste; and it must be further distinctly understood that there is no obligation to accept the lowest or any tender, or to make any remuneration whatever for any tenders, or for any trouble or expenses incurred."

Sir Joseph Paxton has already pointed out, in a letter to the *Times*, together with his objection, as a guarantor, to the looseness of the conditions, and to spending so large a sum as this building would require (say a quarter of a million), the fact that a fair estimate of the cost cannot possibly be made in the few days given, and that the person who tenders for the erection of the building "must do so at great risk, unless he has been so fortunate as to have had access to the plans before they were given to the public." We fully endorse the correctness of this assertion; but our objection to the proceedings takes another shape.

We feel the strongest anxiety to promote the success of the proposed Exhibition, and have the greatest confidence in the Commissioners individually. It is therefore with no shadow of a feeling of antagonism that we raise these objections, but solely in the interest of the undertaking. It is to be hoped the Commissioners will at once retrace their steps.

PROPOSALS FOR COVERING THE AREA OF THE ROYAL EXCHANGE.

We have endeavoured to ascertain the exact position of this matter, in consequence of the notices of the award of the premiums recently appearing in the daily papers, as this award might lead to a belief that the whole question was settled.

The following is the statement that has appeared:—

"The Gresham Committee have received the report of the appointed judges on the merits of the different designs to cover the Merchants' Area with glass. The judges were the Lord Mayor and the Master of the Mercers' Company, professionally assisted by Mr. W. Tite, M.P., and Mr. George Smith, architect to the Mercers' Company. The first prize for the best design was awarded to Mr. Frederick Sang, of Charing-cross; the second to Messrs. Driver & Buck, of the Brighton Railway Engineers' Office; and the third to Mr. Francis Fowler, of Fleet-street."

The proposition by the Gresham committee, in the autumn, for obtaining designs in competitions, was, to say the least of it, premature; for the question of the covering was not and is not determined, nor is the opposition to the covering the area in the least degree abated. That opposition proceeds from the important establishments located in the building, viz., Lloyd's, the Royal Exchange Assurance Company, and the London Assurance Corporation. These companies had apartments in the Old Exchange, and were re-established in the new; and, as they have always derived light, air, and ventilation from an open area, they imagine that it is impossible so to cover the area as to secure to them these valuable advantages.

But to proceed. The premiums offered were three, viz., 50*l*., 30*l*., and 20*l*.: there were thirty-four competitors, of whose designs about twenty were propositions for covering the area by domes, iron roofs, or solid ceilings, with openings for light and ventilation *above the top of the architecture* of the present area: other designs, and one small model, showed propositions for covering the area at a lower level.

The question referred to the Lord Mayor and the Master of the Mercers, with power to call in the assistance of the original architect, Mr. Tite, and the surveyor of the Mercers' Company, Mr. Smith, was simply the awarding of the premiums, and to that duty they strictly confined themselves.

The report of the Lord Mayor and the Master, therefore, simply states that they award the premiums according to their impression of their merit as designs, but without giving any opinion on the propriety of adopting any one of the designs; or, indeed, as we understand, any opinion on the general question of covering the area at all; nor do they recommend a premium to any one of the designs for covering the area at any lower level than at the top.

The first premium is awarded to an ornate design, having an external glass covering, and an ornamented glass ceiling within, harmonizing in its general features with the architecture and the decoration of the corridor.

The second design is a simple arrangement of ribs and glass, without ornament of any kind, and was probably chosen because of its simplicity. The third is an arrangement apparently combining architectural decoration and an ornamented

tal ceiling; so that the premiums are awarded to three designs, which, in a general way, illustrate three modes of covering the area; viz., a simple system of ribs and glass, somewhat like the Crystal Palace; a complete ornamental glass ceiling; and a continuation of architectural features in combination with skylights and horizontal lights.

Ventilation is suggested in all from the parapets and side openings. We have no information as to the estimates; but, doubtless, the expense of either No. 1 or No. 3 would be very considerable.

We cannot compliment the Gresham Committee on any exhibition of courtesy to the professional press.

STONE PRESERVATIVE PROCESSES. ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The ordinary general meeting of members was held on Monday evening last, at the house in Conduit-street.

Mr. Digby Wyatt, V.P., occupied the chair.

Mr. Penrose (hon. secretary for foreign correspondence) announced the death of Mr. John Watson, an associate, late surveyor of the local Board of Health of St. George's-in-the-East. Mr. Penrose also announced the receipt of several donations to the library, including "The Transactions of the Royal Society of Edinburgh," and the new number of M. Cesar Daly's work upon the "Domestic Architecture of Paris."

Professor Donaldson, referring to the last-named work, said he had lately been in Paris, and had seen M. Cesar Daly, who appeared to be completely engrossed in the preparation of it. The student of architecture might derive much valuable information from the study of what was now doing in Paris, and he recommended with confidence the examination of M. Daly's work.

A vote of thanks was passed to the donors. The Chairman said that before proceeding to the business of the evening, he had been requested to state that the library committee were actively engaged in going through the catalogue, with the view of ascertaining what important works were absent from the library. The funds of the Institute were limited, and it was desirable to appropriate them as much as possible to other purposes; at the same time it would be the duty of the council to recommend the purchase of such works as they might consider to be essential additions to the library. Before doing so, however, they intended to submit to the members generally a list of the books required, so that gentlemen who might have copies in their private collections, and who wished to present them to the Institute, might have an opportunity of so doing. A list would consequently be prepared by the library committee, and circulated among the members, and he hoped that on some future evening the council would be enabled to acknowledge a goodly number of donations. He had also to add that since the last evening of meeting several letters had been received, one of them (a very long one) from Mr. Szerelmey, who stated, that being a foreigner, he was unable to address the meeting with such fluency as he could desire, and had placed his views in writing, so that he might be in a position to state his own case.

Mr. T. H. Lewis (hon. secretary) then read Mr. Szerelmey's letter, some portion of which we have printed separately.

The Chairman said they had also received a letter from Mr. Aschpittel, who felt much interested in the subject, but who was still too much indisposed to be present; likewise a letter from Mr. John G. Cole, on Mr. Sylvester's soap and alum process.

Mr. Lewis then read Mr. Cole's letter, and a communication from Mr. Aschpittel, in the course of which he said:

"First, as to the Zopissia, which has been asserted to have been mentioned both by Pliny and Vitruvius, in connection with encaustic painting. I find no such mention. Pliny describes it in the words cited by Mr. Tite, as the scrapings of ships' bottoms, composed of pitch and wax, which had been softened, or purified by the action of sea water; and in another passage he says Zopissia is useful as a species of poultice (malagma) to disperse gatherings. The same definition is given in Dioscorides, and the same one in the surgical work of Paulus Aegineta. Vitruvius, on whose authority so much stress has been laid, never even mentions the word. I cannot conceive a respectable man would willingly attempt to impose on the Institute by false quotations, and therefore fancy Mr. Szerelmey has confused the Zopissia with *Purpur Wisa*, which last material was the vehicle of encaustic painting. This was purified by boiling it with sea water, or with urine. The Zopissia may be said to have been purified by sea water; but to suppose that pitch was ever a vehicle for laying on delicate colours is quite absurd. Fancy painting such delicate figures as those at Pompeii out of a pitch-pot!"

The writer then expressed a very favourable opinion of Mr. Daines's process, and his approval

of the way in which he stated his pretensions, and continued,—

"But what results may happen fifty or even much fewer years hence, we cannot foretell. Indeed, this investigation reminds us of the Pedant in Hierocles, who was thus a caveat for a thousand years. He replied he did not believe it, but he would buy a young one and try. This remark applies to the future of all these processes. But we have before us a present need: a noble building is fast going to decay and we must not let our attempts to arrest its ruin. Among the process under consideration, I must say I think that of Mr. Daines is entitled to notice. It is novel, simple, intelligible, and does not profess too much."

The discussion on the various processes for the preservation of stone, adjourned from the last meeting, was resumed by

Mr. Tite, M.P., who said he had also received a great many letters on the subject, but that he would not trouble the meeting with reference to more than two of them. The first was from Mr. Thomas Grissell, whom they all knew and respected, and who had been one of the original contractors for the new Houses of Parliament. His letter was dated from Norbury-park, and was as follows:—

"I am much interested, as you are aware, in the durability of the stone of the new Houses of Parliament, and, were it not for indisposition, which confines me to the house, I would personally attend the next ordinary meeting of our Institute of Architects, in order to afford you information explanation in my power touching the interesting subject under discussion, or with respect to the extent of care and experience in the selection of the stone in the working of it. I can only say that had we to go through the quarrying operations again, the workmen employed who, it must be remarked, were only practical masons and quarrymen—could not, with their amount of intelligence, have exercised greater care and discretion in the selection of the stone; and the greatest care was taken not to send any soft or unsound stone to London."

The object, however, mainly, of my addressing you, is to correct a misapprehension as to the apparent difference in the selection of the stone for the new Houses of Parliament and that supplied for the erection of the Museum of Geology in Jernyn-street, in reference to which you have obtained an explanation in my power touching the interesting subject under discussion, or with respect to the extent of care and experience in the selection of the stone in the working of it. I can only say that had we to go through the quarrying operations again, the workmen employed who, it must be remarked, were only practical masons and quarrymen—could not, with their amount of intelligence, have exercised greater care and discretion in the selection of the stone; and the greatest care was taken not to send any soft or unsound stone to London."

The truth, however, is, that the stone first selected by the Commissioners was a similar stone to that used—a magnesian limestone,—but was found on the estate of Lord Bathurst, at Bolsover Moor, about six or seven miles from the village of North Aston, where the quarries are situated from which the stone was ultimately supplied; but it was found, on opening the quarries at Bolsover, that the stone could not be obtained in sufficient thicknesses or sizes for the purpose required. The Commissioners had therefore to select another spot in the same neighbourhood, where the quantity and sizes could be obtained; and this was found at North Aston, on the estate of the Duke of Leeds, the stone appearing to be of the same nature and quality as that first selected, with the exception that the Bolsover stone was of somewhat finer grain and closer texture, but in all other respects was identical.

In conclusion, permit me to say that I think nothing would have prevented the present dilemma in which we are placed but the appointment of a resident chemical agent in the quarries at the commencement of the operation, and the consequent prompt information on the subject, to have determined which portions of the rock were perfectly crystalline from that which was not so.

T. GRISSELL.

The only remark which he (Mr. Tite) considered it necessary to make on the letter was that the first stone selected was from Bolsover Moor, and that in consequence of its not being obtainable large enough, another description was subsequently selected. The particular beds from which the stone was taken had, he believed, a good deal to do with the quality. Thus some of the beds of oolite at Portland were unsuited to use, while others were excellent. So also with Bath stone. The Caen stone used by the early Normans stood well at the present day, while the modern stone decayed. The modern stone was taken from the lower beds, while tradition maintained that the old had been taken from the upper. This, however, he fancied was very much a question of depth. It seemed to him that the stone taken from the lower beds exhibited a greater state of crystallization, owing to the pressure upon it by the superincumbent heap, and the consequent keeping down of the carbonic acid gas. This was a part of the subject upon which it would be desirable to obtain the opinion of chemists and men of science, for they all knew that were painting upon external stonework would not last three years. The other letter to which he had referred was from a young architect named Chancellor (of the firm of Beadell and Chancellor, of Chelmsford), stating that in the year 1857 he applied Ransome's process for a balustrade and coping, and that on

visiting the work last autumn he found that the stone, which had presented the appearance of decay before the application, had become hard and apparently durable. Since the discussion on the various processes of the different inventions had been opened he had again visited the works, and although he found the coping in some places laminated by the intense frost, still the material itself remained hard. Mr. Chancellor added that the process had been applied not by Mr. Ransome's people but by one of the men employed on the building; but that if he had to use it again he would certainly prefer to have it applied under the experienced direction of Mr. Ransome himself. Mr. Tite then proceeded to renew the experiment he made on the last evening of meeting by mixing two colourless liquids (water-glass and muriate of lime), which, when stirred together, formed a thick gummy mass of insoluble material. This was what Mr. Ransome recommended, and he confessed that it was in this direction that he looked for a solution of the difficulties to be overcome in the artificial preservation of stone. With regard to Mr. Sizerley, that gentleman appeared to think that he (Mr. Tite) had made an attack upon him, an insinuation which he entirely denied. On the contrary, what he had said was, that Mr. Sizerley, being a foreigner, was entitled to their sympathy that being probably unacquainted with our laws, he had kept that a secret which might prove to be of great public utility; and he had added that, as chemical secrets in our present state of knowledge were no longer possible, it was but right, that if Mr. Sizerley had discovered a useful invention, the Government should pay him for it. Mr. Sizerley had, however, stated in his patent, that on his return from a protracted journey abroad, he had discovered the ingredients of an ancient Greek cement. He, Mr. Tite, would not venture to characterize those ingredients, but he confessed he did not think any one who now heard him, would come to the conclusion that the ancient Greeks used a cement made of blood, ground bricks, cheese, and oil! All the information which he (Mr. Tite) had obtained on the subject, was derived from the description given by Mr. Sizerley himself of his invention, which any one might purchase in print at the patent-office. With respect to Mr. Daines's process, he did not say, that boiling oil was required to dissolve sulphur, but what he did say was, that he did not see what good would be gained by putting sulphur into oil. If oil were boiled and applied to stone, the process would, no doubt, preserve the stone for a certain time, but he did not see what benefit would accrue from the use of sulphur.

Mr. Warrington having stated, that he had been employed professionally in the matter for the last two years on behalf of Mr. Ransome, and that he had paid particular attention to the face of the new Houses of Parliament, described at some length the chemical properties of the magnesian limestone of which it is composed. He then explained the chemical action of Mr. Ransome's process, which consisted of applying to the stone in dry weather several washes or coatings of a weak solution of silicate of soda, or water-glass, which by degrees saturated the pores of the stone; a solution of chloride of calcium (muriate of lime) was afterwards applied, and these combining together in the stone, formed silicate of lime, the insoluble substance produced in Mr. Tite's experiment. To produce by artificial means the operation of nature by which stone became crystalline, was the great object to attain in a stone-preserving process.

Mr. C. H. Smith (the only surviving member of the Royal Commission appointed to select and report upon the best stone to be used in the construction of the new Houses of Parliament) said, that he was naturally anxious to say something on the subject, so that the responsibility might fall on the proper quarter. The selection of the best stone to use was, as they all knew, debated at great length, prior to any active steps being taken to determine the quarry from which it was to be taken. The Portland stone used by the late Sir Charles Barry in the erection of St. Peter's Church at Brighton, having turned out of the vilest possible description, that gentleman recommended that some other stone should be chosen. Subsequently the subject was fully discussed by the commissioners, and it was ultimately resolved that they should all assemble at Newcastle-upon-Tyne, where the British Association was also to meet. The matter was brought under the notice of that learned body by Sir Charles Barry and Sir Henry De la Beche, and under their advice a certain plan was carried into operation. In the subsequent report of the commissioners they recommended that the stone should be that of Bol-

sover Moor, or its neighbourhood. The first thing they did was to find out the quarry, and then they directed holes to be dug in various parts of Bolsover Moor. It was subsequently ascertained that the stone found there was too small to be adopted. Other holes were ordered to be dug, and he (Mr. Smith) having been deputed to go down and examine the stone, asked permission to go round the neighbourhood with the view of seeing what other stone might be procured. While at Bolsover Moor he inquired of the people in the neighbourhood whether there were any stones at Anston, or "One Stone," as he supposed it to be; and the answer he got was, that if he went there, he would find them growing out of the ground as large as haystacks. He went to Anston, accordingly, which was in the neighbourhood of Bolsover Moor, from which the commissioners had recommended that the stone should be taken.

The Chairman inquired whether the Anston stone had ever received the approval of the commissioners as a body—whether the commissioners, in their collective capacity, had examined it—and on whom did the absolute responsibility of its selection ultimately rest?

Mr. Smith replied that he had marked a block 18 by 9, and had sent it up by the commissioners, and that Dr. Buckland, Sir Charles Barry, and Sir Henry De la Beche had approved it, although it was not quite so hard as they could have wished. Mr. Smith proceeded to state that there was some of the worst stone in the world in Anston quarry; that used in the new library and dining-hall at Lincoln's Inn, was as bad as it could be; as also that used in the Railway Hotel, at Hull. Nevertheless, the quarry had likewise yielded some excellent stone, such as that found in the Geological Museum, in Jermyn-street, and the elevation of the Amicable Life Assurance Office, in Fleet-street. The reason why the stone was so good in Jermyn-street was that Sir Henry De la Beche, being himself the President of the Geological Department, was determined that the building should not be a disgrace, and in common with himself (Mr. Smith) had carefully selected the stone taken.

The Chairman.—Do you think, if similar vigilance had been exercised with respect to the Parliament stone, a more successful result might have been obtained?

Mr. Smith said that such unquestionably would have been the result, and that Sir Charles Barry and Sir Henry De la Beche were both in favour of having some competent person to select the stone. He (Mr. Smith) having been named as one of the Royal Commissioners without his knowledge, was subsequently named as a competent person to approve the stone. The suggestion was named to Lord Duncannon, the then First Commissioner of Woods, Forests, and Public Works, and he approved of it. The salary was fixed at 150*l.* per annum, and travelling expenses, as it was alleged that the inspection would be brief, and that a visit to the building, once a week, would be sufficient. He consented to accept the salary, but next came the question, who was to pay it? The reply he got was,—“Oh, the architect would pay it, or the builder would pay it, or the Government would pay it. Somebody would be sure to pay it.” He was not, however, so sure, so he declined to commence his duties, until informed as to who was to be paymaster. He was then told that he was to have an assistant under him, and it was also intimated that as other Government works were going on, he might have to go to Liverpool, and other places, to examine the stone. He subsequently found out that instead of having an assistant under him, he himself was to be the assistant, and that somebody was to be put over him. Being anxious to know who that somebody was to be, as it was just possible that he might not approve of him, he made inquiry on the subject, and the answer he got was,—“Oh, that is not settled yet;” so he never went at all. This was the great secret of the whole failure of the stone; there was no competent person to decide what should be used, and what should be rejected. He had never been to the quarry except once during the excavation of the stone, and then he made a report, and Mr. Jay at the time endeavoured to suck his brains, a process of which he did not complain, and with which he willingly complied, but from which Mr. Jay failed to extract much utility.

The Chairman inquired what was the nature of Mr. Smith's report on that occasion.

Mr. Smith said he had been sent to report upon the manner in which the quarry was worked, and that he had reported that it was well worked and that some of the stone was good while other por-

tions were very defective. He denied that what was called the London atmosphere was the cause of the destruction of the stone, for there were many buildings in London in which the stone was not decayed. The secret lay in the selection of the stone. On the occasion when he visited the quarry, he asked Mr. Jay to show him the stone similar to that of which the new building at Lincoln's Inn had been constructed, and he found it so soft, that he could run his fingers into it. This showed that the acids of the London atmosphere had nothing whatever to do with the matter.

The Chairman: When you made your report did you know that inferior stone had been used at the new Houses of Parliament?

Mr. Smith said he had heard that the stone was not good, but that he had been sent to see whether the quarry was worked tolerably well, and whether there were any quarries in the neighbourhood which would yield better stone. He went on to say that there were two classes of decay in stone which might be mentioned—namely, decomposition and disintegration. The former had taken place in the Elgin Marbles, and the latter in the Anston stone. In order to preserve stone effectually it would be necessary to take a hint from nature, and cement the particles of the stones better, so as to make them stick together. Experience showed, that as long as the stone remained in its natural state, that is, so long as it continued to be living rock, it became more and more durable, but that when it was cut out of the rock and became a part of a building, the process of decay at once set in. If, therefore, the upper beds and cornices of a building could be effectually secured the result would be to preserve the stone. For this reason he recommended, let what would be done, that the wet should be kept from the great projections of the New Houses of Parliament.

Mr. G. G. Scott, R.A., observed that the question might be said to have assumed a double form, namely, what was best to be done to arrest decay, and secondly, what was the best stone to be used in public buildings. The latter was, perhaps, the more important question of the two. With regard to the selection of stone he did not believe, though science might have something to do with the matter, that there were any fixed rules of geology or mineralogy, that could lead to any positive tests as to the durability of stone. Even amongst granites, it was well known that there were good granites as well as bad granites. At Dartmoor, for instance, the valleys were found to be filled with the debris of granite. A builder should, therefore, select granite quite as carefully as any other stone, and although science might help him in the matter, still science would not do without practical experience. The traditions of a neighbourhood with regard to the sources from which stone was taken for old buildings, was about the best clue to go by. So with almost every other stone. Take, for instance, the hard stone in the West Riding of York, ten ton of which would be found bad for one ton that was good. In the same way with the oolites, the great majority of which was bad. It did not by any means follow that a good quarry would, in all cases, produce good stone, for one bed might be good, and another bad. It was, therefore, important that architects should not only have a moderate amount of scientific knowledge, but that they should take means to test every stone by actual examination. In Portland stone also, the quality was likewise exceedingly deceptive; one portion of a quarry being good, and another (perhaps the half of the whole) being very bad. Of the Portland stone usually brought to London, the great proportion was bad, and it was a curious circumstance that nineteen out of every twenty stonemasons in the metropolis selected the bad stone and left the good. This was done because the bad was often whiter and more easy to work. Again, if one took Portland stone upon trust at the quarry, the result would be unsatisfactory, as the bad stone was known everywhere as “Best stone.” In reference to this subject he wished to say, that it was the upper and not the lower bed in the Portland quarries which was so good. This, however, he (Mr. Scott) believed to be a pure accident of nature. At Portland the stone became harder near to the top of the quarry, and the upper bed (called the cap) was so hard that it was discarded as unfit for use. The next layer was the Roach, and the bed underneath produced what was in reality the best description of Portland stone. This was called the “white bed,” because in fact it was not white but of a brown colour. The really white bed was lower down still, but it was not durable. The result which he

had deduced from his experience in this respect was that it was extremely difficult to arrive at what was the reason why one peculiar stone was durable and another not. Chemists and other scientific persons might be able to throw some light upon the subject, and then it might be possible to copy Nature, and use some of the processes nearest to her own. He had observed on examining good and bad specimens of Portland stone that the good had the particles cemented by a hard and crystalline substance, whereas the bad had the pores filled up with a powdery substance like chalk. The stone from the real Mansfield Woodhouse quarries had the particles cemented by the crystalline substance, while that from Bolsover Moor had the powdery appearance. If it could be proved that Mr. Ransome's process deposited a crystalline substance, it might have a beneficial effect; but if it ultimately resolved itself into the powder to be found in the bad Portland stone it would be of no practical value. With regard to the Mansfield Woodhouse quarry, the stone was quite as good as the Bolsover, and much better than the Anston. He was using it at the present moment, and he knew it to be a good stone; and a person who had shown him a portion used there, which was very good indeed: in fact, it was the only magnesian limestone that he knew of that was good. He had used it twenty years ago at the Martyrs' Memorial at Oxford (a place very injurious to stone), and it had stood very well. He remembered that Mr. Field, the mason of Parliament-street, had shown him the Mansfield Woodhouse stone sent to London for the new Houses of Parliament; but it was rejected because it had curious holes in it, and because the blocks were not considered large enough, although he thought they were sufficiently large for ordinary building purposes. To show that all stones in the same immediate neighbourhood were not of equally good quality, Mr. Scott referred to a church which he himself had built with the Caseby stone; and that which was used in the interior of the building decayed before the church was roofed in, while that used in the outer work stood quite well. With regard to the experiments with Daines's process referred to in the letter of Mr. Ashpitel, he had been invited to witness them, and he found that the sulphur and oil worked very well, as far as he could judge. He did not, however, wish to hazard an opinion upon the general principle, but he was bound to say that the experiments were in a manner very satisfactory. With reference to the process patented by Mr. Szerelmeý, he had been over the new Houses of Parliament that day, and he could not detect any decay where the process had been used. Mr. Szerelmeý had, he thought, done himself harm by the mystification in which he had shrouded his operations; and as for the "Zopiassa," he looked upon it as a mere flourish. The statements of Mr. Szerelmeý were, in his opinion, to be taken *cum grano*, and were part of the system naturally entailed by the mystery in which he carried on his operations. He (Mr. Scott) was however bound to say, that he had nothing to urge against Mr. Szerelmeý's process. It seemed to him to have hardened the surface of the stone, and to have stopped decay; but he hoped that the subject would be fully inquired into by the committee which it was proposed to appoint.

Mr. Godwin, V.P., said that, as it was extremely desirable that they should gather as much as possible in the shape of facts, he would contribute one, although it was negative in its nature, there being no time to arrive at an affirmative result. But, in the first instance, he must express his great astonishment (an astonishment in which he believed all present participated), at the whole story related that evening by Mr. Smith with reference to the selection of the stone for the new Houses of Parliament. It appeared clear that the stone actually used had received the sanction of the Royal Commissioners, but after the extraordinary machinery which had been set in motion, after practical and scientific men had been appointed to examine various buildings, inquire into quarries, analyze substances, weigh evidence, determine between conflicting opinions, and so forth, it would now appear that the selection had been decided upon from the examination of a piece of stone, 18 inches by 9, which Mr. Smith had sent up from a quarry six miles distant from that which had first been chosen as the source of supply. This was a new phase in the subject, which he thought called for further explanation. Now, with regard to the fact which he proposed to contribute, and which had reference to the process patented by Mr. Daines, he begged to state explicitly that

he personally had no feeling whatever with regard to any of the inventions at present under discussion. All he desired was to submit facts, and if proofs in favour could not yet be obtained, they must content themselves with proofs of failure. It would, perhaps, be within the recollection of some who heard him, that four or five years ago Mr. Calder Marshall put up a statue of Capt. Coram, on the centre pier at the entrance to the Foundling Hospital. It was coated several times with the process known as "Daines's," and a testimonial from Mr. Marshall was subsequently published, in which he said he was much pleased with the effect of the indurating process, and that its preservative qualities would make it very valuable for all exposed sculptural decorations. He (Mr. Godwin), had no doubt whatever that Mr. Marshall had only testified to that which he himself believed to be correct; but some ten or eleven months since, he (the speaker) again looked at the statue, and made inquiries, when he ascertained that the whole thing had decayed shortly after being subjected to the process. He had since been informed that it had been repaired and painted—the process had proved a perfect failure. Now, if this were so, let the fact be established. If they could not determine at once what was good, let them at all events satisfy themselves as to what had failed, and some progress would be made.

Professor Ansted observed that the meeting seemed prepared to view the subject in its broadest light. First, with regard to the nature of stone; and secondly, the preservation of stone as found in our public buildings. All who took an interest in the subject were aware that the quality of stone varied, not only in different beds, but in different parts of beds. He thought he might venture to say that the eminent architects present had not made themselves sufficiently acquainted with nature's process of bedding stone, and when he informed them that beds of stone necessarily contained large quantities of water, and that they varied according to exposure to the atmosphere, and according to the pressure upon them, it would be evident that there were reasons why particular beds should be good, and others bad. It was well known that stones at the top of a quarry were hard, while the lower beds were often soft and cheesy. If the latter were exposed to the air, they would become hard, and a preserving process might then be successful; but if time were allowed to pass, no preserving process could permanently stop the decay. He did not believe that any process under heaven would prevent the powdery stones from decaying at the new Houses of Parliament. With regard to the various processes introduced to the public, there was one by which it was proposed to choke the pores of the stone with oil and sulphur. If this were done where the stone was perfectly dry, the oil might saturate it to the depth of a quarter of an inch, but after the lapse of a few years the action of the sun and atmosphere would get rid of the oil, and the process of decay would go on as before. If the process were applied when the stone was wet, it would not go in at all. This might account for the decay of the statue at the Foundling Hospital. To choke the pores of the stone with oil was merely giving the stone a thick coating of paint. Next came the principle of Messrs. Fuchs & Kuhlman, which was laying water-glass on the surface of the stone. This was nothing more than a silicate of soda, left to be acted upon by the atmosphere. In very dry seasons the water-glass will leave a deposit of silica, which might act as a protection for a short time, but it would not last. The third process was that of double decomposition, as invented by Mr. Ransome. If the silicate of lime could be deposited, as Mr. Ransome believed, the theory of the thing was settled. He had examined different places in the Houses of Parliament, and also the parapet of Westminster Abbey, and he found that in the earlier specimens of Ransome's process peculiar irregularities occurred, as in some places the stone was so hard that it could scarcely be scraped with a knife, while in others it was decaying. In his opinion Mr. Szerelmeý's method was an adaptation of Fuchs's and Kuhlman's, coated afterwards with oil. If oil were used it would be impossible to judge of specimens coated within the last year or two, because a coat of paint would have answered the same purpose. If, therefore, he were asked whether any conclusion was to be arrived at, he would say he did not think there was. A committee was proposed, and that might be the only way to arrive at it; but he was bound to say, he did not think the condition of the experiments already made was such as to render them very hopeful or sanguine. Nevertheless, it

was clear that something must be done. The Portland stone in Greenwich Hospital was as fine as the marble in the cathedral of Milan—a fact which showed that London atmosphere and contiguity to the Thames had really nothing to do with the matter. In his opinion the matter was one, not of atmosphere, but of selection. The great thing was to exercise care and judgment in this respect; at the same time he hoped that some good would result from the labours of the proposed committee.*

The Chairman observed, that a suggestion had been made that they should petition Parliament for a commission to issue to take the matter up. For his own part, he did not anticipate that much good would accrue from the appointment of a committee of architects alone, although much benefit might result from the concentration of talent embraced in a Parliamentary commission. Under these circumstances he hoped that some member would, on the next evening of meeting, move that a petition for a royal commission be presented to Parliament.

The further discussion of the subject was then adjourned until Monday next (the 11th inst.) when it will be resumed by Mr. Edward Barry.

Mr. Lewis Stride, of 5, Bloomsbury-square, was, on ballot, elected a Fellow of the Institute. Mr. Robert George Thomas, of Newport, South Wales, was elected an Associate.

MR. SMIRKE'S SECOND LECTURE ON ARCHITECTURE, AT THE ROYAL ACADEMY.

CHARACTER.

MANY years have passed since the desk at which I have now the honour to stand was occupied by Sir John Soane. I was then in my earliest pupillage; but I carefully noted his sayings, and made a record on paper of my recollections every evening.

In one of these lectures I well remember his dwelling with great emphasis on this rule,—namely, that it was not sufficient merely to adapt the interior of a building to its special purpose, but that its *exterior character* should also be conformable to the purposes for which it was erected; and the lecturer quoted the well-known maxim of Demosthenes, who taught that the first great requirement of the orator was *action*; the second, *action*; and the third, *action*. This led the worthy professor to paraphrase the dictum of Demosthenes, and to say that the three great requirements in architectural design were "character,—character,—character!" Forty years have not effaced the recollection of this dictum, or impaired its force: it is, indeed, a truth with which I am far more impressed now than I was when it was uttered by my distinguished predecessor. "Be what you seem!" the moral teacher cries; and the lesson applies with equal force to the practice of our art.

It would indeed seem to convey a truism which would scarcely need to be enforced, did we not find it so frequently overlooked in practice. A spendthrift builds himself a solemn abbey, in which, it is true, vigils are kept, but *not* the vigils of prayer and fasting. Poorhouses and reformatories are crenellated and loop-holed with Medieval sternness, as if they were likely to be made an object of hostile attack; whilst red tape and foolscap are sold in a shop faithfully modelled after the type of a palace of the Pharaohs.

With such examples, then, daily before our eyes, I feel myself justified in repeating that a consistent and appropriate character should never be lost sight of in architectural works. It is a quality the importance of which should be constantly impressed upon the mind of every student.

But not only does this maxim apply to the general interior aspect of a building; all objects that enter into the composition of a piece of architecture have some particular character which seems especially to belong to them, and which it behoves us to pursue. However we may vary the treatment of them; however much we may overlay them with ornament; we should be careful to do nothing calculated either to disguise or conceal their special character. Their motive and rational principle should be apparent and unimpeached; and honesty and good taste alike demand that in the treatment of their details we should seek rather to display their purpose than to conceal it.

Thus, a column is a vertical support; and, in designing a column, its fitness as such should never for a moment be forgotten. Yet there is nothing perhaps which exhibits the waywardness of art more than the column. Its purpose is

* A letter, further explanatory of Mr. Ansted's views, will be found on another page.

simple and obvious: its duty is as apparent as it is possible for any architectural feature to be; and yet it would seem that architectural ingenuity has been racked and tormented to devise modes of departure from that simple type which its mechanical duty seems to render so obvious. The Hindoo builder rests his weights upon fanciful and extraordinary compositions of animal and vegetable life: a similar barbarity was prevalent in Italy in the early Medieval period, when we see the shafts of columns poised most inconveniently upon the backs of monstrous animals. But without dwelling on preposterous excesses of this nature, which are the natural results of a bold but uncultivated fancy, propriety has been defied in a great variety of ways, and at perhaps all periods and ages of art. To some of these it may be expedient that I should advert hereafter.

Probably the most perfectly unobjectionable realization of the idea of a vertical support; may be found in the Greek Doric shaft, where the delicately expressed flutings are in perfect harmony with the idea of an upright support, those vertical lines tending to fix the mind on the special purpose to which the shaft is applied, without scoring it so deeply as to suggest any idea of diminished strength. One of the principal charms of the clustered shaft, which characterizes Gothic art at its best period, consists, I apprehend, in the strongly-defined vertical lines so exactly harmonizing with the known purpose of the shaft; although it certainly cannot be said to convey the idea of strength so emphatically as the Greek pillar. The bands, or horizontal interruptions, occurring at intervals in the length of these slender shafts, do not materially disturb the idea of verticality, for they are too unobtrusive to do so; but if we greatly multiply these bands in number, or materially increase their bulk, the sentiment of the shaft is impaired, and the eye is at once offended by the seeming utility, and even discordance, of such interrupting bands.

One of the earliest conceits introduced into Roman architecture, in its decadence, was the substitution of spiral for straight lines of fluting; a change manifestly injurious to the effect of the pillar, and leading the way to a variety of kindred barbarisms; for it is in the nature of all error to propagate itself in other and varied forms.

The spiral flutes and beads suggested the twisting of whole shafts, which are to be often found in an early Medieval work, until at length the shaft altogether lost its character of a vertical support, and we find them coupled, and intertwined, and knotted after a fashion more like ropes than cylindrical shafts of stone and marble.

Raffaello, in designing his immortal fresco of the beautiful porch of the temple, incurred a grave responsibility in setting that example of spirally-twisted shafts, to be too readily followed by those who knew not how to distinguish between the requirements of the painter and those of the architect. Had the composition been scored and cut up by the vertical lines of a number of ordinary columns, the effect would necessarily have been unseemly, and the painter was therefore tempted to give to them undulating forms, which associated well enough with the accompanying figures. But it is worthy of note that this great master, when he worked as an architect, committed no such mistake as to give such unsubstantial forms to real stonework. On the contrary, the few buildings with which he enriched our art are remarkable, even at that early period, for purity of form and propriety of design.

How heavy are the responsibilities of those on whom great genius has been conferred. Michelangelo, by the capricious which he permitted himself to indulge in when he designed the tomb of the Medici, was little aware that he was paying the way to that monstrous progeny of broken pediments, and other violations of propriety, which often defaced the architecture of later schools. So his matchless contemporary, Raffaello, may, by having traced on the walls of the Vatican those graceful contortions, so pleasing to the painter's eye, but so little adapted to execution in real stone and marble, may, perhaps, be regarded as the real parent of those fantastic masses of bronze and stone which are severely censured in the Baldacchino of St. Peter's, the porch of All Saints' Church, at Oxford, and in a hundred other less distinguished localities.

Certainly, commanding genius has its duties as well as its privileges: its faults become consecrated by their association with so much acknowledged merit; and an error is dangerously seductive when it comes recommended to us by the sanction of a great name.

I should be dwelling too long on this subject of

the column (important as that subject certainly is), were I to do more than shortly advert to the curious and fantastic forms which it has, at various times, and in various countries, delighted artists to impart to that feature. At Liege, we have it whimsically assuming the likeness of a gigantic baluster, an idea to which the quattrocentists of Italy had been also led by the loose rein which they were wont to give to their masonic fancies. At the Pavia Certosa we shall sometimes find their shafts divided into two distinct parts; the lower part straight and normal, the upper part degenerating into shapes fitted rather for confectionery than masonry.

Ivory, an architect of some merit, and greatly employed in the work of Italy during the seventeenth century, exaggerated the faults of the quattrocentists, devised columns of which the upper part is twisted like that of his predecessors, whilst the lower part is bulged out into the resemblance of a baluster.

These curious inventions may be compared to the variations of a simple air in music; sometimes so erratic that you can hardly trace the parent melody; sometimes retaining much of the air, but so overlaying it with extrinsic additions and decorations as to deprive it of all its original simplicity, and even identity.

Perhaps one of the most attractive variations is that where the shaft is enriched by superficial foliage, some ivy or vine seeming to clasp the pillar and to twine its tendrils round the ponderous cylinder. Many such cases occur in the buildings of the Quattrocento period; and there is no denying their beauty, though we may question their architectural propriety. During the Medieval period these sculptural shafts may often be met with, as at Melrose Abbey, but in greater beauty and variety in Italy. These varieties may all, perhaps, be regarded as the natural offspring of the beautiful stems of candelabra, which abound in classic art, and where the most exquisite delicacy of foliage was often indulged in without restraint, and of course without violation of any architectural propriety. To the period of renaissance art,—that period so original and so fertile (at least in its earlier phases) in quaint and picturesque devices,—we may attribute the introduction of another curious irregularity in columnar architecture, namely, the building up of shafts in what are called rusticated blocks, sometimes alternately cylindrical and square, sometimes venaicated, sometimes roughly hewn as from the quarry, sometimes in alternate bands elaborately carved in an endless variety of ways.

The love of simplicity and dignified good sense which marked the earlier phases of Classic art are nowhere more conspicuous than in the design of the Greek column: no trace of this anomalous treatment, to which I have been adverting, occurs even in the later period of Classic art. A shaft, when not actually monolithic, which was always an object much sought after and highly prized, was carefully constructed so as to convey an idea of unity, and to bespeak its singleness of purpose,—that of vertical support.

But when the original purity of design gave way to a love of novelty, builders thought of dividing the shaft into a multiplicity of parts, marking the horizontal bed-joints by deep channelling,—all tending to convey the idea of a number of small stones piled up on each other, in lieu of the primitive idea of a unit or monolith.

It is to this departure from the first intention, and forgetfulness of the original object of any architectural feature, that may be traced most of the errors for which our art is often so deservedly condemned.

Before quitting the subject of columns it is incumbent on me to take this occasion to express my unqualified condemnation of the practice, however common, of converting a single, insulated, column into a monument. Neither the undoubted classical origin of this form of monument, nor the graceful proportions of the column itself, can be regarded as any justification of this manifest misapplication and perversion of a great architectural feature. Even our silversmiths have ceased to make Corinthian candlesticks, although the solecism still lingers among some competitive candidates for monumental street architecture.

By how much we may admire the true adaptation of a column, in form and proportion, to its purpose of supporting a vertical pressure, by so much are we bound to condemn it when we find it standing idle and useless, or with no duty but that of lifting up to a dangerous eminence, and beyond the reach of distinct vision, some vase or other insignificant object, or some statue of a bulk and weight utterly disproportioned to the shaft of so colossal a pedestal. The very form of the

capital at once betrays the impropriety of this application of a column. Whatever the style of art, whether Egyptian, Greek, Roman, Byzantine, or Gothic, the capital invariably spreads itself out to receive a burthen pressing on it perpendicularly; the abacus in some shape is expressly adapted for the reception of that burthen; and when the burthen is not there, the abacus becomes unmeaning and superfluous.

We must not do the injustice to early Classic art of supposing that we have any evidence of such a misappropriation of a column in the best times. The idea of setting up a monumental column seems first to have occurred to the degenerate sons of Roman art,—an art which invented little, and seldom borrowed without some disfigurement or deterioration.

It may, indeed, be presumed that the practice of erecting this fragmentary portion of a portico may have been justifiable in its origin, on the ground of its being a trophy—the material evidence of the ruin of some hostile city; if so, however, no such apology can be offered for the colossal pillars erected by the emperors.

The obelisk, of much earlier times, and of more Asiatic character, was in every respect more consistent with reason, and therefore with good taste. By narrowing upwards from a broad base, it conveys the idea of stability, and the simplicity of its form, whilst it seems to secure to it an enduring existence, is in itself one of the causes of its grandeur. Nor is such a form liable to the imputation of having been like the column, an object transferred out of its proper place to act an unsuitable part.

It is true, that in adopting the obelisk as a monument, we are perhaps not applying it strictly to its original, primitive purpose. The Egyptians, it is said, figuratively designated them "the fingers of the sun," for they were originally erected as the gnomons of colossal dials; the shadows from the lofty shaft pointing to the hours ranged in a gigantic circle upon the surrounding area.

The obelisk, however, ultimately ceased to be applied to this utilitarian purpose, and (I know not when) became, like the Celtic monolith, a simple monument, for which purpose it seems, as I have said, admirably adapted.

With this example of fitness and propriety before us, let us not resort to this erroneous use of the column. We have already had a satiety of triumphal columns; there is scarcely a large town that does not own some specimen of this deplorable misapplication, to which the public taste is only reconciled by the frequency and familiarity of the vicious practice.

We will now turn to another instance of that aberration of taste which so easily misleads by tempting men to forget the real use and purpose of an architectural feature.

The abrupt, vertical termination of the sloping sides of a roof forms the pediment or gable. The shape is the result of a necessity. Its origin is simple and manifest, and stands in no need either of concealment or of qualification. Yet there are, perhaps, few features in the use of which architects have so often testified a perverted taste, or have deviated so widely from good sense.

As usual, the earliest forms of pediments are the most honest, and, therefore, the most pleasing. With that simplicity of character which distinguished Greek art, the early temple presented the gable ends of its roof without the slightest disguise; the pediment simply representing—or rather, I should say, actually being,—a cross section of the roof. The same obvious sense of propriety and fitness led the Greek architect to occupy the blank, triangular space, or tympanum, with sculpture, at once rendering the undisguised end of his roof a source of beauty, and, by the nature of his sculpture, giving to it an intrinsic moral value.

As art travelled westward and northward, the original purpose of the pediment was still not disregarded, and no material change was effected by the Romans beyond giving the acclivity of the sides of the pediment greater steepness; and this was no caprice, and in no respect a departure from the primitive object of the form; for the change of climate reasonably led to this change in the angle of the pediment.

The decay, however, of Roman art is marked by the invention of the *curved* pediment, applied at first, probably, only over small openings; but afterwards more boldly adopted as a substitute for the original and natural gable end.

It was at this period of the decline of art that we first find, as at Diocletian's palace on the north coast of the Adriatic, and in the splendid, though barbarous architecture of Balbec, the example set

of broken pediments: a grievous departure from simplicity, which found too ready an acceptance in far later times.

Nevertheless, in the succeeding period we still find but little inclination to abandon the ordinary form of pediments, of which so many noble examples of better times were then still remaining, especially on the classic soil of Italy.

The dates assigned to buildings of this dark age of our art are not safely to be relied on, but certainly the church of S. Ambrogio, at Milan, and of the Duomo at Murano near Venice, are very early Christian works, and we there find the antique Roman pediment almost in its pure form and legitimate application as the abrupt termination of an ordinary roof.

It was at a somewhat later time, at the commencement of the so-called Mediæval period, that a singular practice arose, especially in the north of Italy, of breaking up these pediments, or gables, and disturbing their original simplicity by excavating, as it were, the surface of the tympanum with a crowd of shallow, inaccessible, and entirely superfluous arcades. But the original type of the classic pediment was afterwards still more completely obliterated by the general suppression of the horizontal cornice, or base line of the pediment. The increasing steepness of the pitch at the same time caused a further departure from the old type, due, no doubt, to the gradual extension of art towards the north.

It was thus that by progressive steps the Gothic gable arose, on which the carver's and the sculptor's beauties were lavished with so free a hand, that it became one of the distinctive glories of Mediæval architecture.

Charmed by the graceful and aspiring form of this novel feature in our art, a passion for its use arose among church builders, which, as usual, led to excess, and to an indiscriminate application of it. Lofty gables arose which, regardless of their original purpose, had in truth no roof whatever behind them; sometimes indeed with windows immediately behind them; and they were carved, and traceried, and perforated, until they became the mere anatomies of gables—favourite themes, as it were, wherein the mason might disport and exercise his fanciful and inventive genius; utterly setting at naught the fine-spun theories of those martinets in art who would insist on every form in architecture being applied to some special, useful purpose;—a view which, from Vitruvius down to Pugin, teachers have urged on us far more diligently by their doctrine than by their practice.

I should observe that these *chef-d'œuvres* of masonry are of northern extraction, and occur rarely on the soil preoccupied by the ancient classic pediment. It is, indeed, curious to mark the pertinacity with which Mediæval artists, when working on classic ground, adhered to the old style, or sought to amalgamate it with their own.

The frescoes of even the thirteenth and fourteenth centuries are full of illustrations of this lingering, semi-classic feeling; nor are examples wanting of it in the buildings executed at that early period. Many examples might readily be cited, but I will name but one, namely,—the archiepiscopal throne in the church at Assisi, which bears every mark of being of the date of the earliest portion of that building.

The Mediæval gable in more northern climates appears to have reached a sort of climax of intricacy and decoration when its very existence became threatened by the remarkable change in all the arts of design at the period of the revival of classic forms. Most of the features of classical architecture were then, in some modified form or other, re-introduced, and among them the pediment.

But the cold formality of the ancient gable was scarcely consistent with the exuberant genius of the quattro-centists: accordingly we find that semicircular pediments became greatly in vogue among them, and were the source of much beauty and novelty, although irreconcilable with a strict adherence to reason, and to that fitness to its purpose which reason must ever suggest to us, and which seems to offer the best, if not the only safe, standard for the guidance of our judgment in matters of art.

The classic pediment and the Gothic gable were not only apparently, but in strict reality (as we have already seen), the wall which terminated and closed up the extremity of the roof; but, at the stage to which architecture had reached at the time to which I am now adverting, this gable became rather an ornamental wall, built up for the roof to abut against in the best way it could; and, therefore, it was not thought necessary to make it conformable with the slope of the roof.

The circular gables of the Chiesa de S. Rocco,

and many other buildings which I might name, are picturesque vagaries, and admirable perhaps for the variety they introduce into the composition, and as liberating architectural design for the rigidity of straight lines and sharp angles, but they must be admitted to be unjustifiable on any principle of sound criticism. Had they been in truth vertical sections of domes, there could have been nothing to say against them; but as representing the end of any ordinary pitched roof they are false and unmeaning.

Much, therefore, as I admire and respect the art of the quattro-centists; much as I would wish to see its numerous beauties recognised, and its graceful inventions studied; I should be indeed sorry if the striving after new and unwonted forms and fanciful compositions, which is but too apparent in the present day, should lead to the reproduction of so great an anomaly as the circular pediment.

The more careful study of ancient architecture soon led the quattro-centists to abandon this form of pediment except in small interior compositions, such as altar-pieces and tombs; and in the subordinate parts of architecture, as the dressings of doors and windows; and the more accomplished architects brought their pediments generally down to the normal type. I do not call to mind any example of these picturesque anomalies having been executed by Bramante,—certainly none by his nobler pupil, Raffaele.

But now a new danger threatened the integrity of the pediment. In an unfortunate hour it occurred to some artists to break the continuity of the sloping sides of the pediment; and, perhaps with a morbid anxiety to relax the severity of the angular pediment, they contrived that solecism in art which I have taken more than one occasion to point to with reprehension, namely, the truncated or broken pediment.

Some early indications of this error occur before the sixteenth century; but to the best of my belief only in the works of fresco-painters. I am aware of no realization in stone of the scroll-shaped pediment before the sixteenth century.

It is, however, to no less an authority than Michelangelo (as I have already noticed in the present lecture) that we owe, if not the first practical execution of the broken pediment, at all events the questionable honour of having been the means of bringing into favour that great architectural anomaly. It is certainly to his great example that we are indebted for a numerous progeny of most grotesque and absurd pediments; one of those departures from good sense which bring opprobrium on the architecture of the sixteenth century.*

DESTRUCTION OF SCOTCH ANTIQUITIES.

At a recent meeting of the Society of Antiquaries of Scotland, Professor Simpson, V.P., delivered the annual address; and, in the course of it, urged the necessity of preventing, if possible, the further demolition of the antiquarian relics scattered over Scotland. Various human agencies have been long busy in the destruction and obliteration of our antiquarian earth and stone works. At no period, said the Professor, has this process of demolition gone on in Scotland more rapidly and ruthlessly than during the last fifty or a hundred years. That tide of agricultural improvement which has passed over the country has, in its utilitarian course, swept away, sometimes inevitably, often most needlessly, the aggers and ditches of ancient camps, sepulchral barrows and mounds, stone circles and cairns, earth-raths, and various other objects of deep antiquarian interest. Our railways have proved among the greatest, as well as the latest, of the agents of destruction. In our island various cherished antiquities have been often most unnecessarily swept away in constructing those race-courses for the daily rush and career of the iron-horse. His rough and ponderous hoof, for example, has kicked down at one extremity of a railway connected with Edinburgh—marvellously and righteously to the subsequent dispeace of the whole city—that fine old specimen of Gothic architecture, the Trinity College Church; while, at the other extremity of the same line, it battered into fragments the Old Castle of Berwick—a fort rich in martial and Border memories. In the construction of the Edinburgh and Glasgow Railway the line was driven with annihilating effect through the centre of the old and rich Roman station and the wall of Antoninus at Castlery. In many parts of our country our old sepulchral cairns, hill-forts, castles, churches, and abbeys have been most thoughtlessly and reprehensibly allowed, by

those that chanced to be proprietors of them for the time being, to be used as mere quarries of ready stones for the building of villages and houses, and for the construction of field-dykes and drains. Almost all the principal stone-circles and cromlechs, which existed in the middle and southern districts of Scotland, have been cast down and removed. Among the most valuable of our ancient Scottish monuments are certainly our sculptured stones. Most of them, however, and some of them even in late times, have been sadly mutilated and destroyed to a greater or less degree by human hands, and converted to the most base uses. In name of this society, and in the name of my fellow-countrymen generally, I here solemnly protest against the future perpetration of any more acts of useless and churlish Vandalism, in the needless destruction and removal of our Scottish antiquarian remains.

SOCIETY OF FEMALE ARTISTS.

The lady artists' fifth exhibition, in the gallery of the New Water-colour Society, Pall-mall, comprises 327 pictures and drawings, besides half a dozen pieces of sculpture, and shows a considerable advance on former collections. It includes a considerable sprinkling of foreign works, which may be advantageous. It should be expressly stipulated, however, in such cases where the pictures are marked for sale, that they must be the property of the artist. The committee must avoid turning this exhibition into a picture-dealers' show-room,—a system which is growing.

Madlle. Rosa Bonheur, Mrs. Elizabeth Murray, Mrs. James Linnell, Miss M. Gillies, Miss Kate Swift, Miss G. Swift, and Mrs. Swift; Mrs. Dundas Murray (who acts as secretary), Miss Stoddart, Miss Florence Peel, Madlle. Eudes de Guimard, Mrs. Lee Bredell, Mrs. Valentine Bartholomew, Mrs. Walter, Miss Rayner, Mrs. Backhouse, and Mrs. Higford Burr, contribute some admirable works. Miss Ellen Cole's, 102, "The Nativity," deserves a better place than it has.

The committee have admitted a large vase of bronze and ivory by the Baron de Triqueti, and a Faun, in ivory, by the same gentleman. We can see no reason why this departure from their foundation principle should be made. The exhibition purports to be that of the Society of Female Artists, and such it should remain. It is only in that aspect that it is at all likely to retain the sympathy of the public.

We invite our readers to go, see, and,—buy.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of members was held on Friday, February 1st, at the House in Conduit-street.

Mr. A. W. Blomfield, vice-president, occupied the chair.

The minutes of the last meeting having been read and confirmed, Messrs. Tarver, R. W. Hart (Camden-road-villa), and Mr. H. Thompson (Oxford-street), were, on ballot, elected members of the Association.

Mr. Arthur Smith (honorary treasurer), read the following resolution, which had been agreed to by the Committee with reference to a communication received from the Northern Architectural Association:—

"That having received a communication, upon the question of an architectural alliance, from the Northern Architectural Association, the Committee consider it desirable that facilities should exist for communication with the various architectural bodies in the kingdom, to obtain their opinion, and, if need be, their co-operation, whenever such shall seem needful; and the Committee are of opinion that each secretary of an architectural association should obtain the addresses of the other secretaries, and forward to them from time to time any information of importance that may come into their possession."

On the motion of Mr. Blashill, seconded by Mr. G. B. New, the resolution was formally adopted, and a copy was directed to be sent to the Northern Architectural Association.

A short discussion ensued with reference to the manner in which Mr. Tite's prize of 5*l.* should be awarded to the class of design; but ultimately the consideration was adjourned to a future day, with the view of giving the president an opportunity of communicating with the hon. member for Bath.

Mr. Bunker then proceeded to make some practical observations on "foundations," pointing out the distinction between natural and artificial, rock, gravel, loam, clay, made earths, wood, concrete, piles, &c. He described the manner in which trenches should be dug, and footings laid, in order to meet the difficulties presented by shifting clays, landsprings, and other impediments. He recommended that a provision should be intro-

* To be continued.

duced into contracts, that the trenches should be examined by the architect, and reported upon before the footings were laid. Wood he had always found to be bad, and consequently urged that planking should be avoided as much as possible. He found that a concrete consisting of one part ground lime, five parts ballast, and one of sand, might be depended upon.

Mr. Billings said that rock was not always the best foundation, as there was a flaggy formation of sandstone, which often proved treacherous. In cases where the foundation was wet or muddy, he recommended laying down large blocks of stone. This had been tried at the goods' station at Newcastle (which had been built in a refuse hole), with perfect success.

Mr. Blashill referred to the case of St. Paul's Cathedral, the foundations of which were supporting so enormous a superstructure; and observed, that he understood the architect to have complained that the new system of metropolitan drainage was likely to drain the sand too dry from the foundations.

After some discussion, with respect to the merits of various artificial foundations,

The Chairman congratulated the meeting upon the practical character of the discussion, and reminded his hearers that if a settlement were likely to take place, the great thing was to make it uniform and harmonious.

A letter was read from the president (Mr. Roger Smith), expressing his regret at being absent, and inclosing the diagram of an artificial foundation (on piles), on a principle which he thought gave great strength and solidity.

A vote of thanks was unanimously passed to Mr. Barker.

The Chairman announced that the next subject for the class of design was "a conservatory."

NARROW ESCAPE OF BLENHEIM PALACE.

A FIRE has destroyed the greater part of the north-east wing of the outer quadrangle, including what is called the Titian gallery, so named from nine pictures painted on large pieces of leather, after the fashion of the hangings of the Middle Ages, attributed to that master, which were also burnt. The subjects of these pictures were, the Loves of,—Mars and Venus, Cupid and Psyche, Apollo and Daphne, Pluto and Proserpine, Hercules and Dejanira, Vulcan and Ceres, Bacchus and Ariadne, Jupiter, Juno, and Io, Neptune and Amphitrite. The only other painting destroyed is one by Peter Paul Rubens, the Rape of Proserpine, 8 feet 8 inches high, and 2 feet 1 inch wide, a fine work. For this we grieve most. For the pictures on leather we care nothing: they were not by Titian, and to our mind had little beauty. Had the fire reached the other pictures there, the wonderful works of Rubens, Raffaele, and Carlo Dolci, to name no others, the loss would have been irreparable. It is to be hoped the most perfect precautions are adopted.

In one of the recesses behind the leather hangings, the following inscription, it is said, has become apparent,—

"These pictures were put up September 10, 1796, by G. Austin, jun., Clerk of Bladon—a rogue—Josh. Ward, a member for fishing, . . . Hubbard, a deer, stealer."

"WILLIAM HOA . . . , Stonesfield, a Poacher."

SANITARY STATE OF PRESTON.

FROM the annual official report on the sewerage and drainage and the mortality of this borough, prepared by Mr. John Newton, C.E., the borough engineer, and printed by the authorities, it appears that satisfactory progress is being made with the drainage and sewerage. The most important sewerage-work done during the past year has been the upper main-sewer, between Ageduct-street and the outlet into the Ribble, near the Marsh-end. Cast-iron pipes, 4½ feet in diameter, were used in lieu of brickwork under the Lancaster and Preston Canal. The following summary of sewer-work is given:—

	Yards.	£ s. d.
Brick Sewers.....	1,859	2,021 4 8
Iron Sewers.....	35	245 17 6
Pipe Sewers.....	1,833	861 12 2
Total yards.....	3,727	£3,129 14 4
	Estimated cost, 3,412 14 6	
Difference.....		£283 0 2

The sum of 39,544l. has now been expended on the sewerage (32,346 yards done), and 10,937l. forms the estimate of sewerage-works yet to be

done. Since 1856, when 3,508l. had been expended on street-levelling, paving, &c., upwards of 16,000l. more have been expended; 168 streets in all, of 19,372 yards in length, having been improved at a cost of 19,606l.

Considering the high rate of mortality in Preston (25 per 1,000) the death-rate during the past year is regarded as being favourable, especially in zymotic diseases, which indicate the relative sanitary condition of a district. The total number of deaths during 1860 was 2,236; and taking the population at 86,400, this gives a mortality of 25.88 per 1,000. The total number of births was 3,386, and of deaths 2,236: of infants under five years of age, 1,137 died: of old age (50 and upwards) 97 died. It is lamentable in such statistics to see how nature is subverted. Had 1,137 died of old age and 97 in infancy (we had almost said of infancy), the returns would have been a little more natural, and like what the Creator evidently intended. But Preston is by no means notorious in this respect, as our article on the sanitary state of Sunderland must have but too clearly proved.*

The *Times* (which quoted our remarks on the infant mortality of Sunderland) sheds some light on one great cause of infant mortality in speaking of that of Coventry, which has so remarkably diminished during the local distress. "As women," it observes, "could no longer go out to work, since work had ceased, they could stay at home and look after their children, and this natural superintendence saved more lives than famine destroyed." Here is a moral which is worth some reflection.

The *Bury Post*, in commenting on our remarks as to the infant mortality of Sunderland, says,— "By Price & Morgan's tables, from experience sixty years ago, when the laws of birth were far less understood than they are at present, it appears that the probabilities of the duration of life, in a kingdom at large, are that half the persons born would be living at 21 years of age."

We consider, however, not so much what has been, or even what is, as a general rule of probabilities, but what ought to be, can be, and probably will be. Preventable causes are calculated on, in estimating all such probabilities, just simply as causes not prevented. Drainage is greatly diminishing such probabilities since sixty years ago, and they must be still further lessened. The probability of extending life as a general rule to 100 years has been mooted; much more ought the immense diminution of the mortality of infants to be regarded, not only as a possibility, but as a crying necessity.

THE RAILWAY ORGANIZATION OF LONDON.

IT is now telegraphing in the metropolis to be comparable to the nervous organism and action of the brain of the animal body, town traversing by railway tunnels and viaducts may, with equal propriety, be compared to the laying down of new arteries and veins for the more rapid circulation of its life's blood. The capital is already in course of organization by means of railway as well as of telegraph; and various railway projects to that end, besides those few already begun or authorized, are about to be brought before Parliament in the opening session. Of the whole a very interesting abstract is given by Mr. Haywood, the engineer and surveyor to the City Sewers Commission, in a report to their Improvement Committee, which has been printed in the usual form.

From this report it appears that the total area of the metropolis scheduled by the different companies is no less than eighty-four acres; the thirteen acres of river-bed on the north side, for the proposed embankment and railway between Westminster and Blackfriars, not being included. Of the eighty-four acres, some few are scheduled by more than one company; but in all the net area scheduled is seventy-two and half acres, of which twenty-two acres are public way, and no less than fifty-two and a half may be said to be acres of house property. About 160 public ways are to be appropriated, stopped up, altered, or interfered with. Nevertheless, the whole of the projected lines are to be in tunnels, except the projected London Railway Branch and the Charing-cross Railway, City Terminus Branch; and the entire length of these, within the City, is to be carried on viaducts.

* Although not at all affecting the accuracy of the statistics given of the frightful infant mortality of Sunderland, we may here remark that, inadvertently, the total annual mortality (of all ages) in that borough, appears as 22 per 100, instead of 22 per 1,000, in the article referred to.

The list of railway and other projects referred to in the report is as follows:—

1. The Metropolitan Railway, extension to Finsbury-circus.
2. The Finsbury-circus Railway Station with approaches.
3. The Eastern Counties and Finsbury Railway.
4. The Metropolitan Railway Improvements.
5. The East London Railway.
6. The North London Branch to City Railway.
7. The West-End and City Railway.
8. The Charing-cross Railway, City Terminus.
9. The Thames Embankment.
10. The Concentration of Courts of Justice (acquisition of site).

The total area scheduled for each of these projects is;—14 acres for the 1st; 20½ for the 2nd; 11½ for the 3rd; 3½ for the 4th; 10 for the 5th; 5 (within the City) for the 6th; 4 (within the City) for the 7th; 4½ for the 8th; 2½ (within the City), besides 13 of river-shore, for the 9th; and 16 (four or five houses only in the City, besides Temple Bar, which is also scheduled), for the 10th.

The first scheme comprises an extension of the railway from Paddington to the proposed Smithfield Meat-Market, from the market to Finsbury-circus. The second speaks for itself. The third comprises a branch line from the Eastern Counties at Arundel-street, Bethnal-green; and, running beneath Bishopsgate-street at Norton Folgate, to the Metropolitan Railway, at the Circus Station, New Broad-street. The fourth includes a loop-line from the Metropolitan (underground) Railway, at Victoria-street, to Smithfield Market. The fifth comprises a railway line from New Broad-street to Longgate Wharf, with branches to the North-Western and Great Northern goods depôts, and to the Victoria Docks. The sixth comprises a line from Liverpool-street, City, to the North London Railway at Kingsland. Of the seventh we shall afterwards speak. Of the eighth we lately gave some account in the *Builder*, as also of the ninth and the tenth; and a separate account of the ninth, quoted from the Parliamentary bill, which has just passed the Committee on Standing Orders, elsewhere appears in our columns this week.

The West-end and City Railway it is proposed to commence at Regent-circus, Piccadilly, and to terminate at the proposed Smithfield Market, in the City. After leaving the Circus, it proceeds by Coventry-street, Leicester-square, Cranbourne-street, Long-acre, and Great Queen-street, keeping entirely in the line of public way; at Great Queen-street it passes beneath property, and crosses beneath the public ways of Little Queen-street, Gate-street, &c., to Holborn: thence continuing, along the line of public way, it enters the City at Holborn Bars (avoiding Middle-row), and proceeds along Holborn to Leather-lane; thence, turning slightly northward, it goes beneath private property, passing under Hatton-garden, Ely-place, over Victoria-street, and thence, south of West-street, to the proposed new Meat Market.

Between Regent-circus and Union-court, Holborn, this railway will be in a tunnel, none of the public ways enumerated being altered in level until it arrives at Union-court, Holborn, the surface of which will be raised 8 feet, and the railway will still pass beneath it: towards Field-lane the tunnel will terminate, and the railway will be carried over Field-lane and Victoria-street by a viaduct: the latter thoroughfare will be spanned by a girder bridge 65 feet wide, and 15 feet clear.

The whole series of the projected schemes, as remarked by Mr. Haywood, are worthy of the closest consideration; and the importance of some it is almost impossible to overrate. Their salient and most important feature is their convergence to the commercial centre, enabling a large portion of the metropolitan population, as well as those from the country, to enter and leave the City, or pass through it to either of the suburbs, with a certainty as to time and comfort to which they have long been unaccustomed, and to perform journeys speedily which the present state of the main thoroughfares is daily making more difficult and vexatious. Another important feature is the projected construction of approaches.

The existing plan of sewerage of a considerable portion of the City must be destroyed, and miles of sewers be reconstructed, but without charge to the ratepayers.

The Improvement Committee are recommended by their engineer, in the meantime, to dissent from the whole, so as to obtain a *locus standi* for negotiation or opposition, should that ultimately be found requisite.



THE WHITE HORSE INN, EDINBURGH.

AN ANCIENT HOSTELTRY IN EDINBURGH.
THE WHITE HORSE INN.

ONE generation wipes out another. Amongst the objects on which the operation has been practised are the ancient inns with which our ancestors were familiar, and which are in many cases associated with notable events and persons. The old inns of London and Southwark, and of other cities and towns of Great Britain, have for the most part given way to hotels of larger though still confined dimensions; and these in their turn are about to be superseded by enormous establishments, replete with every luxurious convenience, and affording nightly accommodation to 500 or 600 persons. In London and Southwark, some of the buildings which were inns in Queen Elizabeth's time still remain, little changed since the days when Shakespeare's plays were acted in the courtyards.

Amongst the most remarkable examples of the old inns which are to be found in Scotland is that shown in the engraving. Business has long departed from the quarter in which it stands, to the "New Town," where better accommodation is offered than in the picturesque but ill-contrived portions of famed "Auld Reekie." Nevertheless the building has attractions for wayfarers, and was visited lately even by the Empress of the French, who showed her taste in seeking out scenes of interest.

Tradition affirms that this building took its name from a celebrated white palfrey of Queen Mary; of course, doubt is thrown on the legend. Be this as it may, it is clear that it was a place of resort in the days of Charles Stuart's rebellion. Sir Walter Scott, who well knew every nook of the northern city, made it the quarters of Captain Waverley during his brief sojourn in that capital.

The White Horse Inn, as it was called, forms a main feature in a small quadrangle near the foot of the Canongate. A broad flight of steps leads up to the building. This latter is peculiar from the fashion of the roof, which, like many of the houses in Belgium, has two windows, one above the other, in the roof. These windows afforded light to the travellers' apartments.

What would in London be called the first-floor seems to have been arranged for dining and sitting rooms: the basement, with the circular arches, comprises stables—an arrangement not very wholesome, but in accordance with custom. In the reign of James I. an enactment was made "for the express encouragement of innkeepers," that all travellers in burgh towns are forbidden to lodge with their acquaintances or friends, or in any other quarters but in the established inns; but with this exception—"Gif it be persons that lendis money, with them in companies, i.e., gentlemen attended with a numerous retinue and lodged in the common hostleries." Scenes which painters might make pictures of have presented themselves in this now neglected spot.

The Railway Hotel illustrated on the opposite page will serve as a contrast to this old Scotch inn.

THE DESIGNS FOR THE NEW CEMETERY
AT LIVERPOOL.

THE Liverpool Burial Board held a special meeting on Tuesday last, for the purpose of awarding the premiums to architects who had submitted the best designs for the buildings required at the new cemetery, which the parish, as our readers know, are laying out at Anfield-park, Walton. The architects were instructed to confine themselves to plans of structures which could be erected at a total cost not exceeding 11,250*l*. The prizes offered were 100*l*. for the first best plan, 50*l*. for the second best, and 30*l*. for the third. None of the plans sent in, however, appear to have met with the unqualified approval of the Board; for the best designs submitted, the Board were assured could not be carried out for the sum stated, whilst those which could be carried out for that amount were declared to be unacceptable in point of design; so that the Board found themselves in a dilemma of having to award prizes to architects who had not complied with the conditions under which they were asked to compete, or to those whose plans they agreed possessed no individual merit. In this difficulty the advice of a professional architect (Mr. Rhind, we believe) was sought as to the respective merits of the competitors; and the law clerk was even asked to decide whether, if the board were of opinion that none of the designs could be executed for the amount of money stipulated, they were bound to award premiums at all. Mr. Harvey, the law clerk, decided, however, in favour of the architects; urging that the gentlemen who had sent in the plans most approved of might set up a case and call witnesses to prove that their designs could be executed for the amount to which they had been restricted. Though not unanimously adopting this view, it was deemed prudent to act upon it, and the board then proceeded to award the prizes to the competitors whose designs they most approved of. The first prize was awarded to No. 3, marked "Spe," and sent by Messrs. Charles Lucy and Charles Littler, of Holt Hill, Tranmere; the second, to No. 5, marked with a red circle within a black one, and forwarded by Mr. Walter Scott, of Birkenhead, and Sweeting-street, Liverpool; and the third prize was given to No. 7, marked "Hiram," and submitted by Mr. James Shipway, of Great Malvern. These, we believe, were the designs considered most meritorious by Mr. Rhind, though that gentleman had at first thought that designs No. 11 were preferable to No. 7; but he subsequently expressed an opinion that though No. 11 were perhaps the most attractive, No. 7 embraced more points which would be useful to the committee. With respect to the award of the first and second prizes, the committee were unanimous; but as regarded the third, they, like Mr. Rhind, were divided in their opinion; but upon the votes being taken, there was found to be a majority of four to two in favour of Mr. Shipway's de-

signs, and the third prize was accordingly awarded to that gentleman.

It was suggested it would be desirable to purchase No. 11, if it could be obtained.

It was resolved, that in returning the designs to the unsuccessful competitors, the thanks of the Board should be conveyed to them; for many of their plans, Mr. Jackson observed, contained points of great excellence.

HOTEL, MALVERN LINK.

THE hotel movement is spreading fast. The building we engrave is situate on the south side of the Quoit-hill, adjoining the Link station of the West Midland Railway, and commanding a grand view of the Malvern hills and of the richly-wooded valley of the Severn: it is designed for the accommodation of tourists and excursionists.

The building is of red brick, with black brick interlacings and Bath stone dressings. The lower floor contains a number of sitting-rooms opening to the lawn, which reaches to the railway platform; behind the sitting-rooms runs a spacious corridor, and this again is in communication with the waiters' rooms, kitchens, and other extensive domestic offices.

On the middle floor are suites of rooms and bedrooms, also coffee-room, bar, and manager's rooms.

On the upper-floor is an assembly-room, with large promenade balcony; and connected with it are ante-rooms and refreshment rooms.

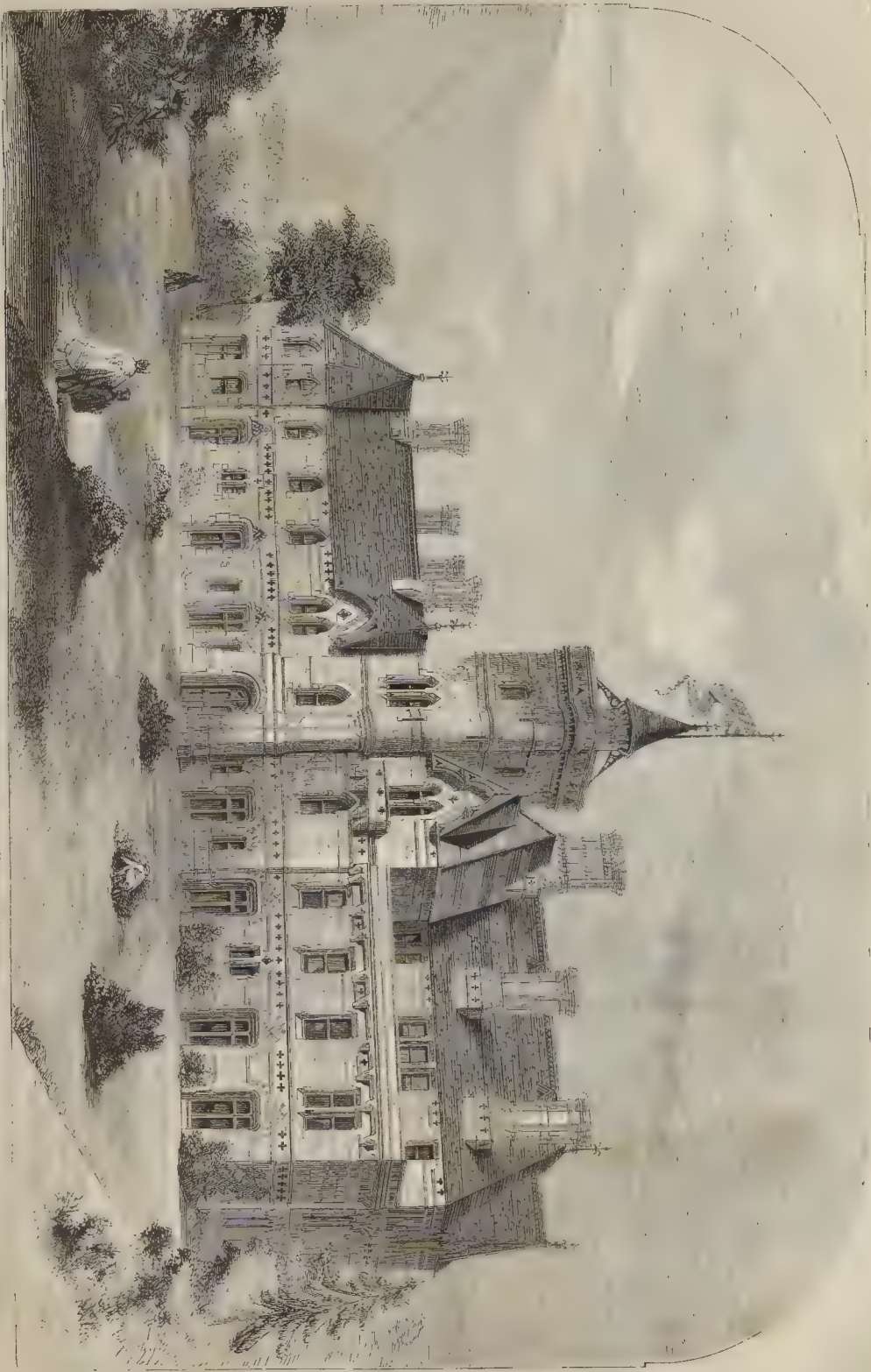
The slope of the ground is such that while the lower floor is level with the lawn, the middle floor is level with the public road, from which it is entered, and the upper floor is connected with the higher ground on the opposite side of the public road referred to, by a level bridge leading to the pleasure-garden, which is laid out in bowling-greens, archery lawn, and other luxuries for the behoof of excursionists, who, since the opening of the railway, have poured in from all parts of the country.

This hotel is being erected for the Great Malvern Hotel Company, who are building their large hotel at Malvern (on the principle of the Great Western Hotel, Paddington), and for which building designs were submitted in competition by Mr. Joseph Clarke, of London; Messrs. Medland & Maberley, of Gloucester; Mr. Shipway, of Malvern; Messrs. Murray & Jevons, and Mr. Elmslie, of the same place; when the designs of the last-named gentleman were selected, and are now being carried out under his superintendence.

The contract for the building at Malvern Link is 5,550*l*, and is taken by Mr. W. Smart, builder, of Malvern. Mr. Henry Lucy is the clerk of works; and the ornamental gardens are being executed by Mr. Joshua Bowker, landscape-gardener, of Scarborough, whose contract is 774*l*.

It is expected that the hotel and gardens will be opened this summer.

HOTEL AT MALVERN LINKS, WORCESTERSHIRE.—MR. PETER J. NICHOLS.



THE FOUR SISTERS; OR, SOME NOTES ON THE RELATIONSHIP OF THE FINE ARTS.*

We are all apt to embody our thoughts in illustrations which are familiar to us. The traveller peaks of the journey of life: the sailor frames his hopes, in wishing you a fair wind and a sure haven. Thus, also, is the artist ready to clothe his thoughts in those illustrations with which his imagination is peopled. With the sculptor, hardly a passage occurs in poetry but calls up in his mind figures and groups to symbolize the sentiment. Thus, in considering the relation of the fine arts, he is apt to regard it as a real relationship. He sees before him a group of sisters. The sisterhood of the Muses is as old as Parnassus. It is thus we have been accustomed to view Architecture, Painting, and Sculpture; but I submit there is yet another sister which we may well introduce into the group, maybe of lesser stature, but still a sister—I mean the Muse of Ornament or Decoration.

In regarding, indeed, the subject of the relationship of the fine arts, I do not conceive we can do so justly without this introduction of the fourth sister, and that more on an equality than we in this country are wont to do; and if at first sight this may appear somewhat of an innovation, yet I trust it will not be set down as a presumptuous one. It is in truth, I fancy, but a piece of justice; for Decoration, as an art, is not unfrequently slighted, even by those who may most miss the completeness only to be gained by her presence.

In fully considering the department of Decoration, it presents itself in a twofold shape: first, as that union of fanciful, natural, and conventional forms and objects and colours, more addressed to please the eye than to convey any striking sentiment, and which is subsidiary to architecture, painting, and sculpture; and, secondly, that large decorative quality without which nothing can be quite good in painting and sculpture, and assuredly not in architecture. Viewed in the former of these aspects, the decorative Muse seems somewhat of a handmaid to her stately sisters: in the latter, she seems almost their superior, binding them together in a union which forms their greatest strength.

Thus, then, in regarding in our mind's eye the sisterhood of the Fine Arts, we imagine a classic group of three maidens, tall and beautiful, in attitudes of noble grace, and yet bound together, by a younger sister, with a wreath of flowers, like a Psyche entwining a group of draped Graces. Like a younger sister, and of lesser stature, she seems to tend them alternately; assisting now one, now the other; but none the less binding is the festoon with which she unites them because it is one of flowers.

To repeat,—Decoration, when viewed by herself, is not so lofty as either Painting, Sculpture, or Architecture. She is comparatively a child, fanciful, erratic, chasing butterflies, blowing bubbles, doing many things which her elder sisters would scarcely stoop to do, and would hardly be forgiven if they attempted. She makes all sorts of capricious combinations out of the different kingdoms of Nature; waves off figures into scrolls and foliage; and plays with colours like a kaleidoscope. But in another point of view she is the bond of union of the whole family. In this aspect she is at least as lofty as any member of it; because, without an appreciation of decoration in its highest sense, Architecture, Painting, and Sculpture cannot be truly combined. It is thus that the playful, yet powerful, Muse of Decoration appears in her highest phase. It was thus that she appeared in the Parthenon, and in the ceiling of the Sistine Chapel.

It is with this preamble that I introduce these few notes on the relationship of the fine arts—on their family likeness and individual diversities. These notes will be found more to invite attention than to attempt to dogmatize, which is very far indeed from my desire.

We must all see that the fine arts address us through our sympathies. Some, however, are more direct in this than others. Of these, are painting and sculpture of the human form, for they represent our race. Pope's well-known adage applies to this study; and painting and sculpture of the human form will always possess a more direct appeal to our feelings than any other branch of the fine arts. We may remark this in a building. No matter how admirable its structure and decoration; yet, if it possess also paintings and sculpture of equal excellence, it is to them

that the general eye will be attracted; especially to the paintings, which in their art leave nothing to be supplied by the imagination. For this reason painting is ever the more immediately attractive of all the arts. Sculpture is more abstract. We may see the effect of this in any exhibition of the fine arts in any country. Paintings form the first attraction, sculpture comes next, then architecture, then the decorations.

It is for sympathy that we all work. "No one," says Dr. Johnson, "would write a book if he knew its leaves were at once to be scattered on the ocean; and who would elaborate a picture, or with many a studied stroke hew the statue from the block, if the moment of completion were to be the signal of their destruction?" In all our artworks we seek for sympathy. This is the hope, the dream, the prize of our efforts: no marvel, therefore, that this shows itself in the aim and direction of our higher art-works, which use the form of man for their language.

The landscape which puts before us the associations of our childhood, and the varied scenery of the changing seasons; the pictured flower which seems to breathe the perfume of its original; the imaged storm or calm of ocean; and the characteristics of animal life, of dogs and horses,—man's humble, but useful companions,—are not included, but rather invited and welcomed by this view of sympathy; under such attitudes, however, as are most adapted to interest us. Still, on the other hand, the mode in which we appreciate these leads us again to the recognition of the highest efforts of the fine arts, those which represent our own kind, not only in its grosser contours, but in that expression which breathes the essence of our more spiritual nature.

Thus it is, in its movements amid the variety of surrounding nature, that the sympathetic key of art is at once responded to. It is the note starting from the human lips, which, ringing out amid the swell of instrumental music, shrills us more than all the billowy sounds beside. It is the voice in the storm that we catch with breathless interest, the footstep in the sand on which our gaze is riveted,—the human form which steps out amid the works of Creation, and calls them all by name.

It is in this respect that the arts of painting and sculpture possess their superior force. It is in their power in the direct representation of our kind that resides the immediate hold they have of our interest and sympathy. Nor can any form of mere architecture or decoration attract so at once, as the record of features which beam with intelligence, or the form which is the possessor and agent of that intelligence. In this walk of human representation these arts are directly of man, and speak to man face to face. With them, in this respect, architecture and decoration can by no means compete, which deal with parts of nature, animate or inanimate, which have less hold on our feelings; and thus, of the four arts, undoubtedly painting and sculpture possess the more direct and shorter roads to our sympathy.

It would thus seem, by this argument, that the pre-eminence rests with painting and sculpture over the other two arts. Like, however, the gold and silver shield of the disputants, the truth also has its two sides, each polished like a mirror, and reflecting many things each way. Among these we will turn at least to one which we may see on the other side. While we have thus favourably regarded painting and sculpture, let us not omit to remember that, immediately as they speak to our mental sympathies, yet they are of no actual direct corporeal use. We could live without painting and sculpture, but civilized man cannot live without architecture of some sort. And let us not understate this consideration. The whole resolution in philosophy, which we are so proud to attribute in great part to our great countrymen Francis Bacon, Lord Verulam, was based upon making that study useful, and of direct service to man; and assuredly the arts are not above science. Architecture is an indispensable art: it is so directly useful. Painting and sculpture may be: architecture must be. When the abuses of heathen worship, with their sculptured and painted gods, were banished before the light of the Gospel, the fine arts then partook, justly, perhaps, of the odium of the service of which they had been so long the handmaids. Painting and sculpture were awhile in disgrace, and lost the world's sympathy; architecture, like her sisters, had pandered to Pagan worship, and had built its temples for ages. But she was not overwhelmed by this obloquy, like her sisters. She was too strong to go down before it. The world could not do with her, and so her power survived almost without an interval. One of her finest styles, in-

deed, arose, even amid the morning twilight ages,—that of Byzantium: that of our own early church-architecture was continuous; and, moreover, after the lapse of some centuries held out a helping hand to her sisters. She led them out of their captivity, where, like the daughters of Israel in Babylon, they had hung up their harps and mourned; after a while interceded with the world for their forgiveness; and by degrees restored them to their high places. And she had the power to do this; because, in her nature, she is essential to us, and the world cannot do without her. Herein lies a great force and stability in her, on which a number of other forces are founded. We must have structures; and, even as early records show, we must have them of various kinds. They should fulfil each purpose fitly: they thus become impressive and expressive in various ways. We may as well have them beautiful. It is at this point that architecture becomes a fine art: before it was only a useful art. Yet have its most refined beauties the invaluable advantage of the substantial basis of the useful. It is on this solid foundation that this art rests. Loftily, airily, gracefully, and grandly as it may expand, and tower into the beautiful and sublime, yet does its firm foot still rest on the work of direct utility. This is a vast advantage, which, in these practical days especially, more than counterbalances the more direct appeal to our mind possessed by painting and sculpture. Painting and sculpture rest on our sympathies—architecture greatly on our wants. Our sympathies may be in abeyance—our wants never. For their higher aspiration the three arts may tower together, but architecture is the base of the pyramid.

But the fourth sister now claims our attention. In regarding her we must not forget her twofold character. In her smaller province, Decoration, we may perceive, arises directly and chiefly from Architecture. Ornament, so to speak, is the immediate parasite of Architecture. It is the lichen that rises from it,—a natural growth; the ivy or honeysuckle that clings to its pillared trunk; the mistletoe which buds out amid its branches. The earliest and crudest selection of Architectural forms has in it the seeds of decoration. The column of wood sprouts into leaves at the top: the finials become fruit and flowers: the bundle of upright seeds is rudely simulated in stems; and the capital magnifies the head of the papyrus, lotus, or acanthus. No nation has been so impregnated of art that the simplest forms of natural structure have not very soon suggested to them surface ornament; and that commenced, Decoration is born. Then begins its existence,—first in a kind of crystallization from points over the surface, and then in a more vital action. Sometimes it runs over the whole work in the more florid styles, as in some of those of the Indians and Moors: at others, it only creeps out here and there, as in Grecian and some simple Gothic styles; slipping over a moulding, bursting out into growth in capitals and finials, and grasping the union of arches with knots of stems and leaves. Compact to Architecture is its first life; but its seeds fall about, and are wafted, on their light plumage, hither and thither, on pavements, walls, draperies, furniture, and all the adjuncts of our habitations.

True it is, however, that there is another starting point of ornament—that of personal decoration—which is so strong a natural passion that the savage will often have decorations even before he has clothes. Paintings on the human skin itself, as with our rude forefathers, thence called by the Romans *Picti*, on these isles, are among the earliest examples of surface ornament; as bright feathers in the hair and festoons of teeth and shells are among the earliest decorations of uncultured man. Thus from his own person does the ornament of the savage extend to all his cherished implements. His bow, his quiver, and his club partake of them: his paddle and his canoe receive the like embellishments. The latter may be called his moving habitation; and thus decoration returns to architecture.

On the doorposts and pillars, and along the cornices of these habitations, we soon see surface-ornament appear; and then grotesque heads of human beings as household gods, &c. The rude hut of the New Zealanders, of the Society and Friendly Isles, as pictured in Captain Cook's and other voyages, presented, when first discovered, this early kind of decoration. The temples of central America, as described by Stevens, and drawn by Catherwood, afford examples of the same early stage of decoration. Even at the present time, Chinese architectural decoration has not advanced much beyond this type. Celtic and Scandinavian ornament is of a similar character. Indeed, this early style, which is greatly serpen-

* Read by Mr. John Bell, at the Architectural Museum, on Wednesday evening last.

tine and lacertine, or made up of serpent and lizard forms, with the occasional introduction of grotesque heads and foliage, has probably been much the same in all countries. With no nation did art spring, like Minerva, of full growth from the head of her parent; but was the offspring of long travail. The saying, that "Art is long and life is short," may be applied to the art and life of a nation as well as of an individual.

We see, however, that, although decoration is the close companion of architecture, it is not in this respect alone that she possesses our regard. To decorate in some way or other is one of the first things that man has ever done in his leisure moments. Nature herself is decorated everywhere, and everywhere our eyes, unassisted, fail to show us this: take up the microscope and it is soon demonstrated. Man's decoration soon arrives at its limit. The most minutely-finished goldsmith's works, under the microscope, become rude and incomplete: under the same test the most delicate lace becomes a coarse and uneven net. But nature is a far more complete workwoman. Submitted to the same scrutiny, any scrap taken haphazard of her manufacture—leaf or flower, shows in itself a world of subtle and perfected detail. In nature we meet with decoration in the most unexpected places. The snow that flutters down to the earth affords, under the microscope, the most startlingly regular and charming arrangements of crystallized decoration. Some years ago a number of these, excellently drawn by Mrs. Glaisher, were figured in the *Art-Journal*. Even sections of the stems of plants and of their seed vessels and flowers present occasionally most decorative forms, as has been admirably illustrated by Mr. Dresser. More simply, the village child well knows the natural likeness of the oak, which is seen on cutting across the stalk of the common fern or brake, in the centre of which tradition and fancy picture King Charles; and these latent mines of ornamental forms are without end. Nature has been said to work by mathematics: she may be well said also to work decoration. Doubtless the two qualities are closely connected: at least they meet us together at every turn. If decoration then is so universal in nature, it does not become us to slight it in art. Yet it is not infrequently slighted, even in those quarters where you would least expect it. For example: Few things of the kind, perhaps, are more difficult than to induce a committee of gentlemen, interested in the erection of a statue, to accept for it a duly decorated pedestal. The advantages of the union of sculpture and decoration, in such works, are visible throughout great part of the Continent; and even here, in the centre of London, in the example of the picturesque pedestal of King Charles, at Charing-cross; and yet, from an incomplete idea of simplicity, most of our statues stand on crude granite posts. It is extremely difficult, on such occasions, to impress sufficiently, that just simplicity consists in unity, not in baldness and crudeness.

It is such public deficiencies as these that may be acknowledged to call for a more polite regard for the fourth sister of the fine arts. I do not desire to overrate her mission and powers; but I do claim for her a higher status and more attention than she is in the habit of receiving in this country.

In one point of view, as I have said, decoration is subservient to the other fine arts: in the other it regulates them all. As merely decoration, it is not a substantive, but an adjective. It does not stand alone. It embraces the other Muses. It is not a thing of itself: it decorates something else: it is an adjective. On the other hand, a painting, a piece of sculpture, or a structure, is a noun-substantive,—a thing of itself.

Not so decoration. Decoration clings: it needs support. It follows: it does not lead the way. It enhances: it does not originate. This is its restricted province. In its higher phase it regulates the whole of the other arts, binds them together, and completes them as they can be completed by no other means.

Advantageously as the sisters may all be seen together, uniting in practice as well as kindred in appearance; yet each has its individuality. Strong as the family likeness may be, still we may observe especial resemblance between some more than others, as we do in families. Thus we may remark that painting and sculpture seem much to group together, and architecture and decoration to have a similar affinity and disposition. We may notice one of the most striking of these points. Painting and sculpture both seem to represent the works of the Creator: neither architecture nor decoration has directly this object. Decoration, to be thorough, must ever be, more or less, conven-

tional,—if not in detail, yet in arrangement. The painter represents trees and flowers as they grow: the decorator arranges a branch of foliage in a given line, and hangs his flowers in festoons. A similar conventionality, or regular modification from nature, distinguishes architecture. Deriving her styles evidently from natural objects; yet successful architecture is never the direct imitation of nature. The arch of heaven may have suggested the dome; but the architect does not decorate it with the sun or moon, or portray a storm or sunset in it; but erects it with constructive embellishments of treatment which are without reference to the original type. The interlacings of a Gothic roof may have been suggested by the frontage of an avenue, and the pendentive ceilings of Alhambresque halls from the stalactite vaults of caves, cool and pleasant in a burning clime; yet are these natural types conventionalized in execution, or they were not satisfactory. Even in the structures made by the lower animals, we do not witness the direct imitation of nature. The nest of the bird, the waxen palace of the bee, the lofty edifices of the African architect, which last vastly exceed, in proportion to their artificers, any works of man, are none of them direct imitations of anything else in nature, but are *per se*, or of themselves. Birds, quadrupeds, and even fishes,—many of them make, more or less, houses for themselves; and the bower bird not only constructs his bower of twigs, but also decorates it with all the bright finery he can collect to feast the eye of his lady mate, as you may see in the Zoological Gardens. He is a decorator as well as an architect. The architecture of birds, indeed, is very various. There are the cave-temples of the sand martin, and of the little owl of the prairies; the stucco palaces of the swallow and house martin; the exquisite and refined retreats of the finches; the plastered house of the thrush, and warm and cosy abodes of the wren and bottletit. Then come some which build more open domiciles, as the hawk, heron, rook, and wood-pigeon, &c. Indeed, in bird architecture, there may be said to exist as many styles as among ourselves; not, however, probably, so much a subject of discussion; but none of these are direct imitations of nature; nor do they include the painting and sculpture of living forms, which arts, indeed, appear reserved for man alone. The phrase may follow, then, that instinct will build and decorate, but reason is required to paint and sculpture.

But here, again, let us cast a glance on the other side of the shield; which, in counterpoise, fairly affords this reflection; namely, that from these premises it may be well held that architecture is so essential, and decoration so universally delightful, that they, perforce, spread even beyond the domain of man, which is the sole region of painting and sculpture; that architecture has a base far wider than merely our wants and desires; and decoration possesses a vastly more extended appreciation than rests alone with us.*

CHURCH-BUILDING NEWS.

Aldford (Cheshire).—The old parish church of Aldford is shortly to be razed, and a new church built from designs by Mr. Paley, of Lancaster, architect. The new edifice will be erected at the sole expense of the Marquis of Westminster, on a site adjacent to the present church, and which will allow the ground on which it stands to be added to the churchyard, which required to be enlarged.

Hersford.—Measures are being taken to provide a general cemetery for this city and neighbourhood. It is proposed, according to the local *Times*, to form a company for that purpose, with a capital of 5,000*l.* in 5*l.* shares; and nearly 2,000*l.* have already been subscribed in a few days.

Bristol.—A new church, dedicated to St. Bartholomew, and erected as a chapel-of-ease for the large and populous parish of St. James, has been consecrated. The edifice has been erected on a piece of ground situate between Union-street and Little James's-back, from the designs of Mr. T. S. Pope, of the firm of Messrs. Pope & Bindon, and is in the Early Decorated style. It consists of a nave, chancel, chancel aisle, harmonium gallery, and two other large galleries, with two vestries, &c. The area of the building has been fitted to seat about 250 persons, and there is also sitting accommodation in the chancel and chancel aisles, the whole of the seats being of stained deal, open and uniform. The larger of the two galleries will afford accommodation for 150 children, and the smaller one will seat about 130 adults. The build-

ing is lighted from the roof, which is formed with trusses, filled in with tracery, and plastered between the rafters; the wood-work being stained and varnished. Midway up the roof, at the sides, are two rows of windows, similar to clerestories. The carvings, executed in stone by Mr. White, are in natural foliage of different kinds. The east window is of stained glass, and was presented by Mr. Hall, of Broadmead, who also gave the whole of the glass requisite in the erection of the church. The window represents the foliage of the vine, with texts of Scripture intertwined. The church is built of Pennant stone, with freestone dressings, the extreme length of the edifice being 106 feet; and its breadth 30 feet: it is 45 feet high at the centre of the roof, and 25 feet at the sides. The galleries are about 22 feet deep. The front in Little James's-back consists of a porch, with turret, containing a staircase leading to the galleries, and with spire over it; two arcades of windows throwing light into the galleries, and the gable surmounted by a carved cross. The windows throughout are tracery, with shafts and carved capitals. The tradesmen engaged upon the work were:—Davis, contractor for the mason's work; Bennett, for the carpenter's work; Edbrooke, smith's work; Tuckey, plumber's work; Hill, plasterer's work; Gay, glazier's work.

Bedminster.—St. Luke's church has been consecrated. The edifice is situate on the New Cut, about half-way between the Bath and Bedminster bridges. The architect is Mr. Norton, of London. The building is calculated to contain sittings for 1,200, upwards of one-half free, and the total cost of erection will be nearly 7,000*l.* The building comprises a nave, with north and south aisles, each 107 feet long, and 25 feet 6 inches and 16 feet wide respectively. The nave is separated from the aisles by arcades of six arches on the north and five on the south side. Eastward of the nave is a chancel 27 feet long by 20 feet wide, with a polygonal apsidal end forming the sanctuary. The tradesmen employed in the erection of the church have been Messrs. J. N. Brown; Singer, of Frome; Llewellyn; Haden, of Trowbridge; D. and T. Bird; and Naylor, Vickers, & Co.

Alton.—The parish church at Alton (a seat of the Earl of Shrewsbury and Talbot), which has for some time past been in a state of neglect and want of repair, has just been in part restored, according to the *Staffordshire Advertiser*. The church was built in the twelfth century, but it was rebuilt about thirty years ago, when some of the most striking of its architectural features were lost. The accumulated whitewash and plaster of centuries has been scraped from a row of Norman arches, a part of the old church which now forms an interesting object in the nave. An Early Pointed arch, which was built up and hidden by the west gallery, and the existence of which was almost unsuspected, has been thrown open by taking down the gallery, and now connects the tower with the body of the church.

Whitley.—The principal works comprised in Mr. Scott's plans for the restoration of St. Mary's Church, which have been adopted by the subscribers, are—the removal of the organ, and throwing open the arch at the west end, re-glazing all the windows with cathedral glass, placing new doors throughout the building, and re-seating the whole of the church with seats of the usual modern form, made of pitch-pine, at an estimated cost of 1,400*l.*; the warming of the church by Holden's system, and gas-fittings for the whole of the interior, at a cost of 300*l.*; the repair of the south choir aisle, at an estimated cost of 180*l.*; the re-laying of the roof of the nave, new parapets to the clerestory, repairs of the lead works on the other roofs, and the drainage and underpinning of the walls throughout, at an estimated cost of 150*l.* The subscriptions already amount to 1,130*l.*

Bridge. The village of Bridge has lately had its parish church restored, by the liberality of Mrs. Gregory, of Bridge-hill. The architect was Mr. Scott, and everything has been completed by Mr. G. Lanehead, of Canterbury, builder. The church, according to the description of it in the *South-Eastern Gazette*, is built of flint and Caen stone. The tower and spire were first completed, and then the body of the church. The windows are of painted glass. The font is of Cornish serpentine marble. The pulpit and desk are of carved oak. The chancel aisle and communion floor are paved with Minton's tiles.

Wigginton (Yorkshire).—The new church which has been built at Wigginton, near York, has been opened for divine service. It is a plain structure, devoid of ornamentation, and erected, comparatively speaking, at a small cost, only 700*l.* having been expended in the building of the edifice, which stands upon the site of the old fabric.

* To be continued.

Messrs. J. B. and W. Atkinson, of York, were the architects, and the undermentioned York tradesmen were the contractors: masonry, Messrs. Bowman & Co.; carpenter and joiners' work, Mr. Isaac Webster; plastering, Messrs. Croft and Braithwaite; painting, Mr. T. Mason; plumbing and glazing, Mr. J. R. Humphries; slating, Mr. H. Sanderson; heating apparatus, Mr. J. Fryer. The edifice, according to the *York Herald*, is in the Early English style of architecture. The walls are of Bradford sets, with dressings of Whitby stone, and the roof is high pitched and open timbered. The church consists of a nave, 45 feet long by 21 feet 6 inches broad, and a chancel, the length of which is 20 feet by 14 feet in breadth. Upon the south side of the chancel stands a small vestry, 8 feet square, and on the north side of the nave is erected the porch. At the west end of the structure is a bell turret in which are placed the two bells that were used in the old church. The east window is of three lights, and at the west end are two single-light windows. In the south wall are inserted four windows, one having two lights, and the other three being a single light each. On the opposite side, in the north wall, is a double-light window and two others, possessing a single light each. The windows have trefoil heads, and are filled in with cathedral glass, and ornamented with a coloured bordering. The pewing of the church is of deal, the seats being open, and stained and varnished in imitation of oak, and the timbers of the roof being coloured to correspond. The flooring of the church consists of plain flags, but within the communion-rails a little decoration has been introduced, the floor being paved with red, black, and buff tiles. A considerable quantity of the stone of the old church has been rendered useful. It has been chipped and dressed, and made available in forming the foundation of the new fabric. The new structure can seat upwards of 100 adults and 40 children.

BURY CORN EXCHANGE COMPETITION.

The town council have selected the design by Messrs. Ellis & Woodard, as the most practicable, but requiring alterations.

GRIMSBY TOWNHALL COMPETITION.

We are informed that the designs of Mr. Fowler, of Louth; Messrs. Bellamy & Hardy, of Lincoln; and Mr. Horne, of London, have been selected by the Council to choose from, and are referred to the surveyor for examination, with instructions to report on the merits and demerits of each. The design by "Credens," who is a London man, has been thrown overboard before being reported upon, on the ground that it is too expensive. The *Lincolnshire Chronicle* properly expresses a hope that the "Council may not be biased by the canvassing which some architects adopt."

CAMBERWELL BANK COMPETITION.

In answer to your correspondent "Veritas," I beg to inform him that, from the twenty-six designs received, the committee selected two, viz. "Integrity" and "John Giles," which have been forwarded to the Commissioners for the Reduction of the National Debt, for their approval of one of them.

If "Veritas" will have the goodness to again refer to the advertisement in the *Builder* of the 24th November last, he will read, "The plans of unsuccessful candidates will be returned on application after the 17th of December next."

WM. SEARLE, Secretary.

NORTHAMPTON TOWN HALL COMPETITION.

SIR.—I am sure the competitors will feel grateful, if you will try and impress upon the council the advisability of calling in professional assistance, as in the late Cambridge competition. A COMPETITOR.

IRISH BUILDING NEWS.

A NEW model school is about to be erected at Lurgan, co. Armagh, under the superintendence of Mr. J. Owen, architect to the Board of Works. The style will be Italian, and the probable cost about 6,000*l*.

The town of Tuam has been recently lighted with gas, by Mr. Daniel, of Dublin. The capital of the gas company amounts to about 3,000*l*.

The new lodge, in course of erection in College-street, Dublin (which is intended as a residence for the chief steward of the University), is fast approaching completion. The roofing is almost

finished. The style is Italian. The walls are of Ballynocken granite. The cost will be about 1,000*l*. It is contemplated to remove the present screen wall in front of the building. Mr. McCurdy is the architect; Mr. Petherstone, the builder.

The Ecclesiastical Commissioners for Ireland are about to enlarge the church of Ashfield, co. Cavan, under the superintendence of Messrs. Welland & Gillespie, architects to the Board.

The new (R.C.) Church of St. Saviour, Lower Dominick-street, Dublin, was opened on the 15th of January. The total length of the church is 181 feet; breadth, 72 feet; the height, from the floor to the ridge, 80 feet. The altar is of Caen stone, richly carved. The side facing the nave consists of seven niches, forming an arcade. A sculptured figure stands in each niche. The reredos consists of an arcade of six arches, resting on marble shafts. The arches are covered with crocketed gables, and the spandrels over the arches are filled in with medallion heads of saints. The eastern windows of apse are filled in with stained glass. The ceiling is panelled and gilded, each panel containing a medallion representing various symbolical characters. The roof of nave is panelled, and is semi-octagonal on section. There are eighteen full-sized figures of saints, forming the corbels of the main ribs. The passages between the seats are laid with Minton's encaustic tiling. The total cost of the building is about 18,000*l*. Mr. J. J. McCarthy was the architect; and Messrs. W. H. Beardwood & Son were the contractors.

A new (R.C.) church is about to be erected in Shop-street, Drogheda, for the Augustinian fathers. The building will consist of nave, chancel, side aisles, tower, and sacristy. The total length will be 150 feet. The roof is to be open-timbered, and stained and varnished. The church will be lighted by seven lancet windows over the principal entrance, within a dripstone forming a single arch, and double lancets in clerestory and aisles. The style is to be Gothic, of the thirteenth century. The architect is Mr. M. B. Moran, Rathmines.

The sanitary inspector reports that the interments during 1860, in Shankill graveyard, have been 961; Friar's Bush, 693; union workhouse, 329; new burial-ground, 158; Malone, 67; Ballymacarrett, 46; total, 2,257. Taking the population at 120,000, this would give a death-rate of 18.8 per 1,000 per annum. But this does not give a correct view of the matter, as an unknown number of the workhouse interments were of persons from the rural portions of the union; and, on the other hand, an unknown number of persons are interred in distant graveyards. It is a source of dissatisfaction and regret that these three islands are governed by different laws. No Act has yet been passed for the uniform registration of births, deaths, and marriages in Ireland, although it has been talked of and urged upon the various governments who have been in power for many years past.

A new (R.C.) Church is about to be erected at Lixna, co. Kerry. The plan is oblong, and consists of nave and chancel, north and south aisles, and sacristy. There is a small tower at the south-west angle. The nave is 81 feet long, by 30 feet wide. The breadth of the side aisles is 15 feet. The roof is to be open timbered. The chancel is semicircular on plan, and is lighted by four windows, on a level with those in clerestory of nave. The style is Norman. The addition of a tower and spire is contemplated. The amount of contract is 3,000*l*. Mr. J. J. McCarthy is the architect; Messrs. W. H. Beardwood & Sons, contractors.

PROPOSED THAMES EMBANKMENT AND RAILWAY.

THE committee have declared the standing orders of Parliament complied with in respect of this bill:—

The object of this measure is to authorize the embankment of the Thames on the Middlesex side, between Westminster and Blackfriars bridges, so that it may be rendered available as the site of a main sewer and of a railway, and afford space also for a road and for approaches. The estimated expense of the embankment, works connected with it, road, and approaches, is 600,000*l*, and of the railway, 75,000*l*. Power is proposed to be given to the Commissioners for Woods, Forests, and Land Revenue to contribute any funds that Parliament may place at their disposal for that purpose towards the undertaking; and, in consideration of such contribution, they are to have vested in them certain embanked lands, and exercise a certain control over the undertaking. It is to be competent for the Metropolitan Board of Works to construct in the embankment a sewer for the main drainage of the metropolis, and contribute a sum of 400,000*l*. out of any funds placed at their disposal by Parliament. The approaches to the roadway will be from Whitehall-place and Waterloo-bridge, and the eastern end of the embankment will unite with the line which the

London, Chatham, and Dover railway are authorized to construct to Farringdon-street; these communicating with other railways having terminal stations in the City; and power is to be given to such railways to contribute. The work is proposed to be completed in five years.

METROPOLITAN BOARD OF WORKS.

MAIN DRAINAGE.

At the usual meeting of the Metropolitan Board of Works, held Friday, Feb. 1st, Mr. J. Thwaites in the chair, Mr. Bazalgette presented a report on the progress of the Main Drainage works, from which it appeared that the contract with Messrs. Brassey & Co. for the Middle-level sewer was not signed, but those gentlemen were making arrangements for the supply of materials. The Northern Outfall sewer is marked out, and nearly fenced from end to end, and the contractor had received instruction to commence the work on Monday. On the south side of the river the Southern High-level sewer is now in progress at four different places, three on the main line, and one on the Dulwich or Effra branch. The value of the work done was about 60,000*l*, and the total length completed, 3½ miles. The Southern Outfall sewer works progressed in a satisfactory manner. The tunnel under Woolwich was about one mile in length, and varied from 45 feet to 75 feet in depth. The value of the work done was about 90,000*l*. The works for the Low-level sewer under the Surrey Consumers' Gas Company's property progress satisfactorily. The total value of the Main Drainage works now completed was estimated at about 340,000*l*.

THE SUPERINTENDING ARCHITECT.

A report was brought up from the committee on the Covent-garden Approach, &c., recommending that the salary of Mr. Marrable, superintending architect, be 1,200*l*, instead of 800*l*. per annum, but was referred back to the committee, to be considered on (this) Friday.

ART IN GLASS-PAINTING.

At the close of last year, you inserted amongst other communications on the subject of stained glass, one signed "Peter," on which, though some time has passed since it appeared, you will perhaps allow me to make a few remarks. After some grievances, he directs his readers' attention to the failures of West and Reynolds, as workers on or for glass. These artists were undoubtedly ignorant or heedless of the principles of glass painting as practised in the Middle Ages; but there was no failure in the case: they accomplished all which they attempted, and all that was attempted in the then state of glass-painting in England. Failure! They thought that Wykeham had failed, for they poked out his tracery in New College Chapel, to make room for their glass, with as little remorse as "Peter's" butcher would knock down his calf. "Peter" will, I hope, excuse me for observing that he should have well examined the best windows of the period referred to (1776), and those painted during the fifty years subsequently, or more; and he would have found that the windows of Jervas, Price, Eggington, Muss, and others, excelled, in manipulation and real artistic knowledge, nineteen out of twenty of the windows now painted by English glass-stainers. However misdirected or mistaken the notions of these men were, whatever shortcomings there may be in the windows, they were at least painted by men of artistic knowledge and attainments. They did not "conceal by ornament their want of art," but despite many technical difficulties and intractability of material, produced good enamelled copies of the pictures set before them.

"Peter's" assertion, that a designer for glass should have a perfect knowledge of architecture, is simply absurd. It will be a happy day for the public when the architects themselves approach this desirable condition. That an artist for glass should have a distinctive knowledge of what are termed the styles will not be gainsaid; and a knowledge of the style of art and decoration homogeneous thereto, but it is equally certain that he should have some knowledge of every known style of art, if his mind and judgment be cultivated to that degree which is requisite for the production of a work of very high art. But "Peter" (it would seem) would confine the studies of the glass-painter to the works produced from the twelfth to the sixteenth centuries,—thus ignoring the whole period of the antique, and all productions from the time of Raffaele to the present; in a word, restricting him to a second-hand inspiration at the shrine of the works of Cimabue, Giotto, and their stiff-limbed, sheep-eyed successors. Now we all know that the

own ascends to the higher. Arlington-street and Cleminson-street are situated in the latter; and, having no vent provided, every gully in the street being securely trapped, its foul air forces its way by the weaker traps and more numerous apertures into the houses; and then, naturally, to the systems of the unfortunate dwellers in these high streets, producing inevitably the destructive effects upon human life shown to have taken place so recently, and which will most assuredly again occur when the warm weather comes on, unless proper means be taken to alter the present system.

T. J.

Books Received.

Development of Christian Architecture in Italy. By W. SEBASTIAN OKELY, M.A. of Trinity College, Cambridge; late Travelling Bachelor of the University. London: Longman, Green, & Co. 1860.

VICEN Mr. Okely went abroad as Travelling Bachelor of the University of Cambridge, Dr. Whewell suggested to him that Architecture would be an interesting subject for investigation during his tour. This book is the result. The substance of it was first sent to the Vice-Chancellor in the form of Latin letters. At the commencement of his tour the number of styles in Italy appeared so great as to offer but little hope of reducing them to anything like a system of classification; but, when his note-book became pretty well filled, so as to enable him to make comparisons, he found that their mechanical and decorative peculiarities gradually formed themselves into a morphological order, in which any one phase seemed naturally to grow out of that which preceded; the varieties of Italian architecture thus appearing, as he believed, to be true developments of the ancient Basilican style. It then only remained to test this arrangement by referring to the actual dates of the erection of the churches themselves, which he obtained either from the local guide-books, or such works as he could lay his hands upon.

"The dates of the churches which illustrate the same architectural phase I therefore collected together, and by that means formed periods, which I assigned to each phase; and, although in some instances these periods overlap each other, yet they all stand in an order which agrees with that of the classification."

The buildings considered in the treatise are supposed to belong to times included between the fourth and fifteenth centuries. Adopting the belief that the fundamental principle of Gothic architecture may be expressed as follows,—“that every artifice of construction must be displayed”—he arrives at the conclusion that “Christian architecture did really develop, not first this way and then that, as if through the capricious ingenuity of individuals, but regularly under the guidance of this universal principle.” Going further than those who have admitted this, he arrives at the opinion that the antagonistic principle, “that every artifice of construction must be concealed,” is the fundamental principle of Classical architecture. This is so manifestly incorrect, not to say foolish, as not to require denial. So far from concealment of the mode of construction being the leading principle in what may really be called classic architecture, no attempt is made to conceal it; and in Temple architecture the very traditions of constructional derivations are recorded in stone. The instance that he cites is drawn from churches which arose out of the ruins of classic buildings. He says, in the Basilican churches, with two exceptions, a lofty brick wall rises upon the entablature, pierced with round-headed windows, placed horizontally, and generally so that the spaces between are about equal to the breadth of the window.

"The weight of this wall would have been too great for the entablature supported only by columns placed under the joists: arches of small curvature were, therefore, built upon the entablature, so as to throw the weight of the wall directly upon the columns."

Then he goes on to say that, if we take away the entablature and insert marble blocks between the capitals of the columns and the spring of the arches, so as to restore to them their function of supporting the fabric,

"We shall obtain a row of columns, upon which rest arches of small curvature, the mechanical construction thus becoming of use decoratively. This arrangement may be seen in the Duomo, at Narni. We see, therefore, then, the first step in architecture as it developed under the guidance of the fundamental principle 'That every artifice of the construction must be displayed.'"

The same development had taken place long before, in what is called the debased work, at Spalatro; and, indeed, in purer Roman work, long before the date of that. To say broadly that of the continuous horizontal entablature is a member purely decorative, and not at all necessary mechanically," reads very much like nonsense: as an emblem of stability one would of course rather make two upright stones carrying a third laid

horizontally, than two upright stones carrying the sleepless arch. We are not to be considered here as arguing for *Classic versus Gothic*, or as depreciating the value of the arch: our observations are solely directed to the assertions before us.

We must hasten, however, to a conclusion. The book is difficult to read; and we are not certain, after more than one careful perusal, that it affords sufficient recompense, at any rate to the architectural student, for the undertaking. The absence of correct dates, in the lists of examples strung together, greatly lessens the value of them. Mr. Okely's classification, too, is unattractive, not to say affected; but our readers shall judge for themselves. He arranges the varieties of Italian architecture which have been the subject of his previous chapters, under the six following heads; A, B, C, AC, BB, and CC.

"By A, we will distinguish that variety in which the supports of the partition walls are columns of any of the orders of Classical architecture, or imitations of them, or columns of the same proportions, but with capitals having little similarity of detail to those of the ancient orders.

"By B, that in which the supports of the partition walls are simple piers having a circular or polygonal right section, or compound piers having cylindrical trunks as described in Chapter IV.

"By C, that in which there are simple piers of rectilinear plan, or compound piers with rectangular trunks as described also in Chapter IV.

"By AC, that in which the supports are partly of the kind under A, and partly of that under C, placed together according to some system.

"By BB, that in which we find systematic combinations of the simple and compound piers which occur under B.

"By CC, that in which are found systematic combinations of the simple and compound piers which occur in the division C."

Then A has five divisions,—A a, A b, A c, and so on; and B six divisions,—B a, B b; C seven subdivisions,—A C, four (when we get A C a, A C b, A C c, and so forth); so that when we come to consider the periods that ought to be assigned to the phases of architecture set forth, we begin in this wise,—

"In this classification we have made three grand divisions, A, B, and C, and also three which proceed from them, indicated by AC, BB, and CC, each with subdivisions denoted by small letters. Now the architectures comprised under A, B, and C, originate at different epochs, and extend up to the extreme limit of the period we have been considering. Likewise AC, BB, and CC, belong to portions of this period; AC not being, however, a transition between A and C, but a composite style, partaking of the nature of both A and C. Also the architectures of BB and CC partake of the nature of those under B and C respectively, being compositions of two different phases assumed by them during their development."

Nevertheless there are some pregnant observations in the book, and it will have the effect of drawing attention to some of the overlooked churches of Italy, valuable in tracing the history of architecture.

Miscellanea.

COPYRIGHT OF PAINTERS.—Notice has been given at the British Galleries of the National Gallery at South Kensington, that henceforth no copy is to be made of any picture there, the painter of which is living, without his written consent.

MILTON MOWBRAY SURVEYORSHIP.—The Local Board of Health having offered the vacant surveyorship to Mr. R. W. Johnson, a resident architect, he has undertaken the offices of surveyor and inspector. A system of drainage is to be carried out during the ensuing summer.

CHELSEA LITERARY AND SCIENTIFIC INSTITUTION.—A new Literary Institution has been formed for Chelsea, meeting at the Vestry-hall, King's-road. Lord Cadogan is the president. The premises consist of a suite of three rooms on the east side, with facility for efficient warming and lighting; and for lectures they have engaged the large hall, capable of seating 500 persons. "The great success and popularity of kindred institutions in other parts of the metropolis lead the Council to believe that the inhabitants of Chelsea will not be backward in supporting one placed in the very centre of their own parish."

ELECTRO-TELEGRAPHIC.—The French government have determined to reduce the tariff for telegraphic messages between France and Great Britain from the 1st of February. A message containing not more than twenty words, between London and Paris, Havre, Amiens, or Rouen, under the new tariff, will cost 6 f.; Calais and Boulogne, 3 f.; Bordeaux, Lyons, and Nantes, 9 f.; St. Malo, 7 f. 50 c.; Marseille, 10 f. 50 c. For all other towns in the United Kingdom, except London, 1 f. 25 c. is added. The French government expects that, in consequence of the new arrangement, the communication by telegraph will become of more general use. A proportionate reduction will likewise be made in the transmission of messages to Spain, Italy, and other countries.

THE PROPOSED FINE ART GALLERY IN MANCHESTER: ITS ABANDONMENT.—A circular has been issued, from which we learn that the scheme for establishing a Free Fine Art Gallery and Museum in Manchester has been abandoned. It seems that the appeal for subscriptions to the fund of 100,000*l.* has not been responded to as was expected. This is much to be regretted.

FLINT CASTLE.—The late frost, it appears, has been somewhat destructive in its consequences to these venerable ruins. A large portion of the inside walls of the south-east tower, according to the *Chester Chronicle*, has fallen, almost blocking up the doorway. The tower on one side is now reduced to a mere shell; and, unless some precautionary measures be taken, its destruction is said to be certain.

ARCHAEOLOGICAL INSTITUTE.—The second monthly meeting took place at the society's apartments in Suffolk-street, on the 1st instant, the chair being taken by Sir John Boileau, bart. The subject selected for special illustration was bronze; and an exemplification of objects, ancient and mediæval, was displayed, including such as are chiefly remarkable for their antiquarian or ethnological interest, and a few chosen specimens of Egyptian, Greek, Roman, Anglo-Saxon, and other periods or classes of art down to the Renaissance, and the productions of the Italian *maestri* in cinquecento times. The meeting was addressed by Professor Westmacott, R.A., who gave a sketch of the bearing of the subject upon the history of ancient art among the Greeks and Romans, alluding to some of the highest productions of the antique school in bronze, and giving few technical details regarding ancient bronzes, their qualities and composition, and the most skillful artists in such works whose names have been recorded. Mr. Franks, director of the Society of Antiquaries, and Mr. Albert Way, offered some remarks on the less artistic classes of ancient works in bronze, of the Celtic and other periods; and they pointed out the curious evidence of the extensive metallurgical operations and production of bronze objects in the British Isles, whence indeed the essential element for the composition of that metal in all periods and countries was alone obtained. This section of the subject will be resumed by Mr. Way at the next meeting, on March 1. A short memoir, on "Ancient Domestic Architecture in Somerset," was read by Mr. E. Godwin; and, after a brief discussion on the threatened "Vandalism" in the demolition of the ruinous Norman gateway at Reading Abbey, the meeting, which was numerously attended, adjourned.

TENDERS FOR CHAPEL TO NORTHAMPTON LUNATIC ASYLUM.—At a special meeting last week of the directors of this Asylum, the following tenders were opened:—

No. 1. T. D. Carter, Westminster:—	
For the Chapel.....	£3,550 0 0
" Crypt.....	847 0 0
	£3,897 0 0
No. 2. Bowley, Brothers, London:—	
For the Chapel.....	£3,450 0 0
" Crypt.....	350 0 0
	£3,750 0 0
No. 3. R. Cosford, Northampton:—	
For the Chapel.....	£3,114 0 0
" Crypt.....	223 10 0
	£3,337 10 0
No. 4. J. Watkin, Northampton:—	
For the Chapel.....	£3,200 0 0
" Crypt.....	210 0 0
	£3,410 0 0
No. 5. J. Whitney, Northampton:—	
For the Chapel.....	£3,154 0 0
" Crypt.....	216 0 0
	£3,670 0 0
No. 6. C. Ireson, Northampton:—	
For the Chapel.....	£2,750 0 0
" Crypt.....	180 0 0
	£2,930 0 0
No. 7. Jackson & Shaw, Westminster:—	
For the Chapel.....	£3,110 0 0
" Crypt.....	235 0 0
	£3,345 0 0
No. 8. W. Parker, Thrapston:—	
For the Chapel.....	£3,450 0 0
" Crypt.....	230 0 0
	£3,680 0 0

Mr. Ireson and Mr. Gosford stated that it would make no difference in their tenders if duston stone were used instead of the native stone. Messrs. Bowley stated that the substitution of duston stone for the native stone would not decrease, but increase their tender; but that the tender would remain the same. After some discussion, with explanations afforded by Mr. Purliston, from Mr. Scott's (the architect's) office, the tender of Mr. Ireson, being the lowest, was accepted.

ARCHITECTURAL PHOTOGRAPHIC SOCIETY.—In consequence of the indisposition of the gentleman whose name was announced for Tuesday evening last, no lecture was then delivered.

THE REV. MR. BEECHER'S CHURCH, BROOKLYN, U.S.—With reference to an incidental remark in our Number for Nov. 3, of last year, we are asked, from America, to say that, although Mr. Hamilton received, as stated, the first money premium for design for Mr. Beecher's church, the really first premium, in the shape of being appointed to superintend the erection of the building, was obtained by Mr. Charles Duggin, of Broadway, New York.

BRICKLAYERS AND BUILDERS IN MANCHESTER.—A meeting was held at the Royal Hotel on Monday evening, for the purpose of hearing explanations from the master bricklayers as to the attempt of the operatives employed by them to enforce rules shortening the hours of labour and otherwise embarrassing the employers. It was unanimously resolved, "That the master builders of this city pledge themselves to assist the master bricklayers in every possible way in withstanding the unjust and unreasonable demands made by the operatives."

THE RAILWAY ACCIDENT AT WIMBLEDON: WHEEL TIRES.—As to the cause of this fearful accident, which seems to be still considered doubtful, the *Hampshire Independent* states that "the change of one of the right-hand wheels of the tender had been forced back for at least an inch or more, over half the diameter of the wheel; but whether this [he adds] was the cause or the effect of the accident, remains to be seen." We are assured by an eye-witness, that the tire got displaced because the bolts had never been screwed home,—an instance of diabolical indolence on the part of the workman who had the work to do; and who, if this were the case, ought at least to be sent into penal servitude for life, as a very inadequate punishment for his negligence. A correspondent from Stourbridge, signing himself "Railway Carriage Builder," after saying, so far as he knows, that railway wheels are formed as described by "G. R. B. A.," says,—That the mode of securing the tires on railway wheels now generally adopted is defective, there can be no doubt. In fact the wheels, in their entirety, as now made, are far from what practice has long since shown they should be,—viz., as near one piece as possible, combining the greatest strength with the least weight. That these results are obtainable, I can prove by producing wheels without any "rivets" whatever, and which will retain the tire, even after being worn through in the tread. The cost of such wheels will be less than those in present use, which are proved to be so imperfect in construction. If, therefore, "G. R. B. A." can awaken the several railway companies to the fact that such advantages are obtainable, he will be doing the "state some service."

MASTERS AND MEN.—At a recent meeting of the workmen employed in the South-Western Pottery, and their wives, notice of which, pressure on our space prevented at the time, the proprietor, Mr. George Jennings, in the course of an address to them, said,—"I propose to build you some cottages which shall be cool in summer, warm in winter, and healthy at all times; and, if you throw a few cinders on your sitting-room fire before retiring to rest, you will have a supply of pure warm air circulating in your sleeping apartments during the night such as will make your repose refreshing and tend to invigorate your minds and bodies. I am sorry to say that houses generally are built more like diving-bells than human abodes; and in these children and women spend the largest portion of their time. Ventilation is scarcely ever considered; but having, as I feel, solved that problem, I hope soon to provide you with healthy homes and garden-ground sufficient to employ your leisure, which will add to the comforts of your families and yourselves. I propose also to construct on the works reading-rooms, as several kind friends have offered to assist me in providing for your use and benefit works of an amusing and instructive character, which I hope you will appreciate and benefit by." Remark on his own career, he said,—"Although now giving employment to some 200 or 300 hands, I have gone through every phase of life. I lodged for a long time with Necessity, and ultimately married the old dame's daughter (Invention); and, but for the kind encouragement our offspring received from architectural and engineering friends in all parts of the world, from the *Builder* and other journals devoted to the advancement of science and art, they would never have been developed or matured by experience."

A DEATH'S HEAD COINAGE.—The King of Prussia, we are told, has ordered the coinage of a thousand thaler pieces bearing the effigies of the late Sovereign, his brother, modelled after death!

INSTITUTION OF MECHANICAL ENGINEERS.—The members of this institution held their annual meeting at Birmingham last week, when Sir W. G. Armstrong was elected president for the present year.

REDUCTION OF WAGES IN THE IRON TRADE.—On Saturday last, notice was given to the mechanics, moulders, &c., employed in the various foundries and machine shops in Blackburn, of a reduction of 2s. per week in their wages, to commence in a fortnight from that date. The wages of labourers are to be reduced 1s.

PROPOSED NEW HOTEL IN LIVERPOOL.—A proposition is on foot to build a very large hotel in Liverpool, on about 5,000 yards of land, in Dale-street, which has been bought for the purpose. The building is to cost about 100,000*l.*, and to contain, besides the usual public rooms and suites of apartments, 400 bed-rooms.

PREVENTION OF DAMP ON STONE FLOORS.—The dampness of stone floors may be prevented by laying them upon sleeper-walls, raised some six inches or more above the ground; then, by inserting air-bricks in the external walls, and placing a grating near the chimney openings, currents of air are established under the floor, which dry it and improve the draught of the chimney.—T. G.

MONUMENTAL.—It is proposed to erect a monument to the memory of the late Mr. Bowly (the *Times*' correspondent in China), in Bishopwearmouth Church. A stained-glass window is talked of.—The ladies in India, with Lady Canning at the head of their committee, purpose to erect a monument over the too-famous well at Cawnpore. Mr. Scott has made designs for this work.

DRINKING FOUNTAINS AND MORE SEATS FOR KENNINGTON PARK.—A correspondent suggests that now is the time to see about placing some drinking-fountains in Kennington Park, where he has seen the children in summer flocking round the cabstands, and drinking with the horses out of their pails; and he also suggests that more seats should be provided, those already in the park being chiefly occupied by tired children, who, he thinks, ought to have a set of lower forms for themselves.

PENYIN GRANITE.—At Messrs. W. and J. Freeman's works there is now erected a piece of work forming the pedestal for a monument to the late king of Sardinia, Charles Albert. It is composed of 12 blocks of granite, six of which are upwards of 22 feet long and cover a space of 22 feet by 14 feet. The whole is about 80 tons weight. The face work and mouldings are highly polished. The granite for the pedestal comes from the same quarry as that for the Richard Cour de Lion, in Palace Yard, Westminster.

FALL ACCIDENT IN SEVENTEEN DOCKYARD.—In hoisting a boiler of 23 tons weight in the boiler shop, with the locomotive crane or jenny, 40 feet from the floor, the travelling tramway broke, and precipitated six men on to the boiler and one to the floor; the crane, the weight of which is between 3 and 4 tons, falling on two of the men, and instantly killing them, besides seriously injuring the other four; while the poor fellow who fell to the ground got his skull fractured, and afterwards also died.

GWYNNE'S PUMPS: FLOATING OFF THE "QUEEN VICTORIA."—The vessel in which the unfortunate deep-sea cable was shipped, whose destination has been so often changed, has been raised and floated in an unexpectedly short time, from the position in which she lay wrecked, a hole in her side having been stuffed with felt. She was then safely beached on Cremyll beach for temporary repair; after which she will be taken to the Plymouth Great Western Docks. This, it seems, is the tenth large steamer recently raised and floated by the use of Gwynne's pumps.

EDINBURGH MARKET-CROSS.—We mentioned last week the determination come to, to restore the Market-cross of Edinburgh, which was removed from its situation on the High-street above a century ago, and the destroyers of which are the subject of the "minstrel's malison" in Scott's poem of *Marmion*. A sketch of the proposed restoration has been prepared by the city architect, Mr. Cousin. We are told it will be an octagonal structure of open Gothic columns supporting a balcony, from which the Scottish heralds will read the Royal proclamations, and in the centre of which will stand the old pillar (a relic of the original city cross) surmounted by the unicorn rampant, bearing a St. Andrew's cross.

RESTORATION OF A CHIMNEY AT ALLOA.—The chimney of the Cobblecock Spinning Company's works, which lately stood in a dangerously overhanging attitude, has resumed the perpendicular position. This has been accomplished by the advice, and under the superintendence, of Mr. Duncan M'Farlane, architect, Glasgow, known for his treatment of similar cases, and his "Description of the Colossal Chimney at Port-Dundas." The method adopted was that of sawing the mortar-beds, as described by us some time ago. Mr. Milroy, of Glasgow, was the contractor for the work. The expense has been trifling compared with the cost and delay of taking down and rebuilding the chimney.

GAS.—At the half-yearly meeting of the Gainsborough Gas Company, the report of the directors was unanimously adopted, and a dividend of 6 per cent. per annum declared payable forthwith. It was also decided that, during the ensuing summer, an additional and larger gas-holder should be erected, with other increased means of manufacture and distribution.—At the half-yearly meeting of the Worcester Gas Company a dividend at the rate of 7 per cent. per annum was declared to the shareholders, and it was unanimously resolved that, from 1st of July next, the charge for gas to consumers by metre should be reduced to 5s. per thousand cubic feet. A very large expenditure has been found necessary by the company in order to meet the greatly increased demand for gas. A new holder, capable of containing a quarter of a million feet of gas, double the present storage-room, is in course of construction, and other enlargements of the works are in progress.

REHILL AND REIGATE COITAGE IMPROVEMENT SOCIETY.—The fourth annual general meeting of this society has been held. The report recommended that a dividend of 5 per cent. should be declared: 21*l.* 14*s.* 2*d.* will be required for the purpose, leaving a balance of 34*l.* 16*s.* 11*d.* to be carried to the reserve fund, which will thus amount to 100*l.* 13*s.* 2*d.* The loss from empty houses has been 17*s.*, and from bad debts 9*s.*, making the whole loss to the society, during the past year, only 1*l.* 6*s.* The new well has caused the directors some anxiety and expense: for the nature of the ground and its proximity to the inexhaustible supply of the South-Eastern Railway springs, no difficulty was anticipated. In this expectation they were disappointed, and obliged in consequence to bore nearly 200 feet, when at last they obtained an abundant supply. The South-Eastern Railway Company had refused to supply water at a fair price for their superabundance, although for the benefit of their own workmen who inhabit the cottages. The sum expended by the Improvement Company was 3,150*l.*, and their gross annual income is about 400*l.*

TENDERS

For the erection of farm buildings at Tranwell, near Morpeth, for the Right Hon. the Earl of Carlisle, exclusive of haulage, and stone, and trees &c. at the owner's expense. Messrs. J. & J. Girdwood, architects, London.

Walton	1,210 0 0
Stafford & Bond	1,210 0 0
J. & G. Waterstone, masons	238 0 0
Middleton, carpenter	630 0 0
Bain, slater	210 0 0

* Accepted.

For the erection of farm-buildings at Deeping St. Nicholas, near Spalding, Lincolnshire, for the Right Hon. the Earl of Lindsey, exclusive of haulage and trees, &c. Messrs. J. & J. Girdwood, architects, London.

J. & W. Timms	1,350 0 0
Hewitt	1,290 0 0
Brown	1,280 0 0
Booth & Sons	1,200 0 0
Bradshaw	1,153 0 0
Richardson & Son	1,135 0 0
Moore & Son	1,115 0 0
Bennett & Son	998 0 0
Mills & Son	997 0 0
Swan & Carrington	960 0 0
John & James Sneath	900 0 0
J. & W. Paterson (accepted)	894 0 0
Bellon & Grant	865 0 0
Hobson & Taylor	790 0 0
A. & W. Blood	780 0 0
Brett	738 0 0
Pitts	710 0 0

For Hope Congregational Chapel, Weymouth. H. H. & Pocklington, architects:—

Drabury	1,470 0 0
Seamen	1,440 0 0
Brown	1,420 0 0
Faull	1,350 0 0
Reynolds & Son	1,152 0 0
Williams (accepted)	1,140 0 0

For villa, to be erected in Windmill-hill Field, Great Malvern, for Mr. E. R. C. Hays. Mr. E. W. Elmslie, architect:

Not	1,17 15 0
Allen	1,395 0 0
Thompson	1,379 0 0
D. McCan	1,350 0 0
Wilson (accepted)	1,335 0 0

The Builder.

VOL. XIX.—No. 941.

Paris and London: Points of Contrast.



OUR recent article on the French capital* will have sufficiently apprised readers of the *Builder*, that our endeavours in presenting information and impressions concerning what may be seen on the Continent, have a particular aim bearing on what are facts admitted of the position in England, of architectural, and of the general condition and aspect of our towns, especially London. Of things wherein the interest is allied to the past, rather than to the future, and possibly of much more that is proper matter for an architect's attention, we can promise no account. We will not discuss at any great length whether the comparisons sometimes made by home-returning architects, are just or not; and whether one whose life is spent within the compass of an English town, or under the canopy of an English sky, has not some advantages and sources of gratification, be they in their nature pertaining to a sanitary and good social condition, or responding to the love of beautiful objects, or to the claim for political liberty. But, if we have never participated in estimates which have taken no account of what there is in England, or has been done lately in art as well as social science, we must be blind to all that is now before our eyes, if we do not admit that productiveness of our special art is, in London, after five-and-forty years of political ease, vastly below the manifestation in the capital of the French empire. To the fact that we have a *nucleus* for the production of even better architecture than is now in vogue in Paris, namely, by recognition of principles, such as the pages of this journal have helped to disseminate, and by the progressing solution of others, we alluded in our last article; and this fact is admitted by certain thinking men of France, generous and sensible enough to appreciate what is English; though their opinions are now only about to find expression.

Still, whatever advantages in England there are in any point of view, or whatever has been done lately for reduction of a high rate of mortality, be it understood that the French are employed at present on works in their capital, and it seems, with a conviction of the importance of sanitary improvement, as well as architectural effect, on a scale and with an activity which appear likely to leave London, in the next four or five years, and in all these respects, in the rear. The condition of a vast number of the residences of artisans and the poor in Paris is, indeed, at present, very bad; and the same may be said of a large number of habitations of the superior classes. Defective sewerage; a water-supply, bountiful for the streets and fountains, but inadequate or wanting altogether for the habitations; the consequence of these conditions, namely, much that is disgusting to two of the senses, and that becomes at last morally pernicious; and the ventilation, seldom adequate from internal courts, and very bad indeed in those apartments where, as of late years, several have been formed by the division of

one: all these exist, and entail much uncomplaining misery, as well as contribute to the events which, from time to time, startle the attention of Europe. But these circumstances and their influences have become better understood; and not merely are there in progress great works, of which we have often given account, destined to open out new quarters, afford facilities of communication, and thus give to all classes better chance for procuring suitable habitations, whilst those works will combine the finest elements of architectural effect; but the *assainissement*, or rendering wholesome, of the present *logements*, and the prosecution of works of improved drainage, water-supply, and the like, are become the subject of so much attention by the State and the Department of the Seine, that soon a very different condition of health and comfort may be anticipated. As too much the case in London, the landlords view it as their interest to preserve dwellings in the unsatisfactory state in which they are, more especially as regards the supply of water to closets; so that the question of a law, as mooted in England, to prevent the letting of tenements not provided with proper conveniences, has, we are informed, been seriously entertained.

The contrast which, however, is exhibited between London and Paris, helps to show the interest which there would be in a line of observation to which we alluded in our last. To that extended inquiry, the facts and impressions which we gather in Paris will do no more than contribute; and it may be beyond our opportunities to enter so deeply into questions involving those of race, climate, politics, and a long succession of influences, as the importance of the subject to Englishmen and to architects would demand. But as this latter subject of the discrepancy between the English and French nations is now receiving attention from writers on public events, we are relieved from the necessity of showing how great is the difference of characteristics which can be observed. Still, we have to say that what each may derive from the other, as in the manner perceived by those writers, or what each has that the other has not, concerns the whole matter before us, and at last makes the difference of the productiveness in public works.

In France, a politeness of manner, together with an equality of classes, exists, of which many of the results upon the *ouvriers* and lower orders of the *bourgeoisie* claim the notice of those Englishmen who desire to promote kindly relations between the several orders in their own country, and may also deserve the attention of those workmen who visit Paris. It is remarkable how large an amount of enjoyment the Frenchman can secure, with an indulgence in little more than "temperance drinks." In the restaurants, so clean and civil are the waiters, that you at length almost overlook the absence of salt-spoons, and the circumstance that the roll of bread is brought to you in the hand, and very soon tolerate vicinage of one of the fraternity in the *service*, who seats himself near you for convenience of conversation, or to eat his own meal. Certain forms and expressions of politeness which the Englishman either neglects to his "inferiors," or can observe only at his disadvantage, are common to and amongst all persons in France; whilst their omission is especially noticed in an Englishman. If the Englishman in Paris will only bring a "Monsieur" into the form in which he puts his question, or show the deference by his manner, and will even rather take off his hat than merely touch it as the French do on entering a *café* or any place where ladies are present, it is surprising what apparently warm-hearted kindness he will receive; and he will perhaps wonder that such a people as he is amongst, could ever be anything else than his friends. Of course, this view of the French character leaves certain important points out of the question; but there are no features in the character which so much deserve attention as those which, shall we say, the English workman will meet with in his foreign

confère. If the latter expects the deference, he apparently has it in France willingly, as most properly, accorded to him. Even in the personal cleanliness, which is sometimes supposed to distinguish the one nation from the other, it may be doubted whether the advantage is always on the side of the Englishman of the artisan class. However these things may be, the growth of relations between the steady and intelligent men, English and French, of the industrious classes, entitled to respect, and who would be ready to give it, would be as probably serviceable to themselves as it would be productive of the relations which are desired between the two countries.

Leaving this to be regarded as digression, or for whatever importance the reader may please to attach to a feature which we have named because of its prominence, we proceed to other features of character or condition, which he may or may not deem matters for congratulation of the French people. These are the excessive thirst for luxury and costliness, whence come the prominent taste for ornament in the architecture; the pride in commemoration of military achievements, productive of many monuments; the taste for organization, which at least provides the machinery for action; the despotic government which ever and anon puts the machinery in motion, and effects results before there is the time for intention to cool; the accumulated results, in works and in systems of study, of a long attention paid to architecture, and to the education of all artists; the direct recognition of the professional architect amongst public benefactors, whether in the award of decorations, which the Frenchman loves, or of public appointments, or by the perpetuation of his name with that of a street, or the allotment of a place for his bust or statue, or only by the record of his name, on the building; and many other elements of the French country and nation that are at once noticed. What is, however, perhaps the greatest of the real advantages of the French capital, has yet to be named. This is the peculiarity of the atmosphere, which is at the same time both the cause and preservation of, and the best of the inducements for the public to appreciate and demand, as for the architect to provide, what is beautiful. This favourable condition, which is scarcely ever known in England except in the country, or which at least is unknown in towns during a considerable portion of the year, is generally characteristic of the climate of Paris. During this severe winter, whilst the cold in Paris has been intense; whilst snow has covered the ground, and the Seine has inundated the country and parts of the capital itself, there have been frequent days of cloudless sky and brilliant light, in which the domes and steeples have been defined, and the columns of porticoes have cast their shadows, with results which the architect scarcely looks for on this side the Alps. We have never seen, in a summer's sunset, any more beautiful effect of colour and light than was to be seen a fortnight since, one evening, in the Bois de Boulogne. Also in the atmosphere of Paris, there is very little smoke; and the stone, which is one of the advantages for the French capital, and which being very easily worked, allows of much enrichment inexpensively, retains its condition favourable to the effect, whilst it appears also to endure in a manner which would not be supposed from its original softness. It would be assumed that the superiority in this respect over London of Paris, comes from the general use in the latter, of wood, or smokeless coal, as fuel; but we think there is some other reason. We are not aware what description of fuel is used at Rouen; but there the atmospheric clearness seems to us as great as at Paris, although there are so many manufactories that Rouen is called the Manchester of France. Allowing for difference of scale, the town ranks very little after the capital in the attention paid to art in private buildings, if, indeed, it be not quite equal to it in the quality of the works. Architects may find

* See page 17, ante.

buildings of the warehouse class, in the new portion of the town, which are as worthy of attention as the old houses. In the district referred to, however, the western, there are many features of the architecture which are pleasing reminiscences of older works, such as the prevalent arrangement of the top story, of wood, with wide openings and a boldly-projecting cornice and cantilevers. The effect is enhanced by colour of the yarns which are hanging from poles projecting from this belvedere or gallery story. The long window of the top story of houses in Spitalfields, is a feature which came from France. At the extremity of this part of Rouen may be seen a chimney-shaft which is very suggestive of effect that might be combined with that description of structure. The height is divided by horizontal bands of stone, and the top is formed by four bold cantilevers, and by corbelling out of the courses in the interspaces, to carry the stone coping. There is, however, a better exemplification of this sort of architecture at Dieppe, in two chimneys which are in corresponding positions and of symmetrical designs, and form part of the tobacco manufactory, which is, altogether, a good work of the class, in brick. In these latter chimneys, one of the divisions of the shaft is fluted, and another has coloured bricks set spirally. The physiognomy of the buildings at Dieppe is very pleasing, though quite different to anything in Rouen or Paris. A large dormer window is a feature almost universal.

The modern buildings of Rouen have more of the Renaissance character than those of Paris to which our attention is specially being directed; the latter, that is, the most recent works, it is very difficult to describe by any appellation of style; their features are derived from the study of Italian architecture; from that of Greek; from natural flowers as regards much of the ornament; from the buildings of the Louis XIV. and Louis XV. periods as regards stone consoles and trusses, woodwork of the entre-sol windows or tympana of porte-cochères, and ironwork of balconies; and lastly, in some details, from the Gothic. There is no doubt that the atmosphere and climate of Paris or France, lead the observer to pass over what may be the faults of the existing French school, and not the less so, if he be a real lover of the beauty of nature,—very much more so if he be constituted of the frame of mind rather to appreciate than depreciate,—as it would be even to the advantage of art-progress, if architects and observers of architecture were more generally. The sight is so much enchanted with what nature supplies to this effect, and the spirits are so raised by the animation of the scene which Paris presents even in winter, that one does not stay, for example, to remember the dome of St. Paul's in looking at the inferior work of the Pantheon; we see only what is before us; albeit much of the impression, if analyzed, might be found due to an effect which would have been conveyed to the eye of the artist even with a still inferior architectural form. The fondness of Parisians for the open air, is one of the influences doubtless to be taken into account in the prevalence of art out of doors, whether architecture only be considered, or sculpture in combination with it or with the laying out of ground, in all which fields the French capital is rich. The sculpture in the gardens of the Tuileries and the Luxembourg, produces an effect of which those who are accustomed only to the arrangement of English gardens have no idea: whilst the individual works, or many of them at the Tuileries, at the western end of the gardens, are most happy in their design and treatment. As some of these works are much injured by the weather, which even in Paris will tell upon marble after many years, we hope that copies are preserved. Attempts at the English style of gardening, in the suburbs of Paris, often fail from the want of the habitual attention which produces the most noticeable part of the effect in England. The French or Italian style, however, in which sculpture and architectural forms are associated with the grassplots,

and the flowers and shrubs,—the art and the nature enhancing each the other, and together making the best foreground to the building,—little appreciated with us, is thoroughly well managed: it makes the one glory of Versailles; and we much regret that one of the most enchanting features at the Luxembourg, the grotto and grove with sculpture, is to be sacrificed for the new street which is to connect the district of the Pantheon with the Odéon. We are inclined to think that this new line is not the only good one, even in the object which has decided its adoption. The French have very recently, in the Champs Elysées, effected a great improvement by the introduction of patches of grass and beds of flowers. Previous to this, the effect of a large surface of dark ground, only relieved by the trunks of the trees, was not good.

Another advantage which the French have for architectural effect, is one of which we have often spoken, and results from the combination of many tenements into one building. Thus, a large proportion of the buildings, or, we might say all, in the principal quarters, can have at least the effect which may result from size and symmetry, and from the prominent central feature of the entrance, which certainly the French architects manage with great skill. One of the first things that strikes a stranger entering Paris, after the height of the buildings, is the general equality of the heights, in place of the contrast, as in London, where a house may be double the height of one adjoining, and where effect of street architecture has consequently very partial existence. This character seems to result in part from the circumstance that every house is subject to certain restrictions,—as one of height, which varies with the width of street,—and from the inducement in ever accumulating returns from tenements let, to provide the very most, on the area of ground, that the regulations or law will permit. By the decree of 27th July, 1859, the height of each front wall and parapet is not, for streets of 9.75 metres and above, to exceed 17.55 metres; though on the streets and boulevards of 20 metres and above, the height of the buildings may extend to 20 metres, but under the obligation not to provide more than five stories of the ordinary kind above the ground story, the entre-sol included. A metre being 3.281 feet English, 20 metres are equal to 65.618 feet. This restriction, however, admits of the construction of an attic story, set back from the front, which, therefore, is a common feature in the French houses. It is built generally of quartering plastered, or, at best, of hollow brick. The terrace walk in front of the windows of this story is both an agreeable adjunct to the apartments, and a means of communication from one to the other, not to be regarded as altogether an advantage. Some of the older houses are, as we have hinted, of a much greater number of stories than the six or seven: one by the Palais Royal has nine or ten stories with those in the roof; and some of the best of late works are in narrow streets, where they cannot be properly appreciated. Indeed, from whatever circumstances, many houses seem to be of greater height than the law would now permit. By the decree we have just spoken of, façades can be built only to the height determined by the houses constructed on the same line or *alignement*; though here there is some obscurity, according to our reading. Buildings situated out of the public ways, as next courts, are not to exceed 17.55 metres. The height of the rooms in each story, is directed to be not less than 2.60 metres; and it appears that for the story in the roof, this height may become practically less. Strict regulations are also applied to the height of roofs, and the arrangement of lucarnes or dormer windows. The public edifices are exempted. By a previous decree (26th March, 1852), great powers are given to the Prefect of the Seine, for dealing with property, and for prosecution of the works of improvement. Amongst the articles is one re-

quiring that every new building in a street provided with a sewer, shall be disposed in such manner that both the rain-water and the liquid drainage from the house (*eaux ménagères*), shall pass into the sewer. For the removal of refuse of every description by sewerage, we apprehend that the authorities do not consider they are prepared. Existing houses are subject to the obligation we have mentioned in case of works of reparation, which are considerable; and in any case they become so before the expiration of ten years. By another regulation, façades are to be constantly kept in a proper condition of appearance; and the municipal authority has power to fine, in the amount of a hundred francs, those who fail to scrape, and colour, or paint, once in ten years. We shall have more to say of the architectural features of the new buildings, as also of the works in progress or contemplated for the amelioration of the public health. We were just now endeavouring to discover causes of the difference between London and Paris, in art-productiveness, and in the immediate prospects for some branches of that sanitary science in which our country claims to have taken the lead.

Whether we look to the Imperial Government, or to the Department which has its head quarters at the Hôtel de Ville; to the machinery for art-education and the cultivation of science, or even to that of the colleges and primary schools, we are struck with the fact of an organization which seems to leave no object of art or of social improvement without its proper trustees. In each service or bureau which may have at any time to deal with architecture or construction, or with the provision for the public fêtes, an architect or engineer is usually to be found named, and often as needed, at the head of such service. Thus every monument of Paris, be it only the obelisk of Luxor, or the statue of Henry IV., has its architect formally attached. As regards London the inquiry will not be forgotten in which it was attempted to discover under whose charge were the statues in the squares and public streets. The responsible man in Paris having his attention generally directed to the subject, notes when anything is required, and the work is promptly carried into effect. Thus M. Hittorff is having the fountains of the Place de la Concorde removed, that they may undergo the process of galvanization which will assist their preservation. That the right men are often found, is clear to us; and it is at least a good step towards the achievement of such works as are now going on in Paris, to have a system whereby the *place* would be looked to wherein such a man should be found.

Estimating, as we proudly may, the value of English educational institutions, and crediting any assertion that progress is not exactly accordant with what might be expected from what is observable of system in the one case or is deficient in the other, we yet think that the institutions and the organization, from first to last, through which the objects for which we strive in London are pursued with more speedy success in Paris, deserve to be brought more directly than they have been to the knowledge of our countrymen; and we may hereafter give particulars which we have obtained, and which may be held to justify us in the belief that a better knowledge of France would be beneficial to Englishmen, architects, or others. The actual machinery in London is unfortunately not so productive as that in Paris. Passing by the fact that the metropolis of Great Britain has not even yet, one comprehensive authority like that of the Prefect of the Seine; there are several distinct spheres of duty, having in Paris each a commission or a bureau, which in London are amalgamated under one officer; who admirably as he may perform his duties under ordinary circumstances, would be physically unequal to what is just now demanded of several bureaux, each with its chief and secretary, at the Hôtel de Ville. That the French love of organization is greater than necessary for the actual

results, and that British force makes good way without it, has, as we have said, been sometimes contended; but we think a comparison between the present prospects of the two capitals will show that the difference which is unquestionable, must be in part due to that which we have just alluded to. It should be distinctly understood, however, that there is a very great difference between the two capitals in regard to the funds applicable to improvements. The authorities of the *Hôtel de Ville* have very large sources of revenue such as are denied for the present to the Metropolitan Board of Works; or like the *octroi* duties, could never be afforded; and they have, moreover, the direct assistance of the state to the extent of one-third the cost of the improvements.

It therefore results that the Prefect of the Seine has been able to arrange for the expenditure, in the thirteen years ending with 1871, of 180 millions of francs,—that is to say, the state contributing 60 millions of that sum. The amount—say 7½ millions of pounds sterling—seems considerable for Paris; but double that would be a trifle in the view of similar results for the British metropolis. We have not hesitated to express a general approval of these measures, even taking into account the dissatisfaction which they have caused, and the present dearth of Paris as a residence. We feel the same approval of the principle of these improvements as that enunciated in the “*Mémoire*” which was presented on the 19th of March, 1858. Having admitted primarily that it was an object to shelter the capital of France from the enterprises of the authors of revolutions; having regarded the fact that fever, misery, and *émeutes* have contemporaneous manifestation; having alluded to the agglomeration of London as evidence that the similar movement in Paris would not cease, and could not be opposed; and having described in the report the works projected, and set forth the means proposed for the execution, the report concludes,—

“The actual plan, very different from the old projects, has been dictated not only by an attentive study of the factious agitations of Paris, and by a perfect knowledge of the daily movement of the population, and of the relations of quarters with one another, but also by a lively sentiment of art. The positive service rendered is hidden by the splendour of the design, and of the vistas; or rather the embellishment of the city, and the grandeur of the effects produced, result even from utility as thoroughly comprehended. Superficial minds are easily deceived in this matter; and, because the great works already accomplished in Paris, open picturesque views to promenaders, and give a grandiose appearance to certain parts of the old city,—up to this time very ungraceful,—they fancy that magnificence and agreeableness form the object of the principal works. It is an error; but it is also on their part an involuntary encomium of the idea which causes those works to be executed. That which is a good thing in the high acceptance of the phrase, is naturally fine; and the proper character of true art consists in giving the excellence of form in what is veritably good.”

With this quotation, which does not conclude our present subject, we will for the present break off.

STONE-PRESERVING PROCESSES.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL meeting of members was held on Monday evening last, at the House, in Conduit-street, for the purpose of resuming the discussion on the merits of the various stone-preserving processes applied to the new Houses of Parliament and elsewhere. Mr. M. D. Wyatt, V.P., occupied the chair.

The Chairman said that, since the last meeting, a letter had been received from Mr. Daines, the patentee of one of the processes, in reply to some observations made by Mr. Godwin, in reference to the decay of the statue of Capt. Coram, at the Foundling Hospital, after it had been subjected to Daines's process. (The letter in question was

read, and the writer attributed the decay mentioned to accidents, caused most probably by stones being thrown at the figure. He denied that the preserving process had proved a failure, and reiterated the assertion that the sculptor (Mr. Calder Marshall) had expressed himself in high terms of approval of the invention.)

The Chairman observed that he was sure the meeting would be glad to hear any observations Mr. Godwin might wish to make on the subject of the letter, but that it would be more convenient to proceed, in the first instance, to the more important business of the evening. At the last meeting it had been arranged that Mr. Edward Barry should resume the debate, but that gentleman had kindly waived his right of precedence to Mr. Ferrey, who was forced to leave early.

Mr. Ferrey said that he would first refer to the letter of Mr. Cole, in which that gentleman requested that he might state his experience of a process introduced many years ago. He held in his hand a letter referring to this process which had been brought under notice eighteen years ago by Mr. Sylvester. It consisted of two solutions, one of alum and the other of soap. It was not pretended that it entered into the stone to alter its character, but its effect was to keep off wet and moisture. The ingredients were mixed in the proportion of three-quarters of a pound of mottled soap to one gallon of water. It was laid over the stone with a brush, and remained for twenty-four hours to become hard. Another mixture, consisting of half a pound of alum to four gallons of water, was then applied over the coating of soap. He had himself applied this process to several buildings, but he did not mean to hold forth that it was a permanent remedy. He first applied it to a large building of brick, with stone dressings, in Dorsetshire, where it appeared that nothing but a coating of cement or paint could protect the walls from damp, and he found that the process effectually resisted the weather for five years. He had also applied it to another building with like results. After a time the weather, no doubt, began to operate upon it; but the process was so cheap, and so easily applied, that it might be renewed whenever required. The whole cost of covering a large house with it would not exceed 3*l*. The substance was transparent, and did not in the least discolour a building: on the contrary, it imparted that mellow appearance which they all wished to see. He could also add another remarkable instance of the way in which it might be applied. The late Mr. Whichcord had told him that he had made a bold experiment with it, in coating a stone cistern, which was now in use, and which, although exposed, throughout the winter, for three years, had never leaked, or exhibited any trace of decay. He did not pretend to say that the process would last for ever; but he wished to represent that it was a cheap process, and might be applied at intervals of some years, without prejudicially affecting or disfiguring the general appearance of a building. It did not stain or paint the building, but rather improved its general tone. Previously to coming that evening to give his experience of the soap and alum process, he had thought it right to visit the great building which was a special object of interest to them all as architects; and he was surprised to find to what a small extent the mischief had extended,—for, after reading the articles in the *Times*, and other journals, on the subject, he expected to find that great pinnacles were falling, that cornices were dropping, and that an amount of destruction was going on, which would necessitate the cutting away of a great part of the building. He had not been able to detect anything so serious. Decay, no doubt, was going on, but it did not extend over the whole surface of the building. If the five-hundredth part of the whole front was affected, it was the utmost. Rather than the present process of painting (for he could call it nothing else) should be carried on, he thought it would be far more judicious to cut out the decayed parts, and renew with fresh stone. In the course of his inspection, he had not found that the carvings had decayed. He went into the Speaker's Court, on the state of which so much had been said, and found that it had been painted. If the process invented by Mr. Szerelmey, or Mr. Ransome, were to be applied, he thought it would be sufficient to apply it locally, to decayed portions, without covering the whole of the building. In conclusion, he had only to add, that he was strongly impressed with the undesirability of covering a whole building with any process, such as that which had been described.

Mr. E. M. Barry said that in the position which he occupied he was anxious to address some remarks to the meeting, if only in explanation of

some of the statements which had been made in that room. The discussion to which they had been invited had branched into two heads; first, the original selection of the stone used in the new Houses of Parliament; and, secondly, the preserving processes now under consideration. He wished to say a word or two on both these subjects; but before doing so he wished to thank Mr. Ferrey for anticipating him in the observations which he meant to offer as to the gross exaggeration in the public mind as to the extent of the decay which had set in. That there was decay was unfortunately too true; but the decay was partial; and it was not true to say that it was general or extensive, save in a very minute fraction of that large building. With regard to the stone, it had been selected by a commission, supposed at the time to possess the confidence of the Government and of the scientific world. They were told the other evening that the quarry had been changed, in consequence of the representations of one of the Commissioners, who had sent up a block 18 inches by 9 inches. Now, he had reason to believe that this was not the impression intended to be conveyed, and that, in fact, it was entirely incorrect. The stone, it was true, was sent up, as had been stated; but the Commissioners subsequently visited the quarry, and a stone different to that originally selected was ultimately chosen. The choice of stone was, as they all knew, a most difficult matter to deal with; and no one who had heard the statement of Professor Ansted could successfully maintain that we were in a position to dogmatise as to the choice of stone. The late Sir Charles Barry (the speaker's father) had been appointed a member of the commission, and he presumed had exercised some influence over it; but if his opinion had differed from those of such distinguished geologists as Dr. Smith and Sir Henry de la Beche, or from the practical experience of his colleague in the commission, Mr. C. H. Smith, he (Mr. Barry) was persuaded that he would not have pressed his opinion, and he did not think any other architect would have prevailed against such authority. They were told at the last evening of meeting to look at the Museum of Practical Geology in Jernyn-street, and then to look at the new Houses of Parliament. But, in fact, the analogy failed; for, if they were to examine the Museum of Geology, they would find that the statement that “there was not a faulty stone in it” was not true; but, on the contrary, there was a good deal of decay, though not so much as at the new Palace at Westminster. Besides, it should be remembered that the position of the two buildings was widely different. The Museum of Geology was not built on the bank of a sewer, with potteries at the opposite side. He believed that, if they were carefully to examine the progress of decay at the Museum of Geology, and to compare it with the entire amount of stone in the building, the difference between the decay and that in the new Houses of Parliament would not be so great. But be this as it might, he believed the same care had been taken in the selection of the stone for both buildings. This was, in fact, proved by the letter of Mr. Grissell; and all who knew that gentleman would be of opinion that, if a mistake had occurred, he would have been the first person to regret it.* He would not refer further to this portion of the subject, but would pass on to what was, perhaps, now more important; namely, remedying the present state of things, and arresting the progress of further decay. It would not surprise those who knew the deep interest which Sir Charles Barry took in the subject, that the decay caused him very great anxiety. Five or six stone-preserving processes had been brought under his notice,—one from France, another from Germany, then Mr. Daines's, and, lastly, those of Mr. Ransome and Mr. Szerelmey. Some of these processes had been applied for a considerable time, but no distinct and satisfactory result had been obtained before Sir Charles Barry's death, and his (Mr. Barry's) appointment as architect to the building. The first instruction which he received after his appointment, was that Mr. Szerelmey's process had been adopted, and was to be applied by him on a somewhat extensive scale. Having no great faith in such processes, he naturally felt anxious, when called upon to apply them, and looked to date upon which he could form an opinion. He knew that his father had formed a decided opinion in favour of Mr. Szerelmey's processes,—that Mr. Szerelmey had gained his confidence by the experiments he had made,—so much so, indeed, that at one time when funds were wanted, he assisted him with money to pursue his investigations and to

* A letter from Mr. Barry on this part of the subject will be found on another page.

Professor Hoffman replied that he could not answer the question, except partially. He believed that a great deal of mischief was due to the absorption by the stone of water; and if they could get any process which would

THE BRITISH INSTITUTION.

THE exhibition for the current year consists of 635 pictures, and fifteen pieces of sculpture, and as a whole is superior to those of the last two or three years. It displays some of those outrageous instances of bad hanging which are common here, and which people attribute to improper influences. We have no intention of reviewing the collection, but will mention a few of the pictures, not always the most prominent, that deserve attention. Every one will see Mr. Andell's large picture, No. 1, Mr. Lance's "Sunbeams" (37), Sir Edwin Lanseer's representation of a goat on an altar of burning faggots (the head of the animal very fine), which he calls "An Offering" (67), and Mr. John Gilbert's "Studio of Rembrandt" (169), the most important *genre* picture in the collection, and more carefully painted than some of his recent works. Mr. Solomon's (20), "Art-Critics in Brittany," however, will not be so easily discovered, as it needs a ladder to view it. (53), "A German Flower Girl," W. Gale, and (54), "A Quiet Spot," C. Smith, should not be passed over. There is breadth and beauty in 62, "The Villa d'Este, at Tivoli," F. Lee Bridell; and (73), "Harvest," H. Dawson, is one of the best landscapes in the room. (80), "Near Burnham Beeches," G. Sant, is a charming bit of nature. No. 111, a small version of "Felice Ballarin Reciting Tasso to the People," F. Goodall, is a work of great beauty, more covetable than the large picture. 144, "Early Sorrow," J. A. Houston, charmingly represents a child grieving over her dead bird. 150, "Common Places," Erskine Nicol, is full of humour. 196, "A Lazy Girl," H. O'Neill, is characteristic and forcible. In the same room we have marked 38, "Once a Week," and 39, "All the Year Round," both by J. Haylar. 66, "A Quiet Shot," E. J. Niemann; 79, "Lucetta," T. F. Dicksee; 83, "Namur," G. C. Stanfield; 107, "The Fair Neapolitan," Alex. Johnston; and 176, "La Dent Blanche, from Evolena," Frank Dillon.

In the middle room, the first picture of consequence seen is 210, "The Wife of the Water-carrier trying on the Jewels," A. F. Patten, from a story in Washington Irving's graceful "Tales of the Alhambra." Mr. Patten has been more than usually successful. 256, "Girl of Brittany," E. J. Cobbett, is a picture of great excellence. T. M. Joy's picture, 298, "Travelling; Past and Present," suggests Frith and Solomon too obviously to satisfy. 324, G. Pettitt's "Evenings on the Lagoon of Venice," 339, "London, from the Thames, in 1861," J. Danby, and Edward Lear's "Fortress of Masada, on the Dead Sea," are excellent landscapes. 231, "Lights and Shadows by the Wayside," J. A. Houston; 348, "From the Hill Side," W. Duffield; and 369, "Burial of Charles I.," C. Lucy, also deserve attention. W. Gale has a capital head in the third room, called "A Little Eastern," 429. 504, "Marianne," E. Hopley, illustrates a passage in Josephus, touching Herod. The dress of Marianne is a marvel of patient labour. We should be glad to see "Hamlet and the Kings," above it, for the sake of the young painter's name, A. B. Donaldson, but cannot. W. Luke has two clever little bits of desert life, 532 and 559, and P. H. Calderon a good picture called "The Return from Moscow," 543, wherein a soldier, dejected and wounded, finds on his return his betrothed in a convent. The lady bears her loss more lightly than he does. Messrs. Cropsey, Underhill, A. Gilbert, Jutsum, Horlor, G. E. Hering, Girardot (227), J. B. Burgess, J. Fahey, C. P. Knight (484), Wingfield, L. J. Wood, C. Rossiter, and Alexander Munro, sculptor, have specimens of their art more or less important.

LIVERPOOL ARCHITECTURAL SOCIETY.

At a meeting held on the 6th inst., Mr. James M. Hay, the president, in the chair, the president intimated that the successful competitor for the Milner competition was Mr. Isaacs.

After the transaction of some other business, Mr. W. H. Hay read a paper on the construction of Turkish baths, including a description of the baths which Mr. Hay had recently erected at the hydropathic establishment at Loch Head, Aberdeenshire. The recipient first enters the hall, a room 18 feet square, lighted from the dome, which is cut up into niches, varied in size, with eyes of coloured glass. Around this apartment are small rooms, screened off, with curtains for undressing. These rooms have seats and couches, furnished with the usual toilet apparatus. From this hall, the bather enters the frigidarium or cooling room, which is the natural temperature of the atmo-

sphere. It is also 18 feet square, and lighted through coloured glass apertures, scattered along each side of the roof. This apartment is fitted up with reclining couches, to which the bather returns to luxuriate. From this he passes into the tepidarium or warm room, where the temperature is somewhere about 100 degrees; and at this stage the process of the bath begins: here are also seats, with shampooing tables. This place is lighted similarly to the last. After becoming acclimatised in this room, the bather is now shown into the caldarium or hot room, which is heated to a temperature of 150 degrees: here also are seats and shampooing tables. This room is 18 feet diameter, with niches, water-closets, &c., lighted with coloured glass, in foliated openings in the rim of the base of the small crowning dome; and in this apartment the sweating process begins. Adjoining this is another, of smaller dimensions, where the patient next enters for the purpose of using the hot and cold water, the Douche, the Spray, and other waters. Here is a niche provided, and completely surrounded with a coil of pipe perforated, and made to play upon the bather like a horizontal shower of rain. After the ablutions are completed in this place the bather returns gradually to the cooling room to enjoy repose. The floors are all laid with encaustic tiles upon a bed of mortar spread over the large fire tiles which cover the flues. The furnace is placed at one side of the hot room, below part of the floor, with which the flame comes in contact, and flows onward in flues which traverse the whole area of both these rooms, the heat of course becoming less powerful towards the point requiring a lower temperature, where a chimney is provided to carry off the smoke. The furnace room is placed in the centre of the building. A boiler is placed over the furnace, connected by a circulating pipe with a cistern placed on a platform at the height of the first floor, where are also a series of cold-water cisterns. The fresh air is introduced at various points from the external atmosphere, and the vitiated air passes off in the hot room from an aperture at the top, regulated by an ornamental plate hung to shut and open at pleasure. The mode adopted in the warm room is with flues descending within the walls towards the furnace from the top of the side walls, as shown by these apertures, where the vitiated air enters and is drawn off or extracted by the furnace. The admission and withdrawal of the air are all regulated by dampers, which work with the greatest nicety, so that a circulation of pure fresh air is constantly kept up.*

METROPOLITAN BOARD OF WORKS.
THE PROPOSED INCREASE OF SALARY TO THE
SUPERINTENDING ARCHITECT.

At the usual meeting of the Metropolitan Board of Works, on the 9th inst., memorials were presented from the following districts and district boards against the proposed increase of the salary of Mr. Marrable, the superintending architect, from 800*l.* to 1,200*l.* per annum:—St. Martin's, Mile-end Old-town, Greenwich, Bermondsey, Kensington, and Plumstead.

A report was brought up from the Covent-garden Approach and Streets Committee, recommending that the salary of the superintending architect be 1,200*l.* instead of 800*l.* per annum, and that the resolutions of the Board of Jan. 25, 1856, and Feb. 4, 1856, in relation to the salary and appointment of the superintending architect, be so varied as to admit of such addition.

It was moved, as an amendment, "That the salary of the superintending architect be increased from 800*l.* to 1,000*l.*," and this was carried by 27 to 9.

EMBELLISHMENT OF ST. PAUL'S
CATHEDRAL.

A PUBLIC MEETING has been held in the Egyptian Hall of the Mansion House, to further the endeavour to obtain funds for the proper completion of St. Paul's Cathedral. The Lord Mayor (William Cubitt), who presided, eloquently advocated the cause; and was followed by the Bishop of London, Mr. Tite, M.P., the Bishop of Oxford, Alderman Dakin, and others.

We hope the appeal will be responded to. The arrangements for the evening services, warming, chairs, and other fittings, have cost about 4,500*l.* The removal of the organ and the completion of the choir have led to an expenditure of about

* The first published account of the revived Roman Bath, concerning which people are just now running mad, will be found in an earlier number of the *Builder*. In many cases the bath is doubtless very useful; but persons out of health should take good advice before they use it.

4,000*l.*: the great organ, recently put up in the south transept, will cost 2,000*l.*, and the cleaning and gilding already done, 2,000*l.* more. All the money in hand is spent, and the works wait the beneficence of donors.

The marble pulpit, which has been partly erected for the services beneath the dome, is dedicated to the memory of Captain Fitzgerald, who was slain in India. It stands on eight polished shafts of deep-coloured English and Irish marble.

We understand that the statue of Turner, to be placed in the cathedral, and for which the painter left 1,000*l.*, is making satisfactory progress in the hands of Mr. McDowell, the sculptor to whom its execution is entrusted. The statue is 8 feet in height. The artist is represented, palette in hand, leaning against a rock. He is in modern costume; wearing a cloak.

DESIGN FOR AN EXHIBITION BUILDING,
EMBRACING A SUGGESTION FOR A
METHOD OF CLASSIFYING THE INTER-
NATIONAL EXHIBITION OF 1862.

THE great desirability of keeping together the various productions of each locality or geographical district, without sacrificing the more important specific classification, has suggested the arrangement set forth in the accompanying diagram; having for its intention the combination of a geographical and general classification; that is, that in one and the same arrangement objects relating to the same subject shall be placed in juxtaposition, whilst the various products of the same locality shall, as far as possible, also be contiguous.

The objects reviewed under the aspect of classifiability separate themselves into three divisions.

Firstly, by far the greater proportion, such as are capable of both geographical and general classification, consisting of similar productions from more than one locality.

Secondly, there would be a small proportion of objects too miscellaneous in character to be brought within a specific classification, but which would come within the geographical system.

The third division would consist of such productions as are not characteristic of particular localities, coming from too great a number of places to make geographical arrangement of any value, but which it would be desirable to classify specifically.

It is proposed that the building should be circular, or of some form related to the circle, as the ellipse, although this is not essential to the system advocated; and that, instead of dividing it into courts, as in the Exhibition of 1851, by which a great loss of space was entailed, the spaces actually occupied by the objects shall be narrow blocks of the form indicated by a shading on three quarters of the diagram; these blocks being defined by a double system of intersecting avenues representing the lines of classification; one system distinguished by letters A, B, C, D, E, &c., radiating, which it is proposed to call the geographical lines, in juxtaposition with which objects from the same locality would be congregated. The specific system would be represented by the circumferential lines distinguished by figures, along which objects relating to kindred subjects would be arranged.

Supposing there are sixteen radiating or geographical avenues, they would provide thirty-two sides, or lines, of geographical classification; and supposing every place or country occupied the whole of a line, they would accommodate thirty-two geographical divisions; but, as each of these lines intersects thirty-four lines of specific classification, representing as many different branches of manufactures; it is evident that the whole length of each radial line will not be occupied by a single town or district, few places producing so great a variety of manufactures, but might be appropriated to six or seven distinct places that do not send identical manufactures. Thus, Birmingham, producing glass and hardware, might share the same geographical line with Coventry, sending silks, the Staffordshire Potteries, porcelain, and Manchester, cotton goods; each on the proper specific lines without interfering with any other. Again, it is improbable that the whole of one of the specific lines would be required for a single subject, and it might be divided into any number of parts to suit necessity; the only condition being that the whole of the towns or countries producing a particular manufacture shall be placed on the radial lines that are within the range of that part of the circle appropriated to it.

From the immense variety of proportions of the spaces, the whole system can be adapted to any exigencies, such as the disproportionate production of any particular manufacture in different localities.

For instance, if Birmingham, B B, sends more hardware and less glass than London, C C, hardware will extend beyond the centre of the block, C B, from the Birmingham line, B B, towards the London line, C C; and glass will extend over more than half of its block towards the Birmingham line, leaving Birmingham a smaller piece, or *vice versa*. Again, if Birmingham and London send equal quantities of glass and hardware, the block appropriated to these manufactures between the Birmingham and London geographical lines would be equally divided; or, if they do not wholly occupy the block between their geographical lines, the piece of space to spare would be appropriated to some locality sending only the one branch of manufacture, as there would be no necessity for its being made to range with the other specific divisions by being placed on a geographical line. A reference to the quarter of the diagram, shaded in different tints, will explain how it is proposed to accommodate the several geographical allotments to each other.

In appropriating the space, the branches of manufacture from a small number of localities, but requiring much space, would be allocated on a part of one of the large outer circular lines; or, if from a great variety of localities, but not large in quantity, on one of the circular lines nearer the centre, where the geographical blocks are smaller. The circular corridors having been thus appropriated, the radial geographical lines may be allotted.

Firstly, to those towns or countries sending the greatest variety of productions; for it will be less easy to adapt these to each other, as to the relative proportions of qualitative space they will require, than towns and countries sending but two or three products, which may next be arranged.

It will now be found that a number of small, and partly isolated, patches of space will be left; and these, for the reason above explained, would be appropriated to localities sending but one class of products, which need not be placed on the geographical avenues.

With reference to the productions which would be of too various and miscellaneous a character to be capable of anything like a specific classification, but which would, nevertheless, enter into the geographical arrangement; it is proposed to appropriate three of the circular avenues, say 6—7, 16—17, 26—27, tinted darker for miscellaneous objects that can be arranged only according to locality. The reason for not placing these miscellaneous avenues in juxtaposition is that, where a radial avenue is appropriated to more than one town, the probability would be that some of the towns would occupy a part of the line distant from the circular miscellaneous avenue; and, as it is probable every place will send some miscellaneous productions, provision must be made for a portion of the space appropriated to them being adjacent to the range of every town on the lines.

The other class previously referred to, viz., of objects that are not characteristic of any particular localities, and produced in too great a number of places to admit of being geographically arranged, as works of fine art, machinery, agricultural produce and implements, and yet which would be classified specifically, must be kept quite separate from the interesting avenue system, and might be advantageously confined to the outer rings with which it is proposed to surround the building; a portion of these would be appropriated as a fine-art gallery, the walls being available for the display of pictures, engravings, tapestry, &c.

The four principal transepts would be appropriated to large objects which could not be conveniently arranged in the avenues; and, as they would intersect at eight different points the lines of specific classification, the objects they contain would occupy their true places in the system. If necessary, also, the whole of the geographical avenues might be made sufficiently wide to receive large objects down their centre.

It would facilitate classification if geographical subdivision is not carried too far. British productions might be divided into counties and principal towns; but it might be found desirable to retain the produce of each foreign country under a single geographical head.

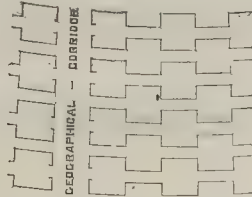
Specific classification and subdivision may be carried to almost any extent that is considered desirable; as, from the fact of most localities carrying on some one special branch of manufacture, the increase of specific classification will not involve a proportionate complication with geographical arrangement.

In instances where double classification cannot be conveniently effected, specific classification should be selected in preference to geographical.

The unequal production by various districts of different proportions of their several products would render it exceedingly difficult to proportion the space for a double classification by a simple intersecting rectangular division. Thus, Russia may send less total produce than France, though more of some particular product which would consequently have less space than the smaller quantity of similar product from France.

The give-and-take system, radiating from centres or lines of classification, as set forth on the annexed diagram, appears to be the only way of accommodating the necessarily various proportions of productions sent by the several geographical districts which it is desired to consolidate with specific classification under one arrangement.

If it is desired to divide the whole or any part of the space into courts, as in the Exhibition of 1851, the avenues can easily be converted into enclosed spaces thus,



without sacrificing the double system of classification. The double system of arrangement herein advocated, could be adapted to buildings of almost any construction, but the circular, elliptical, or polygonal form, would be preferable to any other, as affording a greater variety in the sizes of the spaces for the arrangement of objects, as well as a finer architectural effect, especially as regards the arched corridors, on various curves going right round the building, and the sixteen avenues, down each of which the whole range of the building would be seen.

As both the geographical and specific divisions are capable of being placed in an infinite variety of relative positions, they can be shifted and changed about to almost any extent, to bring them into reciprocal correspondence. Thus, if a specific division apportioned to a part of one of the circular avenues does not include the range of all the geographical districts sending the production, it would merely have to be shifted to one of the inner circles, where the same amount of exhibiting space will grasp a greater number of geographical districts. It could also be shifted round to any part of the circle, to make it range with the correct geographical divisions. The geographical allotments can also be shifted about, till they come within the proper specific ranges.

As a very small proportion of the exhibiting space, would be occupied by geographical districts sending a great variety of products: the difficulty of first dividing and allocating the whole space, both geographically and specifically to suit them, and afterwards arranging in the remaining space, localities exhibiting under but one, two, or three specific classes, would be but small, as these would present few obstacles to the arrangement under the double system.

The accompanying drawing has no pretensions to be correct as to the proportions of its parts. This could only be attained to after collecting the most exact data as to the probable area of space required for each geographical district and specific division, and deciding as to the extent to which each kind of classification is to be carried.

The transepts might perhaps be wider with advantage, and the avenues and the exhibiting-blocks may not be of the most available widths.

As some of the specific divisions might require wider exhibiting blocks than others, there would be no objection to vary the width of the concentric rings to suit necessity.

If the curvilinear outline of the building is objected to on the score of increased cost of construction (although, from the immense size of the ellipse or circle, its walls would be little more expensive than square work), the system could be easily adapted to a polygonal structure the form of which the concentric exhibiting-blocks would follow.

It remains now to describe the construction of the proposed building. As it has already been decided that the structure shall partake, at least in part, of a permanent character, we propose to construct the arcades *f*, which surround the building, and which we devote to the reception of agricultural and other similar implements, in

ornamental brickwork, and roofed with a simple span roof of slate. The Fine Art Gallery, the outer annular space marked *s*, would also be of permanent construction, together with the blocks of buildings opposite the four transepts, and through which the main entrances are proposed. Leaving the Fine Arts Gallery, and looking into the building, the whole space would be occupied by concentric, circular, or polygonal rings of glass roofed avenues, supported by iron columns, and web or lattice girders. It would not be requisite that glass should form the sole material with which these avenues may be covered; sufficient lighting surface being insured, it might add to the comfort of the interior to cover the remainder with slate, the form of roof being a simple span over each avenue.

Approaching the centre of the building it is proposed that a gallery shall be raised as seen in the elevation. This may be done either in brickwork altogether, or in brick for the ground range and iron and glass above, or in the last-named material solely; and this gallery might with considerable advantage to the design be carried to a greater height than the lower floor, which would afford a very favourable position for the display of many such manufactures as carpets, floor-cloths, and draperies requiring much hanging space. The centre of the building would probably be best occupied as a garden, and thus not only would a very delightful effect be gained, but ventilation would also be much assisted; and by providing a large basin for water, as seen on the plan, fountains, nautical and diving apparatus, and other similar exhibitions would be provided for. The design also contemplates the covering of this centre space with a dome, but as this would add very greatly to the outlay, as well as to the time required for construction, it would probably be desirable to employ the space in the first instance as an open garden, adding the dome at any subsequent period.

The material chosen for the permanent portion of the design, viz., ornamental brickwork, appears to the authors to offer the greatest facilities for executing what must, under any circumstances become a work of considerable magnitude. It will admit of extreme enrichment at trifling cost, and may be relied upon for durability in atmospheres where stone cannot be trusted, and furthermore can be expeditiously produced. The iron portion of the construction has been designed upon the principle of the 1851 building, viz., the greatest possible repetition, and multiplication of the same parts, involving very few patterns, and admitting of being rapidly combined. Were it desirable to remove all the less permanent portion of the erection after the Exhibition, the remainder, viz., the annular avenue, devoted to fine arts, would form a noble gallery for that or any other similar purpose, offering space for the display of an almost incalculable number of works, without the necessity of placing them either above or below the most favourable height for inspection. In that case the whole interior being removed, the space might possibly be employed in gardens by the Horticultural Society.

The authors have endeavoured to grasp in this project, every suggestion that has appeared with reference to the many requirements such a building ought to comply with. The arcades surrounding it offer numberless modes of ingress and egress, points for carriages to set down and take up visitors, without crowding or loss of time; in fact, visitors may alight at any part of these arcades, ample space would be provided for the executive staff, for first and second-class refreshment-rooms, news-room, telegraph office and exchange, machinery at rest and in motion, outside, and yet in immediate proximity to the rest; retiring-rooms for both sexes at convenient distances, easily found, though not needlessly and unpleasantly obtrusive, and last, though not least in importance, large spaces would be available for the storing of lumber, packing-cases, &c.

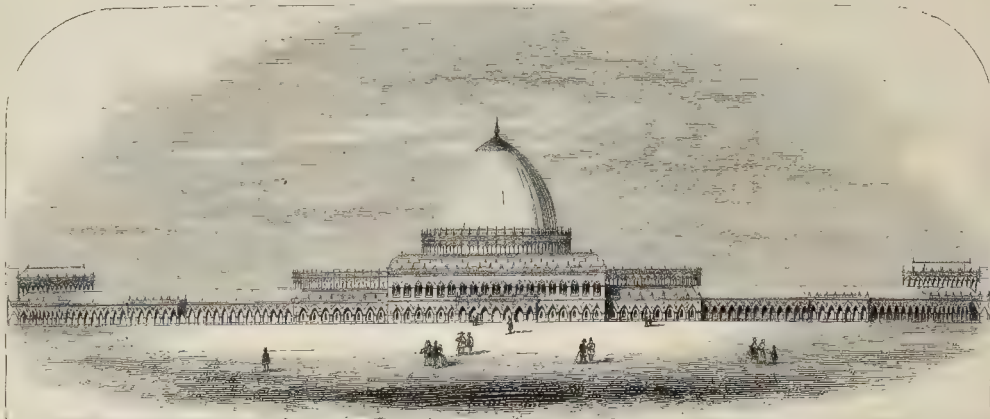
GEORGE MAW, F.L.S., F.S.A.,
Bentham Hall, Broseley,
Author of System of Classification.
EDWARD J. PAYNE, F.R.I.B.A.,
Bennett's Hall, Birmingham,
Designer of Building.

REFERENCES.

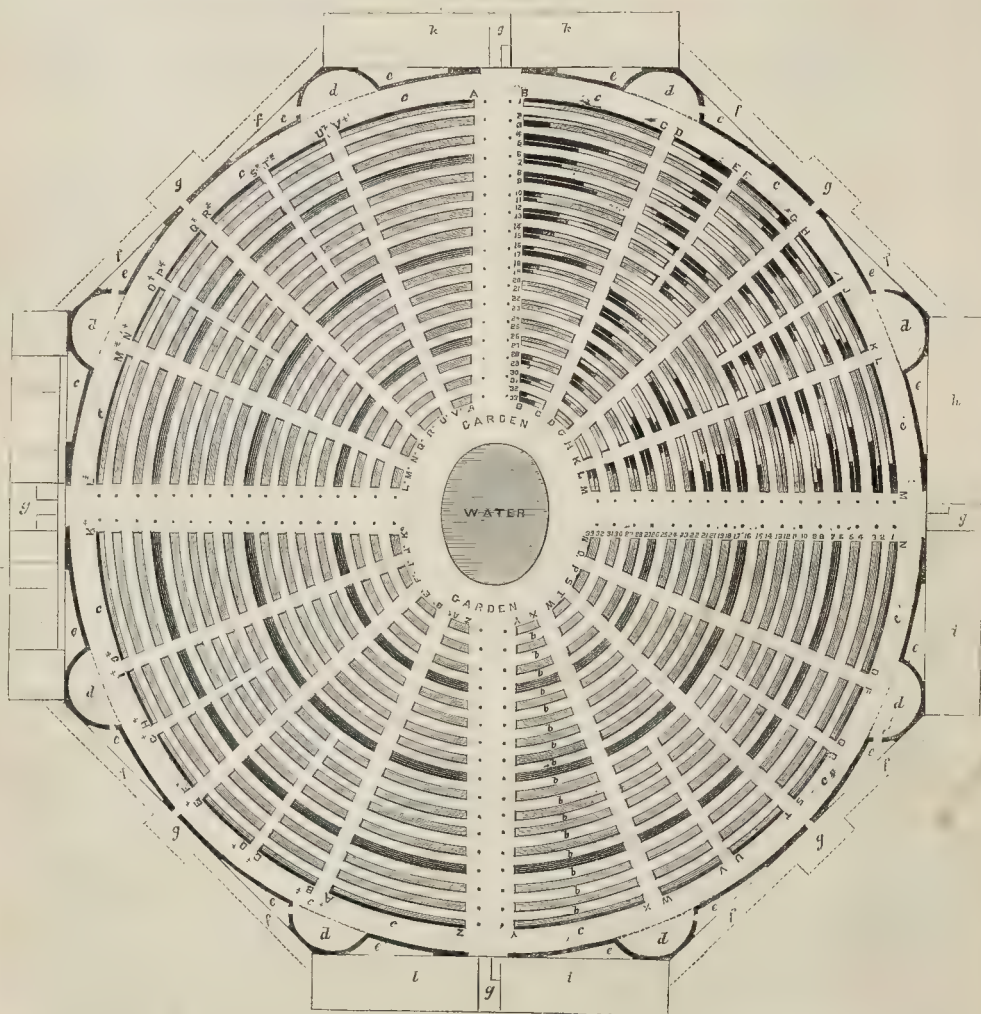
- a. Avenues.
- c. Fine Arts Gallery.
- d. Recesses for Sculpture.
- e. Retiring and Lumber Rooms.
- f. Arcades.
- g. Entrances.
- h. Machinery in Motion.
- i. Machinery at Rest.
- k. Refreshment Rooms.
- l. News-room and Exchange.
- m. Rooms for Officials and Exhibitors.

DESIGN FOR AN EXHIBITION BUILDING, WITH SUGGESTION FOR METHOD OF CLASSIFYING
THE PROPOSED EXHIBITION OF 1862.

BUILDING DESIGNED BY MR. E. J. PAYNE; THE SYSTEM OF CLASSIFICATION BY MR. GEORGE MAW

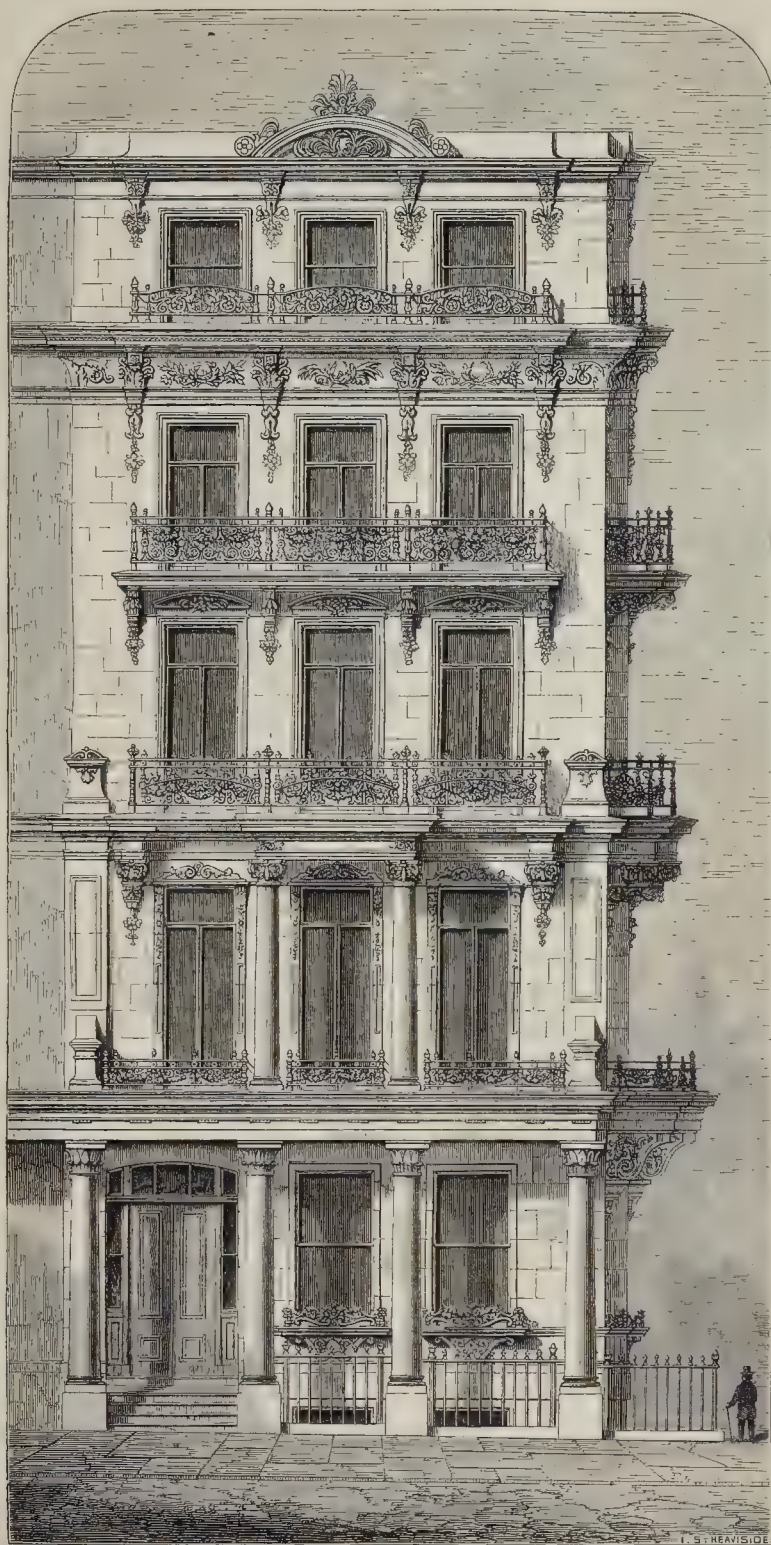


Study for Elevation of the proposed Building.



Plan.

Scale.....150 feet to 1 inch.



STREET ARCHITECTURE: PRINCE ALBERT'S ROAD, SOUTH KENSINGTON.—MR. C. J. RICHARDSON, ARCHITECT.

MR. WHATMAN'S HOUSES: PRINCE ALBERT'S ROAD, SOUTH KENSINGTON.

AMONGST the new districts called into existence by the operations of the "Royal Commissioners for the Exhibition of 1851," and the increasing population of the metropolis, one of the most rapidly rising is that at Kensington Gore. The Royal Commissioners of 1851 applied their surplus funds to the purchase of much of this land. They succeeded in buying and laying together a considerable extent of it. The South Kensington Museum, the School of Art, and Picture Galleries, have been built at the lower end; and new wide roads, as the Exhibition-road, Cromwell-road, Prince Albert's-road, and others have been opened. The large central space of land, 2,200 feet long, and 1,200 feet wide, is retained for ornamental purposes connected with the advancement of art and science; and the chief part of this land, about 15 acres, has been let to the Horticultural Society; who, with the Royal Commissioners, are expending 100,000*l.* in the formation of the new Italian Gardens, of which we have given illustrations. These are bounded on the east by Princes-terrace, and on the west by Prince Albert's-road, which runs from the new handsome carriage-entrance to Hyde-park by Kensington-gardens. This land was bought by the Royal Commissioners about seven years ago, at the average price of 3,500*l.* per acre; and so extraordinary has been the demand for first-class houses in this singularly favoured spot, that some portion of the Royal Commissioners' land remaining has been sold, we are told, at above 23,000*l.* per acre, and is now about to be built upon. On two adjoining sites, also overlooking the Italian Gardens, are to be seen some large mansions, decorated externally in handsome style, and more like modern French houses than those usually seen. One of these is shown in our engraving. The proprietor is Mr. Whatman, of Vintners Park, near Maidstone, late M.P. for Maidstone and for West Kent. We are informed that his aim has been to improve and render more lively the street elevations, without extravagance of cost, by introducing ornamental iron balconies to every floor, commencing with a row of Portland stone columns on the pavement, a central porch of the same stone projecting boldly on the first floor, and by making the ironwork a principal feature in all the stories. The idea of the proprietor has been carried out by his architect, Mr. C. J. Richardson. The works have been executed by Mr. C. Aldin, one of the principal builders in this important and rising neighbourhood.

NOTES ON ARCHITECTURE IN RUSSIA.

ST. PETERSBURG.*

THE general impression left by the architecture of St. Petersburg is that of barbaric greatness—vastness in dimension, pretence and feebleness in design, and coarseness and poverty in the execution. There are undoubtedly some exceptions to this sweeping estimate, but they are few and unimportant.

The environs of the city are flat and uninteresting; the islands form the only redeeming feature, and constitute one of the lions to which the attention of strangers is called. The river Neva, in its outfall, divides into a number of channels,—the Great and Little Neva, the Nevka, &c.—forming many islands, besides the large one of Vasilievsky, on which the northern portion of the city is built. These islands are low and flat, but have been laid out and planted with ornamental drives, plantations, shrubberies, and gardens. The intermingling of wood, water, and verdure, with palaces and villas peeping out from amongst the trees, is very fine. The winding roads extend for many miles. The extreme westerly point overlooking the Gulf of Finland is a favourite resort in the summer evenings to see the sun set on the wide expanse of waters.

The palaces of Peterhof and Tsarskoe Selo are within easy reach of St. Petersburg; the former, both by rail and steamer; the latter, by rail.

Peterhof possesses no architectural beauty, but is prettily situated on an eminence overlooking the sea. Immediately below the palace there are a series of terraces ornamented with statues and balustrades, and decorated with waterworks, in fountains, jets-d'eau, cascades, &c.; and a straight canal, flanked with trees, extending to the beach.

Tsarskoe Selo means the "village of the emperor," and, like Potsdam in Prussia, is the mere appendage to the palaces of the locality. The original palace was built by Catherine II., in the vile Louis XV.

style, forming a long *corps de logis*, with advanced wings, the front of the quadrangle being enclosed with low buildings. The interior consists of the usual interminable range of rooms *en suite*, with more or less of decoration. The most noteworthy is the amber-room, which is entirely lined with a mosaic of this precious material. In the private apartments the rooms of the Emperor Alexander are purposely retained exactly as he left them; his toilet-table, *escritoire*, &c., with the paper, pens, &c., as if used yesterday. Everything is remarkable for its extreme simplicity, and the absence of show or ornament. A new palace has been erected where the emperor resides when here, the old palace having been given up to the empress dowager. The imperial private apartments are quietly elegant, and show good taste in the absence of glitter and glare.

The grounds and plantations are English in style, with nothing very imperial about them. The arsenal,—a detached Gothic building,—contains a fine selection of curious mediæval armour and military relics. Another building, partly in ruins, contains Dannecker's celebrated statue of the Saviour. It is, undoubtedly, a fine work, but does not come up to the idea to be embodied, as what conception could? The figure, especially the head, wants power. The artist, in endeavouring to give intellectuality, has overdone his task. The hair is kept so thin in front as to give the idea of baldness; the lips are too full; the eyes have the pupils too prominent, and look like those of blind-men.

In the grounds is situated a detached banquetting-house, erected by the Empress Catherine, where, it is said, she and her favourites indulged in secret bacchanalian orgies. In the large hall the table rose up by machinery through the floor, ready spread with viands, and each plate, as it required to be changed, on pulling a bell-handle fixed to the table, disappeared as if by magic, and was replaced by another served with the needful supply. Secrecy was thus preserved, and attendance dispensed with. The machinery is still in working order.

Moscow.

From St. Petersburg to Moscow the distance is 400 miles; as regards the picturesque, probably one of the most uninteresting routes of the same extent to be met with in Europe; but, as characteristic of the country and its institutions, exceedingly suggestive.

Vast, dreary, and desolate, the landscape stretches out on every side, with little or no variety of elevation. No gentle hills crowned by groves, looking down on a rich and varied scene of cultivation; no weather-beaten mountains raising their heads to the clouds, fissured with ravines and eloquent with the voices of the waters. A dismal monotony everywhere prevails. Hungry, flat plains of sand, covered with a scanty vegetation; sometimes a few enclosures where rye and oats struggle for existence; the pine forest, of small, thin, straggling trees, never far distant, advancing, receding, stopping, and recommencing, accompany us all the way. At long intervals we come upon miserable-looking villages, of the most poverty-stricken character, built of wood; the church, however, always presenting a more respectable appearance, and frequently built of brick. Occasionally, but very rarely, the mansion of a noble landed proprietor is seen, large and imposing, but with nothing about it indicating an interest in, and attachment to, the soil,—no extensive parks or ornamental gardens, nothing to elevate and interest the tiller of the ground.

The railway which connects the two capitals is well constructed, and performs the journey in twenty hours. The carriages are on the American principle, with ranges of seats on each side of a central avenue extending the full length without divisions. The stoppages are frequent and tedious, but the accommodation at the stations is very fair. The station-houses are a curious example of the "sham" system of architecture prevalent in Russia. At first sight they appear to be constructed of fine red stock-brick, with dressed arches to the apertures, and so clever is the deception that it requires some examination to detect the imposition. They are, in reality, log-houses, built with whole logs, of small scantlings, plastered over, the joints scored, and the surface painted to imitate bricks. A log-house, showing itself honestly, and decorated according to the nature of its construction, is a pleasing object; and there are many such in Russia; but the demon of pretence has possessed the public taste in the country, and it will require probably many years before better instruction will be able to drive him out.

The city of Moscow, as a whole, is more

pleasing and interesting to a stranger than St. Petersburg. It is older, more national, more naturally developed. The site is much more imposing. The nucleus of the town, the Kremlin, is situated upon an eminence overhanging the river Moskwa, which flows between banks of considerable height and slope, winding through the city not unlike the Thames at home.

The great peculiarity of Moscow is the immense number of churches which it contains. The exact number it is impossible to ascertain, but there are certainly many hundreds,—probably above 1,000. As nearly the whole of them possess steeples or domes, rising in many cases to a considerable height, the sky-line is exceedingly varied. The view from the Tower of Ivan Veliki or from the ramparts of the Kremlin, which command the range of the city, is perhaps unequalled. The multitude of steeples, not, as in London, confined to one corner of the view, but extending round the entire circuit—of all sizes, from the slender minaret to the burly tower and gigantic dome—of all forms, square, round, hexagonal, octagonal, domes, towers, turrets, spires—of all colours, red, blue, green, silver, golden (the latter predominating)—constitutes a sight which, once seen, is indelibly impressed on the memory. Viewed singly, many, perhaps most of them, would be material poor, and bad taste, the work coarse, the material poor, and the detail bad; but they have one charm—variety and picturesqueness of outline. The view, in fact, is like a stage scene on a grand scale; the same effective grouping and slapdash execution. For many of these churches a high antiquity is claimed,—higher, certainly, than I should be disposed to admit; but the question naturally occurs,—What was the effect of the burning of the city on these ferried ranks of sacred buildings? Were they destroyed and have they been rebuilt, or was the fire much more partial than has generally been supposed?

The subject has always been enveloped in much mystery; nay, an American traveller quoted by Archbishop Whately, in his "Historic Doubts," boldly denies that the city proper was ever burnt at all! Without going to this extent, an examination of the churches certainly leads to the conclusion that the fire was not of such a destructive character as to destroy many of the public buildings.

The earliest church architecture dates from the eleventh century, soon after the conversion of Russia to Christianity, and, as might have been expected, bears a rude, but strong Byzantine character. Probably, the very earliest specimen is the Church of the Assumption,—one of the three cathedrals within the inclosure of the Kremlin. It is of Greek form, with the central tambour and bulbous dome, and the usual four subsidiary ones. The details are very debased Romanesque, with long narrow slits for windows. The capitals are similar to the Norman chamfered ones. Some have flat pilasters and panels rather more classic in style.

The true Pointed architecture appears never to have penetrated to this remote region. Some of the Mediæval churches in Moscow are of a very singular and barbarous character. The most *bizarre* is the cathedral of St. Basil, erected by Ivan the Terrible at the latter end of the fifteenth century. Its plan,—

"If shape it may be called, that shape has none,"

consists of a central cella, surrounded by a number of smaller ones connected by corridors, passages, and staircases, the various portions rising to unequal heights, and covered with domes, cones and bulbs of various forms, sizes, and colours, in which green and red predominate. The general effect, without going into detail, is not unlike that of some of the Hindoo pyramidal buildings incrustated with all sorts of fanciful ornament. The later churches are generally bad Italian in their detail, with a very free and original treatment. The material is usually brick, with the mouldings and ornaments in plaster.

There is one exception to the faults which disfigure most of the ecclesiastical buildings,—the church of the Holy Saviour,—a very large edifice, which has been in construction above twenty years, and will probably take twenty years more in completion. The plan is that of the Greek cross, with aisles. The interior is built and vaulted with brick preparatory to the lining of the walls, which, from the small specimen already executed, promises to be of the richest character, of polished marble and mosaic. The exterior is built of a light-coloured compact limestone, procured about seventy versts from Moscow.

The general style is simple and noble Byzantine, or rather Lombard in character, but dis-

* See p. 71 ante

playing a profusion of sculpture of a very high class. There is also in progress some very rich brasswork in the doors and windows, the taste of which is pure and elegant. The architect is Herr Ton, a German; the sculptors, Logonofsky, Romanzoff, and Klot. The five domes which crown the roof, are gilded.

The Kremlin is to the visitor the great attraction of Moscow. The original centre and citadel of the metropolis still maintains its supremacy, both civil and ecclesiastical. Its situation is very fine, on the summit of an eminence descending on every side towards the city. The area is triangular in form, the base abutting on a steep bank washed by the waters of the river Moskwa.

The enclosure is surrounded by a lofty brick wall, surmounted by a crenellated parapet, with towers at intervals, crowned by lofty pyramidal roofs, covered with glittering green and red tiles. Some of the gates of entrance have flanking towers. One of these, the Holy Gate, is considered so sacred that all persons passing under it must take off their hats. The area of the Kremlin is very extensive, containing four churches, three of which are cathedrals, the old Tartar Palace, the Archbishop's Palace, the new Imperial Palace, Barracks for the soldiers, and several convents. The lofty tower of Ivan Veliki surmounts the whole, and, standing on the highest ground, gives a magnificent view from its summit. At its foot lies the celebrated Tsar Kolokol, the great bell of Moscow, now consecrated as a chapel, the opening caused by the fracture serving for the entrance. The new palace erected by the Emperor Nicholas within the Kremlin, partakes of the improved character which distinguishes all the works of the late potentate. The building is brick, covered with plaster; but, treated as plaster, the effect is good. The style is a kind of accommodated Byzantine and Italian, enriched with flat ornament. The interior consists of long suites of apartments and series of halls, St. George's, Alexander's, Catherine's, &c. The throne-room is exceedingly fine, and in good taste. With the exception of marble and granite columns, and ornamental decorations in malachite, lapis lazuli, &c., the whole of the architectural features are in plaster.

The new palace is connected with the old Tartar Palace, which has been restored throughout and re-decorated. The architecture is rude and *bizarre* in its form, the apartments small in dimensions; the style is derived from the Byzantine school of art.

The Foundling Hospital is one of the great lions of Moscow. It is of enormous extent, accommodating within its walls about 1,200 children. The architecture is plain, the only ornamental portion being the chapel, which occupies the centre of the building, the corridors of the upper floor expanding into the galleries, and the lower corridors converging into the lower story. The plan is the usual Greek cross, the four arms being occupied by the galleries. The interior is very beautifully and tastefully ornamented with marbles and paintings.

I was anxious to see the great Riding School of Moscow, to inspect the carpentry of its roof, 158 feet in span, but was somewhat disappointed with the result. The roof is concealed by a flat boarded ceiling, at a height of probably 30 feet from the ground, which makes the vast area of upwards of two acres appear low and gloomy. The roof, though a noble specimen of wooden carpentry, has been surpassed in span by the iron roofs of some of our railway stations, particularly the one at Birmingham, the span of which is 210 feet.

There is much in Moscow of curious, interesting, and strange, with a bearing near or more remote on architecture and art. The monasteries, with their singular mixture of the shabby and the magnificent; the bazaars, with their miles of booths, of every imaginable description; the market-places, the streets,—all present much matter for observation. Over and upon all presses the iron hand of despotism. The natural results of a grinding bureaucracy and a venal police, who are the real governors of the country, are visible on every side, depressing private enterprise, leading to uncertainty in every undertaking, and preventing the development of the real resources of the country. Russia is the poorest country in Europe, and, in proportion to its population, the poorest; the country where the peasant population are ground down to the lowest level,—where trade, skill, enterprise, manufactures, and art have all to be sought from the foreigner. Under such circumstances, architecture as an art can only be looked for in works of a public nature, or in the palaces of the higher classes. A native school cannot be expected. At

the same time, since every art must be modified by the circumstance under which it is applied, it is an interesting study to observe the variations, and even the deteriorations and failures of constructive art, when carried out under influences novel and strange.

The time will assuredly arrive when the inert and slumbering mass of Russian intellect and energy shall be permeated and quickened by the instincts of freedom and expansion. Of this awakening there are already symptoms, and whenever the period shall come, there is power and vigour enough in the Russian mind to take its fair and legitimate place in the ranks of architectural as well as of other arts.

I returned home by way of Finland, Sweden, and Denmark, along a coast singularly interesting to the geological inquirer. At the various towns on the coast of Finland, now connected by regular steam communication, Viborg, Friederichshamn, Lovisa, Helsingfors, Abo, it is pleasing to mark the signs of progress—well paved and clean streets, public gardens, museums, university buildings, observatories.

At Stockholm, which, with a beautiful situation, possesses very little worth notice in an architectural point of view, a new museum is in course of construction, of a very chaste and appropriate design. The basement is granite, with a fine light-coloured freestone above. The design is Astyle, depending for its effect on fenestration, the windows being all more or less decorated. Some rather novel effects are produced by the introduction of busts and figures into the panels of pilasters at the angles. Polished marble and porphyry are introduced in inlaying the panels.

The ornamental parks of the Dier Garten, Hassel Backe, and Mose Backe are finely interspersed with wood and water.

The town of Gothenburg is well-built and improving. A new English church, a new Gothic national church in the town, and another at Klippen, a few miles down the river; and a large new theatre,—all display very respectable architectural talent.

Copenhagen contains much that is interesting to the architect, the artist, and the antiquary. The streets teem with picturesque façades of the sixteenth and seventeenth centuries. The new town has some very fine streets of the date of the early part of the last century.

The castle of Rosenberg is a great ornament to the city, with its umbrageous grounds thrown open to the public. The style is of early seventeenth century, quaint and picturesque. It is ascribed to Inigo Jones, who was architect to Christian IV. at the time of its erection.

The Exchange is a large building of the same period. The interior has been remodelled within the last few years, and is now a very noble and well-designed hall of assembly, its only defect being want of height. The Fresler's Kirke, or Church of the Saviour, is remarkable for its spire, round which an outside stair winds to its summit. The ascent, though rather formidable-looking from the exterior, is in reality very safe and easy. The summit commands a splendid view over the Baltic and the flat coast.

Thorwaldsen's Museum and the Museum of Northern Antiquities are the great glories of Copenhagen, and are well worth all the encomiums they have received. The grandeur of conception and dignity of style of the great Norse sculptor, impresses the mind with awe, and approaches the power of the antique masters more closely than the works of any other modern sculptor.

The museum of antiquities, for variety, richness, and interest, is the first of its kind in the world, and brings palpably before the eye, as well as the mind, the history of civilization in Northern Europe, from the rudest savagism to the most modern refinement, more powerfully than would be possible by any other means.

The streets of Hamburg offer many façades well worthy of study, both in the Mediaeval portion and in the new lines which have risen up since the fire. The environs studded with villas, and the general aspect of the locality exhibit unmistakable signs of wealth and progress, such as is not often met with in continental cities. The Church of St. Nicholas, under the auspices of Mr. G. G. Scott, is slowly advancing towards completion; and it is to be hoped that its accomplished designer may be spared to see the full development of his noble conceptions.

Although not equal architecturally to the southern half of Europe, there is much in the northern states well worth visiting, for the architect and antiquary; and I do not know that, for combining recreation, healthy excitement, and the

charm of novelty, six weeks or two months of summer travel could be better expended than in a trip to the countries surrounding the Baltic.

J. A. PICTON.

MR. SMIRKE'S SECOND LECTURE ON ARCHITECTURE, AT THE ROYAL ACADEMY.*

ERRORS IN DESIGN.

THE near relationship that architecture and sculpture bear to each other is undeniable. The mutual assistance that these arts are able to lend to each other, the similarity in many respects of the objects pursued by the two arts, would seem to render the cultivation of them by the same individual, if not essential to excellence, at all events a powerful auxiliary in establishing the character of a great artist; yet, "so vast is art, so narrow human wit," that we can with difficulty point to any individual who has in himself united those arts with that equality of power and intelligence which are necessary in order to prevent the one art from over-riding the other.

Taking, for the purposes of comparison, perhaps the two most prominent artists that the world has produced, Phidias and Michelangelo, we observe (so far, at least, as we know or have the means of judging of the former) that whilst in Phidias's works the sculpture was doubtless made essential to the due effect of his architecture, it was, nevertheless, always subordinated to it, and was never permitted to over-ride it: the leading architectural lines of his building, as the metopes, the friezes, and the tympanum, were in no case allowed to be interfered with by the sculpture, but retained invariably their undisturbed continuity and distinctness. Intimately intermixed as the sculpture was with the architecture, it kept its place as a mere decorative expletive; an ornament in fact;—full, no doubt, of significance and perfectly appropriate in character, both as to treatment and design, but still a non-essential ornament.

In the works of the other great genius whom I have named, we find these conditions reversed: although undeniably great in architecture, and great in sculpture, I think that the common voice of posterity proclaims him to have been far more a sculptor than an architect.

In the very instance to which I have adverted, the Medici monument, the feeling of the sculptor obviously preponderated. It suited his composition to place his figures recumbent on the sloping sides of a pediment; and he, therefore, so placed them, omitting the intervening apex of the pediment; thus committing, it is true, an architectural absurdity, whilst he produced a picturesque arrangement of his sculpture, which was all he seemed to have cared for. We may say, however, in his defence, that, in the arrangement of sculptured groups of figures, the modification of known architectural members may be regarded as a poetical rendering of them, so as to make them subservient to the exigencies of high art.

It would be by no means difficult greatly to multiply instances of a similar picturesque bias in the works of this great man. I will, however, adduce but one other. In the Chiesa degli Angeli, at Rome, erected by Michelangelo, upon the site, and partly upon the walls, and with the materials, of an ancient imperial palace, great pictorial effect has been produced, but in singular defiance of propriety.

A huge circular tablet is so laid over the face of a wall which he desired to relieve from undue heaviness, as to overlay and almost to conceal the architectural lines; conveying the idea of a distinct object suspended against the wall; whilst it was, in fact, built into it, and formed an integral part of the masonry of the church.

There can be no doubt, I think, in the mind of any unprejudiced critic, that the example set us by the great sculptor of antiquity, of making his sculpture strictly subordinate to the architecture, is the more consistent with good sense and sound judgment. However elaborately architecture may be decorated, and enlivened by the genius of sculpture, all the leading and essential lines of the composition should be dictated by its structural requirements, and should at least appear to express its main constructive features. There should, I think, be no intimate blending together of the constructive and purely decorative features: let them perfectly harmonize and combine together to make a pleasing whole, but let their respective limits never be ambiguous.

In the best age of Mediaeval art this rule will,

* See page 88, ante.

I think, be found to have been rarely departed from. It was in proportion as it degenerated that this principle ceased to have been acted upon, and sculpture excoresses so came to be committed. The carver overruled the mason until there arose those wonderful petrifications, as it were, of architecture which stood as by a miracle; for their anatomy was concealed from view, and they appeared rather to have grown than to have been built up;—the creation rather of vegetable life than of mechanical skill. I might refer as instances to the pendentive roofs of King's College Chapel, and other similar structures, and to the singular productions of Kraft and others at Nuremberg.

In the age which followed the Mediæval period the best works fully illustrate the truth of the principle that would teach us to keep clearly defined, in due subordination, and in a right relation to each other, the constructive and decorative arts.

Great purity of design in this respect usually existed in the short but brilliant period of the Early Renaissance.

We shall seek in vain among the best works of that period for examples of the corrupt taste that would seem to abhor the simple outlines of that geometry on which the whole fabric of our art is founded. Although rich, occasionally even to a fault, in carved decoration, you will find those decorations ever kept within the limits of the frieze, or panel, or spandril, or whatever other architectural compartment may have been left open for the ornaments after the requirements of the masons had been provided for. Thus their buildings preserved generally a great simplicity of outline and distinctness of form, although they may have presented a rich display of perhaps the most beautiful ornamentation that art has yet bequeathed to us.

As, however, renaissance art advanced, it gradually departed from this wholesome rule, and the wider the departure the baser became the prevalent character of the art, until the improperly called Classic style became disfigured by a multitude of gross errors. The most manifest structural requirements were often studiously concealed: the ordinary and characteristic features of architecture were lost amidst clouds and angels floating by the aid of hidden cramps and ties; and a great deal of really ingenious construction was thrown away in simulating impossible construction.

The principle which I urge on your attention may be illustrated by reference to what I believe to be a fundamental rule in the sculpture of the human figure, which forbids such a disposition of drapery as may wholly obscure or even render doubtful the actual position of the several limbs. In the work of a good master, however enveloped a figure may be in accessories, the imagination is never at a loss to determine its attitude or pose. So it should be with a building. Its anatomy must be ever intelligible, however richly clothed it may be in embellishments.

I dwell the more on this subject because I think I am justified in expressing my fear, that there is a strong tendency, in the practice of the present day, to overstep the limits to which ornament should be confined. Ornament is a most pleasing handmaid, but a very unreasonable and dangerous mistress.

There is another kindred error to which I think it may be profitable that I should advert. It is in some respects the converse of that which I have just reprobated, and consists of an attempt to give to mere ornament a false or affected utility. We sometimes may see a heavy weight of masonry, perhaps an integral part of a fabric, affecting to rest upon some manifestly insufficient basis, such as on foliage of the most delicate and fragile nature, or perhaps upon the edge of a shield, obviously unfit to carry more than its own weight.

This is an anomaly which no beauty of execution, nor cleverness of treatment, can justify. Painters may, no doubt, be readily permitted to represent bodies of very appreciable weight reposing on a mist. Aurora may freely drive her wheeled chariot over the trackless clouds, for their paintings are but the embodiment of mere mental visions. These forms are but as words addressed to the mind's eye, while the architect has to deal with substantial realities. Whatever he does must be conformable, not only with plain reason, but with static laws.

The Pompeian decorator is quite at liberty to indulge his fancy in strange impossibilities: his Cupid may emerge from the calyx of a blossom, and may poise on the tip of his wing a column, or a whole temple, if he will: it is but a painter's dream after all. But when an architect so forgets

the proprieties of his art as to realize in stone these vagaries, and places, or seems to place, a material burthen upon these utterly inadequate supports, he is guilty of a frivolity unworthy of the character of his art. It is not that we need altogether condemn the use of these Cupids and blossoms, but let them be superfluous adjuncts. Let the duty of a corbel or a capital be performed by a stone visibly shaped to its purpose, and adequate to its task, and then overlay it as you will: the reins may then be given to invention, to clothe that stone with whatever natural beauties the good taste of the sculptor may suggest to him as suitable and agreeable.

In like manner, when we see the smoke of some laundry chimney issuing from among the leaves of some fictitious plant, however beautifully natural the leaves may appear, we reprobate the conceit as a gross breach of good taste in the artist who so misapplied the resources of his art.

But I have wandered widely from my theme. The real, practical importance of the principle which I urge upon you must be my apology.

I was adverting with regret to the anomaly of the broken pediment; an error which struck deep root, and was the parent stock of an unaccountable variety of censurable forms. Strange it is that art is so prone to submit to the influence of fancy or caprice, as if the eye was ever craving for new forms. The simple, sensible, and strictly unobjectionable pediment thus became debased into a useless and ridiculous excrescence, under the impulse of tendencies which seem to be inherent in our nature.

A like tendency betrays itself in a variety of ways; in nothing perhaps more visibly and viciously than in costume. Thus buttons are placed where they cannot possibly be applied to any useful purpose, justified alone by long usage, and by the consequent prejudices of the eye, and thus shapes will long outlive the uses which had dictated them. So it is that architects are occasionally found erecting an array of buttresses, not because there is any lateral thrust to meet, but because they constitute a customary feature of a certain style.

Having dwelt long on the errors into which we are liable to be seduced by a disregard of the legitimate purposes of those two important component parts of architectural composition, the column and the pediment; it remains for me to point out to you, with reprobation, another, and perhaps still grosser, error in the misapplication of the entire portico.

The unanimity is somewhat remarkable with which all critics, of every school and age, have agreed to admire the Greek portico, as combining all the highest qualities of art in their purest and most complete form; and the great beauty of this model of symmetrical composition is enhanced by a sense of its obvious utility as a place of external shelter.

For many centuries exclusively the distinguishing feature of temples, the portico was seldom permitted to be used in domestic architecture, until the date of Augustus. From that period downwards it has never ceased to be applied to any and every species of structure needed by man, and it must be admitted often without the slightest appearance of necessity or utility.

The same critical remarks which I have already made in respect to the erection of a column as an ornament, or as a mere pedestal, and not as a support (which is essentially and exclusively its special duty), are also applicable to the columnar portico in all cases where neither shade nor shelter is of any appreciable value. To erect a portico in a position obviously inaccessible is an idle squandering of masonry, with which the architects of the best days of Classic art cannot be charged.

A blind and unreasoning habit of repeating forms, without due regard to their purpose, has been among the worst faults of modern art. To build a gable, or a portico and pediment, without any roof behind to justify or call for its use, or beneath whose shelter no man can betake himself, is an act which no reasoning critic, whatever be his admiration of the portico itself, ought to sanction.

Like the small arcades which we so often see covering the apses of early Romanesque and Mediæval churches, yet often perfectly inaccessible, and convertible to no possible use, we can only attempt their justification on the ground of picturesque beauty, or because they present a pleasing chiaroscuro. It may be that there are occasions when these are sufficient and satisfactory reasons. The architect very imperfectly fulfils his mission if he does not gratify the eye whilst satisfying the graver requirements of his art. All

that I would insist upon is that the more prominent and conspicuous features of a design should not be mere unscrutable appendages.

With regard to the use of colonnades partially built into a wall, as we see exemplified at the Banqueting-hall in Whitehall, it is not uncommon for architectural critics to condemn the practice as a departure from the dignity and real use of columns, and as something false or absurd.

I am not, however, disposed to coincide in this view; and I can see no valid reason for condemning those engaged colonnades. Tested by the standard of common sense, I see no sufficient ground for such condemnation. Columns are points of support; and we may with equal correctness regard them in that light, whether insulated or engaged; for as supports they are equally valid in either case. We may regard the wall intervening between engaged columns as the means of enclosure, not of support;—assisting columns, it may be, in the support of the entablature, but yet not an essential and integral part of the fabric. The great Doric temple at Agrigento, and the Erechtheum at Athens, suffice to show that, even in the best period of Greek art, this practice was not held to be opposed to the canons of good taste.

The critics who would condemn engaged columns have of course a wide field for the exercise of their censorship in the engaged pillars or wall-shafts of Mediæval art, the use of which is an exactly analogous practice, inasmuch as they represent the points of support of the arches and vaulting which spring from their capitals. The truth is, that there is perfect masonic propriety, whether in the wall shafts of a cathedral or in the engaged pillars of a Greek temple. They represent an accumulation of power at the particular point of the wall on which the principal weight is charged; and not only have they constructive truth to justify them, but also a great æsthetic value. These vertical lines of support convey to the mind the idea of the active and efficient support of any particular imposed weight far more satisfactorily than can be effected by presenting a plain unbroken wall of apparently uniform solidity and strength; and this idea is still more forcibly and distinctly produced on the mind when the vertical engaged shafts are of different colour and material from that of the general surface of the wall. This practice, so prevalent, both in Mediæval and Classic art, gave rise to additional beauty and variety by the use of coloured and polished marbles.

Although I have justified and defended these engaged columns as true and legitimate architecture, I am, nevertheless, by no means inclined to encourage the gratuitous or too frequent use of them. There can be no doubt whatever that, in lightness and elegance of effect, advanced and insulated pillars, telling out distinctly and brightly against the lower tone of the recessed wall behind them, produce by far the most artistic and pleasing effect.

The object with which I set out in making these observations was to press upon your attention what I conceive to be one of the most important principles of design; namely, that every form in architecture should be, or at least appear to be, true to the purpose to which it is applied. The principle is of the widest application, and appears to me to be valid alike for the smallest objects of design and for those larger, more important, features to which my observations have been more especially directed.

When Thucydides is deploring the moral deterioration of Greece, occasioned by the baneful influence of the civil wars on the manners of his countrymen, he says that a sort of duplicity had entered into the Greek mode of speech: false terms were introduced: names of honour were applied to the base, and of baseness to the honourable; and he adduces this evil tendency as one of the most striking signs of the times.

It is true that in uttering these lamentations Thucydides bears singular testimony to the general purity of Greek sentiment, when we find that the mere habit of misapplying terms of honour and of depreciation should be regarded by the historian as a national stigma, and as a serious public reproach; still his remark has great significance, and may convey a useful lesson even to us as artists. The clear-sighted ancient historian and moralist could read the signs of the times in those unobtrusive and apparently insignificant indications: he saw that the habitual use of unfitting phrases, and the untruthful application of words, were evidences of an incipient national decay and deterioration. May we not draw like conclusions when we see an habitual neglect of

truth in productions of art? And is it not a duty becoming in all who are in a position to exercise any influence *whatever* on the mind of the young student, to strenuously endeavour to deter him from that downward course which leads to debasement of style, and with all possible earnestness to impress him with a sense of the beauty of truth.

Such, certainly, I conceive to be my duty here. Weak and faltering as my words may be, and though I may not be able to defend myself from the imputation of having set some bad examples; still I feel that I should betray the cause which it is at once my duty and my pride to advocate, were I not to use my best exertions to encourage the student in art, to seek not only that which is ornamental, or picturesque—*not only* that which affords a display of the most agreeable flow of lines, or most attractive in composition—*not only* that which presents the richest groups of decorative feature,—but to seek, *above* all things and *before* all things, that which is fitting in form and truthful in character.

JAPANESE GENIUS FOR IMITATION.

The astonishing aptitude of the Japanese for imitating everything they see appears to be a constant source of interest and amusement to the members of the Legations; and some of the most impossible things to do appear to have been given to some of the more ingenious workmen, in order to try them, rather than with any hope of success; but a failure is said to be very rare. Chubb's lock was given to a clever lacquer-ware man merely to fix on a box which had been ordered. The box was duly produced, the lock admirably fitted, but something drew attention to the key; when, upon minute inspection, it was found that both lock and key were imitations! Friend Sabie, the name of the ingenious individual, had been so struck with the ingenuity and perfection of the lock, that in an incredibly short time he had succeeded in finding a workman to produce so exact a counterfeit, that it was by the merest accident the trick was discovered. This is an anecdote which Mr. Chubb, we dare say, will scarcely "take in," whatever others may do. If the Chinese, at all events, have, from time immemorial, as we are told, possessed the principle of the Brahma lock, the Japanese may also be skilled in lock-making, and may have appropriated Chubb's lock in the way indicated. Many of our more recent discoveries are now, it is said, found to have been known in Japan ages ago. Take lithochrome printing, for instance, by which (only within the last twenty years) a perfect imitation of the effects of water-colours may be obtained from a series of stones, printing in different colours. The same thing is everywhere to be seen in Japan. The process is the same, only wooden blocks are used instead of stone. The effect is not so fine, certainly, but the principle is there, and reduced to practice. They are not artists in the sense in which we should use the term; yet many of their smaller ivory carvings of groups of figures, generally grotesque, are held to be marvels of expression and skill in the handling of the chisel, full of character and of humour. So much for the aptitude and capacity of the Japanese workmen; and there seems little doubt that, if anything like a free competition for a large trade arose, they would hold their own against the best workmen of Europe, and might prove formidable rivals to Manchester and Birmingham. Their sword-blades have the reputation of being superior to any now produced in Europe.

MONUMENTAL.

Monument for Cork.—Messrs. Edwardes, Brothers, of Newman-street, Oxford-street, have on view a costly and in many respects well-executed monument, in memory of a late eminent citizen of Cork, Mr. James Daly. In the centre a draped figure of Victory, holding aloft a wreath of laurel, is poised upon a small black marble sarcophagus, having at its apex a gilt ball, which bears an inscription. At each end of the sarcophagus is a figure seated,—the left, a female denoting Faith, and the right, a male, Resignation. Double pilasters on each side, of white marble, bound the monument. The background and upper part are of dark marble. Something is needed to bind together, at the top, the three white lines formed by the pilasters and the figure of Victory.—The same firm has executed some fine statuary in marble chimney-pieces. Such of our readers as may need first-class marblework may usefully visit these warehouses.

A Monument to Dr. John Leyden is to be erected in the centre of the level Green at

Denholm, in Roxburghshire, Scotland; which town was his birthplace. The design is Gothic, of the Early Decorated period. It represents an ornamented pyramidal structure of 40 feet in height, and partakes of the elements of the Venetian style of Gothic. The shafts of the columns are to be of red granite polished. The central part of it is enriched with Gothic carving and sculptured figures. A large canopy or opening occupies the central space, bounded by Moorish or horse-shoe arches. This space may be occupied by a draped cinerary urn. Objections have been urged against a bust of Leyden (which was at one time proposed), on the ground that there exists no likeness of him. A triangular arch springs from the summit of this open canopy, and forms a conspicuous feature in the structure: its outline is crocketed, and the centre is occupied by a circular floral ornament. On each of the angles is placed a figure of an evangelist. A tall angular spire surmounts the whole, broken into stages by cross lines of ornamental tracery. The structure will thus present in miniature somewhat of the form of Sir Walter Scott's monument in Edinburgh: The cost will be more than was anticipated; and, unless assisted by further contributions, the committee will find it necessary to curtail some of the ornaments.

The Goldsmith Statue at Dublin will be placed within the open space before the College front. In the statuette of Mr. Foley's design, the poet is represented standing, his head slightly drooped, as in meditation, his left hand holding a book or tablet, and his right hand, which is raised towards the face, holds a pencil. There is no cloak or drapery. The large and massive head and heavy immobile features of the "inspired idiot" render him a difficult subject to the sculptor. Mr. Foley has nevertheless produced a beautiful statuette.

PROVINCIAL NEWS.

Sheffield.—The members of the Sheffield Club are about to erect a house in Norfolk-street, Sheffield, for the better accommodation of their visitors and friends. The present premises have been occupied since the formation of the club seventeen years since, and the greatly increased numbers who frequent them have rendered it absolutely necessary to take the present step. It is expected that the work will be immediately proceeded with. The contemplated expenditure (including the site) 6,000*l.* Mr. M. E. Hadfield is the architect. The site which has been secured is particularly eligibly situated about midway in Norfolk-street, and very nearly opposite to the new show-rooms of Messrs. Rodgers & Sons.

Garston (Liverpool).—The opening of the new Lecture and Reading room at Garston, the foundation-stone of which was laid in April last, has just been celebrated. The edifice is situated near the centre of the village, and has been erected from designs by Messrs. J. W. & J. Hay, of Liverpool. It is of a mixed style of architecture, partaking principally of the Early English. It contains a lecture-room, affording accommodation for between 300 and 400 persons. At one end is a smoking or refreshment room, and at the front an entrance-hall. Adjoining is the keeper's residence. The entire block of building is of a simple character. The hall is divided into six bays by buttresses supporting the ribs of the high-pitched roof, the bays on one side being pierced with large windows of three lights, filled with rough plates of glass in panels. In the front elevation there are two windows of double trefoil-headed lights, with a trefoil light in the apex of the gable. The building is of brick, with stone dressings, has cost 1,100*l.*, including the fittings, and the entire work has been performed by Mr. Jones, of Grassendale, the contractor. The site was given by Mr. George Heald, of Garston Lodge, and the cost is to be defrayed by the subscriptions of the working men of the village—the capital being raised by 1*l.* shares—assisted by the influential inhabitants of the locality. The management of the institution is vested in eight trustees, four churchmen and four dissenters.

Lincoln.—The Directors of the Lincoln Gas Company have received the following tenders for new works:—Three tenders for a new gas-holder, one of 1,570*l.*, with 3*l.* per ton allowance for the old metal; the second, 1,497*l.*, with 2*l.* allowance; the third, 1,450*l.*, with 2*l.* allowance. The last was accepted. The holder is to be constructed on the telescopic principle by a Birmingham engineer.

Weedon.—A new girls'-school has been opened at Weedon. The building is in the Old English style, and is composed of red bricks, with Bath

stone dressings. At one end, and adjoining the school, is a house for the mistress. This forms a wing at one end of the building, and the classroom forms a wing at the other. The roof inside is an open Gothic, stained and varnished. Mr. E. F. Law was the architect, and the works have been carried out under his superintendence.

Dagenham.—The cost of the proposed dock at Dagenham-reach is estimated at 100,000*l.*

Portsmouth.—The contractor for the Barrack Extension works, about to be carried out at the junction of the Cambridge with Clarence Barracks, has commenced operations by pulling down the houses in Keppel-row. Two new and spacious pavilions will be erected upon the ground gained, and the erection of them will be commenced as soon as the old materials are cleared away. Mr. Bull, of Southampton, is the contractor for these works, which are to be completed before the 1st of January, 1862, his contract being just under 6,000*l.* A large area will be gained to the Cambridge Barracks by these additions, and a nearer means of access for carriage traffic in the route from King William's-gate to the Landport-gate.

Isle of Wight.—The new Steamboat Pier at West Cowes has been commenced. The two causeways are being removed, and the present wooden pier is to be taken down, and the quay reduced in height. The contract for this work has been taken by Mr. Thomas Wheeler; for the dolphins, the contract is taken by Mr. George Wheeler. The contracts for the iron pontoon and the new pier have been taken at Southampton.

Inverness.—At a recent meeting of the Inverness Town Council, according to the local *Advertiser*, a report was handed in by the Petty Customs' and Markets' Committee, proposing the erection of new markets for the town, and submitting a plan for the same. The committee propose the erection on the present market ground of an arcade, lighted from the roof, and 20 feet in height, 220 feet in length, to be paved with flags, and having stalls for fishers, meal-dealers, &c.; a vegetable, fruit, and fish market, a market for poultry, eggs, &c.; also, the erection of a hotel; the whole of which is estimated not to exceed 4,000*l.*

THE MODE OF MEASURING WORK, AND TAKING OUT QUANTITIES IN DUBLIN.

A CORRESPONDENT wishes to be informed if the mode of taking out quantities as practised in Dublin is the same as that adopted in London, and if not, whether the difference be material. In reply to the inquiry, though the system of measurement in Dublin is essentially the same as that practised in London, there are some local differences. Brickwork is measured by the cube yard, or superficial yard, reduced to 9 inches, or by the Irish perch of 21 superficial feet, 1 foot 6 inches thick. The English rod is unknown. The measurement of cut-stone work is also different, the labour being taken by the girth of the exposed face of the stone as finished, without consideration of previous labour.

In plastering the whole square of the ceiling is measured, without deduction for cornice projection, and four mitres are allowed to each room, all others being extra; but the Dublin system may be said to be more like that of London than that of any other town, the only important difference being in the cut-stone work. They are much more fond of taking lineal measurement and numbering items than in London.

METROPOLITAN WATER SUPPLY.

On 6th February a paper on this subject was read at the Society of Arts by Mr. G. R. Burnell, C.E., and a discussion followed, in which various gentlemen took part. The conclusions with which Mr. Burnell closed his paper will give some general idea of the views expressed in it; and to this we may add a portion of the chairman's summing up at the close of the discussion.

The conclusion, said Mr. Burnell, I am induced to draw from a careful study of the question of the present condition of the London water supply are as follow:—

1st. I think that the quality of the water is on the whole extremely good, and that the companies take every precaution in their power to maintain its character.

2nd. I am convinced that it is utterly impossible to secure a supply which should attain the supposed ideal type, even if that were desirable, which I do not believe.

3rd. I think that the greatest present improvement in the quality of the London waters would be effected by rendering it impossible for the population on the banks of the Upper Thames and its affluents to use the river as their outfall sewers. With all the local impurities thus cast into the Thames, the quantity of organic matters its waters contain do not, however, exceed, in any notable

quantity, those contained in deep-seated chalk springs, which cannot possibly receive sewage.

4th. It seems to me that any extension of our present supplies should be sought for rather on the east than on the west of London, and on the edges of some of the great lines of disturbance there existing.

5th. It seems also to me that it would be a mere waste of money to attempt to execute any system of catchwater supply.

6th and lastly, I think that there is both great injustice and great want of a true spirit of philosophy in the insinuations which are now constantly urged by the Registrar-General on the subject of the impurity of the London waters. Pure water does not exist in nature, for even rain water contains appreciable quantities of ammonia."

After a discussion, in which Messrs. S. C. Homersham, J. T. Bateman, Lott, Spencer, F. Braithwaite, W. Hawes, and A. S. Harrison, Professor Tennant, and Dr. Wyld, took part; the chairman, Sir Thomas Phillips, said:—

The discussions of this society, useful as they were, were sometimes of a somewhat discursive character, and certainly they had had that evening topics which were not quite pertinent to the subject before them. Mr. Bateman, in a very interesting description of the water supply of Glasgow and Manchester, had sought to claim the large and sinewy frames of some of his Scottish friends as the products of soft water, whilst he had pointed to the feeble and degenerate growth of some of our southern people as the unfortunate results of hard water. If the paper which had been read that evening, painted in too favourable colours the water supply of the metropolis, the reverse of the picture had been offered to them by Mr. Homersham and other speakers, in terms not flattering to the water companies. Much of the value of these meetings of the society arose from the freedom of discussion which prevailed in this room, and that correction which exaggerated statements were thus sure to receive. Notwithstanding all they had heard, he hoped the audience would go away with no great amount of discomfort from the fear that they would not have a sufficient supply of good water for the use of the year 1861. He must confess he went very far with Mr. Hawes in the distaste that gentlemen had expressed against too much interference in these matters on the part of municipal bodies.

It may be useful here to give a summary of the condition of the actual water supply of London from the paper under notice.

Subsequently to the passing of the Metropolis Water Act of 1852, all the companies have been obliged to remove their sources of supply from positions where the waters were likely to be affected by the tidal action, or by the emanations of large manufacturing districts. The West Middlesex, Grand Junction, and Southwark Companies take their water from the same spot on the banks of the Thames, above the village of Hampton, and above the second lock on the navigation. The Lambeth and Chelsea Companies take their water from Kingston, above the Teddington lock. The East London and the New River Companies take their water from the Lea, the first from a lateral branch from the main stream given off above Clapton, and the latter from the river above Ware. The North Kent Company takes its waters principally from its wells, and partially from the Ravensbourne. In all cases, the companies are bound to filter their waters. All the storage reservoirs are covered.

The capital embarked in these undertakings is enormous. From the returns to the General Board of Health, it seems that the total cost, up to 1856, had been not less than 7,109,823*l.*; and, at the present day, it cannot be much below 74 millions. In 1856, the aggregate nominal steam power employed was not less than 7,254 horses, and the quantity of water pumped was 81,025,242 gallons per day on the average of the year. The present rate of supply must be near 100,000,000 gallons per day, or at the rate of about 40 gallons per head of the inhabitants. The companies have spent 24 millions sterling for the removal of their sources of supply, for the filtration of their waters, and for the improvement of their distribution, since the year 1852.

Although we still require improvements in our water supply, notwithstanding the rose-coloured tint which Mr. Burnell kindly throws over it; it may be amusing to look back to the state of matters at rather a remote period, as a foil to the present, but an encouragement to hopes for the future.

In St. Martin's, Ludgate, in 1685, it was agreed in vestry that there should be three water-bearers, "and no more"; and they be all men, and not any of them be wives or servants; and that they shall carry no water* for any person dwelling out of the parish; and also that, if any of them set out any tubs or bottles, as heretofore they have done, to the annoyance of the street, every such person should be disabled and disallowed to carry any water from the conduit. Also it is ordered and agreed by a vestry, held on the 12th of January, in the thirtieth year of the reign of our Lady Queen Elizabeth, that no manner of servant, nor any water-bearer, shall be at the conduit at service-time, nor leave there any tankard or pail; for if they do so offend, the churchwardens shall take the said tankard or pail, and keep them until such time that the said offender do come and put in the poor man's chest 4*d.*; and then the said party shall have his tankard again.

* The tankards mentioned as water-carrying vessels seem to have contained six gallons of water each, and the cost was 2*d.* We may here remark that Mr. Burnell, in his paper, estimates, without any reason to his ancient tankard, that, at the present day, "no one really uses more than six gallons per day," or about one-seventh part of the forty gallons per head at which he estimates the actual supply.

NORTHAMPTON NEW TOWN HALL COMPETITION.

THE Town Council of Northampton have been discussing the question of selection from the forty designs sent in for their new Town Hall; and, with some little exception, they show, in the meantime, a very commendatory diffidence as to their own ability to decide on the actual merits of the many plans proposed to them. One sensible councillor declared that the consideration of a single plan for "that house in the Drapery" had been too much for him; the Estate Committee (to whom the matter of procuring designs had been referred by the Council), were resolved, he said, to call in some eminent architect if the decision were left to them. Mr. Hensman proposed that the whole of the plans be referred to the President of the Institute of British Architects, or to some other architect totally unconnected with the town. The question of exhibiting the designs before coming to a decision was not decided on, neither was that of calling in an architect; but in the meantime it was resolved to have them exhibited, for the inspection of the Council, for a fortnight, after which time a special meeting to be called to consider as to them.

NOTES ON COMPETITIONS.

Waterhampton New Public Buildings present a new phase in competitions. The Committee intend to ascertain which competitor furnishes a correct estimate of the cost of his design; sagely reserving to themselves the right to reject the best if the cost exceed the sum stated by the author. No clue whatever is given to the amount likely to be expended on these works, whilst "the mode of ascertaining the cost (is) to be in the discretion of the Committee."

Premium 50*l.* is to merge into the commission if the competitor be employed to superintend the work.

INVESTIGATOR.

SELECTION OF THE STONE FOR THE HOUSES OF PARLIAMENT.

SIR,—I forward the inclosed report for publication. Pressure of time did not permit me to read it at the Institute, but I am anxious that it should be understood that, from the advice tendered to him, my father had no reason to anticipate failure as regards the stone of the New Palace at Westminster.

EDWARD M. BARRY.

"29, Clifton street, 16th April, 1853.
DEAR SIR,—In compliance with your instructions, I visited, on the 8th and 9th of last February, the quarries at North Anston, from which the stone for the exterior of the New Palace at Westminster is now being obtained by Mr. Jay, the present contractor; and I have to report to you that the stone which he is now quarrying forms part of the same beds of magnesian limestone as those which were worked by the late contractor, Mr. Grissell, in pursuance of the recommendation to that effect in the report of the commission appointed for the purpose of selecting a fit and proper stone for the New Palace in the year 1838. The stone which is now quarried continues to be of the same excellent quality as that which has been hitherto selected for the New Palace at Westminster. Mr. Jay's quarries are contiguous to those of Mr. Grissell; they contain the same number of beds, varying in thickness from 8 to 39 inches, and measuring together a total thickness of 23 feet. Specimen blocks, which I marked both in Mr. Jay's and Mr. Grissell's quarries, have since been forwarded to me in London, and I have found those blocks worked into mouldings, &c., under my own inspection, and I cannot, after a careful examination, discover any difference whatever in their fitness for architectural and sculptural purposes, nor can I detect any variation in their chemical properties.—I remain, &c.,
To Sir Charles Barry. (Signed) C. H. SMITH."

CONDITION OF PARTS OF SALFORD.

You have rightly published much in reference to the unhealthy condition of Salford, but I do not think anything which has been exposed through the *Builder* is so bad as that which I now bring before your notice.

There are four rows of cottages, situate in West Elizabeth-street, West Wellington-street, Ann-street, and Charles-street, all of them leading out of Hope-street, Salford. These cottages, about 35 or more in all, are back to back, and have eight privies and two ash-pits to serve the whole.

These privies and ash-pits run under the bedrooms of four of the cottages: they are nearly dark, only receiving the reflected light from the nearly equally dark walls of the passage. When I saw them, those nearest the street were in a most filthy state: the two privies and the ash-pit, which are in the middle of the passage, no doubt, were worse, but as there was little or no light admitted, I could not see, and the stench was so intolerable that I was glad to get away with the few particulars I now send you. Herewith, I enclose you a rough plan of the place referred to, and also my name and address, and shall be very glad to substantiate what is here brought forward.

MANCHESTER.

SIZE OF GAS-PIPES.

WILL you allow me to offer a word of warning to builders and their gas-fitters.

I have just been called in to assist in getting a supply of gas to the top of a two-story house, because, when the house was being built, the economical builder or dishonest gas-fitter chose to insert $\frac{1}{2}$ iron pipe in the walls and flooring for the supply of the four upper rooms, instead of using, as I always recommend, $\frac{3}{4}$ iron. It may be thought that $\frac{1}{2}$ pipe is large enough: it may be so long as the pipe does not corrode, but that corrosion is either not thought of or is forgotten by the fitter, and not one single connector or long screw do I find. The result is, that as the pipe is hopelessly choked, I must either have the pipe cut out of the newly-papered walls, or I must run up a pipe outside, either of which modes is troublesome and expensive, and ought not to occur in a private house at 85*l.* rental. A GAS-INSPECTOR.

FRAUDULENT TRADE MARKS.

THIS is a subject which is at present exciting no little interest amongst our manufacturers of various goods. The trademarks of fictitious firms in several provinces for good articles are forged by foreign manufacturers of rubbishy goods, which are then forwarded to England; whilst, of course, they have not much chance of a permanent sale; but whereas they are mostly again exported, as English goods; so as to impose upon the foreign purchaser, and seriously to injure the good fame of the English manufacturer whose trade marks have been forged. Such a system of swindling and plunder as this ought to be unmercifully dealt with; but Parliament must give protection. Amongst others, Messrs. Brookman and Langdon, the well-known black-lead pencil manufacturers, write us complaining that they have suffered, and still suffer, severely by these dishonest practices. The articles imported are, of course, of the most worthless character, and injure the reputation as well as the business of Messrs. Brookman and Langdon; and they are most anxious, as many other manufacturers are, to obtain protection against these foreign robbers of their well-earned fame, as well as of their long-established business. We are glad, therefore, to observe that a Bill bearing on the subject of trade marks has just been introduced into the House of Lords by the Lord Chancellor.

THE FLOW OF WATER IN SEWERS.

In a recent number (p. 44, *ante*) is an article referring in general terms to the flow of water in sewers. As I have at hand a few facts collected from actual observations and gaugings, you may perhaps not be unwilling to publish them as bearing on the subject. My partner, Mr. H. U. McKie, and myself, in designing and carrying out the works for the application of the sewage of Carlisle to land in the neighbourhood of that city, found it necessary to inform ourselves as to the quantity of water passing through the outlet sewer at the point where the pumping station is situated, and the flow might be considered an average quantity; that is, it had not been increased by previous rain or other causes. Contemporaneously with the gaugings, samples of the sewage were taken for analyses; and it may be here remarked, that the strength or richness evidently increased or diminished with the quantity.

We found that from 11 p.m. to 6 a.m. there was a constant flow of 4,638 cubic feet per hour. This was apparently water without the slightest admixture of sewage matter. Soon after 6 a.m. the flow began to increase, and continued to do so until 11, when the quantity passing the gauge was 7,200 cubic feet per hour; at noon it had dropped to 4,372 cubic feet, and then rose steadily to 4,600 p.m., when the flow was again 7,200 cubic feet, as at 11 a.m. From 4 p.m. the quantity decreased steadily until 7, at which time it was 5,154 cubic feet, rose again to 5,400 at 8, and then fell gradually to the minimum of 4,608 cubic feet at 11 p.m. The maximum flow at 11 a.m. and 4 p.m. and the perceptible rise at 8 p.m. take place about 24 hours after the first operations following the ordinary meal hours, this being the time taken for the sewage to traverse the house drains and sub-mains on its way to the outlet. It would appear at first sight, judging from its regularity in the night and during the severe hours at night, that the clear water was probably supplied by land-springs, and might be taken as swelling the total flow during the day; but this supposition appears incompatible with the regularity of the flow during the day. For a great part of its course the outlet sewer is built in a stratum of water-bearing gravel, and the height of the water is doubtless ruled in some measure by the level of the adjacent river, Colne and Eden, and as the sewer is carried just under the bed of the former, this water-level is certainly some height up the sewer, say about springing level. Now, when, during the day, the discharge from the city is in the night, the water level in the sewer is established between the water inside the sewer and the water in the gravel; but so soon as, at night, the supply is stopped in the sewer, the external water finds its way through the brickwork by simple gravitation, and keeps up a flow, constant until 6 a.m., and then gradually diminishes.

nishing as the sewage increases. In the case of Carlisle, from 8 a.m. to 8 p.m. were the hours when the sewage seemed worth the cost of pumping for the purpose of irrigation. In other places these hours may vary a little, as they will be regulated by the distance of the works from the sewage-producing sources, and the gradients and condition of the sewers themselves.

JAMES MANSERGH, A.I.C.E.

WEDGWOOD MEMORIAL COMPETITION; BURLSLEM.

SIR,—Allow us, through the medium of your columns, to enter our earnest protest against the treatment received by the unsuccessful competitors in the second competition for the Wedgwood memorial building at Burslem. It will be remembered that in the first competition professional assistance was secured to aid the committee in selecting the best design. In their report the professional advisers selected four from which to choose the premiated designs, recommending at the same time that neither of the designs should be carried out, that more explicit instructions should be drawn up, and that the authors of these four designs should be invited to a second competition. This report was adopted by the committee, who added two, however, from the other competitors (one being an auctioneer in the neighbourhood of Birmingham), making six in the whole. Against the addition of these two we protested, from more than one cause, but having faith in the skill and judgment of the gentlemen under whose advice the step in respect to the second competition was taken, we consented to furnish another set of drawings. Much to our astonishment the prize was awarded to one of those gentlemen whose names were added by the committee, even to the auctioneer whose previous design had not been deemed "worthy of comment" by the selecting architects. We have just now, however, dispensed with the committee, as we should have refused their overtures had we suspected for one moment that they intended to exercise their own judgment only in selecting the best design. We challenge the committee to submit the designs to the award of competent and impartial judges.

JUS, SUPRA VIM.

Books Received.

VARIORUM.

AMONGST the books that have reached us, and we are very glad it has done so, is "Minnie's Love," a new story, by the author of "The Trap to Catch a Sunbeam," "The Dream Chintz," and many other tales, published by Lockwood & Co., of Stationers' Hall-court. "The Trap to Catch a Sunbeam," a charming little tale, was written by a young girl, daughter of a well-known antiquary and author; and, with little advertising until lately, has run through thirty-five editions. The young girl is now the wife of a working clergyman and mother of children, with home duties and parish duties, well performed, and not light; but still finds time to use the pen with good effect. "Minnie's Love" is the longest and most elaborate story she has yet written. Like all her previous works, it is healthful, hearty, and hopeful; a woman's book, intended mainly for women. There is a little weakness in the writing at starting (we mention it for the sake of the next edition); but this got over, there are few who will not find pleasure in the perusal of this story, and none who may not be benefited by its teaching.—"A Treatise on Rivers and Torrents, with the Method of Regulating their Course and Channels," by Paul Frisi, F.R.S., &c.; to which is added, An Essay on Navigable Canals," has been translated by Major-general John Garstin, of the Bengal Engineers, and published by Weale, of Holborn. Frisi was a man of note in his time, as is proved by the fact that a Milanese Barnabite of the eighteenth century became a F.R.S. of England, and a member of the Royal Academy of Sciences at Paris, of the Imperial Academy at St. Petersburg, and of the Royal Academies of Berlin and Stockholm. He was also a professor at Milan, and intimately versed in hydrometry and hydraulics; so that his treatises on rivers and canals are of considerable value; and hence their republication in the form of a new and corrected edition. A treatise on railways and locomotives, written in the beginning of the present century, would be now of very little use; but a treatise on canals written in 1763, by such a man as Frisi, is still of standard value; more especially at a time when the prospect of an application of steam to the propulsion of vessels on canals is turning the public attention anew to these by no means modern inventions. The treatise on rivers and torrents, and their regulation, may be said to have suffered still less, if possible, than that on canals, by the lapse of time; nevertheless, Frisi has fallen into some minor errors, from which, in his era, it was not easy to escape. Thus he tells us he is "of opinion that round stones, gravels, and sands, are substances originally prepared by Nature and spread all over the globe," and are "as ancient as

the creation." In his day it was even maintained that geological petrefactions of fishes, &c., were of this nature. It is evident that although Frisi saw clearly that rivers and torrents were incapable of breaking up rocks into gravel and grinding down gravel into sands, he had formed no conception of the tremendous powers of frost and ice, and of these very rivers and torrents when converted into moving glaciers.—"A Memoir on Northumberland; descriptive of its Scenery, Monuments, and History; by W. Sidney Gibson, M.A. and Barrister-at-Law," &c. (Longman & Co.), is well and pleasantly written, and gives an interesting account of a picturesque and important district, which contains many archaeological and other records of time long past. The condition of the labourers' cottages on some of the great estates of Northumberland has been deplorable; but there has of late been considerable improvement in this respect it appears. "Lord Grey's Howick Cottages," says Mr. Gibson, "are models of neatness; and the Duke of Northumberland has spent immense sums on his estates. His Grace set about the improvement of his labourers' homes in a business-like way; and an immense number of cottages marked by fitness and utility, and by a wish to benefit the occupiers, have consequently risen—a permanent improvement to the property and an honour to the noble owner." The agricultural villages and the labourers' homes generally, as well as the population of the agricultural districts, stand, however, in favourable contrast to the chief part of the pit villages, as they are called, and the mining population, of this county, of whom we recently took occasion to speak. "Long rows and aggregations of unsightly cottages," says Mr. Gibson, "peopled only by those who earn their living from the adjacent pits, mark too many of the colliery districts; and the cottages, especially where the property is leasehold, are generally hideous, sordid, barrack-like abodes; not, indeed, destitute of cleanliness and homely comfort, but totally wanting in the humanizing though humble adornments of southern rustic homes."—A series of useful "Tables, prepared for the assistance of architects, surveyors, builders, contractors, &c., in calculating workmen's wages; by Henry Tovey, architect and surveyor; have been published by Weale. The tables are classed under thirty headings, and are calculated at the rate of ten hours per day, to the nearest fraction on the workmen's side; from half an hour to nine days, and from one shilling to ten shillings per day. These will be useful to many.

Miscellaneous.

THE LATE MR. THOMAS FINDEN, ARCHITECT.—We regret to record the death, on the 2nd instant, of Mr. Thomas Finden, of Mitcham, formerly of John-street, Fitzroy-square, and more recently of Adam-street, Adelphi, where he practised for some time, in conjunction with Mr. T. Hayter Lewis. The name of Finden is, perhaps, even better known to the world of art through his late brothers, William and Edward, eminent engravers, than in connection with the subject of our brief notice; nevertheless, Mr. Thomas Finden enjoyed a considerable practice; and, within the sphere of his action, we may enumerate the surveyorship to Messrs. Hoare's Brewery, the Craven and other estates. He had several pupils, including Mr. G. Mayhew, Mr. Snooke, and Mr. Mr. A. P. Ashton (the latter gentleman an able writer in this journal). Mr. Finden, who had attained his 77th year, was elected to the mastership of the Carpenters' Company, but died before he took his seat.

THE STAGE.—Miss Helen Faucit has been playing *Lady Macbeth*, in Edinburgh, most triumphantly, after a pause of eighteen months. On Tuesday she played *Pauline*; on Wednesday, *Lady Teazle*; Thursday, *Julia*; and this, Friday, will play *Rosalind*. Of some of these parts, the last, for instance, strange and sad to say, we have no other representative. The *furor* in Edinburgh about her is immense. Next week she will commence an engagement in Glasgow. What are the circumstances of the stage, or the influences, that prevent us from seeing in London this accomplished and excellent actress, now in the zenith of her powers? Our readers know the interest with which we regard the stage from the art point of view, and it is in this respect we allude to the want of a National Theatre where acting of the highest class could find a field, students of the art be developed, and the British drama be worthily fostered. We want a high school of dramatic art to some extent independent of the public.

DANGER OF BAD WRITING.—A writer, in describing a statue not long since, wrote in a slovenly hand that "there was no cloak or drapery." The printer made it "there was no closet or doorway!" The mem. may be useful to your correspondents.—A VICTIM.

ELECTRIC TELEGRAPH COMPANY.—At the half-yearly meeting of the Electric and International Telegraph Company, a dividend was declared for the past half-year of 3½ per cent., making a total of 7 per cent. for 1860. The receipts during that period showed an advance of 3,166l. over the corresponding six months of 1859. As to expenses, an augmentation has been occasioned by extensive decay in gutta percha and timber. Casualties have again occurred to the submarine cables; but, from experience and testing, the precise spot of failure can now, it is said, be at once discovered, and the repairs rapidly effected. The company have 6,541 miles of line, and 32,148 miles of wire, and the number of instruments is 3,352.

FATAL SEWER ACCIDENT IN THE CITY.—Four men have been suffocated in the Fleet-lane sewer, at or near its junction with the Fleet sewer, which latter runs through Farringdon-street. At the inquest held on the bodies, Mr. Haywood, the engineer and surveyor to the City Sewers Commission, was examined. In the course of his evidence he said:—"The western branch of the Fleet sewer, into which the Fleet-lane sewer discharges, is 12 feet high by 6 feet wide. Three of the men were found just at the junction of the Fleet-lane sewer with the Fleet sewer, a spot where there was no possibility of the accumulation of vapour to cause death or even annoyance. I can scarcely imagine a place in the whole mass of City sewers where there was less likelihood of such a calamity occurring. The sewer itself in Fleet-lane was amply ventilated. There are two ventilating shafts in the line of Fleet-lane, besides which it communicates with other sewers at a higher level, all of which have ventilating shafts into them; and, from the very extraordinary inclination of the Fleet-lane sewer itself, from 3 to 4 inches in 10 feet, or from 100 to 150 feet in a mile, there is no possibility of putrid matter lodging in it. The nearest point of ventilation in Fleet-lane to the spot where the men were found is about 240 feet distant, but there is a ventilator in the Fleet sewer itself within 30 or 40 feet of the junction with Fleet-lane. I can only guess at the cause of death. I think it might have been occasioned by the sudden discharge of chemical refuse of some description in the immediate vicinity, or—falling back upon facts which have occurred in our large main sewers at intervals within the last ten or fifteen years—I can imagine large quantities of gas refuse let off into the Fleet sewer. There are no gas-works which could flush off their refuse into the Fleet-lane sewer. 240 feet, he added, is not an extraordinary distance from an air shaft; on the contrary, if you take the average of the City sewers, you will find the distances between the air shafts much longer. The men were engaged in removing rubbish at the outlet, but that sewer does not require flushing, being so constructed as to keep itself pure. Last year an experiment was made by Dr. Letheby and myself, on a considerable scale, near the foot of Fleet-street, for purifying the sewers there by a chemical process, but that had not been carried on lately. One of the jurymen, living near the Fleet Ditch, bore witness to the horrible stench in his house a few days ago from the state of the sewers. The contractors' foreman who found three of the bodies, stated that he was nearly suffocated himself in searching for the men, and that there was a strong sulphurous smell in the sewer. According to the evidence of another person connected with the sewers, there was no smell or vapour in the after part of the day on the morning of which the men were killed. Mr. F. Wood, medical officer of St. Bartholomew's Hospital, stated that the last of the four men who was found drowned must have inhaled hydrogen, but he seemed to be of opinion that the others died from suffocation by carbonic acid gas. The lights, however, were not extinguished where the men were suffocated. Some dead rats were found near the outlet from Bear-alley. May not this fact indicate that the noxious vapours emanated from that alley, to which, therefore, the attention of the inspectors and others ought to be turned? Dr. Letheby has procured some of the gases from the sewer for analysis. One of the jury insisted, notwithstanding Mr. Haywood's evidence, that there appeared to be a deficiency of air shafts for ventilation in Fleet-lane. This sad event at all events shows how very important a thorough ventilation of sewers is.

PROPOSED MORGAN HOSPITAL, DUNDEE.—The Court of Session has given authority for the application of the sum of 79,138*l.* of Three per cent. Government annuities, from the estate of the late John Morgan, for the erection of a hospital in Dundee for the lodging, board, education, and clothing of 100 boys, the sons of persons belonging to the working classes, and whose parents are dead or in necessitous circumstances. Mr. Morgan's succession has been the subject of eight years' litigation in the Court of Session and House of Lords.

THE STREET RAILWAY MOVEMENT: BIRKENHEAD.—It is satisfactory to know that the street railway system at Birkenhead is becoming established in public approval. The cars are nearly always well filled, and even former opponents, it seems, acknowledge readily the comfort of riding by these conveyances. The principle of a double line of rails in one street has been found inconvenient, and one of the lines in Conway-street has been taken up; and in return the Street Railway Company are to be added an extension of their line from the principal park entrance to Palm-grove, in Cloughton. New curves are being laid down, with shallower grooves, and two new and improved cars for winter traffic have been placed on the line.

FALL OF A RAILWAY BRIDGE.—The brick-built bridge of three arches over the Ythan, near Ellon, has broken down, according to the *Montrose Review*. On the previous day some of the workmen observed the centre arch to have risen some inches in the top. A great number of people assembled to view the bridge, not thinking that it would give way so soon; when the whole arches, with the greater part of the piers, gave way, almost simultaneously. Fortunately, no one was hurt. The bridge consisted of three brick arches of 60 feet span each, and about 50 feet in height—the abutments and piers being of stone. The structure was finished about four months ago, and had exhibited no symptoms of anything being wrong. The accident is attributed to the slipping of the substratum on the south side of the river.

WEST OF ENGLAND AND SOUTH WALES DISTRICT BANK—CARDIFF.—The façade of the Branch office of the West of England and South Wales District Banking Company, opened last year, is of Bath stone, except the surbase, which is of Yorkshire stone. The building is constructed fireproof throughout, on Fox and Barrett's system. The banking-room is a fine apartment, 45 feet by 25 feet, and 19 feet high, with richly ornamented coved ceiling: there is provided, over the ground-floor, accommodation for the manager, consisting of drawing, dining, and breakfast rooms, together with eight bedrooms, and all necessary offices. On the basement story are repositories, cash-safes, and clerks' rooms. The office and repositories were heated by Messrs. Haden, of Trowbridge. The fittings of the office are of oak, and are highly ornamental. The total cost of the building was under 27,000*l.* The architect was Mr. T. R. Lysaght.

BROWN STAIN FOR WOOD-WORK.—A correspondent, under the signature of "One of the Browns," wrote us lately as follows:—"Your correspondent, 'S. W.' of 20th December, who is at a loss for an economical brown stain for woodwork, would find, in Condy's fluid (green), which sells at 5*s.* per gallon, a stain in every respect suited for the object he has in view. Its action is instantaneous, and its colouring matter fixes itself indelibly in the fibre of the wood, without any preparation or second application." Not being satisfied with this testimony of itself, we did not give insertion to it at the time. "One of the Browns," however, has since forwarded to us some of the fluid in question, which, in fact, is permanganate of potash; and, on putting it to the test, we find that it is capable of staining light wood of a brown tint, or rather of a series of brown tints, from very light to very dark, according to the quantity absorbed. Permanganate of potash is a very curious substance in many respects. Even in its mere physical aspect it has the singular property of changing to a variety of hues, from green to purple, and from purple to brown; and hence it has long been known as "the mineral chameleon." Schönbein, the discoverer of ozone, found it to be a direct and perfect ozonizer, or vehicle communicating ozone, as a cleansing and scavenging principle; and it is now used in Government and other hospitals, as a cleanser and deodorizer of wounds, and as a general sanitary agent. It is the same substance which Dr. Angus Smith converted into a test for the purity and impurity of the atmosphere, and which Miss Nightingale recommends for use in hospitals and dwellings for the same purpose.

PHOTOGRAPHED PORTRAIT GROUP.—Mr. Brothers, of St. Ann's-square, Manchester, has executed what must be considered a remarkable photograph. It is no less than 48 inches long by 21 inches broad, and represents forty-one of the officers of the 84th, now in quarters there. The group is exceedingly well arranged, free from stiffness; and an architectural background, with a couple of statues, give the work completeness. A great difficulty has been ably overcome.

VOLUNTEER PARADE GROUNDS AT LIVERPOOL.—A limited liability company has been formed in Liverpool, by the 4th Brigade Lancashire Artillery Volunteers, to provide a certain parade-ground in the immediate vicinity of the town, and to erect upon it a drill shed for 160 to 200 volunteers, at a cost of about 1,500*l.*, levelling, gas-fittings, and all included; and the dimensions of which will be 145 feet in length and 80 in breadth, an area allowing of three companies of 25 file each being drawn up in line, and afterwards marched past. The parade-ground is to be at Mount Vernon. The company also contemplates the erection of an armoury, dressing-room, kitchen, non-commissioned officers and officers' rooms, at the rear of the shed.

LONDON.—We learn from the daily papers that the foundation-stone of the building for the New Church Missionary House, in Salisbury-square, Fleet-street, London, was laid on Tuesday by the Earl of Chichester. The site of the new building is adjoining that of the old house in Salisbury-square, and it is proposed to raise a structure some 70 feet high, with a frontage of 61 feet, and a depth of 100 feet. The style will be Italian; the front, to the first-floor, will be built of the Portland stone taken from old Westminster-bridge, and the dressings of the upper portion will be of similar material.—The new wing in connection with the Charterhouse Schools, in the Elizabethan style of architecture, has just been opened. The additional structure has been built by Mr. Hesketh, architect, and will accommodate 200 additional children. The Rev. W. Rogers has done much for the education of his parishioners.

THE OXFORD ARCHITECTURAL AND HISTORICAL SOCIETY.—At the first meeting, Lent term, on February 5, after the list of names of members had been proposed, to be ballotted for at the next meeting, the attention of the society was called to the very beautiful collection of photographs which were being exhibited in London, belonging to the Architectural Photographic Association. The Rev. W. Shirley, M.A., Wadham College, then read a paper "On some Questions connected with the Chancellorship of Becket."

GLASGOW ARCHEOLOGICAL SOCIETY.—The usual monthly meeting of this society was held on Monday evening; Mr. Hart in the chair. The secretary having read the minutes of the previous meeting, and laid on the table several donations, Mr. Alexander Galloway read a "Memorandum as to Objects found in a small Tumulus on the Lands of Blochairn, opened 4th August, 1850," and presented the objects referred to to the society. Mr. A. D. Robertson then read a paper "On some of the Old Castles in the neighbourhood of Glasgow," in which he specially referred to the Mearns, Cathcart, Haggs, and Cruikston Castles, illustrating the subject by numerous plans, views, and drawings of details.

BRICKLAYERS' STRIKE, MANCHESTER.—The strike or lock-out, whichever it may be called, still continues. The men, we are told, attend twice a day at their "house of call," and receive 1*s.* each time. The Master Bricklayers' Association have issued a statement, including the following:—

"It has been the custom from time immemorial for all operative bricklayers to work from six o'clock in the morning till six in the evening during the summer months, and from daylight until dark during the winter months (except Monday mornings and Saturday evenings, for which special provision is made; and, after deducting meal hours from the above, it has been called a day's work."

This having been the undisputed custom for generations, the surprise of the masters may be imagined on finding that their men refused to start to any job in the outskirts of the city, or to commence work with certain prescribed boundaries, before seven o'clock in the morning, or to remain at their work later than 4.45 p.m.; and this without the least intimation being given to their employers. A meeting of the Master Bricklayers' Association having been called, it was unanimously resolved:—

"That on and after Monday, February 4, 1861, no bricklayer will be employed by this association unless he work in accordance with the rules of 1850, and that the prescribed boundaries, before seven o'clock in the morning, or otherwise they be paid by the hour, at the same rate of wages they now receive."

A copy of the above having been forwarded to the men, and to which no answer has yet been received, their employers felt it a duty to cease work till a proper understanding could be come to, as one intimation after another crept in, so as to leave the masters completely at the mercy of their men, who never ask until they are determined to have whatever they think fit."

SCHOOL OF ART FOR SUNDERLAND.—A meeting has been held at Bishopwearmouth, for the purpose of establishing a school of art in Sunderland. The mayor presided, and the meeting was addressed by the chairman, Mr. Wyld, the Government inspector, and others. It was ultimately agreed to establish a school in the borough, and a subscription list was opened.

THE FINE ARTS IN LIVERPOOL.—Measures are now being taken, according to the *Albion*, to unite the two Liverpool fine art societies; and our informant expresses himself happy that such a settlement of difficulties is in prospect, as the town cannot support two academies; and the gentlemen on both sides, he thinks, should have little difficulty in concerting really practical measures, upon sound principles, for the establishment of a popular and permanent art institution in the town.

NEW BARRACKS, CHATHAM.—The plans and specifications for the additional barracks which are to be erected for officers and men of the Royal Marines Light Infantry have been prepared by Colonel Greene, I.E., director of the Admiralty engineering works. The proposed new buildings will afford accommodation for 500 officers and men, and will be erected adjoining the present barracks. The estimated expense is about 60,000*l.*

NEW CORN EXCHANGE, BURY ST. EDMUND'S.—We mentioned the award of the first premium last week. In respect of this competition, it appears that between 20 and 30 sets of drawings were received by the town-clerk, from, amongst others, Mr. Garter, Mr. H. A. Darbishire, Messrs. Bacon and Bell, Messrs. Ellis and Woodard, Messrs. Randall and Stop, Mr. Chancellor, Mr. Moyer, and Mr. F. Bareham, of London; Mr. Clark, of Bath; Mr. Dain, of Burslem; Messrs. Thomas D. Barry, Goodwin, and Butcher, Mr. R. M. Phipson, Messrs. Benest and Newson, and Mr. John D. Ellis. The second premium was awarded to Mr. John D. Ellis, of Norwich.

TENDERS

For the erection of Parsonage House, Cantley, Norfolk, for Mr. W. Gilbert. Mr. J. H. Brown, architect, Norwich. Quantities supplied:—

Spain	£2,030 0 0
Worman	1,642 0 0
Lacey	1,028 0 0
Payson	1,614 10 0
Norfor	1,573 0 0

For a house, to be built in the Clapham-road, Wandsworth-common, for Mr. G. H. Swonell. Mr. G. H. Page, architect.

Asbury & Sons	£1,670 0 0
Asbury & Horner	1,635 0 0
Wilson	1,614 0 0
J. & C. Todd	1,568 0 0
Nutley	1,494 0 0
Langtree	1,463 0 0
Bass	1,395 0 0

For taking up the present carriage-way paving in Gray's-in-lane (from King's-road to the boundary of the district) and repaving with new Mount Sorrel cubes. Mr. Lewis H. Isaacs, C.E., surveyor to the Board:—

Aspinall	£1,325 0 0
Booth	1,517 0 0
Salles	1,487 0 0
Mowlem & Co.	1,467 0 0
Sevell (accepted)	1,430 0 0

For building Smith's St. Paul's Hotel and workhouses in Newgate-street and King Edward-street, City, exclusive of chimney-pieces, stoves, cooking apparatus, and fittings. Mr. George Grayson, architect. Quantities supplied by Mr. Morris Evans:—

Brown & Robinson	£14,160 0 0
Lavrence & Sons	14,065 0 0
Bowley	14,000 0 0
Mansfield & Son	13,850 0 0
Fyers	12,950 0 0
Mish	12,450 0 0

For alterations and additions to premises Nos. 55 and 56a, Wood-street, City, for Mr. Abraham Shore. Messrs. Tiltot & Chamberlain, architects. Quantities supplied:—

Hill	£3,927 0 0
Turner & Sons	3,679 0 0
Browne & Robinson	3,657 0 0
Cannon	3,100 0 0
Asbury & Sons	3,095 0 0
Rider	3,040 0 0
Heath	3,060 0 0
Wills (accepted)	2,987 0 0

TO CORRESPONDENTS.

But first, is PAPER-SIR, Can any of your readers inform us how to prevent print blisters on wall-papers exposed to the rays of the sun?—W. H.

J. W. R. should look to previous volume of the *Builder*. B.—J. M. must give information before we can notice; simple assertion is unsatisfactory.—A Subscriber.—W. J.—H. T.—J. H.—B.—J. F.—C. H.—S.—J. H. (we know of none such).—C. G.—F. J. (thanks).—F. G. T.—T. D.—B.—Platitudes.—B. E. M. (anonymous).—F. H. G.—C. C. T. G. (York).—S. R.—C. D.—T. H.—L.—J. D. (shall appear).—E. B. D. (ditto).—T. D.—A. O.—T. G.—O. R. B. A.—A. W. F. F.—* (a letter will be posted Friday).

Post-office Orders and Remittances should be made payable to Mr. Morris R. Coleman.

The Builder.

VOL. XIX.—No. 942.

Aspect of our Towns: Stafford.

THE first impression which a traveller now receives of a town is that imparted to him by the railway station and its accommodations. A large well-ordered station suggests the thriving town: confusion and scanty accommodation indicate the stagnant second-rate county borough: in other words, the station of a county town gives to the modern traveller the same clue to its wealth and importance that passengers by stage-coaches, a few years since, found in the style of the principal inn. Now the impressions imparted by the Stafford station are very unsatisfactory. It is a central junction station,

where trains dash up from different quarters, in rapid succession, involving a great accumulation of luggage, and a constantly changing crowd of passengers. No less than three expresses, besides a slow train, arrive and depart in one short hour, at mid-day, all going the same way. To meet the exigencies of this extent of traffic suitable accommodation should be provided; but we find little better than that afforded at an unimportant roadside station. In the first place, the station is uncovered; and the roofs over the platforms do not protect them sufficiently from the weather: consequently every passenger who alights in rainy seasons steps into a rivulet. In the second place, horses are required to move the carriages about, and the space being so limited, as it is, they are obliged to come upon the narrow and crowded platforms,—an invasion which, although the docile animals may be as highly trained as Astley's steeds, occasions considerable terror and confusion to timid passengers. The traffic appears to have overgrown the provisions for it to a dangerous extent.

Crossing the river Sow by a new foot-bridge, on our road to the town, we pass another suggestion, that we are in a land to which modern progress has not as yet laid siege—a large old-fashioned water-mill, with the snug mansion and neat grounds of the miller close at hand. We next thread a mean district of poor houses, whose floors are 4 or 5 feet below the level of the river, which flows past them. Numerous large out-privies indicate that, in addition to the damp deposited and percolating from the river, other evils are in full operation.

In keeping with the depressing train of reflections induced by the condition of this neighbourhood, is the first sight of a decayed group of domestic Jacobean buildings, that we find to be the twelve almshouses built by Sir Isaac Noel, in 1640, "as a shelter for some of our aged necessitous poor, with a garden; and who gave 30*l.*, and twenty Bibles to the poor, with one Church Bible and eight folios." These buildings form three sides of a quadrangle, having for a centre a chapel,

and in the two angles quaint and cunning doorways, the whole being picturesque, with mullioned windows, diamond quarry lattices and dormers, and ogee and pointed gables. The nearer we approach the more evident become the signs of ruinous dilapidation. The roofs are bent in; the tiles are loose and falling off; the modern brick chimneys are insecure, besides being a vulgar contrast to the lichen covered stone-work of the rest of the building; weeds are springing up in unwanted places; and the general aspect is that of a haunted house. Mrs. Ratcliffe would have assigned it at least three ghosts. Here, notwithstanding, are lodged several poor persons, who receive from the charity weekly sums, now dwindled down to amounts varying from 7*d.* to 1*s.* We linger to chat with one of the inmates, a withered, spectral, tall, trembling old man,—fit tenant for such a neglected tenement—and learn that besides this small stipend there is a plot of garden ground attached to each dwelling, which would be serviceable indeed if the scanty means at their disposal could procure the necessary manure to refertilize the ground. Much we marvel that in this age of antiquarian societies and appreciation of architecture, as well as of charitable feeling, so favourable a specimen of the Domestic architecture of the early part of the seventeenth century should be thus suffered to decay: so little, too, seeming to be required to rescue this pleasant relic of olden charity from the destruction that apparently awaits it. The rooms are large; and the masonry is as perfect and expressive as when the eyes of the good Sir Isaac or of his executors first surveyed it. We lift the latch that should admit us to the chapel; but find, from the wailing voice that cravily invites us to enter, that it has been converted into a dwelling. The voice, that of a starved woman, corroborates all that we have heard;—that the chapel is not maintained, the weekly pittance scarcely keeps body and soul together, and that the winds and rain make free to bring with them rheumatism for a fellow inmate. We ask concerning the commissioners appointed to inquire into the management of charitable trusts, and are told that they have visited Sir Isaac Noel's charity, but without any improvement resulting to its condition, or any augmentation of the weekly dole. This brings to mind the case of the Almshouse of Noble Poverty, the Hospital of St. Cross at Winchester, on which Sir John Romilly decided that, notwithstanding the lapse of a hundred and fifty years since the departure from the original terms of the trust, moneys received must be accounted for, and the buildings kept in a state of repair; whence we hope that it is not too late to put in a plea for the preservation of these Jacobean Almshouses. The race of Sir John Noel may have ceased on earth, but there are as good men and true still to be found. Could a more graceful or grateful tribute be paid to his memory by the town he loved and benefited than a reverent care of his valuable and useful bequest? Surely, in this rich neighbourhood, bounded on one side by the iron yielding district, and on the other by the art-fostering and wealth-giving potteries, there must be men with charity in their hearts, and power in their hands, who would be proud to associate their names with so good a work. Made prim, and neat, and green, and sunny, by a judicious application of the overflowing of a good man's purse—the inmates rejoiced and fattened with the crumbs from a rich man's table,—what a pleasant nook it would be for him, the rich man, to remember on a sick couch.

Stafford is particularly fortunate in its indigenous building materials: the red bricks and cream-coloured bricks, and the profusion and cheapness of the variegated tiles, permit the effective grouping of colours, and give the means of producing very pleasing results. We see a new Baptist chapel and schoolroom, which, by the simple and appropriate adjustment of red and black bricks in the rims of the window arches,

would be satisfactory to the eye, but for the omission of a bell-turret (to indicate the ecclesiastical nature of the building), and the necessary unsightly substitution of a notice-board, with "Baptist Chapel and School" inscribed thereon. Cheery in every direction are the red tiles, with their setting of green fields and hills, after the long ride through the dingy smoke-hued country in the manufacturing districts.

In the Noah's Ark Inn we find another Jacobean building, well worthy of preservation. But this really magnificent remain of manor-house architecture appears to be neglected and despised: condemned, perhaps, because it is old and old-fashioned; or because the rooms are gloomy, with the myriad small square panes of bad glass in leaden frames, with which the window-openings are filled. The large, many mullioned, and transomed bow-window openings, offer every facility for the insertion of sheets of glass,—a simple expedient which, without destroying a feature of the architecture, would render the interior light and gladsome. So convenient in its neighbourhood to the church, what a delightful and appropriate rectory-house it would make! Too often these fine old buildings, from being patched with modern tasteless additions, get comparatively worthless, and afterwards ridiculed by some anomalous *sobriquet* as "Noah's Ark;" but in this instance there is little to remove, and with the exception of roofs and chimneys, but little restoration needful.

Like her neighbour, Wolverhampton, Stafford adorns her market-place with a Russian cannon; not, however, mounted or guarded by railings, but having rather the appearance of being left till called for. Its isolation and unprotected condition are in some degree modified by the contiguity of the police station-house, which, like the county-hall,—a square building, with square doors, square windows, and square everything, of the Adam's style of the last century,—is situated in the market-place. The scale upon which police stations are now built in country towns is a noticeable feature of these latter days. Time was when the lock-up, or "Kitty," as they have it in the north, was a mere cage. The present structure in some towns might be a "Palais de Justice." That at Stafford, occupying the next best site in the town to the county-hall, is no exception to this new rule. The market-place is paved with kidney pebbles, laid down with a precision rivaling that of the small square blocks in the streets and roads of modern Rome. The effect of the extreme regularity is almost oppressive, from the idea of the never ceasing repairs which it suggests; and the pebbles, being in semi-relief, afford, like the Birmingham streets, painful and toilsome walking. The fact of the market-place being pebble-paved is not so objectionable, if the streets were not paved to match, with bricks for curb, which are invariably more or less loose. On looking round the market square, and down the two main streets that slope away from it, at the Queen Anne-ish houses, with here and there an overhanging gable or a dormer intermixed with them, there is not the least indication that the inhabitants have heard of the now general application of sheet or plate glass to dwelling-houses, nearly all the windows being filled with the small panes and wide prison-like bars of bygone days.

There are two ancient churches in Stafford; with this difference between them: on one has been lavished decorations of the choicest description; whilst the other has, apparently, with the exception of the chancel, rarely occupied a thought or care. St. Mary's, formerly a collegiate church, has an elegant and peculiarly shaped octagon tower, with pinnacles at the angles, which, rising above the neighbouring house-tops, guides the stranger to its portals. It was originally a cruciform building, of an early and severe Transitional character, having subsequently been provided with a clerestory and additional height to the tower, in the Perpendicular period. The interior of the building is in beautiful order; the wood-

work in the stalls, pews, and pulpit, rich in design and execution; the risers to the eight steps leading from the nave to the sanctuary, the pavements, and the credos are profusely enriched with encaustic tiles. Rich effects are also yielded by the abundance of stained glass;—concerning which, we must regret the too sparing use of white, as tending, as in the Ripon glass, and elsewhere, to give gloom instead of light. The long lancets in the south transept, the five-light east and west windows, with geometrical tracery, are noticeable instances of this want of relief and light as furnished by a judicious use of good sparkling white glass. We mention this, because there is an opportunity on the other side of the church to remedy this defect—where the large plain glass lights intensify the effect of the utter absence of white in those described. The clerestory windows present the same obscurity, nullifying, in some measure, the view we ought to obtain of the very clever decorations in the spandrels between the beautiful acutely-pointed arches beneath them, which divide the nave from the aisle. It is in the sacristy of this church that we observed the record of Sir Isaac Noel's pious gifts. We must note, too, the crowded state of the churchyard, which is literally packed with tombstones, and shows evidence beyond a doubt of the necessity of the extramural Act. A peal of fine old bells, one of the precious rarities of our bellfries that we cannot too highly prize, exists in the tower here, and from which a beautiful chime floats as we move away.

The Norman church of St. Chad would appear to be hidden under a bushel, so difficult is it to find it. It certainly possesses a most unenviable site, being surrounded on four sides by back premises, back yards, and backs of houses. It appears to have been a Norman erection to which a tower was added in the Perpendicular period. The ancient walls have been cased with brick, through which the original windows here and there protrude. The tower, presenting features of great archaeological interest, having an unusually pretty panelled and banded parapet, is frayed, and mouldering away.

A handsome set of school-buildings and masters' residences have been recently built near St. Mary's Church, forming, like the almshouses, whose cause we have pleaded, three sides of a square. The style adopted is Early Domestic Gothic. The only adverse remark we have to make is condemnatory of the too frequent repetition of one idea in the cusped window-heads, all of which are precisely of the same stereotyped form. The stonework of the building is artistically diversified between the quoins and rubble; and the roofs are picturesquely and substantially formed.

Stafford is comparatively free from the evil of overcrowding. Would that every poor man in a town had as pleasant a home as those in Eastgate, a wide street of small houses of one story, with gabled dormers to the attics, made into a sort of miniature "Champs Elysées," with a sprinkling of trees! But the same praise is not due in the matter of sewerage. A drainage system is in partial operation; but cesspools still prevail to an odiferous extent; and we have already mentioned a district laid out on the bank of the river with such utter ignorance of the laws of sanitary science as to be several feet below the water's shining level. It has other black spots; but we pass them by just now.

The staple manufacture of this ancient town is that of boots and shoes—with which, we presume, the Crispin Inn has some appropriate associations. Tanning is also carried on; and we must not omit to mention, Stafford, that "thou brew'st good ale."

WEDGWOOD MEMORIAL COMPETITION.—The honorary secretary, Mr. W. Woodall, has sent us a reply to the protest in our last signed "*Jus supra vim*," but as it leaves the facts complained of where they were, and we have an immense pressure on our space, we are forced to omit it.

SOME OBSERVATIONS IN EGYPT.

THE subjects on which Professor Donaldson addressed the Institute of Architects on Monday evening last, as elsewhere stated, were Mons. Mariette's Excavations at Ghizeh and Saccara; the Domestic Architecture of the Ancient Egyptians as existing among the present Arabs; and the Catacombs at Alexandria, recently discovered. He commenced by stating that he would treat his subject in the light of a traveller's sketch, and describe as graphically as he was able a two days' excursion from Cairo to Ghizeh and Saccara. It would be necessary, however, that he should state at the outset that, having visited Egypt by direction of the Government upon a more serious subject, he had merely employed his few days of leisure to visit some of the ancient monuments of which he had read so much, which he had written upon, and which he had thought about for years. Many of those who heard him, who had not visited Egypt, were not perhaps aware that a donkey was a very useful animal in the East, and that the Egyptian donkeys upon which he rode were very superior of their sort, inasmuch as they were intelligent and docile, and took care of their riders, which latter was no small recommendation. They ambled away at the rate of five miles an hour, and he had often been in the saddle upon one of them for ten hours without being weary; which was more than he could have said had his quadruped been a horse. The mode of travelling in Egypt was to start at an early hour in the morning, between seven and eight o'clock. The custom was to hire a dragoman, who provided food for a day or two, according to the length of the proposed excursion, and some wax candles to be used in exploring the ruins. Equipped in this manner he started for old Cairo, which lies about a league distant from the modern city of that name. The way led by an avenue of trees planted by the late pasha. The present viceroy disapproved of trees, and cuts them down in all directions. Passing old Cairo the traveller reaches the plain, and crossing the Nile observes the hydrometer used for measuring the rise and fall of the river, and the village of Ghizeh. He then leaves the boat (in which his donkey has been accommodated) and passes through various Arab villages, groves of dates, and fragrant gardens. The Pyramids are then observed looming in the distance, paramount over all other objects. As the traveller advances their huge proportions develop themselves at every step, while other objects become, as it were, dwarfed. The Pyramids stand upon a plateau or rising ground, and in the neighbourhood can be distinctly traced the limits to which the Nile is accustomed to rise and spread its fertilizing influence. To the left of the Pyramids was the Sphinx, half-buried in the sand of the desert. The Pyramids (the largest of which is 480 feet in height), can be seen, in the clear pure air of the desert, at a distance of five-and-twenty miles. Once seen, the Pyramids never can be forgotten: one feels that an epoch has arrived in life, and the time of the Pharaohs and the history of the Bible all rush to the mind. The travellers in the railway carriages (for there is a railway in the desert) all exclaim, "the Pyramids! the Pyramids!" and your hearer flutters as you gaze upon the monuments of an age long buried in the mists of obscurity, but around which there hangs an undying interest. At first two Pyramids alone are seen, but as you draw nearer the third becomes visible. The Arab villages are scattered to the right and left of the plateau; and when you reach the nearest of them the sheik, or chief, tells off a certain number of the men to act as your guides. For this service your dragoman pays him, and the guides are supposed to charge nothing more. The delight of a stranger is, however, so great, his sensations are so completely new, and the Arabs pull him and lift him along so heartily, that he gets up to the top of the great Pyramid in a quarter of an hour, amid exhilarating cries of "A la, la, backish—very good;" and of course the money in his pocket melts away as it the sheik had not received anything on their behalf. The great Sphinx stands at a little distance. It is carved out of the solid rock; and though its paws and hinder legs are covered with sand, it is still a noble object, and one which the traveller cannot readily forget.

Professor Donaldson then proceeded to give a description of the excavations carried on at Ghizeh, under the direction of M. Mariette, of which we are able to adopt his own words:—
M. Mariette, so well known for his researches among the antiquities of Egypt, has for some years conducted excavations for his Eminence, Said Pasha, the viceroy, and has had the control of all the antiquities of this country. No diggings

are allowed without a permission granted through him. None of the Fellahs can sell the smallest object under pain of a severe punishment, extending, it is said by the Bedouin Arabs themselves, to death if any article be offered for sale without having been first brought to M. Mariette to buy it, if he choose, for the Pasha's collection. He is now carrying on excavations at the Ghizeh platform, Saccara, and Thebes, where gangs of Arabs are at work under the direction of their sheiks, with the slightest tool, and even with their hands, casting the sand, the dirt, and rubbish into small baskets, carrying it out of the trench, and depositing it at a short distance clear of the spot. This is a forced labour; each village in turn being obliged, as for other public works, to furnish and maintain its contingent without remuneration from the government. I observed that there were few grown-up people, the mass consisting of young boys and girls, who appeared very merry at their work, one or two of them singing a kind of couplet constantly repeating the same words, the rest joining in chorus at the end. M. Mariette is very stringent with respect to any strangers taking memoranda, sketches, or dimensions; and it was, as it were, only by stealth, and as though I were doing something else, to avoid observation, that I could put together a few notes of what I saw. In the illustrations, therefore, that accompany my remarks, these difficulties must be borne in mind; and, except when I give positive dimensions, very precise accuracy must not be expected. It is to be regretted that M. Mariette does not supersede such imperfect data by himself giving accurate descriptions of his most important discoveries. He has full knowledge of his subject, aptitude and felicity in knowing where to direct his researches, and great success has attended his labours; for the collection in the museum at Boulak contains many objects of the highest value, particularly those found in the tombs. He ought himself to reap the full benefit and credit of his investigations. But his delays are unjust to himself and injurious to the study of Egyptian archaeology; and he must not feel either displeased or surprised that a passing traveller, like myself, should seek to make known to his colleagues, however imperfectly, some of the discoveries brought to light from time to time, and in which all Europe feel interested.

I regret that I had not the advantage of seeing M. Mariette while I was at Cairo. I called twice upon him at Boulak. He was out both times: the first, he had gone to Ghizeh with M. Lesepes; the second time, he had just started on the Nile to pay a visit of inspection to the operations carrying on at Thebes.

TOMB NEAR THE GREAT SPHINX.

M. Mariette has for some years past been engaged in excavating a tomb upon the Ghizeh platform, within 100 yards of the Sphinx. This tomb, like that of Campbell, is sunk in the solid rock, out of which it has been excavated, 30 or 40 feet deep. It assumes very much the form of a church, with a central aisle, and an aisle on each side, separated by square pillars, with a transept at one end, having a central line of pillars. There is a wide door at the end, leading into a kind of vestibule parallel with the transept, nearly as long, but only half as wide. In the vestibule there is a well of considerable depth, with water in it from the Nile. At each end of this vestibule are doorways, one leading into a gallery still filled with sand, the other into a wide passage running at right angles to it, the end also blocked up with sand. I should state, that the whole of these parts have no roofing now, and are open to the sky. From the transept there are openings: that on the one side leads into three cells parallel with the aisles I have just described: they are about 10 feet high; and over them was a much larger chamber. The opening from the other end of the transept leads into a narrow passage, also running parallel with the nave and side aisles, rising in an inclined direction, and being apparently the passage of entrance. On one side of this passage, in the thickness of the rock between the passage and side aisle, is a chamber; on the other side of the passage an inclined passage, leading to an upper story, probably over the entrance-passage and the chamber last noticed. The inclined passage is lined half its height with large blocks of granite, the other, or upper half, and the ceiling, are lined with slabs of Egyptian alabaster, 12 inches to 15 inches thick. A specimen of this alabaster I brought away with me.

The piers dividing the nave and aisles are monoliths, 4 feet 9 inches by 3 feet 4 inches wide,

and 14 feet high, upon which rested longitudinal beams or architraves, about 3 feet high: very probably on these rested the transverse beams, forming the roof or ceiling. The walls were lined with blocks of granite of different tints, some of deep red, others approaching to grey. I measured some of these as memoranda of the gigantic character of their construction,—15 feet long by 5 feet high; 11 feet long by 3 feet 6 inches by 5 feet, and others 3 feet 4 inches square on the face.

The blocks in the angles had no joints there, but returned on the other face 2 inches or 3 inches, of course alternately breaking joint with the blocks above and below. This must necessarily have caused great waste of material and considerable additional labour. In the upper part, near the surface, I perceived some constructed walling formed of huge blocks of the rock itself, laid in regular courses. As I did not meet with M. Mariette at Cairo, I was unable to ascertain what had been found in this tomb; if any sarcophagus had been discovered; and the nature of any other particulars brought to light.

Before quitting the platform of the Pyramids I will venture to mention two or three other points with which I was struck. In front of the smallest of the three great Pyramids there was originally a considerable court, with a dromos or avenue which led up to it. The walls are thick, and consist of blocks of the full depth of 6 feet, and in courses 6 feet high. I measured, as the average length, blocks 16 feet 11 inches, 16 feet 9 inches, 16 feet 6 inches, and 11 feet 5 inches long.

When the bases of the Pyramids were clear of the sand, *débris*, and blocks, which now encumber them, they must have had large platforms, the rock having been cut away to form the level; consequently, at 100 or 150 feet behind the Pyramids, to the west, the face of the rock gave a perpendicular height of 10 or 15 feet. In the body of the rock toms were cut having doorways opening upon the platform.

I found, on the lower part of the third Pyramid, courses of red granite, several blocks remaining in their original position, and having the appearance of bossed blocks, 3 feet 8 inches high, 3 feet 6 inches deep from front to rear on the upper bed, and from 2 feet 10 inches to 4 feet wide: they were wedge-shaped in plan, so as to form a key; and there was a curious angle-shaped channel on the face of some of the blocks lying about. The second Pyramid was faced with a granite revetment in the same manner as the first.

Of the once renowned Memphis, the great city of ancient Egypt which Alexander styled the gate of Egypt,—for whoever had possession of it could command the whole country,—there was not a trace left, save a gigantic statue, which lay half buried in a hole, from which the water of the Nile had not receded. All its magnificent buildings, its propylæa, its temples, had disappeared, and not a wreck remained to tell of its grandeur and its might. He was at a loss to account for this circumstance, save on the supposition that, as it was built so near the Nile, the Egyptians, from time to time, carried away its materials to erect temples in other places. The memorials of the dead alone remained to indicate the site. Long successions of pyramids occupied the Libyan range, and attested the magnificence of the mode of sepulture among the ancient Egyptians. The ruins of Saccara were distant from this place about three or four hours' journey. You pass a lake, and reach a mound, and behold a monument made of blocks. Another lake is then encountered, abounding with wild duck, snipe, and other aquatic birds, which furnish fair sport to the fowler. Fragments of mummies and of bones are strewn about for miles of the way.—He arrived at Saccara in the evening, and, yielding to the representations of his dragoman, deferred his visit to the ruins until morning. Rising very early, he proceeded before dawn to explore the ruins.

SERAPEION OF MEMPHIS.

The Bedouin village of Saccara is in a direct line, about a mile or a mile and a half to the west, from the site of Memphis. Up above the village, on the Libyan range of hills, are several pyramids, with an immense quantity of tombs, proving that this must have been the principal cemetery of ancient Memphis. The pyramids are crumbling away, still however retaining gigantic proportions: the numerous mounds by which they are surrounded indicate constructions beneath, or the excavations of Arabs or travellers in search of antiquities; and for miles the surface of the sands, which have accumulated to the height of tens of feet above the rocky level, are strewn with fragments of mummies, blanched bones, and other

worthless fruits of the diggings of the curious, inspiring feelings of horror and disgust at the ruthless spoliation of these resting-places of the dead.

Strabo mentions, as at Memphis, of which this plateau must have been considered to have formed a suburb or part, "a temple of Serapis in a spot," he says, "so sandy that the winds fill it up;" and in it he saw sphinxes embedded—some half way, others up to the head. It would therefore appear that, in ancient times, the same agencies existed; and it could have been by constant attention alone that the areas and dromoi of the temples could have been kept free from the accumulation of sand. Monsieur Mariette had seen a dozen sphinxes at Alexandria, and many at Cairo, brought from this part, and felt convinced that in this locality must exist the burial-place of Apis, or Serapeion, alluded to by ancient authors. He was engaged in his researches four years through the sand, in many parts 80 feet deep, and discovered the dromos or sacred avenue leading from the Serapeion of the Grecian times to that of the old Egyptian dynasties. The memories connected with the god Apis were very peculiar. He was a white bull marked with black spots: great care was used in the selection of the individual animal, that he might fulfil all the conditions required by traditional usage. He was kept in his sanctuary with scrupulous devotion, and not allowed to have food of too nourishing a quality, lest he should become too fat. He was occasionally, but rarely, brought out and exhibited to the worshippers. He was not allowed to live beyond twenty-five years: arrived at that period, he was slain, and his successor selected. They usually died at an earlier age. One is recorded whose death occurred when he was seventeen years, six months, and five days old. It is said that 20,000*l.* were expended for funeral rites, which were of the most sumptuous character.

The Serapeion which I visited had its connection with the Temple of Apis, and is situate on the slope of the hill, about two miles to the north of the Great Pyramid, and the descent to the present entrance is to the depth of some 30 feet or so below the general surface of the sand. We first passed along a narrow gallery about 48 paces long, then turned to the left some 25 paces, which led into the main gallery, 4 paces wide, and perhaps 15 or 18 feet high. The whole excavation is in the natural rock, which consists of a soft, pliable grey stone, like indurated clay, with seams of striated or fibrous alabaster, from $\frac{1}{4}$ inch to 1 inch deep, and about 12 or 15 inches apart. The roofing of this gallery is semicircular in form, but the sides up to the springing of the circle are laid with soft Thorah stone, in courses 14 inches high and 18 inches thick. Turning to the right down this wide gallery, sepulchral chambers present themselves on each side. Nothing can be more imposing. In the dark gloom of the excavations, lighted only by the glimmering flare of a wax candle or two, or by a few pieces of burning resinous wood producing a doubtful gleam, these mortuary chapels, on a lower level than the gallery, and into which the eye intently gazed to catch sight of whatever might be within, presented a gigantic sarcophagus in the centre, 11 feet high, 12 feet 9 inches long by 7 feet 8 inches wide. Such, at least, was the size of the one I measured, although Monsieur Mariette records others from 15 to 18 feet long, and 18 feet high. These enormous proportions have a very impressive effect. They are of porphyry, grey and rose granite, and basalt. The body of the one I drew was 7 feet 8 inches high, hollowed out to receive the mummy and case, the sides and ends being left from 1 foot 2 inches to 1 foot 5 inches thick. The lid was 3 feet 1 inch high, splayed off at the top with a level upper surface, 4 feet 10 $\frac{1}{2}$ inches wide. Each sarcophagus, without the lid, must have weighed thirty tons. Let us consider for a moment the labour employed to disengage such a mass from the quarry, to transport it several hundreds of miles from the upper country, to carry it from the Nile up to the level on the side of the hill, and then to convey it along the galleries and to raise and lower it into its permanent position. One of the sarcophagi in the rough still remains near the main entrance, as though in course of preparation for the mummy of the Creature God. The floor of these lateral chambers was 3 feet 9 inches lower than that of the main gallery, and the bottom of the sarcophagus was sunk some 3 feet 6 inches below that. The chambers varied in size, and were lined with courses of Thorah stone up to the springing of the vaulted ceiling, like the main gallery. One sepulchral chapel I measured was 25 feet 6 inches from front to rear, by 16 feet wide in the clear

between the masonry: others measured between the rock 25 feet 8 inches, by 12 feet, thus varying in size. There are only three which have hieroglyphics. Those of the one I particularly examined were not deeply chased, but rather thinly incised, almost in mere lines, as it were, on the outside surface, and very few characters. For myself, I did not find any hieroglyphics on the other sarcophagi that I examined. I saw twenty-five of these chambers, beyond which the galleries are encumbered by *débris*; but there are further continuations examined by M. Mariette, and I doubt not others are still concealed from view, but probably containing other like stupendous sarcophagi.

M. Mariette discovered these subterranean deposits of the dead in 1851, and found forty chambers. One of these sepulchral chapels remained intact, just as it had been closed in the reign of Rameses II., some 3,700 years since, and containing still the statuettes, vases, and trinkets usually deposited with the bodies, but of which the other chambers had been despoiled. Many votive tablets exist, some inscribed with the names of Darius and of Cambyses, the latter of whom profanely wounded one of the sacred heifers, which, however, an inscription proves to have survived some years after that event. I found a rudely-carved figure of a couchant lion in stone on one of the sarcophagi, 4 feet 8 inches long, and 1 foot 10 inches high, as shown on the drawing.

ON FELLAH ARAB ARCHITECTURE IN EGYPT.

It will be remembered that, when Champollion and the other investigators of the hieroglyphic inscription on the famous Rosetta stone had their inquiries so materially aided by the Greek translation of the edict on that trilingual slab, they had still to find the elements of a language embodied in the hieroglyphic and demotic character, so as to afford a clue to the hidden meaning. With much ingenuity, reference was made to the tongue of the people who had constantly inhabited the country, and among whom tradition might still have retained the like language. Success attended this reference to the Coptic, which was found to contain the key of the ancient Egyptian language. As I was travelling in Lower Egypt, I was struck with the fact that almost all the villages are built on artificial mounds, rising from 20 feet to even 100 feet and more above the general flat and level of the natural soil. These mounds abound in the neighbourhood of Alexandria and Cairo, and in the valley of the Nile; and, in fact, throughout the region of Lower Egypt; consisting of accumulations of the Nile mud, mixed up with large quantities of fragments of pottery. If for any reason portions are cut through or removed, all sorts of antiquities—as, for instance, bronzes, terra-cottas, scarabei, and even tombs with mummies,—are occasionally found, as also sarcophagi. At length I found them to be the sites of ancient towns and villages of the remotest periods of known history—the accumulations of a succession of generations, which had had their frail tenements built one over the other, thus raising the mass still higher. They were thus more and more above the influence of the annual risings of the Nile waters, and protected from ravages that were caused thereby; and the more healthy, as they were higher above the occasional miasma arising from the vegetable decomposition, the natural result of the stagnation of the waters, until the Nile retired within the limits of its natural bed.

Having to go to Ras-el-Wadi, in the valley of Goshen, I saw the grand and extensive mound of Bubastis, of high note in ancient times, and situate near Zagazik: it rose from the plain like the mounds of Nineveh, Nimrud, and other Assyrian cities, described by Layard, and with which these Egyptian mounds have a remarkable analogy. I was detained for some hours on two occasions at Benha El Assal, on the Damietta branch of the Nile, close to the mound of the ancient Athribis, where a friend of mine has found a great variety of antiquities. I was struck with the rude form of the mud-built huts and houses of the Fellah, or people of the country. The walls consisted of sun-dried bricks, of a dusky brown colour; the faces inclined backwards, like the ancient Egyptian temples: flat terraces formed the roofs, on which the Arabs stow their fuel, and perform many of their domestic operations. The apertures for light or air are of rare occurrence, and small; seldom appear on the outside, and are more generally next the court to ensure privacy and shade. While I was detained at the railway station of Benha, I made a point of thoroughly examining its adjoining village, and calling to mind the representations of domestic buildings, which we have upon

the hieroglyphs and frescoes of antique Egyptian monuments, and as given by Sir Gardner Wilkinson, Champollion, Rosellini, Lepsius, and in the work of L'Egypte, I recognized the analogy at once between ancient and modern usages, and found that the buildings, like the language of the people, are a tradition of bygone times of remote antiquity,—and that the one explained the other, like the modern cottages of Lycia, which present the same features of timber construction as the tombs of Zanthus, carved 2,000 years ago. The bricks are nearly about the same size as ours, they are simply made of the Nile mud by boys, who perform all the operation, assisted by girls and other boys, who carry the material to the modeller, each of whom makes 900 per diem in winter, and 1,200 in summer. They are placed with two courses of stretchers to one of headers. The wider openings have timber lintels of the date wood. To produce an ornamental appearance, they lay a line of bricks herring-bone fashion, so as to present a sharp edge on the face. At others, every alternate header recedes from the face for 3 inches. They have tile-formed bricks, about 12 inches long by some 2 inches thick, to form pointed tops to small apertures, or ranged in a row, to give a zig-zag appearance. Vertical channels are sometimes introduced, like those in the face of the ancient propylæa, for the banner-masts, and they are formed either by receding bricks, one over the other, or by vertical bricks placed edge on, one over the other. But I need not minutely enter into further details, which are so much more perspicuously shown on the drawings. Over the doorway I observed that they always had a bit of crockery, as a plate, inserted into the face of the brickwork: one of those I saw was a plate or dish with the willow pattern on it. Frequently the doors are painted in brilliant colours, especially green, red, and yellow, with white, in patterns; and I should observe that, at Cairo, every Hadji who had been to Medina or Mecca immediately had his doorway bedizened with colour, to mark the important event. The general tone of the houses and villages is a dirty mud; now and then, yet very rarely, enlivened with a little whitewash on the strings and other features. But the mosques are always white. Sometimes it is a favourite habit for the Bedouins to dip their hands in white wash that they have prepared, and daub the surface of the wall with the marks of the five finger. In fact, it is the custom with new-married women, when they have prepared the dough for a meal, to dip their hands in the flour, and mark the outside wall round the doorway, to show that they pay attention to their domestic duties, in preparing their husbands' food.

The streets of the villages are very narrow, varying from 4 or 5 feet to 7 or 8 feet, except perhaps one or two streets for the bazaar, which may be 10 feet wide. This is for the purpose of shade and keeping the streets cool—a necessary precaution in hot climates, and very prevalent in the East. The huts are only one story high, and rise 7 or 8 feet. Some houses have two stories, and a court-yard, with an outer staircase leading to the upper rooms. At the village of Sacarra the treads, or steps, of a house at which I slept consisted of blocks of Thorax stone, brought from the ruins of the adjoining tombs and pyramids, carved with hieroglyphic inscriptions on the upper face, and which were being gradually worn away.

The floors and roofs are formed of rough lengths of the palm-tree wood, some 12 inches apart, covered with reeds and a thick coating of mud, which cracks easily, and admits the rain whenever there is a storm: this, however, is of rare occurrence above Alexandria, though frequent enough in that town.

The Arabs pay great attention to ventilation, and have apertures expressly for the purpose over the doors and windows, and under the ceilings in other parts, and occasionally just above the floor. These apertures they close with a mat stuffed in, which they remove whenever they wish to produce circulation of air in their cabins or rooms. Their sanitary precautions extend no further, for they have no drains, and all their dwellings are very dirty, and abound in fleas, not to mention other insects and vermin.

Fowls, pigeons, and doves abound in the plains and desert, where they easily find food, and there are numbers of them in every village. Conical-shaped dovecotes are generally perceivable in all the towns, rising above the general lines of the roofs of the dwellings; and usually the minaret of the mosque forms another vertical object in striking contrast with the flat tops of the houses. Many a tree also breaks the level line, as each village has them, being especially valuable as

producing one of their chief articles of food, fibre for their cordage, and wood for their timber framings and utensils.

As I passed along the Egyptian plains and valleys, and saw these mounds, one after the other, with flat-roofed buildings, and of pyramidal shape, I could not but feel impressed with the conviction that these modern constructions recall the features of the towns and villages of antiquity erected on the very site of olden cities, inhabited by a like race, ruled by like laws of supreme power in their chiefs, following the like customs, but destitute of that civilization and grandeur of conception in their priesthood and dynasties which once produced those wondrous fabrics which have employed the highest genius and most profound learning of modern times to investigate their ruins and read the hidden mysteries of their records still preserved.

Passing next to the

CATACOMBS AT ALEXANDRIA.

Professor Donaldson said,—

In the illustrations accompanying the Architectural Dictionary, now in course of publication, are some plans and sections of tombs in the catacombs about three or four miles out of Alexandria to the westward. They are very curious, presenting features of the Greek period, and are of considerable extent. Of late years, Mr. Rous, chief engineer of the railroad, has had to cut away a portion of the rock in the immediate vicinity of the station, in order to gain further space for the accommodation of the increased traffic. These operations have brought to light a vast number of the catacombs which were not known to exist. The upper surface varies from 20 to 60 feet (I think) above the present level, and the sides present a perfect honeycomb of tombs, one above the other, excavated in the live rock. Each family catacomb consisted of one, two, three, or even four chambers, and had a distinct access from above, with its separate stairs cut in the rock leading down to the subterranean vaults. Each chamber had two or three tiers of columbaria 2 feet 3 inches to 2 feet 10 inches wide, and 2 feet 10 inches high, and from 5 feet to 6 feet 6 inches deep. In some cases, as though for children, they are only 1 foot, 2 feet, or 3 feet deep. The ceilings were cut in the form of a low arched vault, and were painted a blue colour, having a flat oval moulding at the springing, also painted red. I will describe the tomb, of which I give a plan and section.

The principal sepulchral chamber, is 14 feet 8 inches by 18 feet 6 inches; having, on the side opposite the door, an arch flanked by ante, and a sunk receptacle for the body cut in the rock: the lid, if any once existed, is not now remaining there, though others have been found. Over this was cut at right angles in the rock a columbarium to receive a body, 2 feet 4 inches wide, by 2 feet 8 inches high, and 7 feet 3 inches deep. At one end of this chamber there was a like arrangement without the columbarium over, and part of the back being partially broken away, and a portion of the wall in another part of this chamber, which we found to be only 6 or 9 inches thick. Those apertures disclosed on the other side of the thin walls other sepulchral chambers belonging to distinct tombs of other families. The ante had beams over them sunk in the rock, dividing the ceiling into three compartments. The doorway leading into this chamber had on the outside three-quarter detached columns, over which was an entablature and pediment. There were considerable remains of colour and paintings of flat Egyptian figures in panels, showing that, although the architectural features were Greco-Roman, the pictorial decoration retained the character of Egyptian art.

The level of the principal chamber is about 2 or 3 feet above the floor of the next, which is 18 feet 11 inches long, by 13 feet wide, also vaulted. The two sides only of the latter chamber are pierced for columbaria, three ranges high, five or six of a row irregularly placed. One in the angle, 4 feet 9 inches wide, forms a species of vestibule, 16 feet 9 inches by 13 feet 8 inches, having its sarcophagus cut in the rock and columbarium over at the back of the recess.

An aperture, 8 feet 3 inches wide, led into a sepulchral chamber, which had three tiers of columbaria on the three sides, there being six in each tier on the side opposite the entrance, and space for four in a row at each end; although at present only three were cut, leaving room for future bodies to be received. Each of the openings in this chamber has narrow, delicate, architrave mouldings of a Pompeian character, worked in plaster with thin consoles to support the head mouldings. I found this to be the case in other

tombs. From the accumulation of debris and collection of water, it was impossible to ascertain precisely the heights of the chambers; but they must be about 11 feet 3 inches to the springing of the vault, and the vault itself rises 2 feet 6 inches, giving a total height of about 13 feet 9 inches.

While at Alexandrin, Professor Donaldson went of course to see Pompey's Pillar; and, on examining the base, he was surprised to find that a number of boulders were placed irregularly under it. He was enabled to push a 5-foot rod through the fissures; and, upon further examination, he found an opening large enough to admit his body. On entering it he ascertained, greatly to his astonishment, that the pillar rested upon a square block of stone, in the centre, of smaller diameter than the base of the monument itself. The pillar stood upon a mound, 100 feet above the level of the surrounding country. He had asked Mr. Rous, the engineer to the railway, to examine it thoroughly; in the hope that, if the pillar were in danger, some representation might be made to the Viceroy of Egypt, to take steps for its preservation. The circumstance of the pillar resting in the manner he had stated was most extraordinary; and it occurred to him that the block of stone to which he referred, as supporting the whole, might be the upper portion of another column or obelisk, imbedded in the ground. But whatever might be the hypothesis on the subject, the fact itself was most curious.

BIG BEN AND THE LITTLE ONES.

THE Westminster clock has again begun to strike the quarters on the four quarter bells, and the hour also on the largest of them, which is rather smaller but more powerful, as well as much sweeter in tone, than the great bell of St. Paul's. It is, however, just four notes too high for the proper note to follow the quarters, being B instead of E, the octave below the third bell which finishes the chime. The quarter hammers have been lightened in order to make an apparent distinction between the striking of the hour and the quarters on the same bell. This is but a poor substitute for the proper difference of note, and the quarters sound more feeble than they did in September 1859, before the Board of Works stopped them on the cracks in Big Ben being discovered. A recent parliamentary return on the subject has added one more to the startling contradictions by which men of science sometimes astonish the world. No less a person than the Astronomer Royal reports to the Board of Works that two of these bells are a note and a half, and another of them half a note out of tune, and proposes to recast them accordingly; while it is stated in the last edition of Mr. Denison's "Treatise on Clocks and Bells," that all the bells were certified by Mr. Turle, and other musical authorities, as being "in perfect tune." Moreover, according to the simple mathematical rule given in various books for the size and thickness of bells, and all other vibrating bodies, any such deviation from the proper notes as Mr. Airy discovers would surely be impossible, without such an enormous deviation from the proper size or thickness as he must have observed if he had measured them. There is or was another curious contradiction in the views of the different authorities as to the great bell, which it seems is now unquestionably defunct. Mr. Denison, as he has good reason to remember, published his opinion in 1859, that it was unsound, porous, a defective casting, and cracked irretrievably in consequence of its own defects. Professor Tyndall and the Astronomer Royal subsequently reported to the Board of Works that it was "perfectly sound for all practical purposes," the cracks only superficial, and that cutting them out, "to relieve the metal from strain," and turning the bell to strike in another place, with a lighter hammer, was all that was required; and so Mr. Cowper told the House of Commons. At last Dr. Percy is authorised to cut into the bell to the bottom of one of the cracks, which Mr. Denison complains of the Board of Works refusing either to do or allow him to do, before Mr. Mearns's action came on, three months after the bell was cracked. Dr. Percy finds that the explored crack (which is not the largest externally) already goes nearly half way through the bell. He gives the analysis of numerous bits of metal from various parts and depths, and reports that "most of them are unsound and porous, the metal generally far from homogeneous, and of varying specific gravity," and "that the casting is defective," and he shows that to the depth of two inches from the surface there is a considerable excess of tin beyond the amount prescribed, half of which excess, he says,

would be enough to "make a sensible increase in the hardness and brittleness of the metal." He accordingly attributes the failure to these causes, which are now removed from the region of scientific speculation into the more certain realms of fact. Probably all this would have been ascertained in a week, and the bell replaced by this time with a sound one (if our "eminent bell-founders" are really able to produce such an article), if it had belonged to anybody except the nation.

ON SOME MALVERSE REACTIONS OCCURRING IN OIL-PAINT COMPOSITIONS.

ALLEGED ADULTERATIONS OF THE LINED OIL.*

By surreptitious Additions made to the Oil itself.—There would appear to exist, in a pipe of genuine lined oil, of the finest brand, some inherent power of fascination that tells with especial force on a certain class of people whose idiosyncrasies are peculiar. The colour of its sample, when taken in a *demi-lasse* of clear crystal, is so brilliant, its scent so fragrant, its taste so rich, that the temptation to some is irresistible to speculate on such fine properties, which will surely bear some profitable manipulating with, without detection by the uninitiated? These manipulating gentlemen—to wit, the adulterators—feel, when they handle this pure oil, the same itching of the fingers that casts its spell over one of the light-fingered adepts of another order, on sight, and within reach of, some piece of *recherché bijouterie*—a yellow Oriental topaz, with a beading of little pearls set in chased gold, for example.

But to pass from the figurative to the real. These manipulators, so tempted, must first discover the mode of gratifying their cupidity. In casting about for some fit material with which to adulterate the oil, they find that they have but a very limited number of such to choose from. It must be something that is perfectly miscible with the oil, that is of the same or a similar colour, that does not affect its transparency, and that is scentless, or not materially different, in this last respect, from the oil itself.

The market price of fats, or of the other fixed oils that might, in their properties, agree with these requirements, bars all resort to these for his purpose. Lined happens to be the cheapest of all such oils. Its present price is 28*l.* 15*s.* per ton: it is seldom above 30*l.* Of the other seed oils, the nearest to it in price is gingelly, 40*l.*; ground nut is 42*l.*; palm, 47*l.*; cocoa-nut, 53*l.*; the cheapest of the olives is 56*l.* the ton. Of the animal oils, tallow oil is 32*l.* 10*s.*; and lard oil, 67*l.* per ton. Neither will the fish oils subserve his purpose, even if their properties would. Pale seal, the most seemingly available, is 40*l.* the ton.

There exist no refuse fats or oleaginous products of other manufacturing operations that through either their price or qualities can subserve such a purpose. Those newly-introduced products (so useful and so interesting chemically) of the decomposition of bituminous matters,—of coal, petroleum, bituminous shale, &c., &c., and known now under such names as mineral oil, paraffine oils, and others, are, from their properties, unavailable in this intended adulteration of the oil, as is equally another longer-known product of the distillation of coal tar and other tars in naphtha-making,—a refuse oil, accruing in great abundance out of such operations, and technically called "dead oil." Neither this one nor any other of the heavy-fluid hydro-carbons that the action of heat upon these protean compounds gives rise to, is, from its properties, applicable to this purpose.

But the manipulator discovers (as he thinks) a solution of his difficulties in another quarter.

Notwithstanding the assumed fruitfulness of the earth, its oil-yielding existences are, in fact, and by comparison, singularly limited in number and in their aggregate productiveness. Of this we have sufficient evidence in the prices current of all the varieties of oils, animal, mineral, and vegetable. Hence it is, as our manufactures and social requirements go on expanding, there is made a perpetual effort to supply, by artificial expedients, these natural deficiencies. The enormous outlay incurred in every branch of our staple manufacturing operations, and in our multitudinous workshops, for lubricating oils of the costliest as well as of the coarsest descriptions, the scarcely less immense consumption of other kinds of oils for the purposes of illumination; and the almost universal employment and distribution of the drying oils, are only a few of the outlets that help to absorb what are produced naturally, and

make it a perennial requirement to obtain fresh supplies by any available expedients.

Out of these demands has sprung the (and, in some respects, successful) search after the artificial oleaginous products just referred to; and among these there is one in particular that the oil adulterator has largely, if not very honourably, availed himself of.

A natural exudation from certain kinds of pine and larch trees gives us turpentine, and this semi-fluid or viscid substance, distilled under a moderate heat, is resolved into spirits of turpentine and common resin as a residue. This residual resin, on application to it of a much higher heat, suffers decomposition, and yields, in its turn, a volatile oleaginous product and a solid residue, the one constituting a species of pitch or artificial asphaltum used in varnish-making, and the other the well-known resin oil.

This resin oil, in its crude state, is worth from 7*l.* to 9*l.* per ton. When refined its price ranges (according to the degree of purification) between 12*l.* and 18*l.* The refined article is either brownish yellow or straw-coloured; closely, in this respect, resembling lined oil, with which, also, it is miscible to any extent. It is, except under the high temperature just spoken of, a fixed oil—permanent in its fluidity,—and is in other respects—within all ordinary periods of time or circumstances—almost unchangeable in its properties. It is only after a very long exposure to air that its colour deepens and it becomes thickened, and, to some extent, re-resinified. Unlike spirits of turpentine, which, in a paint composition, is ultimately diffused through and dissipated by atmospheric air at ordinary temperatures, this spirit of resin (as it may be called) remains fixed in such compositions under the same circumstances. It is only when raised to a very high temperature that it is volatilized—that is, to a heat only a little below the degree under which lined oil itself boils.

Were it not, therefore, for its non-drying properties and its special favour, this resin oil would—its comparative cheapness considered—be no unfit adulterating agent for the purposes of this manipulator of lined oil. Yet, notwithstanding these two material drawbacks to its utility, it has been used for these purposes to a very great extent. This was the more especially the case a few years ago, when the resin oil manufacture first became common, and the oil, consequently, was then for the first time to be had readily and cheaply.

The profit temptation was, and still is, of course, the incentive. For mixing with the raw oil (not the boiled, for the latter admits of a coarser kind being resorted to) one of the refined kinds of this resin oil must be employed,—a kind worth, perhaps, about 15*l.* per ton. The quantity added the writer has known to have been equal to one-fourth of the compound oil—that is, 5 cwt. of resin oil to 15 cwt. of lined oil. It is no great stretch of credulity to believe that greater quantities even than this may constantly have been ventured on. These proportions, with lined at 30*l.*, give 26*l.* 5*s.* as the cost of the compound, and a profit of 3*l.* 15*s.* on every ton sold at 30*l.*

The scent* of this resin oil, so nauseous and characteristic, and making its presence so easy of detection, speedily however checked, if it did not stop, the so prevalent use of this audacious scheme of adulteration. No one can mistake or fail to identify the specific aroma of this product. For more than "many a rood" beyond its place of manufacture the locality and nature of the operations there going on are perceptible. It is as far-penetrating, abiding, and disgusting as the effluvia from oil-boiling itself, or as that from the boiling of bones, or from the semi-putrescent gelatine that greets the olfactory nerves of the railway traveller as he rides over the tops of the glucifaceries and tanneries of Bermondsey, or walks on the Deptford bank of the Thames, opposite the Isle of Dogs, or comes too near Stinking House-bridge, on Bow Common. Except for this one property, but little limit would have been placed on the use of this product for the purposes of adulteration.†

* To free this product from this distinctive accompaniment is another of the modern problems for the chemist-investigator, and the prospective reward for its solution is something fabulous. So freed, its applications, both in England and on the Continent, would be innumerable.

† It is not more extraordinary than are so many other similar apparent incongruities in the properties of matter, that to this very offensive product (but obtained otherwise in this case) was owing the fragrant scent of the Russian leather of the olden make—through an empyreumatic compound that found its way into the "dressing" used in manufacturing this leather: like musk, which, when pure, is sickly to the taste, but, when diluted, becomes an exquisite perfume.

This brief review of the origin and properties of this resin oil enables one to anticipate what will be the effects of its presence along with lined oil in a varnish or a paint. Omitting—as of lesser (though bad enough) importance—all consideration as to its disagreeable scent, its immediate and after-injurious actions are analogous to those of a non-drying oil, as described in the preceding paper. The resin oil never, itself, dries, either by true evaporation or through chemical reactions with atmospheric air. It reduces, to an extent proportionate to its relative quantity present, the proper ultimate hardness of the lined oil, and the hardness consequently of the varnish or paint the oil forms a part of. It never solidifies and thereby (as every element in a paint or varnish should contribute to do) make the composition impervious to air, and proof against the (it may be many) after-chemical reactions of the atmosphere. It remains fluid, and subject to these reactions, and, through them, to the ultimate destruction both of the proper art-effects and of the substantial organic structure of the paint.

But the adulterator finds another and a better substance ready to his hand, and which, if it be not an absolutely perfect instrument, is at least free from some of the defects that attach to this last one. This better agent is common resin.

The malverse influences that are exercised on a paint by this resin are different from those previously discussed, and need a distinct and careful analysis.

It is because of its greater comparative susceptibility to the action of heat and of changes of heat, its greater relative contraction and expansion under such changes, and because of its friability and inefficient hardness, and tendency to soften under warmth, that the ultimate bad consequences of the presence of resin in an oil-paint or varnish are experienced.

Immediately, the evil effects of its presence in the oil flow out of the unlike molecular structure of the two materials,—the oil and the resin; and in the unequal order and time-rate in which the one assumes and the other regains its solidity in such a mixture.

Unlike a non-drying oil and resin oil, which are from the beginning fluid, and remain so always, within at least any period of time concerned in such changes, resin is, *per se*, from the first, a solid mass, though possessed of a comparatively inferior degree of hardness. This solidity is invaded only temporarily by its solution in the lined oil; so that, when the latter solidifies, its associated resin again appears in its solid state.

The vitreous-like resin is really (though we are unable palpably to find it so) a crystalline body,—that is, when solid, its particles are aggregated together in some symmetrical order; and the solidified oil also has a special molecular arrangement of its own. When, therefore, in such a mixture—paint or varnish—there sets in (by its own internal and by external reactions), the process of the solidifying of the oil, there is going on simultaneously and side by side with this, the resumption by the resin of its proper solid state. But each of these processes advances at a rate of its own, and that rate a different one from the other's rate. Conjointly they terminate in a solid compound mass, different, of course, in bulk (that is, in the space it now occupies) from the fluid mass. The two elements—the now solid oil and solid resin—have advanced to that condition by different rates of progression, are possessed now of different degrees of hardness, and remain subject, moreover, to unequal influences under the action of different temperatures. The resin, after the paint or varnish containing it is dry, is more easily affected by heat, and by transitions from heat to cold, or conversely, than is the solidified oil. It results, therefore, that there are two kinds of internal actions in an oil mixed with resin that act injuriously,—one during the progress of the drying, and another kind that operates for some time afterwards. There is an irregular and disturbing molecular movement going on during the act of drying, and beyond this, a perpetually recurring one that supervenes in such a mixture, after its solidification.

The effects of the double agency exercised by these two kinds of molecular action are (whether the proportion present of the resin be great or small; but, of course, these are proportionally aggravated if the quantity present be large) to give to a paint or varnish an open and unsound body, and to beget reactions that either destroy or disarrange intended art effects.

The oil-painted walls of the outside of a house, or those of an inside apartment, are exposed to perpetual alternations, ranging sometimes between rather extreme degrees, of heat and cold; as when

* See pp. 3 and 34, ante.

the action of the sun's rays on the outside is succeeded by the cold night's air; or when the higher temperature of a gas-lit room has subsided into the temperature commonly prevailing in the daytime.

One of the most palpable consequences of the presence of resin (if the proportion be considerable) is that developed by mere warmth, when it becomes softened superficially, and makes the paint or varnish adhere ("tack") to anything that touches it—the hand, for example, placed upon it, or the back resting against such a paint.

One of the most conspicuous effects of the molecular actions is the deadening of the surface, that is, the deglossing, or permanent flattening of such a paint; and the immediate cause of this appearance is obvious enough under the microscope, or even when the examination is made by a common pocket magnifying-glass.

When "flattening" in a paint is produced by turpentine, the effect is due to the preponderance of the pigmentary over the oil element in the mixture, and to the consequent production of a comparatively roughened, instead of a perfectly plain light-reflecting surface. When the flattening results from the "stippling" of a full oil-charged paint, this effect is due to the interference of shadow-making projections, or of a multitude of minute protuberances with the otherwise proper light-reflecting surface. In the present case, the flattening effect is due to innumerable breaks in the continuity of the reflecting surface; for the microscope detects, in a dried *resined* oil paint, cracks and fissures that are reticulated over the entire surface, in appearance not unlike those of a moistened slab of clay when sun-dried, which shrinks, and is then reticulated with divisional lines in all directions.

Did this common resin possess the properties of the finer gums proper—of copal, for example,—no very great harm, [physically (omitting here the moral question of adulteration), for ordinary purposes, would follow its surreptitious employment. But their greater hardness and brilliancy (light-reflecting power), their unchangeableness,—neither softening nor materially expanding or contracting, under ordinary temperatures, or ordinary variations of temperature; and, above all, their special molecular formation, which so well adapts these gums for mixing and co-acting with linseed oil, are properties this common resin is not possessed of.*

Neither these gums, nor does this common resin, undergo any material chemical change by mere exposure to air. Their action, in such mixtures, is mechanical only. But with the fluid non-drying oils, or with resin oil, there are exercised (as has already been said) both mechanical and chemical actions. These oils (remaining fluid for, at least, a considerable length of time after the apparent solidification of the paint or varnish), also exercise in it certain mechanical actions that are similar to (though their procedure may be somewhat different from) those following the presence of the common resin,—that is, they lead to the expanding and contracting, the softening and again setting of it under changing temperatures; or, in the genuine oil's act of solidifying, they are thrown out of union with it, and distributed in fluid globules throughout the mass; and thus they mechanically affect intended art effects and the substantial integrity of the mass. But, beyond all this, their presence and special conditions bring about the superintention of purely chemical reactions, sometimes between them and other conjoined elements, but more particularly between themselves and the external atmosphere, all tending to produce some or other of the varieties of efflorescences, decolorations, reversings of shades and tints, and the many other external and visible evidences of a diseased and decaying composition.

Summarily, with the solid resin adulterative there follows a series of malverse reactions that are purely mechanical. With these fluid adulteratives there ensue both a like mechanical and, in addition, a series of chemical reactions, the more adverse of the two because of their active character and long-continued action, and of their comparative multiplicity. The resin is comparatively harmless when its effects are estimated against those flowing from the non-drying oils and the resin oil. The presence of the latter adulterative is the most easy of detection; that of the resin the next most easy; whilst the detection of the non-drying oils, by chemical testing appliances, is

both specially and comparatively an operation that has in it many points of difficulty.

But these considerations do not affect the oil manipulator. His mode of proceeding, and his reasoning when he resorts to common resin, are as follow:—The value of English resin is some 5s. the cwt.; that of the genuine linseed oil, with carriage, &c., 30l. the ton. Resin melts at about 280° Fahr., and when so melted is added to the genuine oil, also warmed. It readily dissolves in the oil, and yields a mixture in which, when cold, the flavour of the resin is imperceptible, and the colour not dissimilar from that of the original oil.* It will be thickened in proportion to the relative quantity of the resin. But when moderately applied, this thickening is recognisable only by close observation, or by the use of delicate instruments for determining degrees of viscosity. After the solution is made, it is only by some special tests, and scarcely by its mere appearance, that the presence of the resin can be detected. The after-effects in paints or varnishes of such an addition afford involuntary testings, that, unfortunately, are but too indicative of the fact. Meanwhile, the adulterator so makes his additions that a ton of his oil shall consist finally of 19 cwt. of genuine oil plus 1 cwt.; or of 16 plus 2; or of 17 plus 3 (where he dare venture on this last quantity of resin; and thus he gives himself an extra cheat profit on the "transaction" of 1l. 5s., or 2l. 10s., or 3l. 15s., for every ton of this manipulated article—no trifling annual revenue for him, however ugly its complexion, if only a few tons weekly of this precious compost be disposed of. The estimate of this gain may be otherwise made:—Suppose that 20 tons of genuine oil pass through the hands of the manipulator, and from each ton he abstracts 1 cwt. of the oil, and replaces it by an equal weight of resin. The gain finally is, of course, the same; and the abstracted ton made up of the 20 separate cwt. will, when sold, give him his 30l., minus the value of the substituted resin. But can he then resist the temptation to add, through the medium of another cwt. or two of resin, a further 1l. 5s., or 2l. 10s., or 3l. 15s., to the cheat profit on the pilfered ton already secured?

By the time an adulterated oil may reach the hands of the operative painter, it becomes difficult—so many and diverse are the intermediate channels it may have passed through—on whom to fix the culpability; and great injustice may chance to be done in the attempt. The commercial world of England is certainly not made up of adulterators, who are the exception, and not the rule. A good deal is to be attributed to the scarcity of exact chemical knowledge in the mercantile community, and to the absence of the habit, in the rush and crush of commercial life, of examining into, or even of thinking at all on, such subjects. The condition of the oil consequent on the transition from the Baltic to the East-India seed, was of purely an incidental and non-culpative character, so far as the English seed-crushers are concerned. Now, doubtless, their attention having been called to the subject, the genuine will be winnowed from the interpolated seeds, and the country, as before, be again supplied generally with fine genuine oil.

But when resin oil + resin find their way into the oil, that concoction must, of course, have been made at some special place and by some specific perpetrator. And what cares such a manipulator for the train of evils that may follow this indulging in these adroit propensities—for the discredit and loss cast, for example, on some house decorator, or the not less unmerited distress inflicted on his workmen? Whilst the decorator or master painter may have to forego or refund payments, and his men be thrown out of work, this thief will duly receive his accounts, and will, no doubt, congratulate himself on doing so, with infinite complacency. He will smile and rub his hands (perchance lubricating them the while with a drachm or two of genuine oil,—not with his own ill-omened concoction, for that, like the Macheth "spot," will, he knows, *stick* to them) in great glee, under a feeling of success, and a conviction that the chances are a thousand to one against his detection.

I would venture to give these manipulating

* The printing-ink manufacturer habitually makes this kind of solution for his so-called "varnish." The use in this case of the resin, it is needless to say, is legitimate and proper, and is altogether different both in intention and effect from the adulterations here referred to. Resin is an avowed and useful ingredient in common printing-inks.

† One of these manipulators, more audacious than usual, gave, some time ago, an order to one of the large paint-grinding houses of the north of England, for a quantity of red oxide of iron to be ground into paint with resin oil *carriage*. His reply, on having pointed out to him the impolicy, to say nothing of the impropriety of such a mixture, was that "it was for an outside contract job, and of no consequence whether it would dry or not!"

gentlemen a hint which, if taken, will be vastly to their advantage, and, in the end, to that of the public also. It is that, for these purposes (the more specially so when it is with our ancient acquaintance, *black boiled oil*, they are manipulating), they should, in future, altogether discard resin oil or resin as too well known now, and too stale a device, and take instead to *coal-tar pitch*. Now, pitch is so plentiful an article that it can in many places be had for only 1s. 6d. or 2s. per cwt., whilst resin costs 5s. Besides, the colour of the pitch fits so admirably to that of the boiled oil itself. It is not, indeed, necessary, in this case, to boil the oil at all, for a solution of pitch in raw linseed oil is a very excellent imitation of many kinds of boiled oil that are to be met with in the market, and this likeness extends to some others of its properties besides that of its colour. In thus resorting to pitch no need need be taken of any after-effects on the paints or varnishes such a compost may find its way into. The fact that it will not dry, and the inconvenience and waste that may accompany its use, are quite immaterial to the manipulator. These kinds of mishaps, when charged against it or him, can be evaded, or disputed, or battled against, after the usual fashion. In thus resorting to pitch the manipulator will find it more profitable than resin, and more desirable to use than "foots,"—that "*caput mortuum*" of the old, and *pedes diaboli* of those modern alchemists,—the boilers of oil. And the doing this will be a benefit to himself, because he will be all the sooner detected in his malpractices, and driven, as people say, to seek otherwise a more honest livelihood. It will be a benefit also to the public, because, suffering under such infections, they will all the more readily bestir themselves in studying the subject of these oils, and what may be the most appropriate treatment of them. C. B.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE ordinary meeting of members was held on Monday last, at the house in Conduit-street.

The President, Mr. C. R. Cockerell, R.A., occupied the chair; and, after despatch of business, said he was sure they all felt great pleasure at finding their old friend, Professor Donaldson, again among them, after his pleasant journey up the Nile, and his visit to the Pyramids and monuments of ancient Egypt. They would also be glad to learn that he had not forgotten them, as he was about to read a paper embracing some of the most interesting features in his excursion.

Mr. T. H. Lewis, honorary secretary, read a list of donations to the library, and announced that the papers, plans, &c., issued by various bodies asking for professional advice and competition, might for the future be seen in the library. (Among the donations were some photographs of buildings from Mr. Francis, and a description of the Minister of Friburg, from Mr. Ferrey.)

Mr. Charles Barry begged to be allowed to bring forward a few facts in relation to some stone similar to that in the new Houses of Parliament, which he had himself used in the construction of a mansion, Bylaugh Hall, in the county of Norfolk, in the years 1850 and 1851. The house in question was faced with the same description of stone, supplied from the same quarry and from the same bed, by Mr. Grissell, who at the time was engaged in erecting the new Houses of Parliament. The difference, however, in the two buildings was (as his brother had stated at the last meeting of the Institute), that one was built on the bank of a sewer, while the other was in pure air, and uncontaminated by the acids contained in the London atmosphere. He had written to a friend at Norwich, who lived in the neighbourhood of the house to which he referred, requesting him to go and look at the building, and report to him the state in which he found it. The answer had not been received in time, or he would have read it at the last meeting; but, as it contained an authentic fact, he hoped to be allowed to read it now, and to place it in the hands of the council, for any purpose that might occur to them as useful in promoting the inquiry about to be undertaken. The letter, which bore the date "February 9," was as follows:—

"In reply to yours of the 5th, I have great pleasure in being able to give a satisfactory account, because (you know, I think), for the last five years I have had the care of Bylaugh Hall; and this has rendered it necessary that I should make most careful periodical inspection of the stonework; and, since I received your inquiry, I have made a special inspection in order to ascertain the effects of the late unparalleled severe season; and it is positively impossible for any material to retain its surface more thoroughly.

* Another of the physico-chemical problems of the present day (over which so many fruitless hopes, and so much unrewarded ingenuity, erroneously founded and guided, have been expended), is the imparting to this common resin for varnish purposes these inapproachable properties of the finer gums and resins.

Though, as you may remember, the hall is unusually exposed to the action of the sun and wind, there is no sign of decay to be seen in any part, and all that beautifully carved porch, and the enrichments on the south side, the finials, and open parapets, are as sharp and fresh as on the day the carver and the mason left them.

The only place where there is any failure is on the terraces in the south front, and there the stone appears to me not to have been so carefully selected, and has, in a few cases, cracked and blistered, as it were, as also have the Portland stone steps, to a slight extent.

I trust this account is all you require; but, if you want further particulars, I shall be most happy to give them to you."

This letter, he thought, disposed at once of the question which had been raised as to crystalline and amorphous stone. In his opinion the real solution of the mystery, as to how it was that one stone decayed and the other remained sound, was simply this,—that one was in town and the other in the country.

Mr. Fraser said that among the donations which lay upon the table was the copy of a lecture "On Building Materials," delivered by Professor Ansted at the Royal Institution, Albemarle-street, on stone-preserving processes. He (Mr. Fraser) assured the meeting that the lecture was a most interesting one, and would well repay perusal.

Professor Donaldson, V.P., then proceeded to read papers, including a description of M. Mariette's excavations at Ghizeh and Saccara; some observations upon the domestic architecture of the ancient Egyptians, as existing among the present Arabs; and an account of catacombs at Alexandria recently discovered. These particulars were have put into a separate form. Mr. Donaldson added, at the close of his observations on Egyptian matters, that, in passing through Marseilles, he had visited the cathedral in that city, and had brought away specimens of the marbles used in its construction. (These were laid on the table; also some pieces of rough and others of worked alabaster, specimens of the stone of which the Pyramids are composed, and also a piece of the mortar used to cement the blocks.)

Mr. Kerr inquired whether Professor Donaldson had found any zopissa on the buildings he had examined.

Professor Donaldson.—No, I did not.

Mr. Godwin, V.P., said that, in order to make their proceedings formal, he would move, what they had already signified, that a vote of thanks be accorded to Professor Donaldson, who had proved that evening that he had lost none of his old energy of character nor of his desire to serve the Institute. The narrative of his exploration of the monuments of ancient Egypt was full of subjects for reflection, and offered many points of contrast between the past and present. It occurred to him that the Serapeion, with the gigantic sarcophagi which were in its chambers, as described by Professor Donaldson, was one of the most extraordinary monuments remaining in Egypt. The account of it filled him with awe. When it was remembered what difficulty had been experienced in fashioning out of a single boulder a sarcophagus for the Duke of Wellington, the fact that here were at any rate 24—there might be 50 for what was yet known,—each four or five times as large as that in St. Paul's, raised feelings of wonder and admiration for a people who could perform such great things; and then, when, on the other hand, they heard of such a people worshipping as a god a bull which they themselves fed and they themselves killed, the weakness of human nature came before us in contrast, and led to contemplations of a striking character. A dozen such reflections arose, but he would be sorry to weaken the remembrance of the vivid and graphic relation they had heard, and so would restrain himself to moving that the warm thanks of the meeting be awarded to Professor Donaldson for his interesting observations.

Mr. T. H. Lewis said he did not quite understand Professor Donaldson to have described the form of the sarcophagi at Alexandria; and he wished to know if they were carved.

Professor Donaldson replied that they were all oblong, and that three or four of them were incised, not with hieroglyphics, but with lines. They consisted of two pieces only, of granite or basalt. Several of the bulls were in them, wrapped up in the usual manner, the eyes formed of glass, and the horns wound round with ligatures. When he stated that the funeral ceremonies of some of the bulls cost as much as 20,000*l.*, each, there could be no doubt that the sarcophagus cost a large portion of the sum. The difficulty and expense of working the block of stone, and conveying it several hundreds of miles from above the first cataract of the Nile, must have been enormous.

Mr. C. Barry, in seconding the vote of thanks, observed that the paper which Professor Donaldson

had read would be studied with interest by those who proposed to follow in his steps and to pursue the line of investigation which he had so successfully inaugurated.

Mr. Kerr inquired whether the sarcophagi bore the appearance of belonging to a succession of sacred animals; for, if the bulls represented a period of about twenty years each, these tombs would represent a period of nearly 600 years.

Professor Donaldson said he had failed to discover, in the dark and haste, any difference of age in the sarcophagi which he had examined. He then read an account of the Serapeion, by Mr. Birch, about to be published in the "Architectural Dictionary."

Mr. Kerr asked what was the size of the solid block of stone which supported Pompey's Pillar. Professor Donaldson replied that it was about 7 or 8 feet square.

Mr. Kerr suggested whether it might not be a foundation stone bedded in concrete or rubble which had been removed; for one could scarcely imagine that the pillar rested on the stone alone.

Mr. Morris suggested that the right way to appreciate the paper they had just heard read would be to treat it in the light of the narrative of a rambles in Egypt. It was a paper of surpassing interest, and the author had spared no pains to make it practical and instructive.

In reply to further questions,

Professor Donaldson said that the French architect who had made the drawing of Pompey's Pillar exhibited in the room that evening was of opinion that the base had been supported in the middle of the solid block of stone described, but that trophies consisting of armour, or something of the kind, had been fixed at the corners, so as to give additional security to the pile. These, he thought, had from time to time been removed, and the boulders substituted.

Mr. Papworth called attention to the extraordinary difficulty which must have been experienced in getting the sarcophagi into their position. He confessed he could not comprehend how human force—for mechanical was out of the question—could be brought to bear so as to turn round and put into position, in such a place, a block of solid stone weighing sixty tons. While upon this subject, he wished to ask whether the Wellington sarcophagus was a block of solid stone? for he found, on visiting the tomb of Napoleon in the Invalides, that the sarcophagus there was not of one piece of solid stone, but was formed of five pieces.

The vote of thanks having been unanimously passed,

Professor Donaldson observed that a great deal had been said of late about drinking-fountains, and that he wished to say a word upon those which he witnessed in the East. They were not the miserable pigmy things which met the eye in London, and which were a disgrace to art and to taste; but they were large handsome structures, composed of marble or alabaster, bold and beautiful in design, and elaborate in their enrichments. They were raised by pious Mahomedans for the public weal; and there was generally a day-school above them, from which the voices of the children could be heard above the babbling of the water. Surely we might take a lesson from the Egyptians, and raise fountains which would not be a disgrace to the country and the age.

The proceedings then terminated.

A special general meeting of the members will be held on Monday evening, the 25th instant, to take into consideration the recommendation of the council with respect to the award of the royal medal and other prizes of the Institute for the year 1860, and their recommendations with reference to the medals for the year 1861.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of members was held on Friday evening, the 15th instant, at the house in Conduit-street; Mr. A. W. Blomfield, vice-president, in the chair.

Mr. Walter, Mr. J. Adams, and Mr. J. Rusk, were, on ballot, elected members of the Association.

Mr. Harris moved a resolution,—“That the 3*l.* prize for a specific subject (being part of the 5*l.* given by Mr. Tite, M.P., to the Association), be awarded to the best design contributed by any member of the Association, and that the subject for the present session be ‘a school of art,’—the drawings to be sent in before the 5th of April.”

Mr. Blashill thought it better to omit the words,—“the subject of the present session be a school of art;” and, after some discussion, an amendment,—“That the subject be submitted to

the general committee for final decision,” was carried.

Mr. R. Druce then read a paper entitled “An Architect's Audience.” In the course of it the reader sketched representatives of the various classes who form that part of the public who appreciate more or less architectural works,—the poet, scholar, the frequenter of picture-galleries, and the intelligent mechanic; and showed what partialities and tendencies were naturally found in each class; and, in conclusion, went on to say,—“I think that for some time, if not always, we shall have to consider the requirements and tastes of these classes of employers and critics, in broad principles, if not in a continuance of the details and easily recognized features of those separate styles, even although as we arrive we evidently are tending to two styles, which may merge in one of a free Round-arched style, and a free Pointed style. The three marked characteristics of the Classical, Italian or Renaissance, and Gothic, will long be looked for by their respective votaries, being the results of education, suitability to their respective habits of living and thought, as well as their architectural taste. These are some of the heads or main divisions of our audience; and, until quite a few years, they were the only classes that were capable of judging or of enjoying what was put before them, as much of the enjoyments of the buildings lay in the knowledge of their correctness, but I am thankful to say that our audience is extending day by day; and what do I mean by that? Do I mean that so many more people are educated by the numberless photographs, and the less cost of architectural books and plates? There is much in that; but what I do mean is this. That the masses of the people, whether educated or uneducated, have always been, and will always be, fonder of sculpture and painting than of architecture. That depends as much as it can upon itself alone; and that it is only quite lately that architects, occupied by their surveying their necessary business, and their measured proportions or copied mouldings, have only just begun to be anything like as fond of it as the general public itself. You will now get an audience wherever the chisel rings, wherever you work bas-reliefs and interesting stories on your walls. Where such carvings can be seen as there are at the Oxford Museum, or at one or two churches now building, every one will visit you. Where there is painting like that at All Saints', all will be attracted. You may please the Classic student if you will, with grandeur of proportion and security of effect,—the lover of Mediæval architecture by solemnity,—the lover of Renaissance by richness and luxuriance,—the man of business by careful and business-like arrangement of plans and fittings; and boldness and massiveness of style,—the artist and poet by picturesque,—the workman by good work and skill, and poet thought; but depend upon it, in whatever style you work, you cannot fail to win all these; and add to them the uneducated and the poor, if you find room in your capitals and your walls for rich and varied sculpture of sacred subjects, and lives of great men, framed by the leaves of the wood and the flowers of the field. Thus and thus only shall—can—we make the most sensitive among our audience—the poet,—sing, in far-off future of our works;—

“Everywhere I see around me the wondrous world of art, Fountains wrought with richest sculpture standing in the common mart;

And, above cathedral doorways, saints and bishops carved in stone,

By a former age commission'd as apostles to our own.”

At the conclusion,

The Chairman observed that what Mr. Druce had said showed the necessity of designing in perspective. To accomplish this object it was very desirable to have a knowledge of landscape drawing. The works of Turner the painter would be found of great value to young architects in this respect. Without some knowledge of landscape effects an architect who had to design a building in a hilly country would, probably, erect a structure unsuitable to the landscape. It would generally be found that the architecture of a country was adjusted to the peculiarities of its physical surface. Thus, for instance, in Switzerland it was found that the churches and maisonettes were peculiarly suitable to the landscape; and, indeed, in all countries it was interesting to observe that the inhabitants of a country intuitively erected the most suitable buildings.

Mr. Blashill thought there was a good deal in association, and that it was generally found that the aborigines of every country designed their rude and primitive dwellings with a view to meet the peculiar requirements incidental to climate and situation.



CONGREGATIONAL CHURCH, LITTLEHAMPTON, SUSSEX.—Mr. J. G. Stapleton, Jun., Architect.

A desultory discussion then ensued with reference to sculptured ornamentation, Mr. Lewis and other members contending that the public mind in this country was not sufficiently instructed in, or familiar with, sculpture to warrant its extensive use as a means of exterior decoration. He instanced, as an illustration, the mutilation of statues and carved work in our ancient churches and cathedrals.

The Chairman said he thought it scarcely fair to insinuate that the humbler classes of society were iconoclasts. The mutilation of statues and carved work in Westminster Abbey and other similar buildings was to be traced to the so-called "Reformers," and not to the common people.

It was announced that the next drawing in the class of design would be "a stable and coach-house;" and that, at the next meeting, a paper would be read by Mr. G. B. New "On Brick-work."

CONGREGATIONAL CHURCH, LITTLEHAMPTON, SUSSEX.

THE site for this church is on the estate of the Duke of Norfolk, in the centre of the town. The style of the design is Early Decorated. The material selected for the walls is Plymouth rock, dressed with Caen stone.

The roof is open, and the walls are sufficiently high to admit of the erection of galleries at a future period.

The total accommodation is for 300 persons. The contract has been taken for the whole work, including a large school-room and boundary walls, for 850*l*.

Mr. J. G. Stapleton, jun., of London, is the architect.

PREMIUMS OFFERED BY THE ART-UNION OF LONDON.

THE council of the Art-Union have taken a very admirable step. They have always felt the importance of connecting art and manufacture, of the wedding of Venus to Vulcan, as their annual reports, year after year, serve to prove. Anxious still further to carry out this view, with special reference to the schools in connection with the Science and Art Department of the Committee of Council on Education, they propose, with the concurrence of that Department, to set apart the sum of 100*l*. each year, to be offered to the pupils in those schools, for the production of designs, on certain conditions. In their circular announcing it, the council dwell on the desirability of the study of the human and animal forms, a full acquaintance with which gives the student a power of conception and facility of treatment unattainable otherwise. These qualities are essential for raising ornamental art to a high state of perfection, and for enabling the productions of England to compete successfully with those of other countries

where the art education of the manufacturer is more cultivated. The amount will be divided into five premiums of 10*l*. each, and ten premiums of 5*l*. each, to be competed for by persons being *bond fide* pupils in any of the Schools of Art in connection with the Department of Art. A list of subjects has been forwarded to the various schools. The proposal can scarcely fail to meet with a hearty response.

Each subscriber for the current year is entitled to an engraving, by Willmore, after Turner's well-known and magnificent picture, "Italy: Childe Harold's Pilgrimage," now in the National Collection at Brompton. The impressions are ready, and subscribers receive them on paying their guinea. The print is full of beauty, and a good return for the subscription irrespective of the prizes, in the distribution of which every subscriber has one or more chances according to amount paid.

LECTURES, ARCHITECTURAL MUSEUM.

ON Wednesday evening last, Mr. Thomas Lott, F.S.A., gave a very interesting account of the architectural antiquities of the London Guildhall, illustrating it with quotations from old records in the Guildhall library. There was a good attendance.

Mr. Blomfield, on the part of the committee, proposed a vote of thanks to Mr. Lott, which was carried unanimously.

BUILDING FOR PROPOSED EXHIBITION OF 1862.

A LETTER has been addressed by the Royal Commissioners to the Council of the Society of Arts, in the course of which the following statement occurs:—

"The arrangements made by the Society of Arts, when negotiating for a site on the estate of the Commissioners of 1851, and their announcement that the Exhibition was to include pictures,—a branch of art not exhibited on the former occasion,—rendered it necessary to contemplate the erection of a building in some parts of a more substantial character than that of 1851.

A plan was submitted to the Commissioners by Captain Fowke, R.E., who had been employed by her Majesty's Government in the British Department of the Paris Exhibition of 1855. The design was adapted to the proposed site, and was intended to meet the practical defects which experience had shown to exist both in the buildings in Hyde park and in the Champs Elysées. It appeared well adapted for the required purposes, and its principal features were of a striking character, and likely to form an attractive part of the Exhibition. The Commissioners submitted the design to the competition of ten eminent contractors, four of whom took out the quantities. Three tenders (one a joint one from two of the contractors invited), were sent in on the day named in the invitation, but all were greatly in excess of the amount which the Commissioners could prudently spend, with a due regard to the interests of the guarantors.

The Commissioners have, therefore, had under their consideration, modifications of the plan, which, without destroying its merits, would materially reduce its cost."

We understand Mr. Kelk is the contractor likely to be treated with.

LONDON STREET ARCHITECTURE.

OFFICES, BISHOPSGATE-STREET.

MESSRS. SOANE & PAGE's new offices, Bishopsgate-street, City, were commenced in April, 1860, and are now fast approaching completion. The building occupies, with an area, or court, at back, a plot of ground of 45 feet frontage, by 77 feet in depth, and comprises, with the house-keeper's apartments, on the upper floor, ten or twelve suites of offices,—altogether about thirty rooms.

The structure throughout is substantially built of stock bricks, in English bond, except the front elevation, which is of deep-red brick, with Bath-stone dressings; and a green stone is introduced with good effect in the relieving arches, cornices, &c. The detached shafts, columns, and mullions to the whole of the windows and doorway, are of polished serpentine marble, except to the basement and top story, which are carved stone. There is a very considerable amount of carving, representing foliage of various kinds, with birds and animals appropriately introduced, which gives great richness to the design. The roof is covered with Brozeley tiles, having an ornamental iron cresting along the ridges. Some of the floors are made fire-proof, on Fox & Barrett's principle. All passages and landings are of Portland stone, 5 inches thick, on Portland stone cornices, and carved corbels. There is a handsome Portland stone staircase, a few feet within the entrance, affording direct access to the various floors. Each suite of offices is provided with a fire-proof strong room, lavatories, closets, and other conveniences; and, what is a marked feature throughout the building, an abundance of light is provided to all the rooms. Most of the joinery is of pitch pine, only varnished. The internal details are very good. The fire-places are fitted with Caen, Bolsover, Mansfield red, and other stone mantels, variously designed; some, in the principal rooms, being enriched with polished marble, and elaborate carvings. Stone fenders are provided to all fire-places, and the hearths and sides of grates are finished with various coloured tiles.

The proprietors of the building are Messrs. Soane, Son, & Page, a well-known City firm.

The architect is Mr. W. Wilkinson, of Oxford; the contractor, Mr. Willson, of Southwark, whose tender was 7,600*l*. The carving is by Mr. Suffolk, of South Lambeth. Messrs. Hart & Son have provided the ornamental metal work. The whole has been done under the superintendence of Mr. J. Willson, jun., and a resident clerk of works, Mr. Deacon. It may be pronounced a very successful work.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—The Lord Mayor has granted the use of the Egyptian Hall, in the Mansion House, for a *conversazione*, accompanied by an exhibition of works of art, to take place in May next.



LONDON STREET ARCHITECTURE: OFFICES, BISHOPSGATE STREET WITHIN.—MR. W. WILKINSON, ARCHITECT.

THE FOUR SISTERS; OR, SOME NOTES ON THE RELATIONSHIP OF THE FINE ARTS.*

RETURNING to ourselves, we may remark how all our fine arts yearn for representations of our own kind. Architecture and decoration, as well as painting and sculpture, are ever seeking to introduce them. How early, almost with the very commencement of the architecture and manufactures of the world, do representations of the human form appear, as in hieroglyphics and early pottery. Look through our museums of ancient objects, or the pages of early illuminated books, and see the many countenances that meet your eye. Even in a landscape, however beautiful, the scene appears incomplete unless there is something which tells of the presence of man, as a well-placed figure or group; and if these are absent, how welcome is even the thin grey thread of smoke tapering up from amid the trees in the distance, to tell us a habitation is near! Nor is a sea view complete without a group of mariners, a sail on the horizon, a ship, or a fisherman's boat.

Thus it is also with architecture immediately she rises beyond being merely a useful art into being also a fine art. She naturally then seeks at once the aid of representations of man, both in sculpture and paintings. These are the voices with which she would fain sing to us. Her own expressions are but the instrumental music. Some styles of architecture welcome these human forms of a higher character than others, and in some, as I have here expressed before, are in themselves superior. Some styles, as those adopted by the Mahomedans, are without these adjuncts; but this has arisen solely from superstitious restraints. Were these removed, high art might probably harmonize with their grander examples. As it is, however, the followers of Islam have been fertile in resources for supplying the deficiency with enhancements of a lower grade; and most beautiful and elaborate arabesques, united with texts of the Koran, and various other details drawn from the vegetable and mineral kingdoms, have been combined to produce, in various of their structures, the perfection of jewel-like effect.

Probably it will, without demur, be allowed at all hands, that architecture, as a fine art, cannot reach her highest expression without the presence also of the highest class of painting and sculpture, which arts, although highly to be assisted by architecture, yet, nevertheless, possess their intrinsic value in many instances quite apart from her. This was also the case in ancient times as in the present. Indeed, Pliny says, in regard to the paintings of his own time, not far from the commencement of our era, the time of our Saviour, that the pictures which were made moveable, that is, like our pictures in frames, were considered superior to those which were painted on walls. As the passage is quaint and interesting, I will if you please, read it.

He is speaking of a certain Ludius, who seems to have been a very popular artist of that time, and who introduced a light, facile, and humorous style, such as you may notice in some of the mercurial decorations from the ruins of Pompeii and Herculaneum.

"Ludius was he," Pliny says, "who first devised to beautify the walls of a house with the pleasantest painting which is in all variety; to wit, with the resemblance of manors, farms, and pleasure houses in the country; harbours, vineyards, and flower-walks in knots; woods, forests, fishpools, conduits, rivers, and rivulets; and on their banks, passengers, some walking or riding to their farms, mounted on mules or asses, or in waggon and coaches; and on the streams some sailing, and some rowing to and fro. In one place a man should see folks fishing and angling; in another hunting the hare, the boar, the fox, or the deer, both tamed and fallow. In these paintings a man would see fair houses standing in the marshes, to which the paths would be ticklish and slippery, with figures of women afraid to set one foot before the other, at every step ready to slide, some bending forward their heads as if they carried burdens, and all for fear lest they should catch a fall; and a thousand other humorous conceits full of pleasure and surprise." This apparently describes a different style of decorative painting from any which is in practice now.

"This same Ludius," Pliny goes on to say, "devised walls without doors, and abroad in the open air, and to paint cities standing by the seashore; all which kind of painting pleasest the eye exceedingly well, and is moreover of little cost. Howbeit neither he nor any artificers of

this kind, however much otherwise respected, grew ever to be famous or of great name as painters. That felicity was only obtained by those who painted on tables,"—that is, on separate tablets or tableaux, like our separate pictures in frames; "and, therefore," he says, "in this regard, we have the greater admiration for venerable antiquity. For, in old times, painters loved not to garnish walls only to please the master of the house, nor yet in such a manner that cannot stir out of the place and be saved when fire cometh; which, on the other hand, can be done with ease, with such paintings as are on tablets."

Thus with the ancients, as with the moderns, there were easel pictures in moveable frames, as well as those painted on walls, as we do now in fresco, encaustic, or water glass; so that, although they were more constant than we are to the union of the arts, yet they produced many pictures and statues suitable for removal. With the easel pictures of the present day this is markedly the case. Some pictures, indeed, now so frequently change hands, that they are almost a new form of circulating medium. Easel pictures, indeed, of the present day, if of moderate size, are rarely executed with reference to any particular situation, and so that they are well lighted and arranged with just colours, they are seen excellently well in their gold frames, even in connection with the smallest amount of the architecture element, as is the case in the picture-rooms here in South Kensington. The structure in these rooms is of the simplest and cheapest kind, only costing 2½d. per cubic foot; but it well performs its mission of justly exhibiting the works. On the other hand, we have in London examples of very ornate galleries, where much talent and expense have been applied to their architectural features without this happy result to the pictures.

It may appear, in considering this point, that when galleries are built expressly for the exhibition of pictures, especially if the pictures are open to be changed, it may usually be well to have their galleries plain; but when, on the other hand, paintings are executed in direct connection with the architecture, and in degree at least to illustrate the purpose or history of the building, that then the fullest and most complete architectural treatment is welcome. Thus the treatment in a gallery, if constructed to exhibit a miscellaneous collection of pictures, as those of Mr. Sheepshanks, is, as regards this point, quite a self-evident fact from that of any grand department, of which the pictures would be part and parcel, as might be most appropriately the case in Westminster Hall, the bare sides of which might most justly be decorated in compartments, with such subjects as Mr. Cope's "Trial by Jury," and Mr. Redgrave's "Loyalty," which fine works have never as yet been carried further than the cartoons, as they were exhibited in 1844 in that very hall; or well might that venerable hall receive fixed pictures on its walls of some of those important historic events which have taken place within them,—within those very walls; as some of the public trials which have been conducted there, as that of Wallace, in 1305; of Stratford, in 1641, when the King and Queen and Prince of Wales, looking through a trellis-work, saw and heard the proceedings; the trial of Charles I. himself, a few years after, in 1648, &c.; also that of Warren Hastings, which began in 1788, on which might be portrayed various of the remarkable men of the time besides Hastings, as Pitt, Fox, Burke, Sheridan, Grenville, Lord Mulgrave, Dundas, Thurlow, Windham, Wilberforce, &c., which would be of great interest.

In the cathedral of St. Paul, also, which is now, so justly, being restored to the original arrangement purposed by Sir Christopher Wren, it occurs that its lower architectural spaces would be well occupied by paintings of some of those noble and instructive events in that apostle's life which have not as yet been represented in art. Among these are the unfurling of the banner of the Church in Antioch, in the year 41 of our era, when Christians were first called Christians; and also St. Paul preaching publicly at Rome chained to a Roman soldier.

In both these cases, of St. Paul's Cathedral and Westminster Hall, the pictures would be in such compartments as are defined or suggested by the features of the structure, as by the divisions of the hammer-beams overhead in the Westminster Hall.

In most respects this perfected and illustrative treatment, in which architecture and painting unite their powers, is evidently quite distinct from that of current exhibitions in galleries constructed for that purpose, and for miscellaneous disconnected works. The two subjects are different now as they were in olden times.

The same thing also applies to sculpture. Sculpture is of the highest advantage to architecture when the two form alternate phrases of the same expression, and when their details are designed in conjunction. On the other hand, galleries special to sculpture are occasionally required in which individual statues and groups unconnected with each other and with the architecture may be exhibited. In these cases, although a contrary treatment has been much accepted in this country, it is better to have a mild atmospheric coloured background into which the edges of the statues melt, rather than a strong dark red, which cuts them out sharply and renders them flat and harsh. This forms part of the subject of the union of pictorial effect with statues, and the contrast of the two methods may have been observed in the sculpture gallery here, as compared with that of the Royal Academy.

It may occur, however, as regards collections of works of sculpture, darkened and partially discoloured by age, that the tint of background may be well different from that suitable when they are white. This, however, is the reason which has been given me for the flaming vermilion background placed behind some of the ancient works in the British Museum.

In galleries for the exhibition of miscellaneous and current works of sculpture by themselves, I know of no treatment of background better than drapery of some mild atmospheric colour and texture, yet possessing sufficient contrast to set off the figures justly. In this method the drapery may be hung somewhat flat and panelwise, behind the statues, with vertical columnar folds in the intervals between them. This is a semi-architectural as well as pictorial treatment, which, with a like consideration of the pedestal, floor and ceiling in suitable harmony and contrast, may be easily rendered decorative. As a matter of convenience also, it is evident that this draped method allows of adjusting the folds of the background, so as to suit the size and character of each work placed before it, and to meet the question of change of works. In the temporary accommodation in the Museum here, of what eventually we hope to see expand into a fitting representation of the British School of Sculpture, past and modern, you see a tint for the background, which has been a good deal favoured of late; but, alas! in this case merely crudely distempred on the walls, instead of being presented by the rich folds of drapery. In the front view of the Venus of Melos, in the Louvre, you get this fine work against a rich curtain which hangs at the end of the apartment, and the effect is fine and satisfactory. Also, the introduction of tapestries of various colours and pictorial character, in union with statues, may be made conducive to most pleasing and harmonious effects. This would lead naturally up to the subject also of the direct association of sculptures and paintings in the same apartments, as at Florence, a mode well worthy of consideration on any important occasion which may give an adequate scope for it. This mode is also available in degree in more usual exhibitions of a miscellaneous and current class. It is when the architecture, paintings, and works of sculpture are expressly designed for each other, the highest treatment comes into play. That part of the subject, however, is so extensive, that I avoid entering on it now.

There is, however, one kind of sculpture on which I would say a word or two,—Relievo. This is a peculiar art, midway, as it were, between drawing and sculpture. You see all the forms are more or less flattened. It is, indeed, the representation of true form by false form, and, even when most complete, is incomplete. This elegant and charming art has always been of the utmost use in connection with art and decoration from its power of adaptation to almost any surface. Also, if polychromy, or the painting of sculpture with various colours, is admissible at all, it is more admissible on low relievo, such as Donatello's or as seen in some of Luca della Robbia's works,—that on statues in the round,—because of this fact, namely, of relievo being more an appearance and a suggestion than a reality; as painting is in comparison with sculpture. Also relievo is capable of combining many figures, which sculpture proper is not. The less, indeed, the number of figures in a group of sculpture, the more is it likely to be effective. Indeed, the single figure is the stronghold of sculpture proper. When sculpture adopts many figures in the round, they no longer combine well on one pedestal. They must be placed on several, or spread out in relievo fashion against a wall, as in the classic tympanum. Within its own limits, however, sculpture is remarkably independent, and nowhere, perhaps,

* By Mr. John Bell: see page 95, ante.

looks better than in the open air, with the sun on it, and the blue sky and fleecy clouds for its background.

In this view, sculpture (proper or in the round) and architecture are similar in their independence. A building well stands alone, or apart in the open air on a rock; and so may a statue. On the other hand, painting and decoration have to be applied to some artificial surface, either fixed or moveable.

I have now run briefly over some of the diversities in the characters of those four sisters of the Art family who have dwelt together, more or less, in all ages, especially in those when they have most flourished. To foster their suitable association is one just object of all the systematic art education that has, of late years, taken form and place in this country. It is certainly one object of the Government establishment of art here in South Kensington.

Let us view for a moment the character of the present contents of the art section of the Kensington Museum. It comprises some admirable collections of fine paintings, some ancient and modern sculpture, some representations of different styles of architecture and examples of details, and a most valuable selection and great variety of decorative objects in very many materials and of different ages and styles; and, in addition, an increasing art library, adapted to illustrate and give information on most of these subjects. I note all this but briefly, for the public have but to visit this Museum, as they do largely, to be aware of the wealth of various art already collected here, and in the steady progress of enlargement and expansion. I am but one of the public myself, and have no connection whatever with this establishment; but I find my love of art continually bringing me within its walls, which also, I may say, I rarely leave without having learned something fresh to repay me for my visit.

There is one thing, however, which must strike all who visit this Museum, namely, its miscellaneous character. Each section is well and intelligently arranged. Each limb, so to speak, may be well adjusted; but they want a backbone. The vertebrate column which should supply this, should, I conceive, be a universal museum of architecture. It is to architecture, as the eldest of the sisters, that we must look to marshal the others. We have seen that she is the only one of the fine arts that appears absolutely necessary. It is on the firm basis of the directly useful that her foot rests. She has been continuous throughout all ages, and therefore she can best furnish the historic thread on which the jewels of the other arts are strung, and be the logical index to their age and character. In the collections of painting, sculpture, and decoration in this place, there is no idea of restricting the examples to any period or country. The architectural collection, therefore, both for its own sake, as well as for that of the other arts, should be as universal.

When the present existing section of architecture within these walls, now occupying the western gallery, and part of the space beneath, was first formed in Cannon-row, Westminster, in the year 1852, it stood alone, surrounded by none of the other arts by which, at least, in degree, it is associated here. Nearly three years ago it came here. It is a most fortunate circumstance that it did so, both for itself and for the sister arts. Its present social position is more logical than its former solitude. It is not good for an art any more than for man to be alone. However, at present, this presents little more than juxtaposition without intercourse. But a fuller use should be made of the neighbourhood of the sister arts. They should illustrate each other. The present collection of architecture is restricted to the illustration of some two or three styles, and that not adequately; but what there is affords an excellent nucleus for future development into a Universal Museum of Architecture, embracing all styles, and worthy of the time and country.

It is highly gratifying to be able to state that, since this time last year, when the committee of the Architectural Museum had already endorsed their approbation of this proposition, and the Department also had signified its approval, that this subject has made important progress. For instance, before a committee of the House of Commons it was last session favourably reported on by Mr. Gilbert Scott, as representative of the Council of the Architectural Museum, and the mode of giving it form and being is occupying careful attention with the authorities here.

However, it may be well to repeat briefly what this Universal Museum of Architecture means. The illustration of architecture which should correspond with this scheme, would range over all man's architecture, from the earliest times to the

present. It would range from the hut of the savage, and the stone circles of the Druid, through the Primitive, Cyclopean, Egyptian, Indian, Hindoo, Chinese, Assyrian, Persian, Greek, Etruscan, Roman, Byzantine, Romanesque, Saracenic, Arabian, Mexican, Muscovite, Italian, Renaissance, Gothic, of its various kinds; Elizabethan, English, Italian, Modern, &c. &c., under any heads of nomenclature and arrangement that the best authorities might suggest. I would avoid repetition of what I have said on the previous occasion, but I may say generally that this might be placed in a tangible form before the public, not only by models, drawings, engravings, and photographs of parts, but by means of adequate representations of the perfect, and in many cases of restored, building, in such a sort as to illustrate the subject clearly.

I especially mention *clearness*, as this is a most essential part of the public use of such an arrangement—namely, that it should be so clear and perspicuous that the workman, even within the limits of his hour or two of leisure, may learn broadly "how man has built in all ages and climes."

Now for the practical part of this. It might not be difficult to imagine a great building, covering acres, that would house this great project; under such an arrangement, also, as should provide that all the four arts should educationally illustrate each other. But such a great building is a great expense, and is not available just now. If, however, we cannot have all we desire at once, let us see what perhaps we might have shortly. If we cannot have this great museum of architecture at once, perhaps we might, in the mean time, have an epitome of it on the same principle of universality, although on a reduced scale.

The first requisite, however, even for this, is increased space, so as to allow the present section Architectural Museum, which is chiefly Gothic, to expand into a commencement on the universal plan. I will venture to allude to one mode of obtaining such space, which appears possible. Last year a grant of money was made to the Kensington Museum to extend its area and capacities; those additions are begun. When completed, it seems feasible that they might receive all the collections except the architectural one, out of the present three-arched iron structure, which then might be given over for architecture to expand in, which she would readily effect with the materials which are at present here, and such collections and additions as are only waiting for space to come in. If this idea were acted on, it might be well at once to remove the galleries of that building, and to arrange the whole architectural epitome on the ground-floor. All the styles would thus be equally and thoroughly lighted. Also it might be desirable to adjust high divisions, affording wall space for architectural elevations and ground-plans, details in the flat.

Now, I by no means put this occupation of the present iron building forward as the only or the best mode for the housing of the epitome of all the styles of architecture, but I mention it because after all I have said, it might seem incumbent on me to indicate one way, at least, in which it might seem that it might be carried into effect, and that without any great delay or additional expense.

This epitome and its shell, however, would of course be but a temporary arrangement, and but the germ of the future establishment. Nevertheless, even in such a form it would be a great boon to all classes of the public who desire art instruction. Also it would give a local habitation and a name to the growth of the whole scheme, until it might eventually be established on an adequate national footing, maybe not far from this neighbourhood.

Such a universal illustration of architecture as this, with a good *catalogue raisonné*, would be a great addition to the means of education of this metropolis, and would be calculated to produce various excellent results to architecture itself, on which I have not time to dilate now. But we must still hold in mind that this plan is not solely an architectural one. It is also exactly calculated to afford the best organism and arrangement, chronological and characteristic, of the other fine arts, and be, as it were, the magnificent index to the works of the other three sisters, of all times and countries. By this means the eye and mind would be led consecutively down the stream of art from the earliest times to the present, showing how such and such characters of painting, sculpture, and decoration existed contemporaneously and in conjunction with such and such styles of architecture. This need not be done by mixing up the architecture, painting, sculpture, and decoration of one period altogether, but by

a judicious system of reference. Supposing, when this scheme is developed and the building for it erected, that the Universal Architectural Museum should occupy the central space or avenue, with galleries branching off therefrom on either side containing the examples of the other arts, where by juxtaposition and alternate reference you might attain readily to a view of how the sister arts worked together in each time and country.

For instance, to take one period of the art of the Romans in the early times of their empire. When Augustus triumphed that he "had received Rome of brick, and left her of marble." As a representation of the art of that time let us have a line structure as it were, across the progress of art then, illustrating the architecture of this period of the Romans. Then, also in side galleries, with references, representations of such paintings of the time as we have data for. Also, such statues as then were made, chiefly by Greek sculptors, in Rome, then the decorations of the time as applied to pottery, metals, draperies, arms, ships, glass, dress, &c. You see what a picture you would have at once; and by this means, carried on in modern as well as ancient times, what a series of historic pictures you would possess in following out chronologically this plan. On the details of this, much might be said, but the time warns me to bring my observations to a close. As regards the execution of this plan, I would only notice that the unity of its idea and the universality of its character by no means entail that all periods and styles should be equally developed at once. In fact, it is evident that they must be developed at present most fully in those directions and sections for which there are most facilities and materials already here. To depart from this would be obtrusive, and, perhaps, pedantic. Yet I conceive that from the very outset, even of arranging the epitome (the preparatory stage in which this plan must first appear), it is essential that the universal principle of the plan, as well as its unity, should be emphatically expressed, or its value would be lost or obscured. Also, from the commencement, in this universal treatment, it is evident, as I have said before, that the utmost clearness of arrangement should be sought to render it in the most direct manner, and to the fullest extent, educational. For this purpose, even in connection with the epitome, it might be of assistance to have a chronological chart of art prepared analogous to that of history known as the Stream of Time, originally from the German of Strass. Such a chart of art, as placing the whole subject chronologically and sectionally before the eye of the student at once, would also be very useful in all the schools of art throughout the country. Now that education, the great subject of the day, is occupying so many of the best minds, it is not necessary to illustrate more fully the direct, instructive action of the above plan, which, indeed, would also be calculated, collaterally, to convey, in some degree, a knowledge of general history as well as of art.

In conclusion, I may remark, returning to the province of the fine arts, that their due combination is not sufficiently the practice in this country. We witness on all sides shortcomings in this respect. The arts of architecture, painting, sculpture, and decoration, do not sufficiently work together. To educate towards this both the student and the public, is one object of all our national art education, and is also one object of the universal art plan of which we have been considering a sketch to-night. It appears feasible that even within a short time an epitome of the Universal Museum of Architecture, as an educational organism also for the other arts, is practicable, which at least would at once be a recognition in the way of direct educational illustration of that relationship of the four sisters which has formed the title of this address.

As regards this sisterhood, their diversities of character and yet family likeness, I feel I have offered but a few discursive hints. Indeed, I have only attempted to present a few scattered views which occur in the landscape over which they reign together. Yet some spots more especially belong to the one art, some to the other. Architecture, painting, sculpture, and decoration, as individual arts, as well as a sisterhood. It is not necessary that they should always be together to prove their attachment, or be on all occasions companions; although, assuredly, they should ever be on the best terms, and even at a distance should yet correspond like dear friends. When you invite one of a family, it does not always follow that you desire the company of them all. One lover of art may desire simply the company of a collection of easel pictures in a common place house—very well; another may desire

collection of sculpture, *per se*; another may devote himself to build a church, without any painting or sculpture at all, and with but a small amount of decoration; and another may desire only a collection of majolica or Palissy ware, or Venetian glass, or decorative metal-work, &c. All these tastes are good in their way, and may bear good fruits. It would not do for the four sisters to be inseparable, and always together. It would be very inconvenient, and perhaps pedantic. Doubtless, they should have the utmost individual freedom to visit their friends, and to confer benefits in their separate capacities. Yet, assuredly, although when abroad there is no necessity that they should always be talking about their family, or acting under any undue restraint,—when quite at home, they should also be quite and altogether sisters.

OLD SMITHFIELD MARKET.

THIS noted site has now for some years been in a very forlorn and neglected condition. Attention has been more particularly drawn to this lately in consequence of a bill-sticker being charged, at the Guildhall, with posting long narrow bills against the pen fence in Smithfield.

An officer said he saw the defendant putting up long narrow bills; and on being asked where, by the magistrate, Col. Wilson, said it was upon the woodwork of the pens, and there were hundreds of them stuck up. Col. Wilson.—Well, what have you brought him here for? The officer informed the magistrate that it was not allowed; and the City solicitor also said that it was an offence. Col. Wilson.—Then let the City officer prosecute. The man has committed no offence that I can deal with. I am only surprised that the woodwork should have been allowed to remain and rot there for so many years after the market has been removed, when the space might have been cleared and made a promenade and driving-place for the inhabitants of the neighbourhood. At all events, as long as the woodwork stands, I can see no harm in covering it with bills. The defendant is discharged.

THE CONCENTRATION OF THE LAW COURTS.

THIS very desirable and important project has accidentally formed a subject of some little discussion in the House of Lords, in which Lord St. Leonards opposed the project. The Society of Lincoln's Inn, his lordship said, proposed to lay out 100,000*l.* of their own money in building two equity courts; and it was proposed that out of the income of the suitors' fund of the Court of Chancery there should be paid an annual rent to the Society, which it was estimated would amount to about 4,000*l.*, that fund being already burdened with a yearly expenditure of 2,000*l.* for numbers. The plans might be carried into execution in a twelvemonth; and this was all that was required for the proper administration of justice. His lordship, however, objected to the appropriation, as illegal, of any portion of the suitors' fund in carrying out the general project of a court concentration. He admitted that certain advantages would arise from such a concentration, but in some respects great disadvantages also. With regard to the evidence in favour of the scheme, he understood that its principal promoters were the Incorporated Society of Solicitors, in Chancery-lane; and he believed it was a matter of the greatest importance to them; being, as they were, great houses of agency for country solicitors. It was proposed, however, that 400,000*l.* should be taken from the Suitors' Fee fund; but, without doubt, the fund in question belonged wholly to the suitors in the Court of Chancery.

The Lord Chancellor said it had for years been notorious that the courts for the administration of justice in this country were inadequate in their accommodation; and so strongly did the Earl of Derby feel this when he was in office that he issued a commission to inquire into the subject. That commission, in which the different interests were ably represented, consisted of Sir J. Coleridge, Vice-Chancellor Page Wood, Sir G. C. Lewis, Bart., Dr. Phillimore, and Mr. J. Young; and they unanimously concurred in the opinion that it was necessary there should be new courts, that they should be concentrated on the site which had been much criticised by the noble and learned lord, and that the suitors' fund might be legitimately applied towards the expense of their construction. He had to announce, on the part of the Government to which he belonged, that though the measure was originated by Lord Derby's Government,

they were most anxious to follow in his footsteps in this respect, and they had prepared a bill on the subject which would be immediately brought into the House of Commons, unless the threatened injunction with regard to the Suitors' Fee Fund prevailed. He agreed entirely with the commissioners that it was most desirable that the courts of equity and common law should be concentrated upon one spot. The commissioners had selected the area; and he believed that if the plan were completed it would be most conducive to the health and ornament of the metropolis.

Lord Cranworth said he was of opinion that the state had a right to deal with the suitors' fund as it chose; but he did not see the advantage of applying the interest of that fund to the concentration of the law courts, because that interest was already all appropriated by Act of Parliament: nevertheless, he concurred in thinking that the erection of the new courts of law, on the plan designed, was a very desirable object; but he would express no opinion as to whether that object was worth the cost.

PROPOSED ARCHITECTURAL ALLIANCE.

NORTHERN ARCHITECTURAL ASSOCIATION.

ON Tuesday, the 12th inst., after the secretary, Mr. Oliver, had read the second annual report, the following office-bearers were appointed:—President, Mr. Dobson; vice-president, Mr. Moore; treasurer, Mr. Dunn; secretary, Mr. Oliver; committee, Messrs. Austin, Pritchett, Watson, Thompson, and Walker.

The secretary then read a report on the subject of a proposed Architectural Alliance. The committee, with the assistance of Mr. Pritchett, had corresponded with the following architectural bodies on the subject:—Royal Institute of British Architects; Institute of Scotland; Architectural Association; Liverpool Architectural Society; Birmingham Architectural Society; Glasgow Society; Manchester Architectural Association. Replies had been received from the Liverpool Architectural Society, the Glasgow, the Birmingham, Royal Institute of British Architects, Manchester Architectural Association, and Architectural Institute of Scotland. From the unanimous opinion expressed in the above correspondence, the committee had every confidence in reporting on the possibility and desirability of the formation of such an alliance.

Mr. Pritchett submitted a general outline of the projected institution, and moved—"That the scheme now read be referred to the committee, and that they be requested to print it, and forward it (with any alterations they may see fit to make) to the different members of this association; and call a special meeting, within a month, to consider the same."

Mr. Moore seconded the proposition, which was carried *nem. dis.*

After a conversation on the scale of professional charges presented by the committee, it was resolved to hold a special meeting for the consideration of the same.

THE INDUSTRIAL MUSEUM OF SCOTLAND.

THE commencement of this work is talked of. It is for little more than one-third part of the proposed structure that authority has been given to take tenders at present. The site of the Museum comprehends not only the ground purchased six or seven years ago, at a cost of 7,000*l.*, but the whole central area of Argyle-square, and the houses on the south and west sides of the square, for which about 12,000*l.* will be paid, and of which occupancy will be obtained at Whitesnide.

According to the *North Briton*, the elevations of the structure, as finally approved by the Treasury and Board of Works, are designed by Capt. Fowke, of the Royal Engineers, who is the architect chosen for the Great Exhibition building of 1862 at South Kensington. The detailed plans for the interior, continues our authority, are, we understand, by Mr. Matheson, of this city. The area to be covered by the building will be about 400 feet by 200 feet. Towards Argyle-square, or rather towards the new street which must come in lieu of it, the Museum will exhibit a light façade in the Venetian style of architecture, combining massiveness of outline with elegance of detail. The wings of the building will exhibit three stories, and the centre two. The centre façade will be somewhat recessed, and will show a frontage of about 240 feet, and over this whole breadth the recess is filled in with a grand flight of steps. The building will stand upon a rustic basement at a considerable elevation above

the street, and this high platform level will doubtless give it an imposing appearance, the height of the roof being about 90 feet.

DOINGS IN IRELAND.

A NEW church has been built at Nenagh, co. Tipperary, under the Ecclesiastical Commissioners. The plan is an oblong, and consists of nave, chancel, south aisle, north and south entrance porches, vestry-room, and a tower and spire. The nave is 75 feet 6 inches long, by 30 feet wide. The height from the floor to the ridge is 47 feet. The chancel is 27 feet by 18 feet, and 36 feet high to the ridge. There is a gallery at the west end of the nave, in which stands an organ (erected by Telford, at a cost of 280*l.*), designed so as to expose a circular stained glass window in the gable. The total cost, including tower and spire, gas-fittings, &c., has been about 4,000*l.* Messrs. Welland & Gillespie are the architects. Mr. J. Hunter, of Bandon, is contractor.

The new R. C. Church of SS. Peter and Paul, Cork, the foundation stone of which was laid eighteen months ago, is rapidly approaching completion. The style is Franco-Gothic of the thirteenth century. The plan is cruciform, and consists of nave and chancel, north and south aisles, transepts, chapels, a tower and spire, 232 feet high, at the north-west angle, and a small porch and baptistery at the south-west. The nave is 127 feet 6 inches long, 35 feet wide in clear between the columns, and the height from the floor to the ridge is 87 feet 9 inches. The nave is lighted from the clerestory by nine 4-light windows. The chancel is polygonal in form, and is 35 feet by 17 feet 6 inches in clear. The roof is open timbered and pancelled. All the shafts in the arcade are of red marble, with bases of polished black limestone. All the arches and spandrels of nave are of Caen stone. In the spandrels will be statues, life-size, of the Twelve apostles, in Caen stone. The exterior walls are of red sandstone, with limestone door and window dressings. The cost of the building, exclusive of the tower and spire, is estimated at 11,000*l.* Messrs. Pugin & Ashlin are the architects. Mr. Barry McMullan is contractor.

Preliminaries for the exhibition of fine arts and ornamental art, in connection with the Royal Dublin Society, are to be taken early in May. The Guarantee Fund has doubled the original amount fixed on by the Committee as desirable.

A large hotel, with 180 bedrooms, and proportionately suitable sitting, coffee, &c., &c. rooms, is to be built at Bray, co. Dublin, and will have an elevation of 120 feet facing Queensborough-road. Mr. John Brennan is the projector; Mr. O'Kelly the architect. This town, which has grown from a "deserted village" most rapidly into a populous suburb, is at present the most important field for building operations in the vicinity of Dublin: indeed, considering the extent and resources of the metropolis, its progress may be characterized as marvellous.

The newly-elected architects to the Royal Hibernian Academy are Sir Thomas Deane, Messrs. Charles Lanyon, Patrick Byrne, and William Murray, who, together with the present academicians, Messrs. McCarthy and Mulvany, will constitute the quorum.

A drinking-fountain, after a design by Messrs. Deane & Woodward, constructed of Caen stone and fitted with charcoal filter, has been erected in a recess formed purposely in a high wall at Parkgate-street, Dublin, close by the entrance to Phoenix-park. The cost was about 50*l.*—a donation from the Earl of Carlisle, Lord-Lieutenant.

STAINED GLASS.

All Saints', Hastings.—Mr. Charles Gibbs has completed the memorial window to the late Earl Waldegrave, which is to be erected in the chancel of All Saints' Church, Hastings. The subject is the Crucifixion, set forth by thirty life-size figures, with a distant city of Jerusalem. The window, in parts very praiseworthy, is 12 feet wide by 20 feet high. It is now on view in the Marylebone-road.

Doncaster Parish Church.—The designs for the Sharpe memorial (great east) window, prepared by the two selected firms, Messrs. Hardman & Co. and Messrs. M. & A. O'Connor, have been exhibited in the town-hall. The subjects were chosen by Mr. Scott, the architect. The general plan is to represent, in the eight upright lights, the Atonement, the Ministry, and the Incarnation and Manifestation of Christ. In the design of Messrs. Hardman the illustrations commence at the bottom of the window. Messrs. O'Connor have

placed each at the top of the lights, and carried them across the eight divisions. The standing figures in the window of Messrs. O'Connor's design are to be 4 feet 6 inches in height; in Messrs. Hardman's, 3 feet. The effect of each must depend mainly upon the colouring that may be introduced: in both instances care has been taken to show the general outline. Messrs. Hardman's, according to the local *Gazette*, is drawn to a scale of one inch to the foot, Messrs. O'Connor's three-quarters of an inch to the foot.

Maison Dieu Hall, Dover.—A liberal tradesman of Dover has given 50*l.* towards "a memorial window to the British troops who fell in the Crimea," and other subscriptions for the purpose are now in course of collection. A design has been selected for the purpose—that of Hubert de Burgh, Earl of Kent, and founder of the Hospital of the Maison Dieu, holding Dover Castle for King John against the Dauphin of France, when invited hither by the insurgent barons, till relieved by the succour of John de Penchester, A.D. 1216. The cost of the window is estimated at about 250*l.* The contributions already received amount to about 132*l.*

Whitchurch (Salop).—The apse of the church here, recently altered in its relative proportions, under the directions of Mr. J. Livock, of London, architect, has just been enriched by three stained glass windows, the work of Messrs. Warrington, of London. The windows, like the edifice, are of the Corinthian, or rather Composite order. They are each more than 18 feet high by upwards of 8 feet wide, semicircular at the top, and in one clear expanse, without subdivisions by mullions or tracery. The centre window is occupied by a picture of the "Ascension," the figures nearly life-size. The lower part is composed of the eleven apostles, in attitudes of adoration and astonishment, backed by a landscape, which divides the upper from the lower part of the picture. The borders consist of columns on the sides, Cherubs above and below, bearing wreaths of fruits and flowers, form an accessory to the whole. The side windows are less subject windows than the centre. The treatment of each is alike, with the exception that one contains a figure of St. Paul, and the other of St. Peter.

St. Peter's, Sudbury.—A new painted west window has been put in by Messrs. Hardman, of Birmingham; subject—"The three Archangels." The window is a memorial.

ARCHITECTURAL PHOTOGRAPHIC SOCIETY.

On Tuesday, the 12th inst., Mr. R. B. Pullan read an interesting paper "On the Photographs of French Gothic Architecture, in the collection in the galleries in Conduit-street, giving an account of the buildings represented. Mr. Pullan was not correct in speaking of photography as "an art or a science invented in France, though perfected in England." Photography was "invented," if we may use the word, in England.

On the 19th inst., Mr. James Fergusson continued the series with a discourse on the Collection of Indian Photographs. Mr. Fergusson gave a lengthened account of the growth of the Indian temples, and urged that modern architects might learn much from the study of Indian buildings. Mr. M. D. Wyatt, who was in the chair, congratulated the meeting on getting their information from one so well qualified to afford it as the lecturer.

THE FLEET SEWER ACCIDENT.

At the adjourned inquest, Dr. Letheby, the City Officer of Health, gave his evidence to the effect, that the cause of death must have been sulphuretted hydrogen, evolved from the sulphuret of iron in the sewer mud (which the men, as should have been stated in this connection, were clearing away), and that the cause of this evolution of sulphuretted hydrogen was probably acid liquor, or water impregnated with acid. Dr. Letheby stated that he had made diligent inquiries, and found that such liquor or water was habitually sent through the sewers, near the fatal spot, by Messrs. Tylor, of Warwick-lane, who used large quantities of sulphuric and nitric acid, in cleansing castings of brass and copper, and run the waste through the drains. This was admitted in evidence by Mr. Alfred Tylor, who, however, stated that the liquor ran into the Fleet sewer below the spot where the men were working. The mud stirred by them, nevertheless, would thus meet the liquor in the fittest form for mutual and sudden action. Mr. Haywood stated, that for the sixteen

years he had been connected with the City Sewers Commission, not a single death till now had occurred in any City sewer. Mr. Pearson, their solicitor, stated that there was no legal remedy at present against pouring noxious matter (except gas refuse), into the sewers. The jury eventually gave a verdict of accidental death, accompanying it with a request that the Commissioners of Sewers would still further investigate the matter, with the view to devise and practically enforce some means of preventing any deadly contamination of the sewers in future.

BRUSSELS "PALAIS DE JUSTICE" COMPETITION.

We have not any definite information as to this competition. The designs have been exhibited, but have not excited much interest. A correspondent states that the plans exhibited are unsatisfactory, and that none of the leading architects of the country have competed, the inducement being deemed insufficient.

COMPETITION: CHAPEL, HAMPSHIRE.

SEVEN sets of designs were sent in for the new Chapel, Hampshire. Those with the motto, "May the best design win," found to be by Mr. Stapleton, of London, have been accepted.

COMPETITION: SHEEPSHAW WESLEYAN CHAPEL, LEEDS.

EIGHT or ten architects were invited to compete for this building, and the design of Messrs. Pritchett & Son, of York, has been selected.

YORKSHIRE AGRICULTURAL SOCIETY'S COMPETITION.

SIR,—As no communication has been issued by the above society respecting the receipt of the plans for farm buildings and labourers' cottages, forwarded three months ago; I beg to ask, through the medium of your Journal, when this may be expected, as the delay altogether is quite unaccountable.

A COMPETITOR.

WARMING RAILWAY CARRIAGES.

A CORRESPONDENT writes,—"Our Continental neighbours have just introduced a method of warming railway-carriages which should be at once adopted in this country; involving, as it does, only a trifling expense, and being a great boon to travellers. The waste steam from the engine, instead of being allowed to escape into the air, is conducted from the escape-pipe of the engine, by means of a vulcanized india-rubber tube, to pipes through which it circulates under the seats and throughout the carriages. As soon as the train is set in motion the steam commences to circulate through all the systems of pipes, and warms the carriages—first, second, and third class—equally; and, being connected with each other by india-rubber tubing, they can be immediately detached or re-united at pleasure. In a trial on the Lyons line, two thermometers placed in first-class carriages marked 60 deg. Fahrenheit during the whole journey; and, in the second and third-class carriages, the temperature was sufficiently elevated to allow of the longest winter's journey being accomplished without discomfort. However cold the carriages may be when at rest, as soon as the train is started the steam commences to circulate through the tubing, and communicates an agreeable temperature to the whole train."

RESIGNATION OF THE SUPERINTENDENT ARCHITECT.

THE METROPOLITAN BOARD OF WORKS. At a meeting of the Board last week, a letter was read from Mr. Marrable, the superintending architect of Metropolitan buildings, stating that when, in 1856, candidates were invited for the office of superintending architect of metropolitan buildings, at a salary of 500*l.* per annum, nothing was said to induce a belief that he would be expected to perform such onerous and responsible services of a professional character as had been demanded of him, relating to the survey, valuation, and purchase of property for the new streets undertaken by the Board; that he had had to deal with property for which claims amounting to 71*l.* 6*sh.* had been made, but which he had been unable to settle, at a salary of 500*l.* per annum, and that he had been obliged to make three appeals in vain to make his emoluments in some degree commensurate with the extra duties required of him, and now they had voted him an additional 200*l.* per annum. In justice to himself he could not any longer retain his appointment on the terms offered, and tendered his resignation. The resignation was accepted, and it was referred to a committee to consider the duties and salary of the office of a superintending architect.

Various names have reached us as those of candidates for the vacant appointment, especially that of Mr. Robert

Kerr. The Committee of the Board have decided, we believe, that the salary shall remain 800*l.* a year, with full duties as before. The election will take place on the 28th of March.

THAMES EMBANKMENT.

At another meeting the president said that, having received a communication from her Majesty's Chief Commissioner of Works, expressing a wish to see him upon the subject, he had attended. He (the president) had again strongly urged the objections entertained by the Board to having this subject referred to a commission. The Chief Commissioner said that he still adhered to the opinion that a commission would be necessary, and the Government proposed that the commissioners should be seven in number, and that the present Lord Mayor should be the chairman. He (the president) had that day received a formal request to be one of the committee, and he had replied, expressing his willingness to undertake that responsibility.

LONDON WELLS.

I OBSERVE, in a recent number of the *Builder*, notice in respect of the "Clerks' Well" at Clerkewell, London, which is very interesting.

I see it stated, in the London journals, that it is in contemplation to remove Holywell-street Strand, with a view to the improvement of that district of London.

I have to express a hope that care will be taken in that event, to search for and preserve that ancient "Holy-well" of that locality, which still supplies the "old Roman bath" in Strand-lane with the purest water, although the source is still hidden and neglected. It would be found, I have been informed, in some one of the back yards of the present houses in Holywell-street.

In these days of public drinking-fountains, it would afford an inexhaustible supply of pure water; and an appropriate architectural structure erected over it would be an ornament to that frequented locality, and the associations connected with it would gratify liberal and classical taste.

It is as old as the days of Julius Cæsar, who, it is said, built the old Roman bath above stated.

I generally reside in that neighbourhood where I visit London, and supply myself with pure water daily from the old Roman bath, agreeing with Pindar, that *quævis per iocum*.

JOHN MORRISON, A.B. & M.D.

A PRESERVATIVE COATING ON MEDIEVAL STATUES.

I HAVE read with much interest the discussion which has been occasioned by the decay of stone in London, and, considering it to be the duty of every person in matters of this kind to give the result of his own experience, I trouble you with this letter.

In the year 1853 I was engaged by Mr. Digby Wyatt to take the casts from the cathedral here (Wells), which are now in the Crystal Palace. These casts included many of the statues in the west and north-west front of the church. In the course of this work I detected very distinct traces on every figure, as well as on much of the foliage of the niches, &c., of some kind of coating or composition which had been laid on, as I considered when the figures were first set up in their niches. This coating was so thin and transparent for any composition of that sort. Notwithstanding its thinness, however, the surface of the figures, wherever the coating remained, was perfectly impervious to moisture; as I found by experiments that liquid would run off, as if the surface had been finely polished marble. In the more exposed parts of the sculptures the coating had disappeared, and decay had commenced and gone on to a greater or less extent; but I cannot help thinking that, had this coating been renewed, even once in a hundred years, the glory of our cathedral would have been preserved, in a perfect state, to the present time.

One of my reasons for making this communication is to show the probability that it was the practice in early times to protect ornamental sculptures from the effects of atmospheric influences by artificial means.

I may also add that I found traces on the faces of the larger statues of colours having been used; or, in other words, that the features had been "painted out" with colours.

JOHN DEBARR.

ACTION FOR DAMAGES AGAINST THE MARBLE MILLS.

Collins & Green v. Read.—This action was tried in the Brompton County Court, before Mr. Adolphus and jury.

The plaintiffs carry on business as marble workers, 1 Albion-street, Southwark; and defendant, it perhaps needless to say, is proprietor and inventor of the Patent Steam Sawing Marble and Stone Mills, in Upper Belgrave place, Finsbury.

The plaintiffs sought to recover 14*l.* damages, alleged to be a block of marble sent by plaintiffs to defendant, which was to be sawn into slabs. The trial lasted nearly a day.

On the part of the plaintiffs, it was stated that the block of marble was sent to the mill to be sawn into twenty-two slabs, and when the slabs were being polished by the plaintiffs' men, it was discovered that the stone was stained, through the saws being left in the block whilst being unworried. The injury the marble sustains caused some of it to be refused, and the remainder was returned to the plaintiffs.

The answer to the case put a very different complexion upon the charge. It appeared that the present defendant had to see Messrs. Collins & Green in the Southwark County Court, for cutting the block in question, and he received 18*l.* 6*sh.* 6*d.*; that nothing was said about an

injury to the marble until it had been sent home, and application was made for Mr. Read's account, some two months after the blocks were cut into slabs. Mr. Read, jun., however, before getting into the witness-box, had some of the alleged injured marble handed to him, and he instantly pointed out to the jury that the marble produced was not cut from one block; the veins run differently. He also showed that no slabs left their mill without being cleaned off separately; and that it was impossible any stains could be left by their saws, as they were always in motion.

Mr. Bingham, marble mason, of Brompton; Mr. Gibbs, and other practical men, also declared that the marble produced was from different blocks; and, as no entire slabs were produced, the jury had no hesitation in giving a verdict for the defendant.

Books Received.

The Year-Book of Facts in Science and Art, exhibiting the most important Discoveries and Improvements of the past Year. By JOHN TIMBS, F.S.A. London: Kent & Co. 1861.

THIS is a particularly interesting volume of the Year-book of Facts. It is illustrated with a vivid engraving from a photograph of Lord Brougham, and a vignette view of the University New Museum at Oxford. The records of the year are preceded, too, by an able and interesting memoir of Lord Brougham. Having for many years taken occasion to note the advent of this favourite annual, all we need now do is to recommend it anew, and as strongly as ever, to the notice (or the recollection, rather) of our readers of all descriptions. Should any of them have failed to catch the early intimations of new discoveries as they have appeared during the passing months, here they are all carefully condensed and collected for them; and even those who watch each new phase of science and art as it comes forth, may derive renewed pleasure from the refreshment of their memories. The preservation of the stone of the new Houses of Parliament is just now re-exciting interest in our professional and other circles: by turning up the Year-book for 1861, in order to recall to mind what was said and done on this subject last year, we not only find an excellent summary of it all, but this summary forces us to draw the conclusion that in all the discussion which has been going on, scarcely a step in advance has been made towards a satisfactory solution of the problem.

VARIORUM.

"A HANDY-BOOK of Patent and Copyright Law, English and Foreign, for the Use of Inventors," by James Frazer, Esq., has been issued by Law & Co. of Ludgate-hill. It is intended to furnish inventors, authors, and others with all the information they may require as to the expenses, rights, privileges, and obligations of patents and copyrights in this and other countries, and of the means to be employed to obtain them. Whether it be all-sufficient to that end can only be ascertained by experience; but the work appears to be at least both useful and suggestive towards all that is requisite. We may here note, by the way, from other sources, that a convention with Sardinia, signed on the 30th of November, and of which the ratifications were exchanged on the 4th of January, has been laid before Parliament. It provides for an international copyright in works of literature or art published in either country. Besides original works, a translator is to be protected in respect of his own translation; but fair imitations or adaptations of dramatic works to the stage of the respective countries are not prohibited. Articles from newspapers or periodicals may be republished or translated, provided the source be acknowledged, unless the author, in a conspicuous manner, forbids the republication.

Miscellanea.

IMMENSE GRAVING DOCK FOR BIRKENHEAD.—At a recent meeting of the Mersey Dock and Harbour Board it was resolved to construct a very large graving dock at Birkenhead. Its length is to be 750 feet; width, 85 feet; depth, 100 feet. It will accommodate two rows of ships, and admit 500 ships at a time. The cost is estimated at £4,000.

BIRMINGHAM SCHOOL OF ART.—Twenty-seven students obtained medals at the examination, held on Saturday, 9th February, 1861. The works of ten were forwarded to London for National Competition. Honourable mention was given to two, and the works of the following art pupil-teachers were forwarded for National Competition:—Mary Preston—Anatomy; Alfred Brown—Painting of Fruit; Thomas Bingley—Model of Dyke.

ACCIDENTS IN COAL MINES.—More lives are often lost by the choke- or after-damp, than by the actual explosion. A simple vessel of vulcanized india-rubber or other elastic material, fitted with an orifice to cover the mouth and nostrils, charged with air (retained by a plug or tap when not in use), would enable the miner (were he, upon hearing the explosion, to catch up and apply the instrument) to make his way through the foul atmosphere in perfect safety. The cost would be trifling. It might be slung across the shoulders, or hung up in the stall when the miner was at work.—T. C.

SHEFFIELD SCHOOL OF ART.—The annual convocation of this school has just been held in the rooms of the school, where a numerous and influential company assembled, and where a goodly collection of pictures and other works of art had been collected for the occasion, by Mr. Young Mitchell, the head master of the school. The address was read by Mr. Ferguson Branson, M.D., who afterwards distributed the prizes. In the year 1846 there were only thirty pupils in the school; in 1860 there were 400, with an average quarterly attendance of 200. In addition to this, 1,200 pupils are obtaining some amount of elementary art education in national and other schools. Still this number is quite out of proportion to the population and importance of the town.

BRICKLAYERS' STRIKE, WARRINGTON.—On Tuesday the operative bricklayers issued a placard, announcing that they were "out" for an advance of 6d. per day. The men had been at work only a fortnight after the late severe frost, and the masters think their conduct extremely ungracious and uncalled for, considering that they have hitherto been earning 4s. 6d. per day, and that during the frost so much had been done to alleviate the distress which prevailed among them. Building has, of course, been brought to a complete stand, and there is not, at present, any sign of an amicable settlement of the dispute. The men appear determined to gain their object, and the masters are equally determined to resist the demand. The operative bricklayers are said to be connected with a union in Manchester, which is furnishing them with funds to enable them to hold out.—Manchester Courier.

THE UNSANITARY STATE OF SCHOOLS.—This important subject has been brought before the notice of the Duke of Newcastle, as chairman of the Commission on Popular Education, by the medical officers of health of the metropolis, in a communication sent to the Duke, and which his Grace has read to the Commission. The communication pointed attention to the fact that the hours of teaching were usually too long and a violation of physiological laws, especially in school-houses as commonly constructed, which thus became a frequent source of infirmity, disease, and death. Public schools were characterized as but too often hot-beds of epidemical diseases. The injurious influence of the usual system on teachers was also dwelt upon; and the communication, which was signed by the hon. secretary of the Association of Medical Officers of Health, concludes with the expression of a conviction that a reduction in the hours of sedentary constraint and bookwork, and a due attention to sanitary requirements for exercise and physical training, would be highly conducive to an improved mental and moral culture.

FALL OF BUILDINGS.—An extensive slip has occurred at the Ynisgeinon Station, the extreme point of the Swansea Vale Line, recently opened. This slip partly carried away the railway station, the clock, and all other contents; and they were deposited in the middle of the river. The stack of the engine-house of the Ynisgeinon Colliery, at the end of the station, also fell in, and the destruction of property is considerable.—A wooden bridge crossing a stream about a mile from Doncaster, over which the Great Northern Railway passes, has fallen in. Amongst the passengers of a train, which made a narrow escape in this case, was the Rev. E. Monro, vicar of St. John's, Leeds, an intimate friend of the late Dr. Baly; with whom, indeed, he was engaged to dine on the day the doctor was killed on the railway at Wimbledon, and over whose body he read the funeral service at Kensal-green Cemetery. It will be recollected, too, as another curious coincidence, that Dr. Wyld, the gentleman who occupied the carriage along with Dr. Baly, also experienced the perils of railway accident at the Hitchin smash, where his carriage was tumbled on to the top of another. In both cases, by quiet self-possession, he escaped scot free. Surely this gentleman has exhausted his average chances of being in such accidents.

DRINKING-FOUNTAIN, TYNEMOUTH.—Through the liberality of Mr. William Scott, of London, the inhabitants of Tynemouth will shortly have the benefit of a clock-tower, with drinking-fountains and barometer attached. The erection of the structure is about to be proceeded with by Mr. B. C. Lawton, from the designs of Messrs. Oliver & Lamb. The tower will be in alternate bands of stone and brick, embellished with Aberdeen granite columns at the angles.

HEATING AND VENTILATING IN COLD WEATHER. Perhaps some of your correspondents can describe the manner in which the water-supply is maintained and distributed at St. Petersburg, and how ventilation, in connection with due warmth, is carried on during the cold season, in the residences of the poor there, and their sewage disposed of. After the recent severe winter in England, such information might be interesting to the public, as well as to—A READER.

BUILDING AT KIRRIEMUIR.—A site has been purchased in Bank-street, on which will be erected offices for the business department of the City of Glasgow Bank, together with a house for the agent. There is also to be a new Town-house on the present site; but a local contemporary hopes the building will be erected so as to ensure a broader and better entrance, for the present one is almost dangerous and inconvenient. The designs and plans for both these buildings are intrusted to Mr. James Carner, a young architect.

STRIKE OF BRICKLAYERS AT MANCHESTER.—Sir: The disputes between the masters and their workmen still continue. The former have offered to come to terms, or to refer the differences to arbitration, but hitherto without success. They have, it appears, been guilty of neglecting the rules of etiquette in their attempted communications with the operatives, which the latter deem it necessary to be strictly observed. Should the present move on the part of the workmen be successful, the definition of the term "master," in Manchester, will be—"A person who is graciously permitted to find work and wages for the operatives."—LOOKER-ON.

POLYGRAPHIC HALL.—Well done, Mr. Woodin, polygraphic Woodin! His Cabinet of Curiosities is even better than his previous entertainments, never flags an instant, and is unexceptionable, imbued with his own gentlemanly feeling, from first to last. In this entertainment, aided with some very pretty scenes, he represents forty-one persons, a dozen of them dressed completely from head to foot with a rapidly perfectly marvellous; sings innumerable songs, assumes dialects, and dances a hornpipe. The hall, too, has given up its grime, and, under the hands of Alfred Crowquill, has put on elegance.

PORTABLE RAILWAYS.—A new system of portable railway has been lately experimented upon at the forage markets of Compigne before a great number of persons interested in the matter. M. Preclin, cart-smith, is the inventor, and has executed the work with the greatest simplicity. According to his views the invention is applicable to the carrying out of agricultural and industrial labour, and particularly so to flour or sugar mills, for it consists simply in a series of fragments, something like a ladder, which fit together one after the other, and form a temporary way. In an hour 100 metres of line can be laid, so that it is easy to see what advantage a distillery or sugar-mill would obtain by this system in the transport of beetroot through wet clayey soils or marsh lands to the factory. The gauge is 75 centimetres; and the waggon, holding a metre cube, can be easily pushed by one person.

NEW ALMSHOUSES, NORTON FOLGATE.—In 1728, Mr. William Tillard, proprietor of nearly the whole of Norton Folgate, London, gave a piece of ground at the end of Blossom-street for the erection of almshouses. These almshouses comprised eighteen rooms, and provided for eighteen poor (male and female) inhabitants of the Liberty; but were taken down when Commercial-street was made; and, with the money produced by the sale, the trustees purchased a plot of ground at the corner of Red Lion-court, on a part of which they have erected buildings for sixteen persons. The remaining portion is to be let on building lease; the rent arising therefrom being intended for keeping the houses in repair, and other expenses. The new buildings are plain and substantial, and consist of two blocks, each affording accommodation for eight persons, with a staircase in each block common to all. The architect is Mr. T. E. Knightley; the builders are Messrs. Pritchard. The almshouses have no endowment fund, and are therefore available only for such persons as have small resources. Contributions, in aid both of the building and endowment funds, are asked for.

LIVERPOOL LIBRARY AND MUSEUM RATE.—At a recent meeting of the Town Council, Mr. Picton moved that a library and museum rate be laid under the provisions of the Library and Museum Act, 1852, to raise a sum of 6,947*l.* 16*s.* 4*d.* The rate will be within a very small fraction of a penny in the pound. After some remarks on the subject the rate was agreed to, and the usual warrant authorized to be issued.

THE FIRST SUBMARINE TELEGRAPH.—The formation of the first submarine electric telegraph is claimed, in the *London-American*, for Colonel Colt, of revolver celebrity; who, it is said, in 1842-3, laid down a submarine telegraph, connecting the Merchants' Exchange at New-York with Coney-island and Fire-island. Gutta-percha was not then known; but the cable is said to have been insulated with a combination of cotton-yarn with asphalt and bees-wax, and the whole was enveloped in a leaden pipe.

A PLAGUE OF TOADS.—At a recent meeting of the Bath council, the cold water committee (as it is rather curiously styled) recommended the erection of a paling round the reservoir at Bathaston, at a cost of 95*l.* Mr. Fuller said the object was to prevent the inroad and continual descent of toads. The fact was that the consequences of their inroad into the reservoir were serious. The spawn was in such myriads, that it got into the water-pipes, and caused a great deal of expense. From the statements of other members, the nuisance appeared to be of a very disgusting nature, but the paling was reported to be an efficient protection for the future.

ANCIENT REMAINS IN RINGMORE CHURCH.—In the east wall of the north transept, two windows, hitherto blocked and effectually concealed on the outside by rough cast, and inside by plaster, but now opened, have proved, it is said, to be of very early Norman, or more probably Saxon date, closely resembling the acknowledged Saxon windows in Tintagel Church, Cornwall. Externally they are very short and narrow, and have semi-circular heads. Internally they are splayed to a great width and height. Another window was discovered between them which had been cut through the wall, apparently in the fourteenth century. This portion of the church is believed to be between 800 and 1,000 years.

PRESERVATION OF WOODEN FENCES.—A paper on this subject by Mr. Cruikshank of Marcassie, as reproduced by the *Banffshire Journal*, gives in detail various experiments from which it appears, as in the author's summary, that, 1st. When larch or fir wood is to be exposed to the weather, or be put in the ground, no bark should be left on it, 2nd. When posts are to be put into the ground, no earth should be put round them, but stones, 3rd. When a wooden fence is to be put up, or No. 4 or 5 wire should be stretched in place of, or alongside, the upper rail. If a proper larch fence were put up, or larch posts for wire paling put in, as suggested, he adds, I have no doubt but they would stand a lease of nineteen years.

THE BROKEN PLATFORM AT THE NORTH DOCK STATION, LIVERPOOL.—The adjoined inquiry on the body of John Turner, stoker, who was killed by the fall of a platform at the Lancashire and Yorkshire North Docks Station, on the 14th January, has been held. Mr. Newlands, the borough engineer, having again examined the platform, now made a formal report on it, in which he says,—"Taking the formula which gives the most favourable result, I find the breaking weight of the girder to be 114 tons when loaded in the centre, which is equal to 228 tons distributed over its length. The permanent dead weight of the platform sustained by the girder, including its own weight is 72 tons; and the margin left between the permanent load and the breaking weight, 166 tons; but one-sixth or one-fourth of the ultimate breaking weight is usually taken as the limit of safe load—say one-fourth or 57 tons, while the permanent load was 72 tons; consequently, the permanent load exceeded the limits of safety by 15 tons." Several of the railway company's servants were examined; and, from the tenor of their evidence it was clear that the platform in question never was intended for the use of engines; that engines, however, were frequently on it; and that on many occasions from twenty-five to thirty loaded wagons had been distributed over it, the average weight of each wagon being about eight or nine tons. The scientific witnesses concurred generally in the views expressed by Mr. Newlands. The jury returned a verdict of "Accidental death," accompanying it with an expression of opinion that, the orders of the company against engines going on the platform being only verbal, Humphries was not fully conscious of the danger in taking an engine on the platform.

PROPOSED NEW BRIDGE FROM LAMBETH TO WESTMINSTER.—The examiners of the House of Commons have declared the standing orders complied with in the case of the proposed undertaking for a bridge across the Thames connecting Church-street, in the parish of St. Mary, Lambeth, with Market-street, in the parish of St. John the Evangelist, Westminster.

A NEW SURVEYING CHAIN.—Among the articles at the Wisconsin State Fair, U.S., was a new invention by Wm. H. Payne, of Sheboygan, to supersede the usual chain used in surveying. It consists of a steel measure, which coils up like a tape measure, but is so tempered as to be perfectly straight when uncoiled. The whole weight of the instrument does not exceed three pounds. A thermometer is attached to it, and the measure, it is stated, can always be of the same length, no matter what is the temperature.

THE WILL OF HANS HOLBEIN.—At the meeting of the Society of Antiquaries on Thursday (Feb. 14) a very interesting discovery was announced by Mr. W. H. Black, F.S.A., the well-known paleographer. It is that of the will and administration to the effects of the artist Hans Holbein, who, it has always been asserted, died in England, and as late as the year 1563, though no certain trace of him has been found for many years before. It is now proved that he died in the year 1543, four years before the death of Henry VIII. This discovery will affect the reputation of many pictures that have been attributed to him. Will somebody be good enough to tell us of something on which no doubt can be thrown? Is nothing true?

RESTORATION OF CENTRAL TOWER OF DURHAM CATHEDRAL.—For two years the restoration of the great central tower of this cathedral has been progressing, and it is now completed, and the last plank of the scaffold removed. In October, 1858, it was found necessary to remove the top parapet on account of its loose and insecure condition; after which the dean and chapter resolved to restore the tower in the best known way; and, after consulting Mr. G. G. Scott, architect, instructed Messrs. Walton & Robson, architects, on the 22nd of January, 1859, to prepare the necessary drawings and specifications. The works were soon after let to Mr. Thomas Winter, of Durham, who has executed them. The entire upper stage has been faced with Prudham and Dunhouse stone. The beds of the courses follow those of the old work, and the stones extend from 10 to 18 inches into the wall, being wedged with slate where practicable, and bonded firmly to the old work, while at intervals are large copper cramps, passing through the wall. The work is set and grouted with Portland cement. In addition to the facing of the upper stage, all the buttresses, on account of their loose condition, have been rebuilt some distance lower: one has been so done from the very roof. The great lantern window on the east side has been restored: the old figures of which the tower had been denuded have been reinstated (the precaution of first coating them with a solution of shell-lac for preservation having been taken): the requisite new figures have been added; and the joints of the old unrestored masonry have been raked out and pointed with cement. Of the figures, the whole of the ten on the east side are new, and are from the chisel of Mr. Beall, of Newcastle-on-Tyne, sculptor. The entire number of old figures replaced is twenty-seven, and that of new ones added, thirteen. A patent octagonal lightning-conductor of copper has been fixed at the south-east angle of the tower, with a tractor carried up at each of the four corners. It was made by Mr. Samuel Brown, of Sheffield, at a cost of 100*l.* During the progress of the restoration a theory was started that the original intention had been to finish the tower with a crown imperial, as at Newcastle, &c. This arose from the discovery of certain marks on the inner angles of the solid masses of stone at the four corners.

TENDERS

For pulling down and rebuilding the Lamb Hotel, Nantwich. Mr. Thomas Bower, junior, architect. Quantities supplied by Messrs. Nichols and Bower:

Parrell & Ledger

Hoogkinson

Ray (accepted conditionally) ..

Bowker

Field

For building villa, at Streatham. Mr. P'anson, architect:—

Notley

Little

Coleman

Conder

Thompson

Bowley

Gammann

Macey

Rider

Downs

For restorations to No. 2, Helmet-court. Mr. F. Lett architect:—

Valluer

Ward

King

Macey

Eistone

For new chapel and schools, Bedfordbury, near St. Martin's-lane, W.C. Mr. A. W. Blomfield, architect. Quantities supplied by Mr. J. A. Bunker:—

Clemence

Fatman & Fotheringham

Marshall

Myers

Holland & Hannen

Trollope & Sons

Turner & Sons

Child, Son, & Martin (accepted) ..

For the carcases of five houses and shops, adjoining the Prince of Wales, Coldharbour-lane, Brixton. Mr. Edwin Nash, architect:—

Thompson

Gates

Rudkin, junr

Brashier

Churchyard

Marshall

Tyler

Notley (accepted)

Garnham

Dover

For alterations and additions to the Albion Works, Hanley, for Mr. J. Dimmock. Mr. R. Scrivener, architect. Quantities supplied:—

Woolrich

Jones

Clews

Watkin

Mathews

Baker

Hammersly

Harley & Dean (accepted)

For Messrs. Robert Thin & Co.'s warehouse, Redcross-street, Liverpool. Quantities taken out by Mr. J. Hay:—

Tomkinson

Mullins

Rome

Jump & Son

Roberts

Barroughs

Holme & Nicol (accepted)

For alterations to Messrs. Naylor & Co.'s premises, Princes-street, Cavendish-square. Final portion of works. Quantities not supplied. Mr. E. Bassett Kuling, architect:—

Simmonds

Brown

Saunders (accepted)

For washing-troughs and other fittings at the work-house of the Whitechapel Union. Mr. G. H. Simmonds, architect:—

Cornwell

Collins

Thorpe

Mowley

Carter

Murdoch

Parrett

Hartland

White

Lucas

Cole

Porter

Rivett

Hill

Watling

Wood, Brothers

Stoner

Forsdike

Hammer

Tolley

Markhall

Terry

Nash

Page

Gallienne

Collin

For drainage works, at the Industrial Schools, Forest Gate, Essex, for the Whitechapel Union. Mr. G. H. Simmonds, architect:—

Morter

Hill

Leslies

Rivett

Simms

Page

Miley

Pound

Hill

Wood

Wilson

Hawkes

Tolley

Lynam

Robb

Cattell

Stacey

Horne

For dwelling-house, for Mrs. George Woodward, at Great Malvern. Mr. E. W. Elmhurst, architect.

Holt (accepted)

Hancock

For dwelling-house and stables, for Mr. G. Hicks, at Great Malvern. Mr. E. W. Elmhurst, architect:—

House. Stables. Total.

Wood

McClann & Everal

Nott

Davis (accepted)

The Builder.

VOL. XIX.—No. 943.

Mr. Cockerell's Researches in Greece.



L L travellers who have visited the Glyptothek at Munich will remember with pleasure the fine collection of sculptures from Ægina,* which occupy a prominent place in that fine national museum. When they are told that the chief agent in the discovery of those

sculptures was an Englishman, visitors to the Eginetan Gallery naturally exclaim, with as much disappointment as surprise, "Why, then, were not these noble remains of antiquity secured for the British Museum?" How is it that, considering we have found room for our Elgin Marbles, our treasures from Arcadia, from Lycia, from Nineveh, and from a hundred other places once celebrated in ancient history, no space has been found for these magnificent sculptures, which, *malgré nous*, adorn to this day the galleries of the King of Bavaria? The answer is short and simple: the story is the plain old unvarnished tale" of official bungling. Mr. Cockerell and his collaborators not only secured actual possession of these trophies, but conveyed them with much trouble from Ægina to Athens, from Athens to Zante, and from Zante to Malta, where they stood safe at length on English soil, and whence we had a right to hope that they would have found their way to England; but the gentleman sent out by the British Government, to bid when they were first put up to public sale, was *expedited to the wrong place*; and, therefore, under the auctioneer's hammer they were knocked down to a foreign sovereign, of whom it is only fair to say, by way of consolation, that "he is surpassed by none in his enlightened patronage of the fine arts, and especially of the masterpieces of Grecian skill;" and that the sculptures are safe in an asylum where they are accessible to and appreciated by the whole European public, and in the midst of a public who are perhaps more devoted than the English nation for their enthusiastic devotion to the elevating study of ancient art.

The story is told at length by Mr. Cockerell in his Introduction which he has prefixed to the book he has recently issued;† and much as we regret and must regret the loss of such *exemplaria ævæ*, we cannot but feel that (to say the very least) we have some compensation in the noble volume before us. Defeated in his long-cherished object of securing those works of art for our own country, Mr. Cockerell, we imagine, must have experienced a melancholy pleasure in giving to the world, at this distant day, a *résumé* of those researches which he conducted half a century ago in the hey-day of youth, and in the first gush of professional enthusiasm; and though we cannot help regretting that this account was not rendered to the British public at a date more nearly contemporaneous with the labours recorded in it, we have not the heart to find fault with a man like Mr. Cockerell who has lived a busy and active life up to

† A very fair description of these will be found in "My's Handbook of Southern Germany," under the heading "The Temples of Jupiter Panhellenius in Ægina, of Apollo Epicurius at Bassæ, near Phigaleia, in Peloponnesus." By C. R. Cockerell, Esq., R.A., Hon. D.C.L., &c., &c. John Weale, 1860.

three score years and ten, and who now devotes the first moments of his well-earned leisure to the elucidation of those points of architectural science which he established to his own satisfaction at the outset of his professional career. *Sic vos non cobis* must be his consolation.

But we are somewhat anticipating our readers' information. We must ask them to go back with us mentally just fifty years, and to fancy themselves at Athens in the winter of 1810-11. Not to speak of the representatives of the Dilettanti Society, that ancient and glorious city is not without visitors. Lord Aberdeen has been there a few years previously, and has drawn the attention of his learned friends in England to the elevating study of the antiquities of ancient Hellas, thereby earning the half-serious, half-comic title bestowed on him by Lord Byron, in his "English Bards and Scotch Reviewers:"—

"The travell'd Thane, Athenian Aberdeen."

Nay, Lord Byron himself, bitten with a generous mania for restoring modern Greece to the proud place which she once held in the pages of history, is spending the winter at Athens himself; as also are some members of the Dilettanti Society, and the late Baron Haller of Nuremberg, the Chevalier Brondstedt of Copenhagen, Herr Linckh of Wurtemberg, the Baron Stackelberg, M. Kœes of Denmark (who afterwards fell a victim to the ardour of his Hellenic pursuits at Zante), and also two Englishmen, the late Mr. Foster, architect, of Liverpool, and, last of all, Mr. Cockerell, then a young man of one or two and twenty, with the world before him, eager to acquire and lay by some architectural capital before entering on the active duties of that profession in which he has since obtained such acknowledged distinction.

"The great outlines of some of the chief monuments in and about the city of Athens," says Mr. Cockerell, "had already been faithfully delineated by Stuart, in his 'Athens,' and published under the auspices of the Dilettanti Society, as also by the architects in the employ of the late Earl of Elgin; but still many details of the great-est moment to the elucidation of the architecture of Grecian temples, their correspondence with the principles handed down to us by Vitruvius as derived from the old Hellenic rule, the arrangement and order of their interiors, the mode of executing the masonry, the roof, and the clies which covered them, and the ornamental accessories of sculpture and painting, their acroteria and pediments which formed so large a proportion of the merit and interest of Grecian works of art,—all these remained for the most part to be discovered and explained, though some may be found placed on record in the publications of the Dilettanti Society."

As an instance in point, we may remark, that in the "Antiquities of Ionia," published by that learned body, just before the close of the last century, embodying the observations of their commissioners, or "special correspondents," Sir Wm. Gell, Mr. Gandy, and Mr. Bedford, it is stated that at the temple of Jupiter, subsequently successfully explored by Mr. Cockerell, there were no traces of sculpture to be found, and that Sir W. Gell and his friends maintained as probably true the hypothesis that the roof was originally of marble—two points which, a dozen years later, the private enterprise of our author and his friends most emphatically established in the negative. In spite, then, of the praiseworthy efforts of the Dilettanti Society, there was a field open for architectural inquiry in the great temple of Jupiter at Ægina, at the commencement of the year 1811; and, in spite of no small difficulties and dangers, Mr. Cockerell and his friends resolved to occupy it—with what success we know, generally speaking, and shall know more in detail presently.

Accordingly, early in 1811, having exhausted most of the treasures of Athens and its neighbourhood, a party of four—Messrs. Foster and Linckh, Baron Haller, and the author, well equipped with a tent for bivouacking in the open air, determined to make a joint investigation of the temple. Having spent the previous evening, as Mr. Cockerell informs us, with Lord Byron, "in pouring out libations in honour of his homeward voyage, to reap the rich harvest of fame which awaited his return," they left the Piræus

in an open boat just after midnight in April, and at daybreak were lying at anchor close under the Panhellenian Mount. Most fortunately, the weather was fine; supplies did not fail; the natives were neither obstinate nor jealous, but only curious; the Turkish* officials were either asleep or off their guard, or too lazy to stir themselves: and accordingly, after three weeks of constant and well-directed labour, Mr. Cockerell and his friends found themselves rewarded by results which far exceeded their most sanguine expectations. The temple itself being built upon a hard and elevated rock, the accumulation of soil around its foundations was but slight; and even in the course of a few days, the exploring party had ascertained all the strictly architectural details of the temple, from the stylobate to the conformation of the tiles, so as to produce the entire plan of the edifice: and a fortnight more of labour put them in possession of the still more interesting details of the sculptures mentioned above.

"In the midst of these investigations," says Mr. Cockerell, "their attention was arrested by a new and unexpected incident. One of the excavators struck his spade upon a fragment of Parian marble, which, on closer inspection, proved to be the head of a warrior enclosed in a casque, and perfect in every feature. It lay with its face turned upward, and as soon as the removal of the earth revealed its proportions to the eye, all felt that a new interest was given to their investigation. Other fragments quickly followed; and great indeed was the astonishment and exultation of the entire party when, on clearing away the fallen portions of the tympanum and cornice of the eastern and western pediments, no less than seventeen statues, and the fragments of at least ten more, were successively brought out into the light of day from the place in which they had lain concealed for fifteen, if not twenty, centuries. It seemed, moreover, almost incredible that such precious relics, and such magnificent specimens of the Æginetan school of art should have been suffered to lie hid for so long a time under so thin and slight a covering, undisturbed by the curiosity of the antiquarian, the cupidity of Roman or Venetian conquerors, or the temptation under which the native population lay, from century to century, to turn them to some profitable account."

Our readers are already aware of the rest of the history of these treasures, and how they eventually found their way into the Glyptothek at Munich; and no doubt they will sympathize with Mr. Cockerell in the regret that he needs must feel at not seeing them placed side by side of the Elgin Marbles, Mr. Layard's Antiquities from Nineveh, and his own Phigaleian Sculptures, in a gallery in the British Museum, devoted to their reception.

In another article we will introduce our readers into the Temple of Jupiter Panhellenius itself, and endeavour to place upon record, in a popular way, a somewhat detailed account of its architecture, orders, and sculpture, which, perhaps, we may further continue. At present we will content ourselves with merely reminding our readers that folios are not born every day, and that Mr. Cockerell's last addition to our store of professional knowledge is, perhaps, the most elaborate publication of the last few months. We can only say that the work is the discharge of a long-promised debt on the part of Mr. Cockerell,—a debt due alike to the public and to himself,—and that we have only one fault to find with the book before us; which is, that instead of being delayed to the year of grace, 1860, it ought to have appeared in the good old days "when George III. was king," or, at least, when the Prince Regent was holding the reins of Government; as in that case it is our firm conviction, that it would have met with many a ready purchaser, who (even assuming him to be alive) will not allow himself to be tempted to lay out his guineas in this age of "Railway novels," "Penny Cyclopedias," and "Shilling Peerages,"—an age in which it is to be feared that what is light and frivolous too generally rises to the surface, while what is learned and elaborate is suffered to lie deep in the "dark-unfathomed caves" of the literary "ocean." We are not surprised, therefore, to see that Mr. Cockerell has taken for his motto the words of Horace, "*Contentus paucis lectoribus*," and has limited the impression of this work to so few copies, that it must always remain a choice and scarce volume; and we learn that nearly

* Of this work, in folio, vol. i. was published in 1792, vol. ii. in 1797, vol. iii. in 1794, and vol. iv. in 1816.

• It will be remembered that at this time Navarino had not been fought, and that Greece was under the despotic rule of Turkey.

every spare copy has been taken up by the Dilettanti Society, who thereby have set their seal upon a work published uniform in shape with their own volumes, and fully equal to any of their most elaborate productions in its intrinsic professional value. The work, we should add, is profusely illustrated, not only with vignettes of the most costly kind, and of a sort which we do not often meet with in these days (being engraved on copper in the most finished style), but also with some thirty or forty elevations, ground plans, sections, exterior and interior orders, and iconographic details, at which we hope to glance hastily as we pass along. We shall come back to them forthwith.

FAIL OF THE CENTRAL TOWER AND SPIRE OF CHICHESTER CATHEDRAL.

CHICHESTER has received a heavy blow, and England a warning. The story must be told in full.

In the autumn of 1859 it was determined, as a memorial of the late dean, Dr. Chandler, to remove the then existing choir fittings, and to open out the choir to the nave in order to afford greater accommodation for the public at the cathedral services. This determination originated in a bequest by the late dean of 2,000*l.* for the decoration of the cathedral. To this bequest a further sum was added by public subscription, and a committee was formed for the administration of the fund, of which committee the dean and canons were *ex officio* members. Mr. Slater was the architect charged with carrying into effect the work thus undertaken. The prebendal stalls, as they then existed, were ranged against the piers which carried the north and south arches of the great central tower, upon which rose the spire to an altitude of 272 feet. The west end of the choir was formed by a return of the stalls; the back of them, and so the limit of the choir, being as nearly as possible at the centre of the responds which carried the great western arch of the tower. Thus the stalls concealed, as far as the western piers of the tower are concerned, about half of the inside faces of these two piers, to the height of the top of the stall canopies. Immediately at the back, *i.e.*, westward of the stalls, there was on either side of the entrance to the choir a stone staircase used for access to the organ gallery, and these staircases nearly concealed the remaining part of the two piers on the inside, as the stalls did of the other part. The first bay of the nave was occupied by a stone arched screen, known as the Arundel shrine, the back or east wall of which included the staircases, and touched the angle of each of the two great piers to which we are now referring. Upon the shrine was placed the organ: it, in fact, formed an organ gallery extending across the nave. The Arundel shrine was built in the fifteenth century. The piers themselves rose to a height of 45 feet, and carried semicircular arches, both piers and arches being of Norman date.^{*} The crown of the arches was immediately below the vaulting of the cathedral, which is 68 feet from the floor of the nave; and above the vaulting, on each side of the tower, was visible a discharging arch of pointed architecture, springing from a mass of rubble walling at the angles, the discharging arches being fully 3 feet deep and of cut stone. The tower above belonged to the Geometrical period. The spire was added later, and the pinnacles and canopies around its base were of the end of the fourteenth century.

Returning to the base, the great Norman arches, visible within the cathedral, were in good condition, and had been carefully constructed, the inner ribs, which were large and strong, having a through stone at about every fourth *voussoir*. The piers which carried these arches presented many marks of failure. In the two eastern piers these marks were chiefly confined to the upper part, but in the western they were much more numerous, particularly on the south side of the south-west pier: they appeared to have existed for a long time, some of them evidently for centuries; and one great settlement, by which the south-west pier had become separated from the adjoining transept-wall, must have occurred soon after the tower was built, as the Early English string-course above it had been, with some ingenuity, brought to a straight line where the stone courses below were out of the true level. The south-west pier was separated by old fissures from

the nave-wall, nearly to the same extent as from the transept; and as regards the north transept, a similar separation of the north-west pier had occurred. The failure of the eastern piers in these respects, although marked, was not so complete. Much of the stone-work bore marks of calcination from the fire which destroyed the cathedral at the end of the twelfth century. From a computation made a few days before the catastrophe, the weight borne by each one of the four piers amounted to 1,416 tons, and the bearing surface of each pier was 85 feet superficial.

The plan of re-arrangement determined upon was, to retain the north and south stalls in their old position after taking down and refitting them; but the return, or western stalls, organ gallery, and Arundel shrine, were to be done away with, in order to open the nave for the congregation.

Very early in the preparations it was discovered that the tower piers were worse than had at first appeared. Many of these defects were coated over with whitewash, and the removal of the woodwork was disclosed others. Under these circumstances it was decided to take further professional advice upon their state, and Mr. Yarrow, civil engineer, was consulted. It appeared that in the north-west pier so considerable a fissure existed, that at several parts in its height a 5-foot rod could be entered for its whole length, and moved freely behind the facing; and in the south-west pier one angle, where the Arundel shrine abutted, was found to have been entirely cut away, and the corner of the pier was carried by a short oak lintel and one upright, and one raking oak shore. The respond of the great west arch against the south-west pier was cut away at the bottom, and at about 12 feet high, had burst off, and was hung to the wall by an iron strap, the marble columns and the whole respond of the two nave arches abutting on the tower piers were fractured, and the nave arches themselves strained and crippled.

Strong timber centres were then placed under the north, south, and west arches, and the work of refixing and replacing the stone separated from the north-west pier was taken in hand, at about the same time that the building up of a sound stone angle to the south-west pier, in place of the wooden shores, was commenced. This was during the past summer, and, ultimately, the respond of the western arch was restored against the south pier, up to where it had been found cut or split off, and the whole east face of the north-west pier, with nearly half of its north and south sides, was refaced up to about 10 feet from the floor. The inner ribs of the two nave arches were also renewed. Later still, a small piece of facing near the top of the north-west pier was reset, and the western caps of the south-east pier, which were broken and forced forward, and the joints opened to 1½ inch wide, were taken out, and new Portland stone caps inserted, and the shafts repaired for 7 or 8 feet below. The work to the western piers was finished in or before October last; that to the south-west pier has been completed within the present month. The new work to these piers was built in lias mortar; the old was taken out in small pieces at a time. The bond was made as good as was practicable, the old core proving to have a large quantity of mortar, much of it in a very decayed and friable state, with much chalk, some stones from the seaside, and some moulded stones, evidently parts of a previous building.

In November last a settlement was observed to occur in the south face of the north-west pier, to the right of the respond of the western great arch: by it the new facing was fractured, the seam extending from 8 or 9 feet from the floor down to about 3 feet, through several stones, as well as down the joints. About the same time some of the old fissures in the south-west pier were observed to extend themselves down into the new work. Some time after a crack was observed to open in the north-west pier on its north side, corresponding nearly with what had previously occurred on its other face. The attention of the architect was directed to these, and at the end of the year Mr. Yarrow also inspected them. As a precaution it was determined to add centres in all the arches connecting these two piers with the nave and transepts, and these further centres were at once commenced, although only one of them was ever erected, in consequence of its being found absolutely necessary to apply shores and other remedies of a less formal character. On the 25th of January the seams in the north-west pier were barely a sixteenth of an inch in width: they then extended about 12 feet high, and at the seam there was a marked tendency on both sides of the pier for the centre part of the wall to bulge, although the inward movement had not advanced more than a sixteenth of an inch; the eastern respond

of this pier, which was part of the new work then stood perfectly straight. On the south-west pier one particular old crack, several feet in length, at about half the height of the north side, was observed to be not more than an eighth of an inch wide. On the south side of the pier the old fissures dividing it from the south transept were no larger than they had been for many years; on the contrary, they appeared to be some what less, indicating a tendency in the pier to bulge to the south; but so slight was the change that it was difficult to detect it. On the 14th of February the south-west pier was observed to be dividing from east to west for a height of several feet, at the level of the springing of the nave arches, its north or inside facing becoming entirely detached, to all appearance. This was by the extension of an old fissure in the eastern respond right through the pier into the nave arch. On the 15th the north-west pier was observed to have bulged to the extent of five-sixteenths of an inch on its inside face, where, on the 25th of January, it had been only one-sixteenth; and as the seam in the north face remained unaltered, it was evident that a vertical fracture from east to west, in the interior, had separated the two parts. The nature of this fracture also appeared in some seams both in the east and west responds; on this day also the east respond, lately newly built, was observed to bulge eastwards 8 or 9 feet from the floor. A fresh fracture and movement had also occurred in the clerestory window of the north transept. In the south-west pier the old fissure, noticed on the 25th of January, had opened to half an inch wide, and a very general opening of the fissures had occurred: besides, the old fissures in the transept wall were distinctly closed, and that with so much force as to bulge out the facing of the transept wall, both inside and outside. At the same time it was ascertained, by an examination carried to the very summit of the spire, that no movement had occurred in the upper part of the building. The conclusion arrived at was that nothing could stay the ruin of the piers unless a jacketing of solid timber could be applied, powerfully hooped together with iron bolts and balks of timber; the object being to prevent the bursting out of the facing of the piers, which was evidently going on, and was caused by the crushed and rotten state of the interior. Already at the tops of the north and south arches there was warning of their tendency to slip off and down the backs of the centres.

The jacketing was considered a most urgent matter, and the preparation of it was entrusted to Mr. Bushby, of Littlehampton, a builder well known for his skill and energy. The arrangement of these measures was concluded on Saturday, the 16th February.

On the Sunday following, it was found that tendency to crush and bulge the facing in one part of the south-west pier, which was decided the weakest, was very apparent; and although divine service was proceeding in the afternoon a part of the nave temporarily screened off for the purpose, it was found necessary to prepare, without waiting for its termination, for all the shoring that could be effected in the emergency. In the duty the men of Mr. Johnson, of Chichester, carpenter, and Mr. Kitson, mason, worked with flagging energy till three hours past midnight. On Monday, the 18th, they resumed their work before daylight, and it was vigorously prosecuted till ten o'clock p.m., fresh weaknesses being called for fresh remedies. On Tuesday, the work proceeded as before, but the failure becoming more frequent, it was found necessary, even at the risk of interrupting Mr. Bushby's important preparations, to call some of his men to resist the force the work was prosecuted till past midnight. During this day, also, independent advice, the building determined to take independent advice, the building was minutely examined by Mr. Christy, architect. Another examination to the top of the spire on this day, showed that that part yet retained its upright position. On Wednesday, the 20th, the tendency to crush the south transept wall, about the old fissures, was very alarming, and the bulging increased very rapidly, both in the lower part of the south-west pier, and in the lower part of the floor, the facing, which, at 7 or 8 feet from the floor, the facing bulged about 3 inches out on the south side; the north side it strained the timber braced between it and the north-west pier, and one of them began to bend. It was deemed necessary to add Mr. Bushby's presence, with fresh additions of men, to the force already employed. About five o'clock, the south-west pier settled down about three-quarters of an inch, crushing in the centre, and leaving in place

^{*} The views and plan, pp. 142, 143, in the present number will make our description clearer. Some notice of the cathedral will be found at p. 151.

of its north face at about 4 feet from the ground, the front of the stones standing to their original height and perfect, whilst the back part of the same stones was crushed and compressed down three-quarters of an inch. During some hours, the crushed mortar had been pouring out ominously from the old fissures in the triforium wall of the south transept. Flakes of facing stone, too, occasionally fell. With evening came a terrific storm of wind. To those within the building, it appeared at first to beat on the north-east side of the church; but as night advanced, it came with unabated violence from the south-west. About half-past eight, p.m., a mass of brickwork, built up probably in the last century to fill in the triforium arch on the south side of the nave, next the tower, fell into the church. A strut of the triforium roof had a bearing upon it, and by the settlement of the walls the strut had pushed the brickwork over. An hour and a half past midnight, stone was heard to fall outside the tower in the north-west part. It was found to have broken the triforium roof, but the place of the weakness could not be ascertained during the darkness. The working parties continued to add shoring till three hours and a half past midnight; and amongst the latest of their labours was the strengthening of one of the braces before mentioned, between the north-west and south-west piers, which, before the remedy could be applied, was bent to the extent of a foot.

On Thursday, the 21st, the working parties returned before daylight. Soon after it was ascertained that the fall of stone which had occurred during the night, outside the north-west part of the tower, was from the arch of the clerestory window of the nave, close by. The pier appeared to have sunk nearly an inch, carrying down one jamb of the window with it, and thereby loosening the arch stones, which fell out. It was also perceived that the head of this pier had become much seamed with cracks during the night, and the head of the south-east pier, where but slight marks of new failures had before appeared, was cracked, and audibly cracking in many directions. To the weight thrown on these two piers by the settlement of the south-west pier early on Wednesday evening, and to the straining of the storm, is probably to be attributed the mischief now found in progress at the tops of the north-west and south-east piers. About the bottom of the south-west pier, shores applied only the night before were found to bend. Strenuous efforts to increase the number of the shores were made by about seventy men, at work under and around the tower. Crushed mortar appeared in larger quantities; flaked stones fell more frequently, and especially from the south-east pier, whence none had fallen before; whole stones burst out, and fell more than once. The position of those who worked was critical. Before noon the falling of the shores became still more evident; no appearance of bending or weakness was, however, observed in the three centres under the great arches, though evidently bearing an enormous load. The straining of the shores showed that the piers had arrived at the last extremity, and warning was then given to the inhabitants near the building to the south-west, as it was clear that the fall of the south-west pier, if it happened before the others, must have thrown the tower and spire in that direction. At one o'clock, when the workmen returned from dinner, Mr. Bushby prevented most of his men from re-entering the building, and about thirty who had re-entered or remained, were brought out: it being ascertained that all were out, the door was locked at a quarter-past one. The workmen waited in anxious groups outside the cathedral enclosure, and were soon joined by the citizens, oppressed and excited with the suspense. The spire, notwithstanding the alarming ruin going on below, appeared still to stand upright, when suddenly it was seen to incline slightly to the south-west, the stones and dust from the base of the tower rushed into the nave, choir, and transepts, and, rapidly crumbling at the bottom as it descended, the mass subsided in the centre of the church, and the top of the spire falling at last to the south-west, threw its capstone against the abutment of one of the flying buttresses of the nave, and broke itself across another of them intervening. The fall was a matter of only a few seconds, and was complete at half-past one.

One bay of the nave and choir and of each transept is included in the ruin. As far as can at present be ascertained, the destruction of the two western piers appears to be complete; but of the two eastern, the remains are about 25 feet high. The tower appears to have slid off from them at that height; and in the case of the south-east

pier, the separation took place at old fissures, as may still be seen.

The removal of the ruin has commenced: scarcely a stone remains in its perfect form. We have only to add to this recital, which we believe to be complete and correct, that Mr. Slater called to his assistance Mr. Gordon M. Hills, architect, for the conduct of the active operations described in the latter part of it.

A meeting of the inhabitants and of the most influential persons of the neighbourhood was held on Tuesday, at which measures were taken to bring about the re-building of the spire, and the strongest feeling of determination was evinced to repair the calamity.

THE CRYSTAL PALACE.

The north wing of the Crystal Palace, as most readers must have heard by this time, was one of the victims of the extraordinary gale of Thursday, the 21st ult. The disaster occurred between six and seven o'clock in the evening. The block at the extreme end of the wing, originally designed to carry the tanks for playing some of the fountains, went first, and the remainder of the wing, fortunately not in use, followed. The wreck is complete. The iron columns and girders are broken up into fragments. The rest of the building it appears withstood the gale uninjured. We may find it necessary to return to the subject.

FALL OF A NEW BUILDING IN CLAPHAM-ROAD.

DURING the gale on Thursday in last week an addition in the front to a house in Upper Dorset-place, Clapham-road, known as the Clapham-road Ale Stores, fell partly and killed three unfortunate workmen who were engaged on the alterations. In reply to the Coroner, who inquired the cause of the fall of the building, at the inquest afterwards held, Mr. Edward Houston, the owner, said:—So far as I can form an opinion, I believe it was caused by a sign-board on the top of the old building. This board was on the top of a parapet, formed of about 8 feet of brickwork. The board was attached to two chains that were fastened to the brickwork of the parapet. The wind acting on this board, the chains acted as levers, and carried it all bodily away. The sign-board was carried to the opposite side of the road. The board was put up about two years ago by the men belonging to Messrs. Reid, the brewers. It carried with it about seven or eight tons of brickwork, which crushed the new building below.

After further evidence, and a short discussion as to whether the board had been properly fixed, the jury returned a verdict of "Accidental death."

THE RECENT GALES.

THE late gales have had fearful effect on the British coasts, causing a sad destruction of human life and of a large amount of valuable property: the coasts of Northumberland, Durham, and Yorkshire have been strewn with wrecks; and the Godwin Sands have done fatal work. In other parts, particularly in the Irish Channel, there have been serious disasters. It is with painful feelings that one is so constantly hearing of such losses; and of the heroic and kindly efforts to save life which these times of danger bring to notice no one can think without pride and admiration. Such men as the brave captain of the *Ajax*, and the more humble pilots, fishermen, and others on the coasts, have, in their endeavours to save life, been heedless of danger to themselves.

A cry is constantly coming from the north for harbours of refuge; and it is said, on good authority, that if there had been such an arrangement between the Tyne and Flamborough Head, scores of vessels would have been saved from wreck. In a great mercantile country like this money should not be so much a consideration when there is an almost certainty of preserving many valuable lives. Admitting this, it is well worth while, as we have already remarked, to consider to what extent the improved use of the barometer as a storm indicator may be made useful along the coasts. It is reported that the last storm—even the direction from which it was to come—was indicated three days before it took place.

The electric telegraph now runs to most points of the coast; and, with proper management, the indications of the coming storm might have been noted and signalled from lighthouses and headlands. The hardy daring of our seamen; and, it may be, a want of confidence in those new but reliable applications of science, may cause such

warnings to be overlooked; but we trust that advancing intelligence will do its good work.

Damages to property during the storms of wind on Wednesday and Thursday in last week have been very extensive and severe in many parts of the country as well as in and around the metropolis. Houses have been unroofed, chimneys, high and low, thrown down, walls levelled, churches injured, ancient trees thrown down, and even buildings altogether destroyed.

At the church of St. Mary, Lambeth, which adjoins the Archbishop's Palace, the damage has been most extensive. The wind stripped off about 30 feet of the massive leaden covering over the nave, dragging with it a portion of the roof. The lead of the south aisle was also torn off for about 15 feet, as well as injuring the roof. Shortly after this a lofty stone chimney was dashed from the roof of the vestry, and hurled with violence into the graveyard, where portions of the stone of very heavy weight were found buried in the earth, several inches below the surface. In Fore-street and Vauxhall-street, and elsewhere both south and north of the Thames, the roadways and streets were strewn with tiles, bricks, &c., blown from the roofs of the houses.

At Woolwich Dockyard a considerable portion of the roof of the newly-erected church was blown off, and also the corrugated zinc roof of the mast-house, next the river.

An explosion took place at the gunpowder mills of Messrs. Curtis & Harvey, near Mounslow, which has been attributed to the storm.

The injury done to the Crystal Palace at Sydenham we have separately notified; as we have in the case of some special calamities.

At Reading the elements have saved much trouble both to restorers and to demolishers, by blowing down the whole of the fine old chief arch of the Abbey gateway, on the north side, and a portion of the western tower. During the previous fortnight workmen had been employed in removing the lead from the roof, weighing several tons, and the large oaken beams, which were thought by some to be too heavy for the tottering state of the building to sustain. Four men were at work on the scaffolding when portions of the walls crumbled and fell, giving them little more than time to escape before the arch came down. It is to be hoped this will expedite the restoration.

At Northampton, a chimney was blown down and destroyed the whole of the interior of a dwelling, killing two persons and injuring others. At Emscote (Warwick) a church was partly unroofed and other damage done.

At Badminton, the cross of St. Raphael's Church, a recently-erected edifice, together with about half a ton of masonry, was dislodged. At Clevedon, Keynsham, Shorehampton, Thornbury, Mangotsfield, Brislington, and other places, serious injury resulted from the storm.

At Weston-super-Mare, Trinity Church, a new building, which was nearly finished, was made a complete wreck. Upwards of 25 feet of the spire was literally dashed to atoms, many portions falling through the roof and causing sad devastation. The scaffolding was blown to the ground from the violence of the hurricane, and the damage done at this spot must amount to many hundreds of pounds.

MR. FERGUSON'S TOPOGRAPHY OF JERUSALEM.

SOME attention having been excited lately to the most important of all possible applications of architectural criticism,—Mr. Fergusson's application of it to the "Question of the Holy Places,"—I would venture to make a remark supplementary to his theory, and necessary, as I conceive, to fortify it against the chief objections his opponents now urge.

Mr. Fergusson has, perhaps, best stated the case, however briefly, in a letter to the *Times*, with every word of which I concurred, except the last half line, where, after his conclusion that "the Dome of the Rock (*vulgo*, Mosque of Omar), is the church built by Constantine," he appended the needless and unfortunate words, "over the sepulchre of our Lord." Now, why must the author clog his otherwise unassailable arguments with this wholly irrelevant and gratuitous assumption that Constantine's church covered any more than the present one, the true Holy Sepulchre? By this he exposes his theory to the unanswerable objections that his recovered "Holy Sepulchre," the cave in the Mosque rock, is and was just as undeniably within the city,—as impossible ever to have been outside its walls when more populous than now, and hence as irrec-

cible with Scripture accounts,—as the present place of pilgrimage itself; nay, decidedly more so (if two impossibilities may be said to make a thing more impossible than one) from its extreme proximity to the Temple; it being, as every one knows, within the bounds popular tradition assigns to that mass of buildings, while Mr. Fergusson's own correction of the vulgar plans can only keep the northern, or most frequented Temple gates, some 50 yards south of this same cellar! Thus the garden and tomb of the wealthy Joseph, if not the Golgotha "in" which that garden lay (John xix. 41), "nigh to the city" (v. 20), and "without the gate" (Heb. xiii. 12), is to be supposed holding precisely that position with regard to the most towardward porch of the Temple, that the two nearest houses in Paternoster-row hold to the most frequented porch of St. Paul's Cathedral!

Now, I hold such objections to be irrelevant; and Mr. Fergusson's views, as to the *buildings*, to be all true, because I believe, unlike him, that Constantine's age had just as little opportunity of identifying the true "Holy Places" as the monks of the tenth century, or we of the nineteenth. In short, I accept the architectural evidence as truly identifying Helena's church, and therefore the rock and ancient cellar over which she built it, now in famous "Invention of the Cross," only because denying those inventions of her courtiers and clerks of the works, to have any connection whatever with the real cross, or "Sepulchre of our Lord." All that Mr. Fergusson has so well explained as to the ease and naturalness of the rise of a false site, *without intentional fraud*, in the tenth century, I extend equally to the fourth, when all that established itself was just so much easier, as it is easier to originate a report that contradicts nothing, than to substitute a new for an old and opposite one.

A place of pilgrimage is very like a market, and the difference between originating and transporting one is about the same as between establishing old Smithfield and getting it away to Camden-town. Indeed, the disparity of the two tasks is well set forth in the history of one shrine, that of Loretto. Its removal to its present site, we know, was not accomplished without the aid of angels, though its first erection is not recorded to have employed any superhuman labour. Now, in the case before us, I say that, if the faith, or whatever you please to call it, the relic-finding instinct, or mountain-moving faculty, of a time of unparalleled Christian disaster and subjugation, was equal to the larger operation of both effecting an old and substituting a new topography, much more was that of a conquering church like the Constantinian, with Helena for a nursing mother, up to the comparatively easy and every-day process of creating and establishing a holy place against no ancient rival. If Mr. Fergusson thinks the fourth century too civilized, I would just ask whether it was more civilized than that of "Our Lady of La Salette."

Dr. Wolff, as appears from his lately-published "Travels and Adventures," believes in all the sites pointed out by the present monks of Jerusalem, because of the impossibility of supposing the apostles not to have held in cherished memory the real spots, or any later generation to have knowingly changed them;—as if there had been Christians in the locality ever since! He forgets the whole eventful two centuries and a half from Vespasian to Constantine; the Dominical command left to the whole Church, on the signs of the former siege to flee to the mountains; the unparalleled devastation and obliteration of landmarks, both then and in the second razing to the ground sixty years later, to prepare a site for Adrian's new "Elia Capitolina," with its crushing temple of Jupiter; and, above all, the utterly unique measure then found necessary, of excluding every Jew (and, consequently, every Christian, for they were as yet known only as a Jewish sect) from approaching, on pain of death, *within sight* even of this focus of frantic superstition, which the experience of sixty years had shown to be unsafe left as a desert, and necessary to be occupied as a populous colony and fortress, merely to exclude its fantastic children. Thus Dr. Wolff, whatever he may believe, would seem to disbelieve that this last of the curses in Deuteronomy, entire *exclusion* from the land of their fathers, was ever yet fulfilled; though heathen history records it to have been so for at least a century and a half; which is long enough to break very completely the thread, of Christian topographical memory.

Moreover, he forgets, with Mr. Fergusson, that Catholic tradition constantly represents Helena's identifications of the *lost* holy sites as matters of

discovery,—nay, of such new and marvellous discovery as could not have been achieved but by miracle, visions, and wholly supernatural interferences; in all which I perfectly agree with the Catholics. It could not: the history of the previous two centuries shows that it could not.

Yet we see Protestant books arguing that the discovery by Helena's people, was as possible without miracle, or would be as credible a piece of mere antiquarianism, as the finding-to-day relics of the Smithfield or Oxford martyrs! Now, surely to make the cases parallel, the mere equality of time will not suffice, where one country happens to have enjoyed precisely the most undisturbed peace and prosperity that any ever did on this side China, and the other to have been doomed, if the very highest authority may be credited, to the direst series of tribulations that ever had been or ever shall be! To make them parallel, we must imagine Oxford (as the city differing least from ancient Jerusalem, in size and population) the scene, within forty years after the martyrdoms, of the most destructive and obstinately fought siege in all history;—the whole country, both then and again sixty years later, revolting against a foreign power that had all along been its masters, and on each occasion only subjugated after the two most exterminating floods of war and carnage the world ever saw;—these masters utterly despising the religious alike of the Oxford martyrs and their persecutors, and infinitely less interested than Russians would be in either;—that city on both occasions, levelled with a care peculiar to the unique case of a fortress that was also the conquered race's Palladium and Fetish;—and on the second, replaced by a new massively fortified capital of the conquerors, some Czaropole for keeping the country down, with a huge Russian cathedral on the site of levelled Christchurch;—the whole colonization for the express purpose of keeping all Britons, Papist or Protestant alike, from the spot; and this state of things continuing some 170 years. After all this, we are to suppose the site and relics identified,—not of a politically memorable execution, observe, like that of the bishops, but of a common judicial act, a hanging of two or three thieves, as it had appeared, in times more frequently witnessing such acts than any English city since the Middle Ages. Now, between antiquaries who suppose this, and the believers in Helena's miracles, which appear to possess the larger capacity of belief? I think the former. The Catholics appear to me right in holding that the identifications were possible only by miracle. The question reduces itself to whether any miracle has been vouchsafed for the purpose.

This question now seems to be settled by the two results of Mr. Fergusson's architectural criticism.—first, that the present "Holy Sepulchre" is a different place from Helena's "Holy Sepulchre," and, secondly, that Helena's "Holy Sepulchre" was not only as completely within the ancient city as its present successor is, but moreover within 50 yards of the chief entrances of the ancient Jewish or Herodian temple! The weight of this latter fact, its discoverer seems not to appreciate; though nothing can be clearer than his proof of the fact itself; and it is confirmed by the oldest Jewish account of Constantine's work, in the chronicle called *Seder Olam*. The Jews must always have known, at least, what had been the site of their temple. Now what do they relate Constantine or Helena to have done? Not to have built a church, but "rebuild the Temple." That is their chronicler's expression, so that Constantine's work must have been, as the architectural critic shows it to be, so nearly over the Temple site, that they who must have best known that site, regarded the work as a rebuilding thereof. The two results together, then, establish satisfactorily to me, that not once only, but *twice*—in the fourth century and in the tenth,—has the Church's faith been adequate to the creation of an impossible "Holy Sepulchre," and that two successive systems of traditional topography, both equally irreconcilable with Scripture, have reigned at Jerusalem since the age of Constantine. The sepulchre of Christ having been, if Scripture is to be believed, neither in the centre of the upper city, nor within 50 yards of the Temple's most frequented gates, it follows (and the conclusion is surely not unwelcome) that *no Greeks and Latins ever fight over it*, nor does any juggling priest display sham miracles from it.

These results, which the Church would have brought to pass, and thinks she has brought to pass, a special Providence has taken care to prevent; not, I suppose, however, for the sake of the stones or cave, or their sanctity. For other reasons than that, it has been ordered that the true

Holy Places should be known but to one generation, that which had known in the flesh their Holy Occupant. That these would have desired to transmit, and would have transmitted that tradition as long as possible, who can doubt any more than Dr. Wolff? But, unless we ignore both history and present facts, this was rendered *impossible* by troubles and changes absolutely without parallel in any other age or country; that is to say, by interferences all but miraculous, of a Providence that seems with equal care to have preserved, since other such traditions have grown up, the evidences of all their falsehood. Has all this been for no moral end?

We read of Moses, that *the Lord buried him*, and as the result thereof (which I suppose no one will say was unintended) that "no man knoweth of his sepulchre unto this day." And, accordingly, an allusion in the New Testament to some story now lost (Jude v. 9) has been held to imply that Satan was as anxious, for his own purposes, to preserve Mosaic relics, as the Church has been with regard to holy places and relics in general; but that "Michael," i.e. the "Stroke or Execution of God," would have it otherwise. However that text may be understood, it appears from the former, that in Scripture, far from finding any precedent for miracles of such a tendency as those of Helena, we find some (or one) wrought for the precisely opposite end, of *concealing* a sepulchre and relics, and *depriving* men of them!

Possibly the only Scriptural account of a veritable relic and its history (2 Kings xviii. 4) may throw some light on the matter.

Now, what I think Mr. Fergusson's results should lead us to ask is whether the Burier of Moses has not, for similar reasons, buried many things besides? Was it written only historically of Moses, or also prophetically "of some other Man," that "no man knoweth of His sepulchre unto this day?"

Again, I claim for architectural criticism, as wielded by Mr. Fergusson, the honour of serving divinity with another lesson. It has shown that our pilgrims ought to imitate a certain golly custom of the Mahometans. It being wholly uncertain to the extent of a week, what night is the true anniversary of the prophet's ascent to Paradise on the mule Al Borak, the faithful attribute equal sanctity to the whole week; lest the holy time included therein, they know not where, should be dishonoured. Now, should not this principle be extended to "holy places?" It appears that in very deed, any rock chamber whatever, within a moderate distance outside Jerusalem, and low enough to have required stooping to look into it, has for us a precisely equal probability of having been the scene of the Resurrection; and that any spot near such a cave, high or low, has absolutely equal chance of having been Calvary; for of course the prefix of "mount" to that name is a modern figment. Thus the whole land is "turned as a plain" to a modern pilgrim;—all equally holy;—"lifted up" in her place, from Benjamin's gate unto the corner gate, and from the tower of Hananeel unto the king's winepresses."

These are surely good services for such a study as architectural criticism to render.

E. L. GARBETT.

PROFESSOR SMIRKE'S THIRD LECTURE ON ARCHITECTURE, AT THE ROYAL ACADEMY.

IN a former lecture I called your attention to a period in the progress of our art which must ever be of great interest and value,—I mean the Quattrocento Period; for it was then that the foundation was laid of a new epoch or style of art, founded, it is true, on the admired examples of antiquity, but adapted and reshaped to meet the new wants and altered habits of modern life.

On the occasion to which I refer, my retrospect reached back to the earliest germination of the Renaissance. We found that even so far back as in the middle of the fourteenth century, there was a manifest dawning of the coming change; and that, by the middle of the following century, the revolution had been completely effected. I recommended to your especial attention and study the beautiful and in many respects original style of design which the best masters of that period practised; the style, in short, which we observe in the works of the Lombardi at Venice, of Alberti at Rimini, and elsewhere, and of some few other eminent artists who led the way in that new school.

But it is not to be denied that that style is characterised, perhaps, I ought to admit, *disfigured*, by certain archaisms and conventionalisms similar to those which are observable in the sculp-

ture and painting of the same transitional period. In fact, throughout the fifteenth century, a savour of Mediæval art had remained. Works of great purity and beauty would often present some quaint conceit,—a reminiscence of the past, analogous to that which still tinctured the elder schools of the other branches of art.

This, no doubt, was occasioned by an unwillingness, not uncommon, to depart from a trodden path; and to that reverence and prepossession with which it is natural to regard the works of our forefathers.

Nor is the habit peculiar to architecture alone. The other arts were, *pari passu*, partaking of the same innovating spirit. Old habits and partialities had to be overcome, old barriers broken down, both in painting and sculpture. There were those who still persisted in representing human figures standing on the extremities of their toes, and who would not learn to represent a horse walking as a horse alone can by any possibility walk. Vasari dwells with some naïveté on the inopportune dismay with which the men of the old school beheld their long-cherished traditional delineations of natural objects set at naught, and their conventionalisms disregarded and wholly displaced in popular estimation.

The new manner of design in the three sister arts appears to have become completely matured at the close of the fifteenth century;—not, it is true, in Europe generally, but in Italy, which was then immeasurably in advance of other countries in æsthetic cultivation. A particular interest attaches to that transitional period, for it was a time of remarkable activity and energy,—an activity which perhaps necessarily accompanies all eras of great social change. It was at this juncture in the history of the world that men began to learn that war is not the normal condition of our existence, and that human happiness depends rather on social co-operation than on antagonism. They were then also learning to exercise a free judgment on many public and religious institutions. These great moral changes were accompanied by great changes in the moral reception and practice of fine art. Dwellings ceased to be castles: helm, corslet, and mail gave way to the silk and ermine of civic robes; and the uses of the great began to wear a new aspect, when their occupants ceased to frown on their neighbours as on their natural enemies, and began to appreciate the smiles and graces of domestic life. Thus nothing could be more joyous and peaceful in their aspect than the palaces of Venice at that time began to be built about this time; and when, a somewhat later period, in our own country and in neighbouring states, the harsh attributes of Mediæval life yielded to the cultivation of peace, art, nothing could exceed the cheerful and æsthetic aspect of the mansions of the Elizabethan age: unrefined, indeed, and occasionally noisy and even grotesque, they were gay and handsome; often, indeed, so flooded with light that, Bacon, who was familiar with such houses, says, "he knew not where to be to be out of the light;" so entirely had the secluded and fortified castles of the earlier architecture been banished from them.

Among the changes brought about at this momentous epoch, no change was more strongly marked than that which occurred in our own art; the change which was, in Italy, gradually effected during the fifteenth century, seems to have reached, as I have stated, its final completion towards the end of that century,—a period rendered so illustrious in the annals of art by the works of Raffaele, Michelangelo, and a brilliant host of others of kindred genius. Bramante, and still more distinguished pupil, Raffaele, introduced, in their architectural designs, that union of perfect grace and simplicity which inclines me to regard the very beginning of the sixteenth century as the date of the greatest perfection of the Renaissance school; when modern architecture, perhaps, he said to have attained a degree of excellence which has never been since exceeded, giving the most notable examples of this very remarkable but short period may be named the temple of the Vatican; the Palazzo of the Cancelleria at Rome; the Palazzo Pandolfini, and a number of buildings which might be specified as specimens of matchless purity of design.

The painter's art freed itself from the conventional style of drawing and composition which before prevailed, and became distinguished by truth, simplicity, and grace; so architecture, in its age of elevation, namely, the commencement of the sixteenth century, will be found to be alike from the grotesque tendency, both in proportions and in ornamentation, which occurs in the preceding age, and from the excesses and

extravagance which grew up with the rapidity and profusion of weeds during the succeeding period. It is to be deeply regretted that Raffaele did not live to transmit to us a greater variety of examples of architectural design; for undoubtedly he had as pure and refined a feeling for architecture as for the sister art. The great works of this illustrious man, whom the united voices of his own and of all subsequent ages, and of all civilized countries, have pronounced to have been one of the most gifted of the children of art, were executed within twenty years; namely, from 1500 to 1520, which must be regarded as the culminating period of modern art, including modern architecture. It will be profitable, then, to look back upon that short but brilliant epoch, and to pass under review some of the principal works which belong to it. I have already noticed some of the contemporaneous social and political events which characterized this period of mental and æsthetic activity. Very few years sufficed to effect very great progress. The great changes in art were, as you well know, simultaneous, and perhaps in great measure connected with, and consequent upon, the important literary revolution which was at that time taking place.

After lying for ages almost concealed, and certainly wholly neglected and uncultivated, classical literature was restored and rapidly developed; and it was natural that, at the same time, a congenial taste for the study of that classical art with which it was intimately connected should arise. While the Petrarchs and Politians were busy in exploring and unfolding the treasures of neglected libraries and defaced palimpsests, the researches and labour of the no less indefatigable lovers of ancient art were daily bringing to light the surviving evidences of its former excellence. The first artists of the period were indeed the most energetic archaeologists.

Buildings previously unknown were disinterred and diligently examined. We find Alberti, Bramante, Peruzzi, and Raffaele himself, studying with exemplary pains the crumbling relics of antiquity; and, with incredible zeal, measuring and delineating those treasures, which, like the gold of new-found fields, had lain for centuries trodden under foot, disregarded and even unobserved.

The effect of this ardent study soon made itself very visible in the works of these artists; and such was the fervour with which these studies were pursued, that the lifetime of each individual artist witnessed wonderful changes in all the arts of design.

It is not for me to expatiate on the changes thus effected on the sister arts. I have already alluded to the singular evidence of progress, as a painter, in the twenty years of Raffaele's artistic life. Unfortunately he built so little, that we have not the means of tracing his progress in architecture; but, in the works of his master, Bramante, we have more palpable evidence of the effects of his eager study of classical remains: his earlier works, as in the Cancelleria, with all their beauty, show some indications of the archaic dryness of the fifteenth century in the working out of their details; whilst, in his later works, as, for example, the memorable arcades of the Papal palace, a more accurate acquaintance with classical details and classical treatment of architectural forms becomes manifest.

Vasari dwells with admiration on the zeal with which Bramante applied himself to the acquisition of an accurate knowledge of the style which had for so many centuries fallen into oblivion. In cultivating this style anew he was but following the popular impulse that had been given to the study of ancient architecture by the disinterment of Roman remains, both literary and artistic.

But the peculiar energy of Bramante's character, and the favour which he enjoyed at the Papal Court, under Alexander VI. and Julius II., and which afforded him so wide a field for the exercise of his genius, rendered him perhaps the most influential and effective of all the promoters of Classic art at the period to which we are referring.

Among the foremost of those who zealously seconded Bramante's efforts for the resuscitation of ancient architecture, was Baldassare Peruzzi. Although his immediate successor in the fabric of St. Peter's, Peruzzi was an artist of widely different character; of far less vigour, but of much more refinement: most painstaking and laborious, but diffident, retiring, and unambitious, Peruzzi wanted those intrinsic qualities without which talent often fails to attract the regard which it deserves. Bramante, bold and energetic in the prosecution of his work, yet joyous and festive in his social habits, attained the highest favour and the utmost popularity; whilst his successor, of a

very different turn of mind, lived, as his biographer tells us, amidst constant vexations and difficulties, and he died in poverty. Yet, in mockery, as it were, of his laid late whilst living, a pompous monument was erected in his honour after death, by the Pope, in the Pantheon, close to the resting-place of his fellow-pupil, Raffaele.

There are lessons to be learnt from a careful study of the works of these earlier masters of the Renaissance to whom I have been referring, which I think it particularly behoves me to dwell upon in this place.

I can call to mind no work of the best masters of this period which does not clearly indicate that, in their estimation, it was a leading principle of design to distinguish very widely, and in a most marked manner, between the treatment of interior and exterior architecture.

In the works of both the masters to whom I have adverted, namely, Bramante and Peruzzi, but perhaps more especially of the latter, a degree of interior ornamentation was indulged in that might, to our cold, northern tastes, appear almost excessive, and which we should probably be disposed to condemn, were the excess not redeemed, and, I may say, in most cases fully justified by the extreme beauty of these ornamental details and by the judicious treatment of them. Nothing, for example, can well exceed the elaborate elegance of the decorations of the halls and corridors of the two Massimi palaces at Rome, which, I own, struck me as amongst the most finished studies of interior architectural composition that I have ever seen. The rapid advance made towards the perfecting of the new style is rendered remarkably apparent by a comparison of the ornamental details of Bramante's Cancelleria with those of the highly esteemed works of Peruzzi to which I have just referred.

Now, if we look to the exterior of these same buildings we shall find the most marked difference of treatment: a general abstemiousness prevails in respect to mere ornamentation. The evidences of care and study in the composition of the leading forms, as well as of the details, are quite as apparent outside as within. There is not a moulding that does not bear the impress of thought and care; but you will find breadth and simplicity the chief objects aimed at throughout, whether in the principal features or in the minor details. It is clear that these great masters, with one accord, were wont to say to themselves, "We will indulge our love of the beautiful on the walls and ceilings of our saloons and corridors, where the eye has leisure to dwell upon them, and where, sheltered from the vicissitudes of the seasons, our cunning intricacies and our mimic foliage may endure, and be a permanent source of pleasant contemplation for future generations; but we must in our exterior work have regard to the altered circumstances of position."

A building cannot be very critically examined, or even seen with convenience, from a very proximate point of view: the eye must be moved to some distance in order to appreciate or comprehend the design of the exterior, when the building is large. It is not, then, in these elaborate details that we can hope to win the applause of cultivated critics; for in truth such details will be too far off to be seen. We must rather have regard to the ensemble; to pleasing outlines; to variety of light and shadow; to symmetrical arrangement of the several parts: such are the considerations that must be foremost in our minds whilst we are designing external architecture.

If we introduce on the outside the minute and intricate ornaments in which our fancy disports within, we shall find the breadth of our lights broken up, and their effect destroyed. We shall be inviting attention to details, the merits of which will be unappreciated; and run the risk of losing the labour we have bestowed on the general composition, which may, perchance, pass unheeded by the eye, distracted in its attempts to examine unimportant minutiae. Besides, architecture is a material art: it deals with substantial realities, and is wholly dependent on static laws. Moreover, if we break up and obliterate our bounding lines, we shall deprive our work of the special character of architecture, and destroy its idiosyncrasy.

It behoves us, too, to reflect that by raising up a structure, composed of trivial littlenesses, and overlaid with festoons of little leaves, and flowers, and ribbons, or crowded with crockets and finials, and intricate corbelling, and by fretting the surface over with niches and imagery, and so forth, we shall be setting the elements against us. We shall find that the rain and the frost, and the invisible chemical atmospheric agencies, for ever acting with determined hostility against the sub-

stances we work in, will ultimately,—possibly slowly, but, perhaps, rapidly, at all events most surely,—render our sculptural labour nugatory; and, perchance, indeed, annihilate our building; and if those who follow us are not perpetually employed in renovating our work, patching and mending, restoring or renewing, our structure will inevitably become a picturesque ruin, the established residence of bats and owls.

Such may have been the reasoning of those experienced, thoughtful, and sagacious masters who ruled the destinies of our art at the end of the fifteenth century; and hence we find that Raffaele, when he designed the Palazzo Pandolfi, at Florence, made his work a model of symmetry and elegance, but wholly without wreath, swagg, or crocket. It is the admired of all beholders; as much so now as when it was just erected; and, lastly, it remains unaffected in its stability after exposure to the elements for three centuries and a half.

The same discrimination in the use of decorative details will be found to characterize the architecture of the Vatican Loggia, the Cancelleria, and the Palazzo Massimi at Rome, the church of San Francesco at Rimini, the Palazzo del T at Mantua, and I believe I may add every other building by the leading artists of that memorable period, which remain to us undisfigured by the hands of more recent sculptors.

I feel it incumbent on me to invite the attention of the student in architecture of the present day to a thoughtful consideration of this lesson as taught us by the best masters of the best period of modern art. It is the more incumbent on me to do so, because it is impossible to deny that the fault of the present day is a tendency to excessive and inappropriate ornament. I trust I shall be exonerated from any charge of personal criticism. I can truly say that I have not the remotest idea of assailing individual sinners: it is the *sin* I would condemn. If we critically examine the growing architecture of any of our great commercial or manufacturing towns, we shall see ostentatious—I may call them *presumptuous*—edifices rising around us, in every possible respect the reverse of those graceful, yet unassuming, works to which I have been alluding. Their outside, decked out and weighed down by ornament, showy, obtrusive, and meretricious; whilst their interior presents usually bare blank walls; as, indeed, they should be, seeing that they are occupied solely by clerks and merchandize. I cannot in too strong terms raise my feeble voice against this vulgarism; which, whilst it panders to the worst tastes of the uneducated throng, sets an example that tends to perpetuate the grievance, and to lower the standard of public taste by luring our eyes to those pretentious solecisms. From wretchedness and counting-houses the plague may spread to edifices of other and higher character.

But let us turn from the further contemplation of these unhappy errors; and, as the Spartan youth were taught sobriety and moderation by the repulsive exhibition of vice in its worst forms; so let us hope that the exhibition of so much vicious taste may operate as a warning to our ingenious youth, and thus ultimately tend to bring back architecture to its ancient and becoming purity.

Whilst thus venturing to denounce offences against purity and good taste, it may be permitted me to touch on what I am apprehensive must be regarded as another prevalent error; I mean the growing tendency to disregard *consistency of style* in design.

By style in art I presume is meant a certain homogeneous system or manner of design, productive of a combination of analogous forms, bearing an harmonious relation to each other; thus, when a particular style or manner is adopted and carefully adhered to, a pleasing effect is produced by the general air of consistency which is the result, even when higher æsthetic qualities are wanting.

To adhere accurately to any given style demands an intimate knowledge and close observation of its peculiarities, involving the necessity of a laborious and attentive study. This necessity is apt to breed a disposition, first to depreciate, and then to disregard, all study of this nature; a study very unwelcome to the indolent and very distasteful to the self-sufficient student, who spurns the trammels of consistency, and who, ambitious to strike out a path of his own, would fain believe it to be beneath him to regard very narrowly the trodden paths and the more frequented highways of his art. No mistake is more dangerous than this: the only safe ground for hope of future progress lies in a clear and comprehensive knowledge of the past; and he who is earnestly

anxious to extend the bounds of art must first make himself thoroughly acquainted with all that lies within those bounds.

The contempt for consistency of style gives birth sometimes to very strange spectacles, many singular compounds of discordant types. We singular compounds of discordant types. We shall find, perhaps, very high-pitched roofs of French rococo work laid upon a structure having visible pretensions to Palladian art, whilst scattered glimpses of Elizabethan manner give to the heterogeneous mass still greater grotesqueness.

Such are the deplorable results of the neglect of style. Be assured that no genius, however commanding, can indulge in these anomalies with impunity; whilst for the student of ordinary powers to venture upon them would be an act of imprudence which no sensible man would commit.

I may perhaps be told, that to inculcate so careful an adherence to style would be to set up a slavish doctrine, to shackle the fancy, and to limit the freedom of genius;—but this would be an error. As consistency of conduct in the ordinary affairs of life is an evidence of stability of judgment, so æsthetic consistency is a proof of a taste based on sound and intelligent principles.

This consistency of style is peculiarly a mark of the best periods of art, and will never fail to be found to distinguish the productions of the best masters. If, for example, we examine the *chef-d'œuvre* of the thirteenth century we shall be struck by no inconsistencies. One portion of the building appears to arise necessarily out of, or to be necessarily dependent on, the adjacent portions; and, generally, a natural sequence of parts leading to one homogeneous whole seems at once manifest: a pervading principle, in short, appears throughout the structure.

So in the best works of the great masters of the Renaissance period there is a well-regulated congruity of manner, testifying that the artist was influenced by fixed principles, and that his work was as much the result of good sense as of good taste; or rather that those two qualities are necessarily associates of each other; for I cannot too strongly impress upon you how close a relationship it is which exists between them.

The educated eye refuses to be pleased with that which is irreconcilable to reason, in however fascinating a form it may be presented to the eye.

It is for this reason that all false bearings in architecture are a deformity; for, by offending the judgment, they offend the taste. Every apparent insufficiency of support, every pillar, and corbel, and beam that is apparently incompetent to bear the weight charged upon it disquiets the critical eye. I would suggest it to you as a useful exercise to test all the best works of architecture, of whatever date, with reference to this rule.

You will find, for example, the lower parts of the building always designed with fewer breaks, smaller openings, and generally a greater breadth of parts, in order to convey to the mind of an observer the idea of greater strength there than in the superstructure. An abundance of illustrative examples might readily be adduced; but it may be sufficient that I should name but two, both works of high repute and familiar to all,—the Campanile at Florence, and the Doge's Palace at Venice. In the former, stability is one of its most prominent characteristics. Giotto, its author, was, we know, remarkable for his constructive sagacity; and his biographer reports to us the infinite pains he took to secure the stability of his work, fashioning each individual stone to its special place and purpose.

Yet we see plainly that he was equally anxious to give to his tower the appearance as well as the reality of strength. In truth, to act otherwise would have been to practise a species of architectural jugglery, which was far beneath the dignity of his art, as well as inconsistent with his character as an artist. He built a tower, in short, which has stood unmoved for six centuries, and bears upon its very aspect the promise of permanence during at least another like period.

In the Doge's Palace at Venice, on the contrary, we see a building which is no doubt strong enough, for it has stood some centuries, but in which all its beauty of detail will not redeem it from the charge of being built in defiance of static propriety. A vast, plain, ponderous mass of brick walling, lightened by few windows, relieved by very few breaks, is upheld by a continuous row of not very substantial-looking arches, ultimately resting on pillars of no great bulk, and having scarcely a base to receive them.

In the Tower at Florence we see solidity below, and lightness above; whilst, in the Palace at Venice, all the solidity is above; and the substructure is weakened, or apparently weakened

(which is sufficient for my argument), by a series of deep perforations or excavations.

To give a structure of adequate strength the appearance of infirmity is a gratuitous piece of absurdity which no ingenuity of construction or beauty of detail will justify. Were it necessary to enforce this principle by further illustrations, I might invite you to compare the dome of the Pantheon with the dome of St. Peter's; the latter growing abruptly out of, and apparently resting on a flat roof; the former, on the contrary, having all the attributes of strength, its weight visibly and adequately borne by walls traceable down to the earth upon which it manifestly reposes.

It is but doing justice to the memory of the great artist who first designed St. Peter's, to add, that this serious æsthetic error is due to a departure from his original design.

Let us revert now to the consideration of the works of that particular period to which I have for the most part confined my remarks on the present occasion. I have called your attention to the general propriety of design that pervades the works of the best masters of the period; and I have shown how invariably they kept in mind the difference which it is obviously and naturally desirable to preserve between the treatment of interior and exterior architecture. I have attempted to show, too, how discriminating they were in the use of ornament; exercising a wise and judicious abstemiousness, or a generous profusion, according to the relative position of the work and the character of the building.

I would now invite you to observe how careful those masters were to consider well the nature of the situation of their work, and the difference, which they evidently thought it fitting to maintain between works of architecture erected in cities and those which are erected amidst natural scenery.

In these two cases the building is seen under circumstances so widely different, that a corresponding difference of treatment seems obviously called for.

A certain air of reserve and dignity, a subdued formality of manner, seems the most appropriate average character for buildings in the one case; whilst a riant and playful aspect seems generally the most appropriate in the other: although, no doubt, it would not be difficult to state exceptions, still, I apprehend, that such is the broad distinction which may aptly and properly be laid down.

In civic architecture, then, although these may be contrasts in the colour of the several parts, as well as in the form and ornamentation of the several features of the design; still it is expedient I think, to preserve a generally symmetrical arrangement and uniformity of appearance, in order to give to the work that *staidness* of character which seems most in accordance with civil life.

My observation is intended, of course, to apply with more force to buildings of a public nature than it applies also with, I think, but little force to domestic architecture: in the thoroughfares of a great city, good taste suggests that individual feeling should give way to public considerations; and a man who obtrudes his residence upon the public notice too conspicuously lays himself open to the charge of a vulgar presumption. Hemmed in, as every building usually is, whether public or private, by numerous other buildings when in the centre of a town; and building is liable to be judged with reference to its neighbour; and each group of buildings forms or should form, a homogeneous whole. I may not be so far mistaken as to be supposed to recommend that cold monotonous uniformity which occasionally meet with in continental cities, and too frequently in our own; yet, too great a variety of treatment should not, I think, be indulged in. I have, however, already on a former occasion ventured to express this opinion; I will not, therefore, further insist on it.

Widely different are the circumstances attending rural architecture; surrounded by the endless variety of natural objects; where those which our work is in contact, or in the immediate proximity of which our building stands, broken into many parts and into various attitudes. To group well and to amalgamate agreeably such forms, a building must not be marked by great severity of aspect: it should be broken and somewhat diversified in form and character.

This is the sentiment the best masters, not of the only to which I have this evening been particularly referring, but of every age where accomplished architects have existed. Look, for example, at the Villa de Medici, at Rome; attribut-

that part at least, to Michelangelo. The next the city, where it is placed formally in presence of other buildings, presents a something plain, uniform, and perfectly-symmetrical; whilst the rear of the very same building, the façade is surrounded by the varied paniments of ornamental gardening, parterres, terraces, and the like, assumes a different character; its outlines seem to be into the picturesque and irregular.

That beautiful villa in the vicinity of Rome, known to all who have visited that city,—the Doria Pamfili. Rich in sculpture of the cheerful and elegant character, it seems to perfect harmony with the smiling gardens which it is associated; so harmonious, in that the edifice appears to grow imperceptibly out of the terraces which surround it; and an hardly define where the domain of the garden ends and that of the architect begins.

Compare this villa, its broken outlines and heights, with the palaces of the best masonry in the adjacent city, such as the Palazzo Farnese, and others that might be readily named, you will see, in the latter, dignified masses of structure, with unbroken outlines, generally of one height, and always great moderation in use of ornament. Look, too, at the Villa Pia, near Ligorio, a contemporary of Michelangelo; the light and graceful building scatters as it were, over the gardens of the Belvedere, the freest and most fantastic manner; the same artist, when he designed the tomb of Lancelotti, at no great distance off, but in the streets of Rome, produced a simple, grave, and almost heavy structure.

The evidences of the systematic adherence to the principle of design crowd upon our recollection the works of the most eminent in the age which we are speaking. Palladio adorned the north of Italy with buildings that never since been the types of architectural style; but I remember not one example of a civil building of his design that does not, all its elegance and refinement, preserve a certain subdued, dignified, and decorous tone, and by the uniformity and simplicity of its all lines.

The same architect, when relieved from the apparently imposed on his pencil by publicity, as it were, of the site, will never be found to relax into a freer and more liberal design. I need hardly do more than mention of the graceful Villa Capri, on the banks of the Brenta,—those banks so rich in examples of fine taste which distinguished Italian art in the earlier half of the sixteenth century; yet, being also, it must be owned, in architectural details, of a very different character, of a later date.

When advertent to the excellence of the works at this auspicious period, it behoves me wholly to omit certain other illustrious names. Among the immediate followers of Raffaele, I think, deserves our regard more than any other, Bramante.

Romano. He was one of the master spirits of the remarkable age. Whether as an engineer, or as a painter of the very highest order, and endowed, in the opinion of Sir Joshua Reynolds, with a poetic genius beyond that of any other before or since; or as an architect, the master of the Villa Madama, at Rome, and of the Palazzo del T, at Mantua;—in whatever light we view him, we must place him in the first rank of his age, by their works, have bequeathed to us the most important lessons in our art. As architect only, he came to speak of him here; and as such he is fully worthy of his great master, Bramante, and of the period at which he lived.

The Mantuan Palace I would point as a striking illustration of the principle of design to which I have been advertent. With all its size nothing can well exceed the extreme simplicity of the exterior of that building. Though built for the personal enjoyment, and the eye, of a prince devotedly fond of art, with the command of abundant means, Giulio Romano has lavished on his work no pompous or ostentatious displays: he has indulged in no superfluous friezes and festoons and foliage. There is, in fact, a single column in the whole building, although, it is true, we see on every inch of its ample evidence of the nicest taste, and of the painstaking in the adjustment of the proportions of each individual part, as well as of the whole. Such is the character of the exterior. It is so difficult to form an adequate conception of the obliquity that would be the fate of any individual who, in these days of masonic pretensions, would dare to erect so plain a building as Hyde-park. Poor, tame, heavy, barren,

cold, dry, &c., such are a few of the adjectives that would be contumeliously assigned to the unhappy artist by the current criticism of the day. Such, however, is the character of the exterior which Giulio Romano, the favourite pupil of Raffaele, thought proper to give to the outside of his royal master's palace. But enter that palace, and you will there find the poetic genius of the artist in all its radiance, the richest display of all the three sister arts, in happiest combination, and in most generous abundance.

It might seem superfluous to dwell so much in detail on a principle the propriety of which appears too obvious to need enforcing; but he must be little versed in the erring tendencies of our art, and in the eccentricities of her votaries, who will not admit, but too readily, that the principle I urge has been far too often deplorably overlooked. How often do we meet, in situations of the most romantic beauty, with buildings of that Eocæan age of English architecture, the latter part of the last century, whose plain, heavy, cubical masses too truly deserve the ridicule of Uvedale Price, who likens to "a huge clump of bricks" their ungainly shape,—

"If shape it may be called, which shape hath none." How often, too, may be encountered, in the very heart of our soot-begrimed towns, some tawdry piece of affected picturesqueness obtruding itself on us, like an ill-timed joke, jarring on the feelings, and out of tune with the tone of the mind.

Having now touched upon the merits of some few of the most distinguished among the worthies of the earlier part of the sixteenth century, I have but little time left to review the merits of those artists who illustrated the remainder of the century.

Indeed, to do even the scantiest justice to that brilliant epoch, we need a long course of lectures, and, what is far more important, a long course of study. It is a singular fact in the history of our art, that, limiting our view to the period of modern civilization, nearly all that is most excellent in architecture will be found to be centered within about 100 years, dating from the latter end of the fifteenth to the latter end of the sixteenth century; and that, too, within very narrow geographical limits; namely, the northern and central parts of the Italian Peninsula.

No doubt within that period works of great merit and genius may be found outside these geographical limits; but they will prove, on examination, to be for the most part but weak and inferior emanations from the real active centre to which I have referred.

Italy was in fact the school of art for all Europe; and whatever was fine at that period in France, Germany, and I believe I may add Spain, may be traced to an Italian origin; for Italian artists scattered themselves over those countries; or, by their teaching and example, influenced the progress of art there. Of course I here speak not of our own country; for we had then hardly emerged from Mediævalism; and our art then formed part of a totally different cycle, and belonged to another civilization.

In stating that the culminating period of what we call by the borrowed term the "Renaissance" extends from the latter part of the fifteenth century to the latter part of the sixteenth century, I would observe that, even within those 100 years, it is by no means to be asserted that an equally sustained excellence prevailed; for whilst, in the north of Italy, Palladio, Sansovino, and others, nobly sustained the character of their art; the Roman school certainly deteriorated within that period.

Michelangelo was, beyond any question whatever, one of the greatest artists the world has yet known; and it seems almost profane to utter a single derogatory syllable respecting him; especially within these walls, where his transcendent merits have been so often recognised and proclaimed: yet truth, or at least what I honestly believe to be the truth, obliges me to say that the intense vigour and potent genius of Michelangelo led him to set examples which did, in fact, through his numerous and less gifted imitators, very seriously debase the Roman school of architecture.

In the earlier, purer days, every form had its mechanical purpose and every stone its special use, and even every ornament was but an emphasized stone.

In the works of Bramante, and Raffaele, and Giulio Romano, the removal of a single ornament would have been a manifest mutilation of the building; whereas, in the works of the later masters, ornament became a redundancy, an object that would seem to be capable of being plucked away or hacked off without any concern to the fabric itself.

These decorative adjuncts were, I am most ready to admit, often very beautiful works in themselves; but their individual beauty is no justification of them when improperly placed, or when used for the unworthy purpose of winning applause for their novelty alone, or for their fine execution. A learned divine of the last century, speaking as a literary censor, says "vicious examples are most noxious when set off and recommended by the charms of oratory and poetry, as some poisonous plants, growing on a mountain in China, are said to kill only when they are in flower." So was it with the seductive embellishments of artists who, heedless of the simple habits of their predecessors, cultivated a noxious exuberance of ornament, degenerating from plenty into excess, from legitimate indulgence into a sort of æsthetic inebriety; wholly forgetting that the highest art, and the most commanding powers, must submit to be subject to the guidance of reason and good sense.

It is therefore that I have this evening held out, for your special consideration and study, the works of the distinguished men of those better times to which I refer.

I would recommend to you to ascertain exactly wherein their merits appeared to lie, and what were their faults. Consider well how the peculiarities of each master's style arose out of the circumstances of the time when he lived, or from the climate under which he worked, or from some other local circumstances; and, however much you may admire or even reverence his style, think how far it suits our modern English wants before you adopt any portion of it as your own.

I know some very transcendental critics may say, why adopt any other man's ideas? Scorn rather to repeat that which has been done, and let every idea that you embody in bricks and stone be your own original conception,—the offspring of your own pure invention.

Such advice would be founded on a theory most attractive and exalted; but it is a theory which I should fear to recommend here for your unstrained, unqualified, adoption. Some of the most atrocious sins in our art have been committed under the influence of this seductive and dangerous theory. Under the flattering term of invention, men have indulged in the vainest conceits, and have perpetuated in stone some of the most ridiculous errors. I feel it to be my duty, at the risk perhaps of being charged with timidity and want of vigour, to advise the young student not to allow his ambition to seduce him into abortive attempts at novelty.

An eminent writer of the seventeenth century says, with much point, "A man coins not a new word without some peril and less fruit; for if it happen to be received the praise is but moderate; if refused, the scorn is assured."

It is, in truth, the privilege only of the highest genius to venture upon deliberate innovations upon established modes of expression or to add to his native vocabulary; and the ordinary student would do wisely to confine himself to that which has received the sanction of time.

Such, too, are the risks run by him who, without the utmost circumspection, would venture to coin new forms and arrangements of architecture.

Nor am I imposing on him before him for the exercise of his imagination, and for the production of beauty and grandeur. He may find his ingenuity sufficiently taxed in doing that well, without even attempting to mount into the higher regions of imagination.

To torment his brain by spasmodic attempts at novelty when the result of that effort is perhaps but to do what might just as well have been done by ordinary means, is like a man who would prefer to lose himself in the tangled forest rather than submit to pursue the path that is straight before him. Let the student, then, and the younger practitioner, beware lest he be led into dangers and difficulties in the pursuit of so unsafe an object, so treacherous an *ignis fatuus*, as mere novelty. The good general is he who, in preparing for an engagement, begins by making himself thoroughly acquainted with his fighting ground; who ascertains his weak points and strengthens them; and secures his ground by first making himself intimately acquainted with its capabilities. Such, I apprehend, would be his surest way of effecting a permanent and safe advance, and of securing ultimate triumphs; and such, I apprehend, is the type of that process by which, in our art, real progress may be made, and her true interests promoted.

Above all things enter into no sectarian views; do not confine your studies to the narrow limits of a special period or style. Were a man to open a

book in one place only; and, after thumbing and dog's-eared the one page, to leave the rest unread; his profit would be small and his knowledge of the book extremely limited.

The great volume of our art must be read with no such parsimony of labour; for no deep and compendious knowledge of the subject of that volume will be acquired without a diligent, impartial, painstaking study of all its pages.

THE RATING OF THE METROPOLIS.

HER MAJESTY in her recent speech promised measures "for establishing a uniform system of rating in England and Wales." The Bill which has been brought in by Sir G. C. Lewis simply proposes an alteration in the mode of assessment. We look, however, for more than this.

King Winter has shown his power: deaths, in excess of the average to the extent of between 300 and 400, took place in the metropolis weekly for several weeks. The great distress, the neglect and want, which always, during winter and summer, exist, and to which we have often felt it a painful matter to direct attention, have been brought to the general view. Armies of starving people,—men, women, and children,—have come from spots but little known to the prosperous Londoners: they have swarmed to the police-courts, where the noble charity which has been shown is evidence that it is rather from the want of method than from any deficiency in right feeling that the present condition of things is continued.

We need, as has been before urged, a thorough knowledge of the extent of the evils and neglect which exist, and form a sad contrast with the wealth and luxury now in this city to be met with. This can only be acquired by inquiry, conducted with energy and intelligence.

It would also be most important, in dealing with the valuable knowledge thus acquired, to remember that in the conditions of our population the numbers in our large cities are increasing with wonderful rapidity, and call for changes which are suitable to the circumstances and are suggested by our advanced sanitary and other knowledge. From the villages and country districts the best intelligence and ability flow to the towns. There families are born; and such are the ill-arrangements of the dwellings, and other derangements, that thousands yearly are placed in much misery.

The extent of the flow of population to the metropolis is not generally understood, and it may be worth while to show the estimate given of this by the Registrar General ten years ago.

At the time stated, the population of London consisted of 2,362,000; 967,000 being under the age of 20, and 1,395,000 of the age of 21 and upwards: 812,000 of the 967,000 under the age of 20 were born in London; and the greater part of the 967,000 are the children of the rest, and may for the moment be left out of consideration.

Of the persons of the age of 20 and upwards, 645,000 were born in London: 588,000 were born in other parts of England. These statistics show that nearly one-half of the working population of the metropolis are from other parts of England. 14,000 were born in Wales; 26,000 in Scotland, 1,600 in the islands of the British seas, 89,000 in Ireland, 7,000 in the British Colonies, 24,000 in foreign parts, and 526 were born at sea. Still confining the statement to men and women of the age of 20 and upwards, every English county has contributed its quota to the population of the metropolis of the empire. Thus—

Middlesex sent	51,000	Gloucester sent	10,000
Surrey do.	19,000	Hereford do.	6,000
Leint do.	89,000	Salop do.	7,000
Sussex do.	23,000	Stafford do.	7,000
Hants. do.	39,000	Worcester do.	7,000
Herts. do.	20,000	Warwick do.	7,000
Bucks. do.	15,000	Leicester do.	13,000
Oxford do.	14,000	Bedford do.	7,000
Northampton do.	9,000	Lincoln do.	9,000
Hants. do.	3,000	Nottingham do.	3,000
Bedford do.	7,000	Derby do.	4,000
Cambridge do.	9,000	Cheshire do.	9,000
Essex do.	48,000	Lincoln do.	11,000
Suffolk do.	28,000	York do.	21,000
Northfolk do.	28,000	Derham do.	4,000
Wilts. do.	18,000	Nottingham do.	6,000
Dorset do.	9,000	Cambridge do.	2,000
Devon do.	32,000	Westmoreland do.	1,000
Cornwall do.	8,000	Monmouth do.	1,000
Somerset do.	29,000		

Only 645,000 men and women would be left in London if the recruits were marched back to their homes.

The next census, which will be shortly taken, will doubtless show a great increase in the proportions of these figures. The more general use of railways will bring crowds not only from the most distant, but also from those counties which more immediately adjoin the metropolis; and when we consider that we shall have five millions of

people in the metropolis—if the same rate of increase go on—by the commencement of the next century, it is plain that we need the introduction of means suitable to the importance of the occasion.

In the old times, London was divided into wards and parishes; but there was, notwithstanding, a concentrated government of the City. It was so in the old corporate boroughs. As time passed on, trade and business declined; in some instances, harbours became filled up; in others, particular branches of industry, which had been the means of advancing towns into consideration, became superseded by other callings more suitable to the times. In consequence, many boroughs became insignificant, and the functions of the mayor and other officers were treated with ridicule.

In some cases the towns grew; and, as in the case with London, those possessed of the corporate rights formed but a very small portion of the population. Great suburbs were built, and the wants of those who had no old privileges in the boroughs were neglected. This evil was to some extent removed by the passing of the Test and Corporation Acts; but, so far as the metropolis is concerned, it remains to the present day a disjointed monster, the wide-spreading limbs of which require to be harmoniously and well matched to the body, so that all the parts may be brought into proper use. And in no quarter is the need of change so evident as in the manner of levying the rates for the support of the poor in this, which should be one great and united capital, having one common interest. In order to illustrate this, it is necessary to show that—

The rateable property within the metropolitan bounds, including the City, is 11,163,539*l.*, and the total amount expended for the relief of the poor is 866,697*l.*: to produce this sum, a rate of 1*s.* 6*d.* in the pound, would be sufficient.

Let us, however, look at the following table, which shows the contrast of the poor-rates in several metropolitan parishes:—

Average rate for the whole Poor of the Metropolis, 1*s.* 6*d.*

	Poor Rate.	Income.	Excess over the Average.	Below the Average.
	s. d.	s. d.	s. d.	s. d.
The parish of St. Nicholas, Deptford	6 31	2 <i>l.</i> 9 <i>s.</i> 6 <i>d.</i>	4 31	..
Parish of St. Paul's, in the same Union	1 91	10 <i>s.</i> 8 <i>d.</i>	0 2	..
St. Botolph's Without	4 94	..	3 21	..
Bishopsgate-street	1 01	..	..	0 04
Bridewell Precinct	..	..	..	..
St. Mary's, Paddington	0 84	2 <i>l.</i> 4 <i>s.</i> 8 <i>d.</i>	..	1 14
St. Mary's, Islington	0 10	9 <i>s.</i> 9 <i>d.</i>	..	0 03
Not to go too much into detail, it may suffice to mention that the parish of St. Leonard's, Finsbury, pays	5 74	..	1 0	..
St. Mary, Moorthaw, Upper Thames-st.	6 21	..	4 71	..
St. Anne's, Blackfriars—a very poor district	3 92	..	2 51	..
St. Edmund the King, Lombard-st., pays	0 3	..	..	1 31
St. Lawrence, Jewry, Guildhall	0 51	..	..	1 14
The poor districts inhabited parish of St. George-in-the-East, pays	3 42	..	1 10	..

These figures are most striking, and show that it is in neighbourhoods in which the greatest amount of poverty prevails,—where we find the most wretched and unsanitary conditions,—that the tradesmen are struggling to enable themselves to pay the enormous rates, and keep themselves from the need of requiring parish relief.

Let us take the parish of St. Nicholas, Deptford, where the poor-rate is 6*s.* 3*d.* in the pound; the other rates, water, police, metropolitan drainage, house-duty, gas rent, will come to more than half the amount paid for the rent of shops and houses. This naturally raises a spirit of opposition to improvement. The rates of the chief part of the dwellings of the poor are paid by the holders of the property, and the amount of these rates makes it almost impossible to carry out repairs and alterations which are necessary for the preservation of human life and health.

The parish authorities in the overrated districts felt it necessary, under the circumstances, to lessen as much as possible the burden of the poor: the hardships endured would be scarcely credited, except by those who have had an op-

* The fashionable parish of St. George, Hanover-square, pays a tax on income of £1,071,138, and a poor-rate of 6*d.* on its rental, is 6*d.* in the pound under a general rate.

portunity of watching the working of the present system.

In an able article on this subject, which recently appeared in the *Morning Advertiser*, the writer remarks on the peculiarity of the management which causes such a difference in the provisions in the different metropolitan parishes and unions. We will just glance at them. In St. Mary and St. James's, Westminster, price paid per cwt. for bread, is 10*s.* 4*d.* St. Mary's, Paddington, it is 14*s.* 7*d.* per cwt. Here is a difference in every cwt. of bread, 4*s.* 3*d.* In St. Mary's, Islington, potatoes charged 7*s.*; the same quantity in the Strand Union is 5*s.*; 2*s.* difference in this. In Strand Union, flour is charged 36*s.*; in Mary's, Islington, 43*s.* (a difference of 7*s.*), would seem from these figures that either there are excessive charges in some instances, or that food of an insufficient description is provided for the poor. A more general system of supervision would help to prevent this discrepancy.

The uniform rating of the whole metropolis district would be a real blessing, not only to the poor, but also to a large number of working population. Such a change would, in great measure, prevent the troubles, and of injustice, which are caused by the present system of parish settlement; and it seems but reasonable to suppose that in these neighbourhoods, which house property is in such a neglected condition, the reduction of the rates by 3*s.*, and upwards, in the pound, would lead much advantage. The spirit of competition we cause the erection of a better class of houses and this would spur the owners of other property to exertions.

In considering this most important question should be borne in mind that the coal duties, restrictions which are connected with sea-borne coal, are, in addition to the sums mentioned, considerable tax upon residents in the metropolitan districts, and these press hardly on the poor. The money raised by these has not been expended in general improvement, but chiefly works immediately connected with the City, the effect of several of the changes wrought in this general tax has been to demolish the dwellings of the poor, to reduce the rates within the districts, and, by driving away those in struggling circumstances, causing that increase of pauperism which is so much complained of in Bethnal-green, the City, and elsewhere. This is so to be an additional argument for the equalization of the poor-rate.

Considering how strong the opposition in Parliament is to the application of any sum from national exchequer for the advantage of the metropolis,—even necessary costs needed for the condition of the Thames have been strenuously refused by members from the provinces,—think of this it seems but fair that, if a general rating of the metropolis should fortunately be determined upon, the Government buildings, which are for the advantage and use of the nation large, should be rated at their proper value. Yearly, would amount to a round sum, which would have the effect of still further reducing the rates; and we do not doubt that by management, by the selection of able and intelligent parish representatives, who would think above local prejudices, and who would for the glory and advantage of this wonderful capital, the poor would be better treated, and cost of their maintenance would not amount more than 1*s.* 2*d.* in the pound.

A SOCIAL AND SANITARY REFORMER'S PAST TIMES.

EVERY one knows that the difficulty is in finding the names and particulars of those who, even in very recent times, have introduced or invented useful matters, for public benefactors. Various and successful attempts have been made in the pages of valued contemporary *Notes and Queries*. Among the facts on which light has been thrown is circumstance relating to the first introduction of umbrellas into England; and from good evidence it seems clear that it was Mr. Jonas Hanway, lived for many years in Red Lion-square, who we have to thank for having been the means of bringing these useful articles into general use on the streets of London.

This is, however, but a small portion of work done by this worthy gentleman, for whose gratitude is due. His name is now but little known; it is, therefore a pleasure, to bring before our readers a few particulars respecting one of his exertions at a time when sanitary sci-

was in its infancy, and the workers in that field were few, was instrumental in saving many thousands human lives.

Mr. Jonas Hanway, who was of respectable descent, at an early time of his life became a merchant, and proceeded for the purposes of trade to Persia and Russia: he has left an interesting account of his travels. Having made a moderate competence, and being in failing health, Mr. Hanway retired from trade, and came home, in the hope of doing good for himself and others. On reaching London he soon became known for his activity in the cause of the suffering. He was an early supporter of the Foundling Hospital and other institutions; and for years he strove earnestly for the preservation of the lives of the infant poor within the bills of mortality. Alone and unassisted he explored the miserable and unhealthy habitations of the parish poor in these crowded cities; and, notwithstanding tender lungs, exposed himself to the pestilential air of the workhouse sick wards, and procured valuable accounts of the interior management of every workhouse in and near the metropolis.

In a journey through France and Holland Mr. Hanway had visited all the houses for the reception of the poor, particularly those of Paris and the foundling hospitals of France, and noted whatever he thought might be adopted here with advantage. From the year 1757 to 1762 his principal employment was visiting the workhouses of the metropolis and suburbs, confining his attention chiefly to the management of infants. From time to time he published his observations, in the hope of attracting public attention to the evils which existed. For a time his statements were generally discredited, and Mr. Hanway felt forced, notwithstanding the certainty of making many enemies, to give the name of every parish officer, whatever might be his rank in life, under whose hands many infants had died by neglect. During the year 1765, in the workhouse of St. Clement's Dances, one nurse, Mary Poole, had twenty-three children committed to her care; and on the 26th January, 1766, eighteen were dead; two had been discharged; and three only remained alive.

Of seventy-eight children received into the workhouse of the united parishes of St. Andrew and St. George, Holborn, in the year 1765, sixty-four were dead before 1766.

In 1764, forty-eight children were received into the workhouse of St. Luke's, Middlesex: thirty-seven died within the year.

Nineteen children were received into the workhouse of St. George's, Middlesex: sixteen were dead before 1766.

In some populous parishes not one child was living of all that were received in the course of twelve months. Great was the outcry against Mr. Hanway by parish boards and other authorities; but, whenever his statements were disputed, our worthy publisher a certificate signed with his name, mentioning the name of each particular infant, the day of its birth or admission, the time it lived, and the name of its nurse.

Not content with his exertions in the great capital, Mr. Hanway made a journey through the greater part of England, to compare the mortality in the county workhouses with that of the metropolis, and was convinced that the greater portion of the deaths was owing to the air of the workhouses being too impure for the lungs of young children. His next effort was to get all parish infants sent to the Foundling Hospital.

Although Mr. Hanway's idea of removing children from the ill conditions to which they were exposed in the workhouses to a place where there was likely to be better air and management was good, it was not satisfactory in practice. The parish authorities rushed with children, from both town and country, to the Foundling. The most barbarous acts were committed on young infants on the road: some were found strangled and thrown behind hedges: others were found dead from neglect, closely packed in panniers fixed on the backs of horses and donkeys; and the practice of carrying children to London became a regular trade, while so great was the crowd within the walls of the Foundling Hospital, that a serious pestilence broke out, and hundreds of children suddenly died.

In 1761 he had obtained an Act of Parliament obliging every London parish to keep an annual register of all the infants received, discharged, and dead; and from these registers, which were directed to be published yearly by the company of parish clerks, he selected from time to time every thing that could tend to convince the public of the necessity of an alteration. He stemmed every opposition by stating facts; and at length,

after a perseverance hardly to be equalled, by his own exertion and at his sole expense, he obtained an Act (7 George III. cap. 39) which directs that "all parish infants belonging to the parishes within the bills of mortality shall not be nursed within the workhouses, but be sent to nurse a certain number of miles out of town until they are six years old, under the care of guardians, to be elected triennially for the express purpose of taking care of them." This statute likewise authorizes parish officers within the bills of mortality to bind their male apprentices till they attain the age of twenty-one years, instead of twenty-four, as required by the former law,—a privilege which has since been extended to the country at large.

Mr. Hanway's labours in this cause were unceasing. He was constantly calling on members of Parliament and persons of influence, putting up with all kinds of rebuffs and discouragement with the greatest patience; but, with persevering resolution, setting forth his undeniable arguments. Many anecdotes are related of troublesome materials with which he had to do. The following will serve as an example.

He observed that a certain overseer refused to allow the mother of a new-born infant more than 1s. 6d. a-week for nursing it, and he remarked to him that this pittance was less than he gave to strange nurses. "Yes," said the officer; "but you don't consider that this woman will take care of her own child, and it may be on our hands for a long time; whereas we shall, perhaps, hear no more of the other."

It is pleasant to find that the Government of the day, appreciating the exertions of this useful worker, appointed him one of the commissioners for victualing the navy. Upon this increase of income he removed to Red Lion-square, and ornamented the rooms of his house in a manner peculiar to himself. Although for several years engaged with the business of his office, he found time for other works. Searching in the houses of the distressed for objects worthy of relief, on one occasion he met a man of the name of Berningham in extreme distress, and soon saw that this was owing to the simplicity and peculiarity of his character. This person was an engraver, a painter on glass, a carver, a modeller, and had invented a method of piercing the handles of fans. So intent was this artist on his pursuits, and so unused to business, that his goods, even his bed, were sold. It seems that he had been tutor in some department of art to Frederick Prince of Wales, and on the death of that prince an annual sum which he had been in the custom of receiving was stopped. Mr. Hanway endeavoured to lead Berningham to concentrate his ability on one kind of work; but, finding that impossible, made intercession with the king, and procured a pension of 40*l.* a year for him.

The first introducer of umbrellas was also foremost in relieving the miserable condition of the chimney-sweepers. He had found in one workhouse four little boys all ill of cancer, produced by their employment. He thereupon set to work to effect improvement.

Mr. Hanway made a resolute stand against the "vails," or fees, which were commonly given to servants; and it was he who answered the kind reproach of a friend in a high station for not coming oftener to dine with him, by saying, "Indeed, I cannot afford it."

In 1762, he published "Eight Letters to the Duke of —," on this custom. The nobleman here meant was the Duke of Newcastle. The letters were written in a humorous style which attracted general notice, and was well adapted to the subject. It is said that Sir Timothy White first put him on this plan by relating the following anecdote of an after-dinner scene which occurred to him at the Duke of Newcastle's:—Sir Timothy, on leaving the house, was contributing to the support and insolvency of a train of servants who lined the hall, and at last put a crown into the hand of the cook, who returned it, saying, "Sir, I do not take silver." "Don't you indeed?" said the worthy baronet, putting it into his pocket, "then I do not give gold." Amongst circumstances of a similar character which Mr. Hanway relates as having happened to himself, he was paying the servants of a respectable friend for a dinner which their master had invited him to. One by one as they appeared, said: "Sir, your great coat—a shilling." "Your hat—a shilling." "Stick—a shilling." "Umbrella—a shilling." "Sir, your gloves—" "Why, my friend, you may keep the gloves—they are not worth a shilling."

In 1765 a great fire caused destruction at Montreal. Mr. Hanway organized a subscrip-

tion. The next year a fire happened in Bridgetown, Barbadoes. Through his means a subscription of 15,000*l.* was soon raised. Besides, he found means to assist the miserable negroes who were at that time running in the streets of London. He advocated improvements in the prisons, and a sanitary system of confinement. He also showed the necessity for the provision of pure bread by the baker; and, when his health had declined so as to render him unable, he sent friends to prisons and other places for the purpose of giving relief.

In 1783 the health of Mr. Hanway became so bad that he sent in a resignation of his office. The Government, however, while relieving him from duty, granted his whole salary to be continued during his life.

On the 5th September, 1786, this excellent man ended his useful life. Having an idea of the probable time of his death, he desired, a short time before that event, to put on a fine ruffled shirt, gave up his keys, disposed of some trinkets, and had his will read. He also requested, as a small help to set aside prejudice, that his surgeons might make what examination they thought fit of his body. And soon his life lamp was extinguished.

With the following portrait of Mr. Jonas Hanway, we must conclude this notice.—His manner was witty, pleasing, and engaging: his figure was small, but of handsome form: his countenance and eyes impressive; being accustomed constantly to go into the society of persons of rank, he usually wore full dress clothes, with a large French bag: his hat, ornamented with a gold button, was of a size and fashion to wear under his arm as well as on his head. When it rained, he had a small umbrella to defend his face and wig, so that he was in bad weather enabled to present himself unsoiled, if not unruffled. His dress on most occasions was a suit of rich dark brown, the coat and waistcoat lined throughout with ermine, which just appeared at the edges, and he wore a small gold-hilted sword. Silk stockings, which for warmth he wore over two other pairs, and knee-breeches, completed the costume of the worthy gentleman who first presumed to carry an umbrella in the streets of London.

THE PROPOSED NEW OPERA-HOUSE: PARIS.

THE jury charged with the examination of the designs for the new Opera-house, Paris, have terminated their labours at the Palais de l'Industrie, and have made a preliminary report. The jury, under the presidency of the Ministre d'Etat, was composed of the eminent architects whose names are following:—Messrs. Caristie, Duban, De Gisors, Gilbert, Le Bas, Hittorf, Le Sueur, Lefuel, De Cardaillac, Questel, Lenormand, and Constant Dufeux. The report states that no one of the projects was sufficiently complete to be entitled to the prize of the execution of the building, as offered to the author of the chief design. But, taking into consideration the efforts generally, and very satisfactory results in certain works, the minister had accorded a further sum of 5,000 francs to be distributed as the jury might think fit,—that is to say, in addition to the premiums originally offered to authors of the designs which might be classed second and third. The award now is as under,—

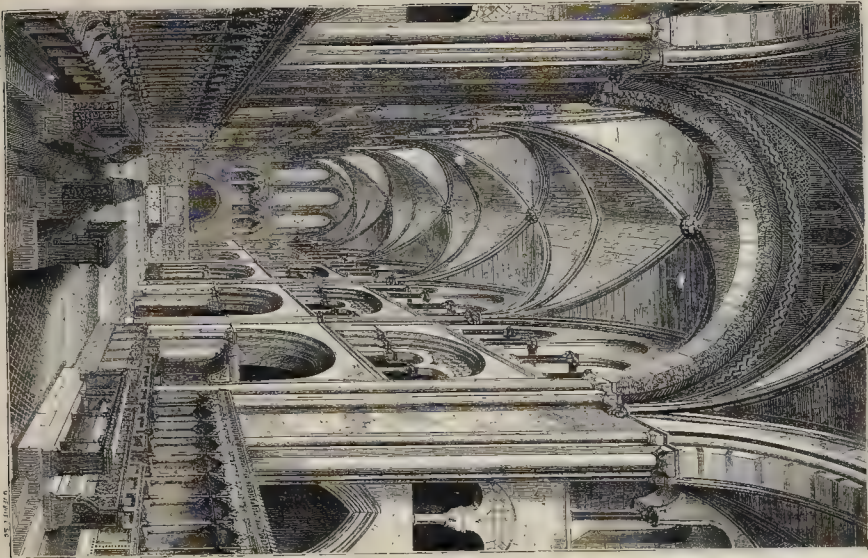
Design No. 6, M. Jénain, first prize, of 6,000*fr.* (240*l.*); No. 34, MM. Crépinit & Bokel, second prize, 4,000*fr.* (160*l.*); No. 17, M. Garnand, third prize, 2,000*fr.* (80*l.*); No. 29, M. Duc, fourth prize, 1,500*fr.* (60*l.*); No. 38, M. Garnier, fifth prize, 1,500*fr.* (60*l.*).

A future report will make known the motives that have dictated the selection. We must reserve our observations on the decision until next week.

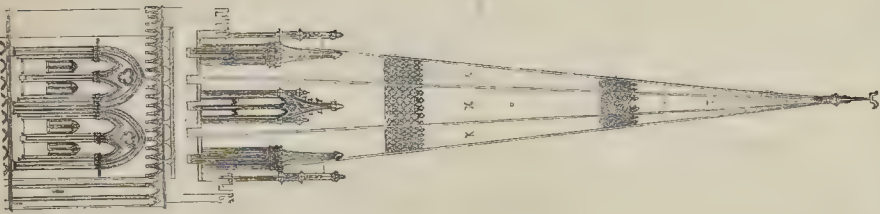
INSTITUTION OF CIVIL ENGINEERS.

On February 19th, Mr. G. P. Bidder, president, in the chair, the paper read was "On the Results of Trials of Varieties of Iron Permanent Way," by Mr. F. Fox. At the close of the paper, the merits and defects of the continuous rolled iron permanent way (which the author preferred), were thus stated. The defects, or supposed defects, appeared to be:—1. The great cost, at present prices, almost precluding its adoption on a railway of limited capital. 2. The difficulty of getting the bearers rolled. 3. The possible increased wear of the rails. 4. The greater "wash" of all but very good ballast, inseparable from all iron ways, resting on or near the surface. And 5. The difficulty of laying on sharp curves, and of keeping in place when laid. Its presumed merits were,—

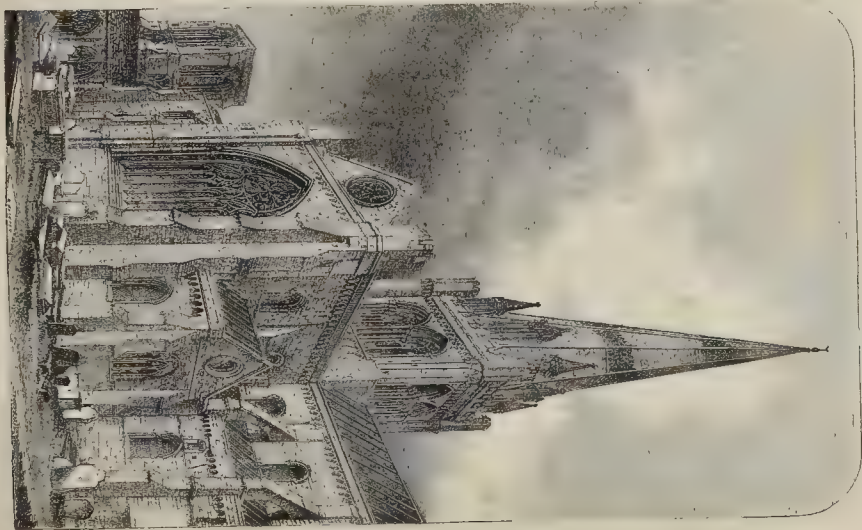
CHICHESTER CATHEDRAL, SUSSEX.*



Interior view: the Choir as Restored.



Tower and Spire.



View of South Transept and Spire.

* See p. 134.

THE PRIZES OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting of the members was held on Monday evening, February 25, Professor Donaldson in the chair, to take into consideration the recommendation of the Council with respect to the award of the Royal Medal, the Institute medals, and other prizes of the Institute for the year 1860, and their recommendations with reference to the medals for the year 1861. It was unanimously resolved that her Majesty be recommended to present the Royal Medal to M. J. B. Lesueur, architect, of Paris. The chairman gave a brief account of M. Lesueur's works, including the Paris Hôtel de Ville.

The students' first prize in books was awarded to Mr. Walter Paris, for his design for a literary and scientific institution.

The students' second prize in books was awarded to Mr. R. H. Carpenter, for his design for the same subject.

For the students' monthly sketches, the first prize in books, and Mr. Hansard's prize, were awarded to Mr. E. J. Tarver; and a prize of merit to Mr. Walter Paris.

Mr. W. Hallam's sketches were considered worthy of commendation.

The recommendation of the council with reference to the Royal and other medals for the year 1861 was read and agreed to. The list of prizes will contain one offered by Mr. Cockerell, R.A., and a second offered by Mr. Tite, M.P.

The next ordinary meeting will be held on Monday, March 4th, when Mr. J. B. Waring, Fellow, will read a paper on Romanesque Art in the South of France.

On Monday, March 18th, Sir Gardner Wilkinson will read a paper on Saracenic Architecture.

INCREASED FACILITIES FOR THE PUBLIC IN OUR MUSEUMS AND GALLERIES.

THE following communication has been addressed to Sir George Cornewall Lewis, Bart., as Secretary of State for the Home Department, by the Art-Union of London:—

"We beg leave, on the part of the President, Vice-Presidents, and Council of the Art-Union of London, very respectfully to lay before you a suggestion on a subject that may not improperly be considered to come within the province of this Society, which has expended above a quarter of a million of money in its efforts, during a period of twenty-five years, to promote the appreciation of the Fine Arts amongst the people of this country. We beg leave to bring to your notice the fact that at some of the galleries and museums of art and science belonging to the nation, the general public is admitted by a money payment on the days set apart for students, while at others it is absolutely excluded on such days, which regulation is found to be frequently the means of depriving many persons of the opportunity of enjoying the advantage of those collections.

We beg, therefore, very respectfully to suggest to you that it would greatly extend the usefulness of those collections to adopt a uniform rule of admission, namely, that the several national galleries and museums of art and science be open to the public every day in the week except Sunday; but that on Thursdays and Fridays the sum of sixpence each person be charged for admission.

It is considered that if you should approve and be pleased to order that arrangement to be adopted, it would greatly conduce to the pleasure and convenience of all classes of her Majesty's subjects.

GEORGE GODWIN, } Hon. Secs.
LEWIS POCOCK, }

We have before now pointed out the desirability of such a change at the British Museum, as is here suggested, and shall be glad to find the alteration made there, at any rate, forthwith. The spacious halls of this noble institution are closed to the public three days in the week. No inconvenience whatever from the proposed change would result to the students, who are admitted on two of these days, and are few in number compared with the size of the rooms; while the public would be greatly advantaged. The "South Kensington Museum," where there is much less room, affords convincing proof in favour of the alteration.

HOLBEIN AND THE PICTURES ATTRIBUTED TO HIM.

THE communication as to the will of Holbein, the painter architect, made to the Society of Antiquaries by Mr. Black, as mentioned in our last, has excited some stir, the authorship of certain important pictures attributed to that artist being thereby questioned. The will, with "act of renunciation and administration," of which Mr. Black has given a copy, is preserved in the record-room of St. Paul's Cathedral. In the will, dated October 7, 1543, the testator describes himself as "Joha Holbeine, Servant to the King's Majesty." It was presented to probate in order to renounce it, the estate being insolvent, as we understand it. The "act of renunciation," in Latin, at end of the

will, in Mr. Black's copy, begins, "29th November year aforesaid, the last will of John otherwise Hans Holbein, was," &c., and in a separate act of administration, following the last, the will is again described as of "Johannis alias Hans Holbeine." If all this be correct, it would seem that the Bridewell picture was painted some years after Holbein's death, ten, at least, as it could not have been painted before the year in which Edward VI. presented Bridewell to the City.

Without doubt Mr. Black is certain that "xxix. Nov. Anno Domini predicti," in act of renunciation, does refer to the date of the will? The date is not written in either act, but is simply referred to as "aforesaid." The matter cannot be considered as settled, but enough has been shown to render further inquiry necessary. If the will in question be that of the veritable Hans Holbein, he died miserably poor. One point of confirmation given by Mr. Black is this. It has always been understood, amidst much obscurity in other respects, that the real Holbein died of plague; and it is shown that, whereas there was no plague in 1554, the heretofore supposed year of his death, a pestilence did prevail in the metropolis here in 1513.

PRESERVATION OF STONE.

On Friday, 22nd ult., Mr. Tite, M.P., and a deputation from the Institute of British Architects (consisting of Professor Donaldson and Mr. George Godwin, Vice-Presidents; Mr. Benjamin Ferrey, Mr. Charles C. Nelson, Mr. F. W. Porter, Mr. George Vulliamy, Mr. Thomas Hayter Lewis, Honorary Secretary, and Mr. E. C. Perceuse), had an interview with the Right Hon. W. Cowper, M.P., at the office of her Majesty's Works and Public Buildings, on the subject of the decay of the stone at the Palace of Westminster, and to communicate the resolution of that body requesting the appointment of a commission to inquire into the matter, and the cessation of the washings for the present.

After statements had been made, the Chief Commissioner expressed himself as favourable to the course proposed, and said nothing more should be done to the stone work pending inquiry. He expressed himself anxious to direct the attention of inventors to the subject, believing that the right mode of preservation had yet to be found.

We have received a letter from Mr. Couch as to his "Stone Embalmment," asserting that during the life of the late Sir Robert Peel he manufactured 12,000 worth of this material for securing the stone work of the Houses of Parliament; but through the death of that statesman, lost all interest. If a commission be issued, Mr. Couch's system will doubtless receive attention with others.

LECTURES, ARCHITECTURAL PHOTOGRAPHIC SOCIETY.

On Tuesday evening last, Mr. E. B. Lamb read a paper on "Progress," with especial reference to the photographs on the walls. In the course of it, the lecturer said,—

"To the student in architecture, in many ways photography is invaluable; yet should be used with caution. If the young student acquires the art of manipulation, in too many instances I fear a more important branch of the art will be neglected. My own experience tells me that photography is too frequently substituted for sketching. Where the pencil was formerly most active, now the photograph is obtained; but such substitution will be to the detriment of free sketching, as well as useful study, for there can be no doubt that the most perfect way of acquiring a knowledge of forms is by the exercise of the mind through the pencil. Nice points, delicate touches, and brilliant effects, are only to be acquired by the analysis of details, and such analysis is most perfectly rendered by a greater or less degree of facility in sketching. Too much stress cannot be laid upon this very important branch of our art, the neglect of which in former times has been the cause of many a dry, tame, flat, and monotonous composition. Architecture is not a mere mechanical science of line and rule, which many persons consider it,—the laws of the orders, the laws of the styles, and the trammels of precedent, will make neither a good architect nor a great critic. A knowledge of all art and a ready means of transmitting its forms to paper, are essential to the student; the inquiry into the causes of the great efforts produced by the master minds, even now fresh through the lapse of ages, should form the text of his studies. From these works he should learn to think, to acquire a power of divesting past works of all superfluous matter, so as at length to clutch at the great principle which underlies these works, to be so deeply impressed on the memory of time. To many critics too—I I dare venture to trench on their ground—a like means of study would enable them to dress their remarks in more suitable attire: we should hear less of dogmatical authority, less of ridiculous comparisons, and likening vast forms to trumpery ideas, there might be more of reason, and less of rhapsody. The sound critic wields a lash which cuts more deeply than anything the mere pretender can assert, who cloaks his ignorance under insignificant comparisons. We all snarl under the lash at times, but the world gains nothing unless the wound is deep; and upon the principle of the sacrifice of one for the gain of many, we should be content to

suffer; but a mere condemnatory notice, arising from prejudice or party, is alike unworthy the censor, and unjust to the artist. I speak strongly in these matters, as I would desire to place our art on the highest pinnacle of eminence, and would take from it, if possible, all those grovelling notions which ever keep it in leading-strings. For this reason, too, I speak of photography. Buy photographs; but don't let photographers multiply your stores, but dive into the past, armed with your pencil. Send to oblivion the battle of the styles, by the development of new ideas engendered only by the exigencies of present time and circumstances. For this purpose study the great works of the past, in such subjects as are displayed on these walls: inquire here the cause of the admiration we bestow upon them,—why they were designed in such forms; and why, when they had attained the zenith of perfection, they declined and merged into others, which, in their turn, passed through a similar ordeal; and so on in all past periods of art.

The Chairman (Mr. Godwin) at the close, after a few observations on the paper, and proposing a vote of thanks to Mr. Lamb, which was carried, stated that as the Exhibition would close on March 13th, it was desirable that subscribers, and intending subscribers, should make their selections without delay. Further, that on Tuesday next, Mr. Seddon would deliver a lecture on "The Grotesque in Art."

"THE POETRY OF ART."

UNDER this title Mr. James Dafforne, of the *Art Journal*, delivered a lecture on the 21st ult., before the "Society for the Encouragement of the Fine Arts." It embraced the three great arts,—architecture, painting, and sculpture; and Mr. Dafforne endeavoured to show, by descriptive references to notable examples of each, their practical rendering, and the effect they ought to produce on the mind of the spectator. In the case of Mediæval architecture, he adduced our noble cathedrals and the monastic ruins scattered over the country, the latter especially suggestive of poetic sentiment, exhibiting the poetry of the builder's art and the poetry of nature, as both are now seen combined.

As examples of poetical painting, Michelangelo's "Last Judgment" and Raffaele's "Transfiguration" were brought forward from the old masters; Turner's "Old Téméraire," Martin's "Belshazzar's Feast," Wilkie's "Distraining for Rent," and Landseer's "Shepherd's Chief Mourner," from our modern painters, preceded by a short critical examination of the works of these artists in general.

The lecture was received with just approbation. Mr. Dafforne has for years been a worker in the field of journalism, where men may long do their good strivings without being seen or heard of.

The first conversazione of the Society was held on the 23rd ult., in the Conduit-street galleries.

COVENT GARDEN IMPROVEMENT.

THE short opening lately made between St. Martin's-lane and King-street, Covent-garden, little though it be, inspires hope that, from small beginnings, improved thoroughfares may some day permeate London; and as the *Builder* some years back marked out the precise terminal points of this short cut, so now a remark may be made upon the short-comings of the design in laying out the plan.

In projecting such a route, intermediate between leading streets, the very first consideration ought to be, to purchase up, and demolish, all antiquated fabrics, so as to give ample space for the new lateral ranges; whereas, in the building-ground now exposed for public competition, there is not width enough secured for the erection of spacious, much less of healthy tenements. Several portions of the building-ground are brought to acute angles; and, in most part of the southern side, crazy wooden buildings, of a most inflammable aspect, approach within a few feet, or inches, of the building sites!

This is certainly not the way to make the most of the matter as a speculation; nor, if we take example from the Imperial mode now adopted in remodelling Old Paris, is it the right mode of amending the faulty edification of our ancestors. The driftway, as a continuation of Cranbourne-street, may perhaps be wide enough; but as to the width of streets, and the relative height of the houses, in all improved ranges, there ought to be a rule, that "in no instance should the height of the buildings be greater than the width of the thoroughfare."

It would be idle to complain of the new warehouse palaces, which, throughout the City, tower to 70 or 80 feet, in lanes not 15 feet wide! There the evil is irremediable, for the property is fixed, and of too much value to be dealt with. In new lines, all is open for the projector; therefore it argues absolute incapacity, or heedlessness of

modern requirements, to design a main street too narrow; or to furnish front elevations, to be raised so as to obstruct light and air; and, in fact, to abate old grievances, only to raise up an imperfect, although, maybe, a more solid substitute.

It is true that the new traverse is not a main artery; nevertheless the easement which it will afford to Charing-cross, both as a short cut, and as an avoidance of the fall and rise of the old way from Piccadilly to the Adelphi, will be an important achievement; added to which the first inception of an underground archway for sewage, water, and gas mains, is here experimented. Of what use this last adaptation may be in so short a range as 120 yards, we cannot divine, unless possibly it is intended to continue that system onward, and throughout the metropolis.

In our great City, so slow to modernize and renovate, this trifling example of improvement is, however, encouraging. It will demonstrate by what simple means incalculable benefit may be rendered to commerce and free intercourse; and it may lead to the opening out of new ways through many central slums, at present nearly unapproachable and comparatively valueless.

To practice real civic improvements, something ought to be done worthy the energies and means of the wealthiest community,—something—some one thing, at least,—like a boulevard, and 100 feet wide. Such a route from west to east would not only reveal many of the architectural treasures of London, now concealed, or dimly seen; but would release a long-forbearing population from the deadlocks and stagnation of their daily congested traffic.

(CONT'D.)

NORTHAMPTON TOWNHALL COMPETITION.

At the last meeting of the Town Council it was resolved, after a long debate, that the committee shall select six designs out of the forty submitted, for the decision of the Town Council, who shall call in some eminent architect to assist them with his advice. The amount to be expended is restricted to 12,000*l*. There seems to be a proper desire, on the part of the Council, to do justice, and obtain the best design.

LONGTON MARKETS COMPETITION.

Sir,—I beg to bring before your notice the injustice being done to certain of the competitors in the above competition. The instructions issued to competing architects specially enjoin, as one of the conditions in their printed instructions, that "No colouring whatever shall be admissible in the perspectives." Now it is a fact that at least one of the designs selected by the committee has a highly-coloured perspective. May I claim your powerful aid in discountenancing such a manifest injustice being done to the other competitors who have acted in accordance with the instructions, and to appeal to the committee to deal honourably before they give a final and decisive preference.

A NON-COMPETITOR.

COLD WEATHER AND BAD DWELLINGS.

THE suffering, sickness, and death, which we have lately witnessed are generally ascribed to the cold weather only, but how much of this might have been prevented or mitigated had our dwellings been constructed with a due regard to warming and ventilating!

As a mechanic I shall only speak the feelings and conviction of my class, when I say that better arrangements are not only possible, but economical. We burn too much coal, and are often compelled to buy it at ruinous prices; but we cannot keep the home warm. We know that large halls or rooms are nicely heated with a comparatively small quantity of fuel, requiring a funnel or flue of only twenty inches area; but in our little rooms (sometimes called our crib,—a short word to sum up all bad arrangements) we have a fire area of 100 inches or more. Nothing is known better adapted to let the heat out, and, by causing a draught, to draw the cold in; and in summer it is almost useless for ventilation. We are supposed to adhere to this old system because we can see a good old English fire; it is our prejudice; but let house proprietors be assured we can afford to pay a higher rent for what we save in coal, doctors' bills, &c. It is wrong to say we like the system when we have no chance to try a better one. It is not within our reach, like the choice of furniture; or doubtless we should have made improvements long ago; as it is, we dare not meddle. We may invent a better system, but cannot put it in practice without interfering with the property of others. Those among us who are so unfortunate as to improve and invent, can only warm and ventilate our castles in the air, and we may at the same time only enjoy (?) our own fire-side, while it roasts our skin on one side, and

chills it on the other. No wonder we are subject to coughs and colds, with their attendant train of evils.

The question is, how and when are we to commence improvements? Individual effort may in some cases do a great deal, but it is by the enlightenment and combined efforts of the working classes that the great impulse must first be given. Let this be our next strike or turn-out. A few subscribers at only one penny per week may give birth to a new domestic comfort. Fellow working men, will any of you join? Success will bring you health and comfort at home, and then you will no longer see your little ones shrivelled, weak, and spiritless. Your rest shall be sweet, and you may watch the development in your children of a sound mind in a sound body, while they grow and become yours and your country's strength and pride.

FORGE HAMMER.

"Forge Hammer" should make his aim clearer, and the blows will then tell more effectively. How is the "penny per week" to be applied?

THE CO-OPERATIVE MOVEMENT.

A CENTRAL Co-operative Society has been formed in London, with branches in various metropolitan districts and provincial towns. This central association is called the National Industrial and Provident Society, and is established at 263, Euston-road. A weekly penny journal has also been established in connection with this association (Thickbroom, Paternoster-row, publisher), and a few numbers have been forwarded to us. It seems to contain some very useful matter, and to have very good objects in view besides that of promoting co-operation for commercial purposes, such as the promotion of temperance; but it would be well that a journal, designed to promote the interests of a perilous movement such as this of co-operation for economical purposes, should intermeddle little as possible with politics, whether in a democratic or in an aristocratic point of view. There are but too many demagogues who will attempt to fasten upon the movement, to promote their own ends, and they are already at work; but each movement, political, co-operative, socialistic, &c., ought to stand on its own special foundation; and if not, most assuredly the infusion of either demagoguery or socialism will very soon drag the co-operative movement down to destruction.

At a public meeting of the British Co-operative Industrial Society in Somers-town, it was stated that, though not quite twelve months old, the company had disposed of 600 shares, and had opened three stores. At the close of the meeting a large number of additional shares were taken up.

A co-operative society, for the supply of provisions and dry goods generally, is about being started in Peterborough. It originates with some local workmen, but will be open to the public in general. The shares are 1*l*. not fewer than three, or more than fifty, to be taken by each shareholder. About 100 members have already joined, and an office will be opened at the Mechanics' Institute. The rules are framed on the basis of those governing the successful concerns of the kind at Rochdale.

At the third quarterly meeting of the Barrow Co-operative Society at Warrington it was stated that, after paying five per cent. interest on the investments, there was a dividend of 1*s*. 5*d*. in the pound to the members for their purchases, leaving a balance of upwards of 5*l*.; doing this after valuing stock at cost price, less carriage. Business had been done during the quarter to the amount of 680*l*., and it was steadily increasing every week.

The Liverpool Co-operative Provident Association, of Camden-street, have just held their annual meeting. The number of members is now 1,245, having increased 308 during the last half-year. The total receipts for the last half-year were 8,844*l*. odds, being an increase of 1,154*l*. odds.

At a meeting of the Birmingham Co-operative Industrial Society, to explain its objects and enrol members, there was a large attendance. It was stated that, although they were not in a position to commence a manufactory; yet, as the greatest portion of the earnings of working men went for meat and drink, they intended shortly to open co-operative provision stores, and share amongst themselves the profits now realized by shopkeepers; the society had not long been established, but it already numbered a great many persons of the industrious class, and many others had promised to join: the rules had been approved and signed by Mr. J. Tidd Pratt, on the 3rd of January last. The secretary said many societies of various kinds in the town had proved failures because they had

been "fleece'd," but in this society it was impossible for the funds to be misapplied, as every officer had to give ample security. The subscription on a 1*l*. share was 3*d*. per week, or 3*s*. 8*d*. per quarter (but each person must take at least five shares); and, by the time two quarters' subscription was paid, the profits would be amply sufficient to pay the remainder. There appears to be a strong feeling in favour of the society, many persons enrolling themselves as members.

The *Bury Times* mentions that the income of the Bury Co-operative Manufacturing Company is 8,897*l*. 11*s*. 7*d*., and the expenditure 3,302*l*. 8*s*. 7*d*., leaving a balance in favour of the Company of 5,595*l*. 2*s*. 11*d*.

The thirteenth annual meeting of the Leeds Co-operative Flour and Provision Society has been held. There have been added to the society, according to the report, 880 members; and the clear gain for the half-year was 1,558*l*. odds. "The profits," says the report, "less interest upon loan capital, are at the rate of 25*l*. per cent. upon the shares (independent of interest), showing a return of capital six times yearly." The profit was chiefly on flour and grocery stores: on the clothing department there was a loss of 14*l*. The several branch societies of Saltaire, Idle, and Clifford, were also favourably reported on, and a proposed extension of premises reported as estimated for. The foundation stone of the new building for the Society has since been laid. The new structure, which is to cost about 2,000*l*., will adjoin the flour-mill in Market-street, Holbeck. It will contain cellaring, stores for the grocery, drapery, and provision businesses, a dry-goods warehouse, and a large meeting-room, which may be used as a library and news-room if necessary. After the ceremony, Mr. Holmes stated that the society, notwithstanding all the mistakes it had committed in the management of the flour-mill, had, during the twelve years it had been in operation, made a profit of from 1,200*l*. to 1,400*l*. Mr. Taylor, one of the founders and trustees of the society, in illustrating its advantages, stated that he had only paid in 1*l*., but that it was now worth 10*l*., whilst he had received 2*l*. as profit. Mr. Bell mentioned that any person might join the society by paying 1*l*. 1*s*., either in one sum or by weekly instalments.

A co-operative store is about being formed at Jarrow: ninety-four shareholders have taken up and paid subscriptions towards upwards of 180 shares. The society is being eagerly entered into by the workmen of the place. The store is to deal in groceries, draperies, and butcher meat, and all its transactions are to be on the ready-money principle.

There is a co-operative manufacturing society at Hawick, with 165 members, and considerable capital. They are about to commence the manufacture of hosiery goods.

The Galashiels Co-operative Store Company are progressing favourably, according to their quarterly report. Bread is a chief article of manufacture with this company. Their capital and business are both of them on the increase.

FRANCE.

A NEW church is to be erected between the Rue Blanche and Rue Clichy, Paris, to replace the temporary church of La Trinité. The environs of this church, including the opening of four streets round the edifice, are to undergo a great transformation.

The Parisian population continue to follow with much interest the application of the new system of indication of the names of streets and the numbers of houses, which is at present adopted in the Place de l'Hôtel de Ville and the Avenue Victoria. Every evening curious crowds assemble before the new inscriptions, which can be read at a great distance, and shine out brighter in proportion as the street is badly lit, as in some parts of the Avenue Victoria. The lighting of the apparatus is done in the most prompt manner, and with the same facility as that of the candelabra and gas lamps of the town. The application of this system to the numbers of all the houses would be only a small expense, which would be largely compensated by the advantages resulting from its utility. Thus Paris would be illuminated at night in a most brilliant manner.

There remained till a few days ago, at the east of the ancient Place Saint Michel, between this place and the upper portion of the Petite Rue de Cluny, near the Rue Soufflot, two towers united by a curtain wall—the last remains of the Paris circumvallation under Philip-Augustus. In a few days more not a trace will exist.

For some days past, says the *Journal de la*

Nidore, a thousand versions have been circulated in town upon accidents which have happened to workwomen employed in making up dresses of green tarlatan. According to one story, some sempstresses living in the Rue de l'Oratoire, at Nevers, were ordered to make a dress of the above material and colour. For the riches, &c., and other ornaments of the same stuff for the dress, many stripes had to be torn off; but in the tearing off of the pieces, fine particles of the arsenical dye were inhaled, and also introduced by the nose and mouth to the intestines. Symptoms of poison were the consequence; some having cholics, others breakings out on the face, to such an extent that the commissaire of police had to interfere in the matter. The stuff which had caused such alarm was consigned to the flames, and the merchants who had sold it, on hearing of the pernicious effects it had caused, took immediate steps to return to the manufacturers what remained in their warehouses.

THE NOTTINGHAM SEWERAGE.

HERETOFORE, authority has been much divided at Nottingham, but now things are going on under better auspices. The corporation surveyor, Mr. M. O. Tarbotton, C.E., has prepared a first report to his constituents on the north-western drainage by the river Leen, Tinker's Leen and Meadows, from which it appears that much, indeed, requires to be done, even here, where hygienic resources are considered to be greater than in many other towns in the kingdom. The Leen, like the Fleet, has been fully established as a main sewer, and is to be treated accordingly. Indeed, a portion of it has already been covered over, within the precincts of the borough, and made the *cloaca maxima* of the town. Its purification and redemption, therefore, are regarded as a hopeless task; and Mr. Tarbotton's object is to endeavour to make the most and the best of it he can for the sanitary improvement of the borough.

Into the minutiae of his report we cannot go at present; but we may quote a single passage to show the state of the Meadows, through which runs the Tinker's Leen.

"Sanitary operations in the Meadows have not been compatible with those of building; and with very few exceptions the whole of the streets are without sewers, and the houses without adequate drainage: water lies stagnant on the surface of many of the streets, and remains until evaporated or absorbed; the houses, for the most part, are either undrained or have their drains terminating in a garden or yard cesspool, which, overflowing, covers the ground with pestiferous matter, or oozes through the nearest boundary wall to a common ditch of malignant filth, or overspreads the adjacent field, or probably percolates into the nearest cellar, or finds its way into the soft-water cistern or drinking well. In one case I find a pump affixed to the front wall, next the street, of a row of houses, for the purpose of pumping up, from a cesspool stationed 8 or 10 feet below it, and at the bottom of the garden behind the houses, the sewage and refuse of the neighbourhood. In other cases the walls of dwellings, and the boundary-walls of property, situate at a lower level than adjoining property, are saturated with fecal moisture from undrained privies and ashpits. In most places the areas or holes of greater or less extent, formed by the street embankments, and being unsold or unused building sites, are simply reservoirs, and become the receptacles, not only of water from floods and rain, which, when impounded, can only disappear through the atmosphere or into the ground, but all superabundant filth and animal matter it is convenient to dispose of. Surely it cannot be said that a district like this is in a satisfactory order."

The question seems to imply that in certain authoritative quarters it is considered to be in a satisfactory enough state. Foolish obstructives do exist almost everywhere else, and why not in Nottingham?

IRISH BUILDING NEWS.

THE Ecclesiastical Commissioners for Ireland are about to carry out extensive alterations at the church of Monivea, county Galway, from the designs furnished by their architects, Messrs. Welland & Gillespie.

A new (R.C.) church is about to be erected at Mountrath, Queen's county. The plan is cruciform, consisting of nave, chancel, north and south aisles, and entrance porches. There is to be a tower and spire at the north-west angle. The nave is 142 feet long, and is divided from the side aisles by arcades of four arches each. The height of nave from the flagging of passage to the apex of roof is about 70 feet. The amount of contract is 5,000*l*. Mr. S. J. Butler is the architect. Messrs. Beardwood & Son are the contractors.

The works of St. Patrick's new bridge over the Lee at Cork are rapidly progressing: upwards of 100 men are constantly employed in preparing the stonework. The bridge is to consist of three arches, which are nearly completed; and the

elevation of the centre of the bridge will be 18 inches above the level of the approaches at either end; the total length, 215 feet; and width, 60 feet between the parapet walls, affording a roadway of 40 feet, and two footpaths of 10 feet each. The material used in the superstructure is Cork limestone, the foundations being laid with heavy blocks from Foynes. The stones for the arches have been furnished from the Beaumont quarries. The foundations of the piers and abutments were laid in iron casemates, lowered into the excavations: the spaces both inside and outside them were filled with concrete. The dimensions of the casemates for the piers are as follows: viz., length, 90 feet; breadth, 10 feet 6 inches; and depth, 7 feet 6 inches. The form of the three arches constitutes the segment of an ellipse. The versed sine of the centre arch is 19 feet 6 inches, that of each of the others 18 feet 6 inches. The balustrades and capping will be of cut stone. The architect is Sir John Benson; the clerk of works, Mr. Barnard. Mr. Joshua Hargreave, contractor.

The junction of all the Dublin railways with a cattle depot (proposed to be situated at the north wall), is contemplated.

The inaugural meeting of the Irish Institute of Civil Engineers took place, on the 19th ult., in the New Museum building, Trinity College, Sir Richard Griffith presiding.

Mr. Coates has erected an extensive establishment between Garmylee-street and the Princes Dock, Belfast, for the manufacture of marine engines and boilers for steamships of the largest class. The buildings form a square of about 200 feet on each side. The north wing contains a tower for steam riveting, about 60 feet high. An extensively signed memorial was presented to the Harbour Commissioners at their last meeting (19th ult.), urging the necessity of providing a new graving dock. The Messrs. Harland have one iron steamer, of 2,500 tons, nearly ready for launching; a second of 3,000 tons in process of construction, and the keel of a third of the same size laid down. The Ecclesiastical Commissioners for Ireland have erected four new churches, completed fifteen undertaken in former years, and enlarged twelve during the past year. The expenditure in these works, and in repairing other churches, amounted to 24,300*l*.

CHURCH-BUILDING NEWS.

North Walsham.—At a recent vestry meeting, held to consider the propriety of re-pewing, warming, and lighting the parish church, a committee was formed for carrying out the intended alterations, a plan of which has been submitted, and the cost is supposed to be from eleven to twelve hundred pounds.

Islip.—The restoration of Islip church is, according to the *Oxford Herald*, from the designs of Mr. E. G. Bruton. It is proposed to remove the flat roof of the chancel and substitute an open timber roof of good pitch. The walls are to be lowered, and the round-headed windows with their nondescript intersecting tracery removed, and windows with geometrical tracied heads substituted for them. The east window is designed for stained glass, and is to consist of three lights of rather more than average width; the head filled with geometrical tracery, the chief feature being a sexfoil with floriated cusplings. A new porch is to be substituted for the present one, and the church re-seated with oak benches. Mr. G. Wyatt is the builder, and the work will be carried on under the superintendence of the architect.

Athelhampton.—The foundation stone has been laid of the new church for Athelhampton and Bursledon, to supply the place of two old dilapidated structures in these parishes. The church is being built from the plans of Mr. J. Hicks, of Dorchester, architect, and is to be in the Early English style, with accommodation for a congregation of about 120. The builder is Mr. W. Hammett, of Tolpuddle.

Shrewsbury.—The restoration of the Abbey Church is being proceeded with. The clerestory window has been completed, and the stonework for several other windows is ready.

Deerhurst.—The Saxon church of Deerhurst is about to undergo a renovation. The church presents features of unusual interest. At present it is sadly disfigured by pews of all sorts and sizes, by an unsightly gallery, by whitewash, and by other signs of ages of a barbarous taste, and by the appearance of great neglect. The edifice is to be restored under the superintendence of Mr. Slater, at a cost, we understand, of 2,000*l*.

Coleham.—The demonstration in honour of Mr. Thomas Brassey, junior, was considered a suitable occasion for the laying of the first stone

of a chancel which is to be added to Trinity Church, Coleham. Mrs. T. Brassey laid the stone. The chancel is to be constructed at an estimated cost of 900*l*., about 600*l*. of which have been subscribed. The enlargement proposed will afford 200 extra sittings. The builder is Mr. Pountney Smith.

Ketton (Buland).—For the restoration of this church the following tenders have been received: Wilson, of Grantham, 3,200*l*. (this does not include the chancel, but the extension of the transepts to their original length); Ruddle & Thompson, of Peterborough, 1,895*l*. nave and aisles, 525*l*. in addition, with transepts to be extended; Firm, of Leicester, 1,691*l*.; ditto, 499*l*. ditto; Bradshaw, of Stamford, 1,672*l*.; ditto, 499*l*. ditto; Halliday & Cave, 1,637*l*.; ditto, 458*l*. ditto. Halliday & Cave's tender has been accepted, to the amount of 1,637*l*. The *Lincolnshire Chronicle* states that upwards of 1,000*l*. more will be required to complete the restoration of the whole church.

Derby.—The foundation-stone of a new Baptist chapel has been laid by the High Sheriff, in Osmaston-road, Derby. The building, which is in the Gothic style of the fourteenth century, will consist of a nave and transepts, with a baptistry and vestries, at the west end, separated from the body of the chapel by an arched screen wall. The roof will be supported partly on the walls and partly by iron columns, the spaces between the same and walls being filled with narrow galleries. The extreme length of the edifice, including the baptistry, is 107 feet; and the width, clear of transepts, 70 feet. On the north side of the building, and flanking the main front next the Osmaston-road, will be a tower, surmounted by a pyramidal roof, the total height being about 100 feet. In the upper part of this tower there will be a chamber for a clock and striking bell. Messrs. Hine & Evans, of Nottingham, are the architects; and Messrs. Thompson & Fryer, of Derby, the builders.

Low Moor (Bradford).—There has been erected in Low Moor Church a monument in Caen stone, to the memory of the late Mr. Samuel Bateman, of Crimble Villa, Pannal, near Harrogate. The monument is in the Decorated style, and consists of square-set buttresses and deeply undercut foliage. The buttresses run up into carved pinnacles, and the centre terminates with a canopy. The lettering is in Mediaeval characters, and illuminated. The sculptor was Mr. Mawer, of Leeds.

Barnsley.—A new school-church, capable of accommodating 200 persons, has been opened at Smithies, Barnsley. It consists of nave, chancel, and porch. The west gable is surmounted by a bell-turret. The total cost of church, without residence, has been about 300*l*. The design was by Mr. Stapleton, of London. The works have been superintended by Mr. Wade, of Barnsley.

Gateshead.—A new Wesleyan Methodist chapel has been opened here. It is situated in High West-street, and has been erected for the congregation hitherto assembling in the old chapel, High-street. The building, says the *Newcastle Courant*, was designed by Mr. Haswell, of North Shields, and is a stone structure, in the Italian style of architecture. Internally, it is fitted up with a gallery running round all the four sides, and affords sitting accommodation for 1,260 persons. The pews are of varnished fir, as is also the front of the gallery. In the recess at the east end an organ is being fitted up by Mr. Nicholson. The heating of the building is provided for by a hot-water apparatus, manufactured by Messrs. H. Walker & Co., of the Neville Iron Warehouse, Newcastle. Attached to the east end are a vestry and other premises; but some class-rooms yet remain to be erected to complete this portion of the edifice. The whole erection was contracted for by Mr. Marsh, of Blaydon, by whom the joiner work was entrusted to Mr. Nicholson of Winton.

Acklington.—A new church, in the Early English style, is approaching completion at Acklington. This is another of the numerous edifices for which the county of Northumberland is indebted to his Grace the Duke of Northumberland. Both church and parsonage-house are erecting from the designs of Mr. Deason, architect, London, whose labourers' cottages, dotted over the extensive domains of the Duke, are very generally admired. A circumstance that will interest future antiquaries respecting Acklington Church and Parsonage is, that all the stonework has been dressed within the walls of Alnwick Castle, whence it has been forwarded to its destination by railroad. The outlines, as well as details, are good. The works are being executed by Mr. G. Smith, London, the contractor for the extensive restorations at Alnwick Castle.

Beadnel.—Beadnel Church was one of the edi-

ices erected, about a century since, without the slightest pretension to taste or ecclesiastical requirements. It is now undergoing transformation under the auspices of Mr. F. R. Wilson, architect, Alnwick, and at the expense of Mrs. Taylor, the lady of the manor. The north side of the nave, which was a long blank wall, has been enlivened with four traceried windows; and the old spire, which was a mere extinguisher, has been enriched with an open parapet, which arises from its base. The churchyard wall, which was also very heavy and unsightly, has been replaced by ornamental iron railing, manufactured by Messrs. Wilkin & Dickman, Alnwick. The masonry and sculpture have been creditably executed by Mr. Brewis, contractor, Beadnell.

Sunderland.—For some time past the Bethesda Free Church, in Fatham-street, Bishopwearmouth, has become too small for the large and increasing congregation; and therefore, according to the *Gateshead Observer*, it has been resolved to erect a new Tabernacle in Sunderland, capable of accommodating 3,000 people—the whole of the sitting to be free. A suitable site is expected to be procured in the Borough-road, Bishopwearmouth.

Wick.—The Free Church of Wick is now in the market, another being about to be erected; and it is proposed to buy the old building for a court-house, which is much needed in the burgh.

STAINED GLASS.

Oswestry Church.—A stained-glass memorial window has been placed in the south side of the chancel of the parish church in Oswestry, by the representatives of the late Rev. John Parker, M.A., vicar of Llanyblodwell. The window consists of three divisions. In the centre of each are the armorial bearings of the family. Underneath are the words, "To the beloved memories of"—and engraved on a brass plate at the bottom is the inscription. Two other stained-glass windows, it is said, are to be placed in the same edifice, the stonework for each being already completed.

Jesus College, Cambridge.—The five lancet windows on the north side of the chapel in this college have recently been enriched with stained glass, by Messrs. Hardman, of Birmingham. The subjects are as follows:—First window—Our Lord's Ascension; Mount of Ascension; Angel's Resurrection; Soldier; Carriage of Cross; Nativity Annunciation; and Josias. Second window—Holy Spirit; St. James's Sermon; the Devout Centurion; Vision of St. Peter; Our Lord; Conversion of Saul; Holy Spirit; Apostles at Pentecost; Prophet Joel. Third window—St. Paul in the third Heaven; St. Paul at Athens; Angel; Stoning of St. Stephen; Saul; St. Peter's first Sermon; Synagogue; Our Lord at Nazareth; and Prophet Josias. Fourth window—Our Lord in Majesty; Heavenly Jerusalem; St. John's Vision; Chaining the Dragon; Lamb; Seven Angels with seven Trumpets; The Seven Lamps; Elders casting their Crowns at the Feet of our Lord; St. John Writing. Fifth window—Cleansing of Sin; Charity of St. Rhadegund; Angel with Crown; Christ Rejecting Honours; Releasing Captives; Prayer in the Garden; Marriage of St. Rhadegund; St. Rhadegund carried away captive. The cost of the windows is said to have been about 100l.

PROVINCIAL NEWS.

Yarmouth.—It is in contemplation to pull down and remodel the buildings on the east side of the card-room, Town-hall, and over them to erect a room suitable for the preservation of the borough records, and other valuable public documents. The room is to be fire-proof.

Retford.—The town council here have adopted a resolution to the effect, "that the council appoint a committee to obtain plans and estimates for an ornamental covering to the present corn market."

Southampton.—The new school-rooms, recently built on the grounds leading from Gloucester-square, in connection with Holy Rood Church, have been opened. The contractor was Mr. Gambling, of Northam. The area covered by the whole building is 60 feet by 50 feet. The school-room on the ground-floor, which is occupied by the girls and infants, is 40 feet by 16 feet, with an adjoining class-room 14 feet by 13 feet. The boys' room is situated on the floor above, and is 25 feet long by 16 feet wide, with an adjoining class-room 16 feet square. The building itself is composed of red brick with black pointing, and with Bath stone dressings for the windows and chimneys. The schools are built according to the direction of the Committee of Council for Educa-

tion, with all the recent improvements for ventilation, lighting, and class arrangements. 160 children can be accommodated. The rooms are fitted up for gas for weekly lectures, which will be delivered to the parishioners. A large space is devoted to a playing-ground for the children.

Poole.—The foundation of a temperance-hall has been laid here. The building is to be erected at a cost of 700l., on a piece of ground in Hill-street. The ground-floor will consist of a reading-room, library, room for general purposes, and class-room. The first-floor will comprise a room 62 feet by 29 feet, with gallery and platform. Apartments for the hall-keeper will be erected underneath the gallery. Arrangements will also be made for a ladies' cloak-room and a committee-room. The building will be erected from drawings and plans made by Mr. Philip Brannon, C.E., who has presented them to the society.

Stockport.—The directors of the Stockport Mechanics' Institution have resolved to proceed with the erection of their new building in Wellington-road South. The contract has been taken by Messrs. Thackrah & Pierce, for 3,600l. The proposed edifice was designed by Mr. Stevens, of Macclesfield, architect. The local *Advertiser* states that it is intended to deviate from the original in some respects, namely, by abolishing certain decorations in masonry and substituting ornamental brickwork.

Newhaven (near Edinburgh).—The fishermen of Newhaven have unanimously agreed that a harbour of refuge for their boats shall be formed at the west side of Newhaven pier; and with this view Mr. Stevenson, civil engineer, has just made a survey. Although it will cost a good deal, it is contemplated as a great advantage to the fishermen to extend a pier a distance of 40 feet seaward.

COMMISSIONS FROM BUILDERS AND MANUFACTURERS TO ARCHITECTS.

SOME months ago you did me the favour of inserting in your pages a short communication on the subject of commissions from builders and manufacturers to architects.

That the subject, when it is looked upon in all its bearings, is one of grave importance to the public and the architectural profession, is scarcely to be questioned; and, as a manufacturer having it continually pressed upon his notice, and suffering therefrom in a variety of ways, I venture again to open the question. In my former note I published in *extenso* one or two communications to me from architects, containing proposals for discount, and I shall perhaps surprise you when I say that I now have in my possession some dozens of letters from professional men, in which a surreptitious commission is either hinted at or openly proposed.

The point that most astonishes me is the very matter-of-course aspect in which these commissions are generally viewed. The proposals usually run thus—"Please favour me with your price, stating allowance to architects;" and, on declining to allow a discount, it is not at all unusual for the question to be openly combated; such as "I am very much disappointed at the contents of your letter, and hope that you will reconsider it;" or that, "You must be well aware that my commission on the work won't pay me for my time and trouble in corresponding with you." Another will say—"In future I must send my orders to So-and-so, who allows me 10 per cent. All the other tradesmen have allowed me a discount."

Others, again, seem to see the unrighteousness of the action, and ask that the commission of so much per cent. may be added to the estimates "in confidence," or that two estimates may be sent, one at my list prices, and another for the client, at so much per cent. in advance. And the most delicate way of putting it is to get a friend to write you to remind you, "you have never so much as thanked Mr. So-and-so for all the trouble he has taken in introducing you to his clients, and that it might be to your advantage to make him some compensation."

Now, I do not think there can be a more subtle process of dishonesty than for two people who are locked closely together in each other's confidence and interests to agree together in such compacts; and yet it is astonishing with what perfect innocence some professional men view them.

If a manufacturer with some public notoriety is unblushingly appealed to by letter, it is startling to think how far such practices may be carried by "tacit understandings" between dishonest architects and their dependent builders without the slightest chance of their deeds coming to light.

There is scarcely a more fertile source of injury to honourable architects than for the profession to

be supporting a number of men by what is neither more nor less than the plunder of the public. From my own experience I am sure that the better part of the architectural profession and the public little know the extent to which it is carried. Take any large town, and calculate whether the legitimate fees on the buildings that are erected under architectural superintendence would afford even a moderate practice for those calling themselves architects in it.

The honour of an architect is looked upon by his client as his only safeguard against being overreached, as few of those who employ architects are so conversant with the cost of building as to enable them to ascertain within ten or twenty per cent. whether his work has been justly estimated for; and the very wide range of builders' tenders, often to the extent of forty, fifty, or even seventy per cent., would always make an amateur doubt his judgment.

How easy, then, is it for a dishonourable architect to say, "Add so much to your estimate, and give me half!"

The Royal Institute of British Architects has recognised not only the existence of such practices, but the importance of checking them, by making its membership dependent on a declaration that its fellows and associates "will not receive or accept any pecuniary compensation or emolument from any builder or other tradesman whose works they may be engaged to superintend and that they will not have any interest or participation in any trade contract or materials supplied at any works, the execution of which they may be engaged upon." The responsibility, however, rests just as much with builders and manufacturers as with the architects who employ them; and my object in now writing is to suggest the advantage and practicability of an organization amongst them, to carry out the desired purpose. The traders who discountenance these practices have, singlehanded, but a poor chance of competing with those who systematically place their patrons under pecuniary obligations; and I am sure it would be to the interest of all honourable tradesmen to use every means in their power to check so venal a system.

It has struck me that an easy means of organization could be set on foot in connection with the Institute. It has already three grades of membership, fellows, associates, and contributing visitors; and I should think there might easily be, without much extra trouble to the officers, a fourth class organized, with nominal fees, in which builders and manufacturers might enrol themselves, as a means of publicly avowing their disapproval of fees and discounts to architects. An annual subscription of 5s. or 10s. would be ample, and would be accompanied by a declaration similar in effect to that required from fellows and associates. Such members might be termed trading associates; and the distinction to an honourable man would be worth a trifling annual subscription, to say nothing of the advantage it would give him with fellows and associates of the Institute, and all respectable architects, over his less scrupulous fellow-tradesmen; and would afford him indisputable grounds for declining applications for fees and discounts. As the Institute is likely to be re-organized on the diploma question, I have thought it a favourable opportunity of bringing before your readers this subject, which has for a long time occupied my thoughts. WAT TYLER.

LONDON AND PARIS HOUSES.

SIR,—I have read the article in your recent issue, on *Points of Contrast between London and Paris*. It has suggested to me sundry considerations, on which a few words may not be wasted.

It is more flattering to our self-love to find our own remedies, than to go abroad for our monitors. But it would be worse than weakness to reject the counsels of successful foreign practice. A very prominent item in these which come from Paris is, the general if not invariable employment there of an architect to devise and to superintend the erection of ordinary street houses; whilst, in England, it is exceptional, and was formerly rare. In comparing, therefore, the streets of the two capitals, we are deprived of all materials for estimating the relative abilities of the profession at home and abroad. Architects cannot be blamed, though many writers have assumed their complicity for the rude appearance of most of our streets, and the totally inefficient character of our domestic architecture. They have not been permitted to wield their legitimate influence over it.

We cannot attain that palatial style which distinguishes and beautifies Paris without a com-

plete revolution in our manner of house-building. That revolution is desirable on several counts.

1. *For Economy.*—London spreads her gigantic arms over an immense extent of land. Her constantly increasing population is continually being pressed outwards, away from centres of trade, whose extending importance at once demands extended space, and attracts around them crowds which serve to contract that space. The impossibility of lodging these crowds in close proximity to the scenes of their labour forced the citizens, more than inclination led them, to retire to villas round London. As the pressure of the demand for mere business premises goes on, the crowds are thrust farther and farther out, until steam speed is required to communicate between one part and another. Now how much of this great territory, comprised within the map of London, is economically used? Is there not a vast proportion of it which, whilst it could be made to accommodate a greater number of persons than it does, and at the same time to afford wider streets, is at present only half occupied, and ill occupied, by small and unwholesome domiciles?

2. *For Commodity.*—There are in London hundreds of streets, consisting of houses which were apparently intended when built for the residence of one family, of whatsoever station, that are now occupied by many. Houses planned for the accommodation of gentry, or of wealthy tradespeople, when, in the course of time, fashion sets out for new localities, become, like old clothes, the shabby gentility of gradually lowering grades, until they sink into "back slums," into which no one who respects his nasal nerves ventures. These houses can hardly answer the purpose of any of those succeeding the first-class occupiers; and yet one would think, considering the well-known fact that a large amount of rent is collected from tenants even of the poorest class, that they were all worthy of consideration, in a commercial if not in a social or humanitarian point of view. In the intermediate steps of their decadence, however, these structures sometimes fall to the lot of a respectable class of tradesmen of small means, or of mechanics, in which tenure they often remain. These holders frequently let out a portion, in some cases nearly all the rooms, in pairs, or even singly, reserving to themselves perhaps merely the ground floor. It would be useful to know how many houses in London entertain lodgers: probably, were the figures at hand, they would create great surprise. Yet, with very slight exception, there are no houses built to afford accommodation to lodgers as such, or otherwise than as the residence of one family alone. It is manifest that a house which served the purpose of a gentleman is hardly so planned as to meet the necessity of cutting it up into two, three, or even four separate tenements. Some rooms must necessarily be too contracted to be either healthy or commodious: others may be too large to be kept warm. Much less, therefore can houses built for the reception of one poorer man's family admit of that treatment.

With a system like this flourishing at hand, demanding a total reformation of house planning, it is strange that the enterprise and genius of the age move so slowly to supply it. Not that it is necessary to entirely invent a system, for we find one established by long custom in Paris and in Scotland, which, modified in some essential features, would serve admirably to economise ground, to beautify our streets, and to accommodate our lodgings. Nor, indeed, is it quite an exotic in England; for, besides the experiment in Victoria-street, Westminster, our Inns of Court, into which your paper penetrates, afford us examples of superimposed tenements, which seem to work well.

Many "happy homes of England," as has been shown, are placed one above the other, in a manner which almost belies our reputed love of domestic privacy, when we consider how easily they might be separated. Nor is it reasonable to anticipate, whilst rent runs so high for poor men, that they can retain a house for their own exclusive use. It would be much more reasonable to build such houses as would suit the immediate requirements of each certain class of tenants; and, until some such method is adopted, a town without "back slums" can hardly be expected. Further, whilst houses are built by hundreds upon one plan, which hardly suits any single tenant, with only such modifications as the liberality, or more frequently the parsimony, of the builder dictates; there is really no room for the employment of an architect's talents. These conditions, taken into consideration, are architects not architects enough to be able to solve the problem?

3. *For Beauty.*—Though in many cases some persons affect to despise that beauty which is the

mere result of size; still, as an element of effect in street architecture, it cannot be overlooked. Our present style of house building does not afford us the means of producing that impression, excepting in a few instances. Also, it has another drawback, which is, that the materials of the speculation prevent the expenditure of much money to produce artistic effect. This leaves us, the richer people, with the less magnificent habitations, as compared with the French. It is a condition which co-operates with their natural love of luxury. But, on the whole, one would hardly care to see London like Paris, grand as Paris is. The grandeur of Paris is produced by a uniformity totally destructive of all individual character; and, though French architects have displayed unbounded ingenuity in its treatment, there remains nothing to a broad view but immense streets of stately houses, to which Portland-place and Gower-street, whitened, might be compared. F. B. PAXTON.

THE "WELL" IN CLERKENWELL.

A CORRESPONDENT with reference to our recent notice of the present condition of what in the parish books is called "the pump-house," near Clerkenwell-green, says,—"The last time that I remember drinking from it was as late as 1846. A few years after, on again visiting the spot, I found the handle of the pump chained up, and upon inquiry was told that it was done by the parish authorities, as the water had become very offensive, having a disagreeable taste, and noisome smell, though still clear to the eye." In the year 1855 this was explained. On examining the place, Mr. Editor, yourself or any other visitor, will observe, on the side wall nearest to the Sessions-house, the marks of where a staircase has been. On the third step from the bottom of this staircase, some occupant of the house had removed the top board, or "tread" (cutting through the arch of the well), and converted it into a "convenience," with a moveable cover the whole length of the stair, so that unless informed of it, a stranger would not have guessed where the family "closet" was. The well is very shallow, as I am informed, and is only a small long vault, occupying nearly the whole length of the house, and the pump is at the further end. Now, two or three reflections must naturally be occasioned by the knowledge of these facts. First, that when the spring (which was a great convenience to the neighbourhood) was found to have been by some means deteriorated, why those who paid for the occasional repairs of the pump, did not try to ascertain the cause; and also why the parish authorities should let a small tenement to any party, deficient in so requisite an accommodation as was here wanting.

Let us hope, now that I have (through your pages), made this statement public (and I enclose my card), that those who have the proper authority over this formerly beautiful spring, will take some measures to have it properly cleared of its impurities, and restored to the use of the neighbourhood, either by a pump as before, or drinking-fountain, or other means, and also secure it from future pollution. A BUILDER.

HEATING AND VENTILATING IN RUSSIA.

A QUERY in your paper of last week as to how the water-supply, heating, and ventilation are managed in St. Petersburg during the cold weather, attracted the attention of a reader who passed four winters in Central Russia. Possibly in St. Petersburg there may be other and better arrangements, but the experience of the writer in other great towns of Russia and in Warsaw is, that heating is the only subject attended to; ventilation, drainage, &c., being left to take care of themselves. Their immense stoves (two in each room) diffuse a genial heat throughout all the apartments, of which in good houses there are several *en suite*; and the doors generally remaining all open, they do not feel unpleasantly warm: double windows are fixed in, at the end of the autumn, everywhere, and the sides carefully pasted over: one pane of glass corresponding in each window can alone be opened (called a *vasistak*) when air is required. In the dwellings of the peasantry the heat is the one thing provided for, and the Russian serf wears, day and night, his sheep-skin coat, the wool turned inwards. Their stoves, called *peech*, occupy a quarter of the room quite, and are built in a shelving sort of manner, so as to form several ledges, on which they literally sleep, so that the stove is the family bedstead, where they bake themselves in an atmosphere not endurable by English people: the only ventilation is supplied by the opening and shutting of the doors.

No water is supplied to any of the houses; and in large establishments a "doornik," or male drudge, and a horse and barrel, are kept to procure water for the domestic supply. At drainage and sewerage there is no attempt, and refuse of all sorts is thrown away anywhere. On the breaking up of the winter, ague and typhus fever rage, and the mortality is great. People in the best stations in life seem to take it as a matter of course to have an annual return of ague fever. C. C.

RAILWAY WHEEL TIRES.

"RAILWAY CARRIAGE BUILDER," of Stourbridge, does not seem to believe that railway-carriage wheels are made as I have described them. Many people in this district (Ross), though, believe it, as *seeing* is believing; and any one who will take the trouble to walk up the Gloucester and Hereford and Ross line, for about two miles from Ross towards Hereford, can see also, and then judge for himself, as the carriage still lies there. There is no mistake about the matter at all, as the tire is completely separated from the spokes, and whole, with the exception of one crack, which gives any one a good chance of seeing how wheels really are made. I do not mean to say that *all* wheels are made alike; but this I will repeat, that *this* wheel's tire was fastened to the spokes by *three rivets only, five-eighths of an inch in diameter, and merely stubbed into the tire*; and there is another wheel on the same carriage, made exactly in the same way. I will ask any one with common sense if such a wheel is fit for any railway carriage, especially a carriage heavily laden with timber? It appears that the tire cracked through, and the *three rivets* gave way, causing the tire to come completely off; and it is quite evident that the carriage must have run and dragged on the spokes only, for some considerable distance, "after the tire coming off," as they were worn as bright as silver from the friction. I should think this would be a good chance for a Government inspector to see really how some wheels are made. I was in hopes you would have inserted in your valuable paper a copy of the rough sketch I sent you with my letter. That would have informed the public instantly to what they often trust their necks. I am surprised at a "Railway Carriage Builder" denying that wheels are made so, when *none of the head men of the line in question have attempted to do so*; and they must know that such a system of wheel-making has been exposed; for your paper has a fair circulation there here.

With regard to my "awakening" the several railway companies to the fact that "Railway Carriage Builder" has such superior wheels in his possession, I must say I have not the influence; and if he wish it to be generally known, I would advise him to insert a proper advertisement for some time in your paper, which, I think, would be the means not only of awakening all the railway companies to the fact, but a great portion of the public at large also. G. R. B. A.

YOUNG ARCHITECTS AND PUPILS.

SIR,—I do not wish to make any personal observations, but an advertisement which appeared in your last number ought not, I think, to pass entirely without notice. The advertisement referred to, made a most tempting offer to young architects and pupils just out of their articles, kindly allowing them the advantage of superintending some buildings which are shortly to be commenced. Now, the natural conclusion any one would come to on reading the advertisement, and the conclusion that was evidently drawn from it, by several who applied in answer, was that at least a small salary would remunerate their services, but nothing of the sort is the case; the advertisement being nothing more or less than a trap to catch the inexperienced. Now, sir, are there not many architects who would be glad to offer similar advantages (?) to almost any man? It would not be a very difficult appointment to obtain, for there are numbers of builders who would give any young architect the privilege of seeing all the works in hand.

The case I have mentioned is no worse than others I could name, where members of our profession take advantage of the inexperienced and younger members. As this question of the remuneration of pupils is one that an architect in practice, I think I am not likely to look at in a prejudiced way. Let us take positive facts. We find architects receiving heavy premiums with pupils of 200*l.*, 300*l.*, and constantly 500*l.*,—and then we have these architects telling us (and to their shame be it said) that their pupils are not worth a salary at the completion of their articles, which have probably extended over four or five years. It is a disgrace to the profession that an architect can allow a pupil to leave his office who is not worth 1*l.* a week for 1*l.* after four years' study and work, a pupil is not capable of making a good set of working drawings and specification for an ordinary building, the architect who undertook his education ought to be ashamed of having so wilfully neglected his duty towards his unfortunate pupil. Any lad fresh from a good school is capable of being taught in two years far more than architects teach their pupils in four years under the present disgraceful system. Let us hope that, to some extent, this gross evil will be done away with, when this proposed examination, now the subject of consideration at the Institute, has become law.

It is not the premium that can be objected to; but, on payment of a large premium, we can at least demand that something will result from it, and that a young man who has served his articles, will be it to fill a situation that will remunerate him a little. C. D.

DECISIONS UNDER METROPOLITAN BUILDING ACT.

PROJECTION BEYOND GENERAL LINE OF FRONTS.

MR. MATHEW, the District Surveyor for Saint James's, Westminster, summoned Mr. Foxley, builder, before Mr. Tyrwhitt, at the Marlborough police-court, February 7, for not taking down, pursuant to notice, three bow-windows, put up to a house, No. 7, Beak-street, Regent-street (the "Scotch Stores"), as they projected beyond the general line of fronts in the street.

Mr. W. L. Donaldson, solicitor, appeared for

the district surveyor. Mr. Lavender, the architect of the building, attended to oppose the summons.

Mr. Mayhew proved that these were bow-windows built out from the front of the house above the cornice of the shop-front, and projected 13 inches beyond the general line of fronts in the street, contrary to the fifth part of sec. 26 of the Act: the projections did not come within any of the exceptions of the Act, and the Metropolitan Board of Works had not given permission for their erection. The defendant called the projections "lamps," but they were structural constructions,—in fact, windows, although it might be the intention to put lamps in them.

Mr. Lavender contended that the case did not come within the operation of the Building Act, but was to be considered under the Metropolitan Local Management Act, section 119; and authority was given to the Vestry, or Local Board, over such projections. The two Acts were passed at the same time, and must be read together.

Mr. Donaldson said this was not so. They were distinct Acts, and only affected each other in certain clauses, where in each Act distinct reference was made as to the 119th section of the Local Management Act. The interference of the Vestry or Local Board was confined to the case where a projection was "an annoyance in consequence of the same projecting into, or being made in, or endangering or rendering less commodious, the passage along any street." The projections referred to in the two Acts were distinct things. Projections of the nature in this case could have nothing to do with the passage along the street.

The magistrate said he would consider the two Acts as regarded the question raised by Mr. Lavender, and he would also view the premises, and he adjourned the case till the next Thursday.

On the 14th of February, Mr. Tyrwhitt said he had viewed the premises, and had carefully considered the two Acts of Parliament. He considered they had to a certain extent concurrent jurisdiction, but the 119th section of the Metropolitan Local Management Act applied solely to the convenience of passengers along the street. The three projections complained of were let into the wall, and fixed into combs, and occupied the whole space of the three windows. He could not consider them to be lamps, for any room with a bow-window and a light in it might then be deemed a lamp. The projections were contrary to the Building Act; and he must, therefore, make an order for their removal; but he did so with some regret, as he did not see that any public inconvenience would arise from them. He would grant a case for the superior courts if the defendant wished to have one.

Books Received.

Handbook to the Cathedrals of England. Southern Division. 2 vols. With Illustrations. London: John Murray, Albemarle-street. 1861.

HAVING nearly used up foreign parts, the publisher of the "Handbooks" is now looking at home; and, county by county, is making England his own. As part of the scheme, there are to be "Handbooks for the Cathedrals of England," of which the two volumes now before us form the first instalment. These contain the southern cathedrals, Winchester, Salisbury, Wells, Exeter, Chichester, Canterbury, and Rochester; and will be followed by the eastern cathedrals, Oxford, Peterborough, Ely, Norwich, and Lincoln; the western, Bristol, Gloucester, Worcester, Hereford, and Lichfield; the northern, York, Ripon, Durham, Carlisle, Chester, and Manchester; and the Welsh cathedrals, Llandaff, St. David's, St. Asaph's, and Bangor.

The present volumes are profusely and beautifully illustrated, containing no fewer than 114 engravings on wood, of high character. To give an idea of these we have transferred to our pages some of the engravings with which the account of Chichester Cathedral is accompanied,* and would refer such of our readers as desire, under the present melancholy circumstances, fuller particulars of this building than we can give, to the work itself. We have described the recent disaster at some length on another page. Suffice it to say here, from the "Handbook," that a cathedral built by Ralph, the third bishop of Chichester, was completed in 1108, and was partly destroyed by fire in 1114. Its restoration was commenced by the same Bishop Ralph, and was far advanced at his death, in 1123; but was not ready for

consecration until 1148. Some of this church remains in the existing cathedral. It was again burnt; and, when restored, was greatly enlarged, 1108 to 1204.

"As far as the eastern termination of the choir the present church is the work of Bishops Ralph and St. John, with the exception of the two outer aisles of the nave, which were added in the middle of the thirteenth century, probably under Bishop Neville (1223-1244). The retro-choir, of transitional character, belongs to the first half of the thirteenth century; and, although it has been attributed to the same Bishop Sefford II., who altered Ralph's cathedral, is certainly of later date. The Lady-chapel beyond is the work of Bishop Gilbert de St. Leofard (1258-1293). The central tower, above the roof, dates from the first half of the fourteenth century. The campanile, or detached bell-tower, was built by Bishop John de Langton (1345-1356). The 'lace and trimmings' of Bishop Sherborne (1567-1590) appear in the upper portion of the choir-stalls, and in the decorations of the south transept."

A view of the campanile or bell tower here mentioned, with other illustrations, will be found in an earlier volume of the *Builder*.

Chichester spire appears to have been exactly central to an inch, including the lady-chapel and the west porch. The central tower may have been raised by Bishop John de Langton, 1305 to 1336.

The upper part of the spire was taken down and rebuilt by Sir Christopher Wren; who, says his biographer Elmes, "fixed there a pendulum stage to counteract the effects of the south and south-west gales of wind which act with considerable power against it, and had forced it from its perpendicularity." (See engraving.) To the finial is fastened a strong metal ring, and to that is suspended a large piece of yellow fir- timber (a), 10 feet long and 13 inches square; the masonry at the apex of the spire being from 9 inches to 6 inches thick, diminishing as it rises. The pendulum is loaded with iron, adding all its weight to the finial; and has two stout, solid oak floors,—the lower one (c) smaller by about 3 inches, and the upper one (b) by about 2½ inches, than the octagonal masonry that surrounds it. The effect in a storm is surprising and satisfactory. While the wind blows high against the vane and spire, the pendulum floor touches on the lee side, and its aperture is double on the windward. At the cessation, it oscillates slightly, and terminates in a perpendicular. The rest of the spire is quite clear of scaffolding. This contrivance is doubtless one of the most ingenious and appropriate of its great inventor's applications."

We have a little quarrel with the editor of the present volumes in this, that throughout them Britton's work on the cathedrals is not once alluded to. In mentioning, in the account of Salisbury Cathedral, the brass set up there in his memory by the Institute of British Architects, he is called "the father of modern archaeology;" but even there no allusion is made to his remarkable work on the cathedrals. This is not generous.

The repetition of what we must consider the error of the "Boy Bishop" story, without reference to the strong argument against the tradition, is to be regretted. However, we are not looking for objections, but desire to make known a valuable and elegant book likely to be of great service.

VARIORUM.

"SLATE-QUARRIES in Wales, considered as an Investment, with a short Description of the present State of the Slate Trade." By Thomas C. Smith. London: Ward, Brothers, Bartholomew-close." The author of this pamphlet states the result of his experience to be a thorough conviction that there is no class of property with which the capitalist can deal that offers so sure and so remunerative a profit at the present time as a good slate quarry, well selected and well managed. He considers a quarry to be far less speculative than a mine. It appears that slate rock may be broken down and manufactured for market at 21s. per ton; the market value being from 40s. to 50s. per ton; and that, with a capital of 10,000l., it is estimated that 600 tons of slate can be made per month; producing monthly 1,200l., or 14,400l. per annum, at 2l. per ton, which, after deducting working expenses, &c., will yield a net profit of 4,210l., or at the rate of 42 per cent., the returns increasing as the quarry opens and hence extends. Much of all this may be very true, and yet slate-quarries be a questionable investment through difficulties in the way of getting honest managers. The author, therefore, may well qualify his estimate as to profits by the condition of proper management. We know of more than one case where the shareholders have been robbed of all, though the promoters and the lawyers made fortunes. We may one day tell a story as to profit and loss in some slate quarry companies.—"Strictures on the Report of her Majesty's Com-

missioners for the Concentration of the Law Courts and Offices, and on their Recommendations as regards Site." By Harvey Gem. Heath, New Oxford-street." In this pamphlet the centre of the open space in Lincoln's-inn-fields is reorganised as the best site for the concentration of the Law Courts, in connection with the opening of new streets and other improvements in the vicinity, such as the long-talked-of connection of Holborn and the Strand through Little Queen-street. These collateral improvements, however, have no necessary connection with the Law Court scheme, and we, for our part, are not disposed to fill up any of the open space in Lincoln's-inn-fields, even though it is proposed to open the space left round the courts to the public. The ventilation of the neighbourhood is a good compensatory object, but the central space in Lincoln's-inn-fields, even as it is, forms a reservoir of fresh air, vitalized by its vegetation, for the benefit of the neighbourhood; and we hope to see the other improvements carried out yet, without filling up any of this central space with brick and lime.—"The Thames Embankment and the Wharholders." By R. A. Arnold, surveyor and land-agent. London: Saunders, Otley, & Co." This tract merely gives a sketch of some of the schemes before the public, but it does not go into the question of the wharholders to any extent. We may here notify that a Royal Commission will be immediately issued, to whom the question of the Thames embankment will be submitted for inquiry, and if possible for completion. The chairman will be the Right Hon. W. Cubitt, M.P., the present Lord Mayor of London; and the other members will comprise Mr. Thwaites, the President of the Metropolitan Board of Works; the Secretary of the Thames Conservancy Board; and two or three engineers of eminence.

Miscellaneous.

THE ARCHITECTURAL MUSEUM.—We hope to find a good meeting at the Museum on Wednesday next, when the prizes offered to artist-workmen for modelling, wood-carving, and coloured decoration, will be presented to the successful competitors by the President of the Architectural Museum. It may be worth while repeating that artist-workmen and others who may desire to be present may obtain cards of admission by letter to the honorary secretary, 13, Stratford-place.

SOBRIETY & WILKINSON'S GALLERY.—These gentlemen have had formed for them, in the new structure near the Lyceum Theatre, known as Wellington Buildings, a gallery for the advantageous disposal by public auction of pictures and other works of art. It is a handsome apartment, well lighted. Mr. Withers, we believe, was the architect of the building: this displays some external ornamentation formed in vari-coloured brick-work.

REDUCTION OF FIRE-PLACES.—Having this winter tried the plan of filling in the back and sides of a large grate with fire-clay, as recommended by a previous correspondent, I think it desirable that others should be informed that it answers perfectly, and is most desirable as a substitute for the ugly-iron cheeks which some persons use, and which I found had been used by the previous tenant of this house. I did not cover the whole of the bottom of the grate, but carried up the clay from about halfway (so leaving a portion of the bottom bars open for the draught) to the back, on a line even with the top bar in front. The quantity of clay cost only a shilling, being about a painful, and can easily be procured through a "builder and plasterer."—H. M. W.

EXTRACTION OF FIRE-DAMP FROM COAL-MINES. Mr. J. G. Williams, of Blaenafon, believes that he has discovered a method by which the carbureted hydrogen gas (commonly known as fire-damp), which accumulates in such quantities in coal-mines, can with safety be extracted. His invention, says the *Hereford Times*, is very simple. A receiver, containing a syphon-pipe, is to be placed at the top of the pit, and connected to gas-pipes of a sufficient size (about 2 or 3 inches in diameter), which are to be carried down the pit and through the workings, branch pipes being attached to the main pipe, with stop-cocks at all necessary points. These branch pipes are to be inserted in the roof, or any other parts of the workings where gas is found to accumulate. The receiver at the top of the pit is to be filled with gas, and a burner attached to the receiver will be lit: by these means all the gas which may be in the pipes will be sucked up through the receiver, the burner of which will keep lit as long as any gas remains in the pipes.

* See pp. 142 and 143, ante.

GLASGOW ARCHITECTURAL SOCIETY.—This society met on the 18th ultimo, in the Scottish Exhibition Rooms, the president, Mr. C. Wilson, occupying the chair. A communication was made by Mr. Richard Turner, of Dublin, "On the Construction of Iron Roofs." The subject was treated in a practical manner, showing the various uses of these roofs, and the best modes for constructing them.

TERMINATION OF A STRIKE.—We are told that the strike of the Halifax masons, which has lasted upwards of six months, has at length come to an amicable termination. The men sought a reduction in the time of labour from 57½ hours to 51½ hours a week, or nine hours a day, as they call it. After active negotiations for some days, a settlement of the dispute has been effected, on these terms;—the men to work 54 hours a week, and to submit to a reduction of 1s. a week each man in wages. The best men have received 27s. a week.

PATENT WATER ELEVATOR.—Inventions in pumps have been numerous of late. One of Nelson's patent machines, capable of raising 80,000 gallons per hour, or 150 gallons each lift, is described by a Liverpool cotemporary as having been exhibited in operation at Virgil-street, Scotland-road. The machine is said to be quite portable, and workable at a trifling cost, on a principle so simple, and requiring so little force, that a child might work it easily. It is kept in full play by merely drawing and withdrawing a valve at intervals of about six or seven seconds, the time requisite for the filling of the receiver. The general principle upon which the apparatus is constructed is that of the atmospheric pump, the vacuum in the receiver being produced by the ignition of common naphtha or any other volatilized hydrocarbon fluid.

THE WEALTH OF THE KINGDOM.—An income-tax return has been issued which shows that the total amount of income and annual value of property assessed to the income tax in the United Kingdom has risen from 308,317,656l. in 1854 to 335,730,254l. in 1860. The income taxed under Schedule D, the profits of trades and professions, &c., in England, rose from 76,215,936l. in 1854, to 81,921,267l. in 1860. The income assessed under Schedule A, the annual value of lands, houses, &c., has risen greatly in all three kingdoms: in England it was 99,274,309l. in 1854, and 112,082,749l. in 1860. The total income assessed to the income-tax in 1860 was, in England, 282,718,049l.; in Scotland, 29,913,124l.; in Ireland, 23,099,081l.

THE MAGENTA DYE IN NAPHTHA.—A chemical manufacturer sold to a City merchant 3,000 gallons of naphtha, 1,000 gallons to be delivered weekly, according to sample, at 2s. per gallon; and the merchant sold the same by sample previously to delivery in his own case. No naphtha was ever delivered. The sample had been tested by the last purchaser, and found to contain 73 per cent. of benzine or benzole, valuable for dyeing purposes, and making the naphtha at the time of sale worth 6s. per gallon, a price which had risen still farther since, on account of the sale of articles of a magenta colour. A law-suit was the result of the non-delivery, and a jury assessed the damages at 537l. 10s.; being the difference in the sale price between 2s. 2d. and 6s. 9d. A rule was obtained, however, to reduce the damages to the difference between 2s. and 2s. 6d., but three of the Judges in the sittings at Banco, to one of a contrary opinion, thought the rule should be discharged.

WATER FOR THE DESERTS.—ARTESIAN WELLS IN ALGERIA.—The following are the results of the borings undertaken since the year 1856, in the south of the province of Constantine:—The number of wells sunk up to the present time in the Oued-Hir, and in the Hodna, is 31, yielding 38,631 litres of water per minute. The Tougourt artesian wells, in number 19, give 2,700 litres per minute: that is, for the 50 wells of the province of Constantine, a supply of 36,421 litres per minute, or, in 24 hours, 52,446,240 litres. All these borings were executed with only three sets of tools. The average depth of the Oued-Hir and Hodna perforations is 89 metres 55 centimes; and the Tougourt has a depth of about 56 metres 19 centimes. The mean discharge of the 31 wells of the first of these districts is 1084.87 litres per minute. For each of the 19 wells of the second district, the mean supply was 146.84 per minute. The cost of these undertakings amounted, during four years (1857, 1858, 1859, and 1860), to the sum of 262,676 francs 14 centimes, from which is to be subtracted the value of the boring apparatus, 120,000 francs: that leaves a total expenditure of 142,676 francs. The mean cost of each of the 50 wells is therefore 2,853 francs 52 centimes. May these wells be multiplied.

THE CARPENTERS' COMPANY.—Alderman James Clarke Lawrence has been elected master in the place of the late Mr. Thomas Finden.

VICTORIA STATION AND PIMLICO RAILWAY.—At the fifth ordinary half-yearly meeting of proprietors, the Chairman, in moving the adoption of the report, said that although the terminus had not been completed, the directors were so far satisfied that they had got a certain amount for it, and he thought they might say that their estimate was completed, and that the cost of the whole undertaking would be under 500,000l. The bridge over the Thames had been finished in twelve months, and they ought to compliment the engineer and the contractor for the rapidity with which they had completed the undertaking.

THE ROYAL EXCHANGE AREA.—Our readers may have seen that things have fallen out precisely as we supposed would be the case. The various tenants, Lloyd's Association, and two Assurance Companies, have interposed. Meetings, however, have been held; and the result is, that it is referred to the Lord Mayor and the Master of the Mercers' Company, with the surveyor of the Gresham Committee, to put themselves in communication with the Committee of Lloyd's, the Royal Exchange Assurance, and the London Assurance Companies, with the view to the settlement of some plan, to be mutually agreed upon, for the purpose of complying with the request of the merchants to have the area of the Exchange covered.

OPENING OF THE BANBURY SCIENCE SCHOOLS. The new schools of science and general instruction, erected for Mr. Bernhard Samuelson, in Cherwell, have been opened. The building was designed by Mr. A. Kimberley, and built by Mr. W. Wilkins. It is of a mixed style of architecture, and is intended for the three-fold purpose of a school of science, an adult night-school for those who may be willing to avail themselves of it for the improvement of a neglected education, and an ordinary day-school. The principal room is 60 feet long by 30 feet wide, and attached to it are two class-rooms, about 20 feet square. Lord Saye and Sele, Mr. Samuelson, the Mayor of Banbury, Mr. H. Cole, Mr. Buckmaster, Dr. Lancaster, and Dr. Acland were present at the opening, which Earl Grenville, as President of the Committee of Council on Education, was also to have attended, but was prevented on account of a Cabinet Council requiring his presence.

SANITARY STATE OF NORWICH.—The annual report made by Inspector Clarke to the Sanitary Committee of the Norwich Board of Health contains the following among other details:—During the past year there were entered in the inspection book about 260 cases of nuisance, and proper drainage had been put down to about 250 different premises. I have visited many old tenements, and have thus brought to light many revolting cases of filth, misery, and destitution; and, as far as possible, have taken the necessary steps for mitigating the condition of the occupants, by thoroughly cleansing, linewashing, and other means. There are in various parts of the city many miserable and dilapidated tenements, which are the forlorn homes of those who prefer to exist in deplorable scenes of squalor and poverty rather than seek the shelter of a work-house. Nothing short of entirely pulling such houses down, and re-building on improved principles, will afford a remedy. With regard to drainage, I have to report that during the past year, in addition to what had been done in previous years, a most important district has been thoroughly drained, where disease was always prevalent. This district, comprising the whole of the streets from Grapes-hill to Hangman's-lane, had been much complained of by medical gentlemen as being extremely unhealthy. I am now glad to report that, in addition to the number of cases of nuisance entered in the inspection books which have been abated, hundreds of foul cesspools have been destroyed in the above locality, and the drainage connected with the main sewers. Real and substantial good has arisen from effective drainage being carried out; and I would notice Crook's-place, Peasfield, and the more recent works completed on Magpie-road, at Magdalen-gates, and neighbourhood, where fever was always prevalent, and annually many lives were sacrificed to the poisonous influences of cesspools, pulks, and pits of the filthiest kind, all of which are now destroyed and the health of those localities has undergone so marked a change that a case of fever is rarely known. Although much has been done to improve various districts, by putting down proper sewage works, there are yet many parts that can be pointed out as not healthy.

GAS.—The Liverpool Gas Company have just declared their usual maximum dividend of ten per cent. per annum for the last half-year.—A similar dividend has been reported by the directors of the Belper Gas Company.—The Wakefield have declared dividends at the rate of ten per cent. on certain shares, and seven and a-half on others.

NEW METHOD OF CONSTRUCTING BREAK-WATERS.—A plan by a Mr. Dempster for facilitating the construction of breakwaters in deep water is thus spoken of in the *John O'Grady's Journal*. He proposes to build a vessel of 102 feet in length, with 80 feet of keel, and having a double line of rails on her deck, with turn-tables at each end, so that when trucks of stones are tipped over her bows the turn-table will go round and allow the empty truck to go back by the one line of rails, while a laden one comes forward by the other.

MASONS' WAGES MOVEMENT IN SCOTLAND.—A general movement appears to have begun amongst the masons in Scotland for a rise of wages. In Elgin 2s. 6d. a-week additional is demanded; in Forres an additional farthing per hour; whilst in Edinburgh the workmen insist on a reduction of the period of labour from ten to nine hours, the pay remaining the same. The master masons, joiners, and contractors are said to be uneasy on the subject, and resolved to fortify themselves against the proposed change. No fewer than sixty firms in Edinburgh and neighbourhood, some of whom give employment to hundreds of men, have, it is reported, agreed amongst themselves not to employ a single hand except on the ten-hours-a-day principle, and to refuse employment to all who will not consent to this arrangement: in fact, rather than have themselves controlled in this matter, they are, if pressed, it is said, resolved upon a general lock-out. Meantime the Hawick masons, dissatisfied with a nine-hour day's work at this period of the season, are insisting on a ten-hour, and have actually struck on this point, their masters having refused to accede to their demand. A few of the men, however, have since given in. The nine-hour day's wages at Hawick are 4s. 8d., and the ten-hour, 5s. 6d.

SERIOUS SANITARY STATE OF BRIDPORT.—Under this heading the *Sherborne Journal* gives a report of a Council meeting, as a Board of Health, from which we extract some particulars:—The surveyor's report on the state of the drainage of the town was read, disclosing (says the *Journal*) a most awful account of the insufficient drainage, both public and private, and summing up the following remarks:—"Upon looking over the drains which I have inspected, I do not think at all more than one-third are capable of receiving the solid refuse from the houses of the inhabitants; and I should think they must have been made with the intention of restricting every one from carrying such solid refuse into them. It certainly does not go into them in one case in fifty; and the consequence is that a great portion of the inhabitants are living and working by the sides of dung-mixens and cesspools, the contents of which are running through earth, in the great majority of instances, to a considerable distance, and, in many cases, polluting the water in the wells. I would recommend the Board at once to have a good plan drawn by an experienced engineer, for the effectual drainage of the whole town." After a lengthened discussion, wherein great difference of opinion was elicited, a resolution was proposed, "That a plan of the existing drains be prepared for the use and information of the Board, such plan to contain both the fall and dimension of the drains;" to which was moved an amendment,—"That a survey of the town be made, and a system of drainage sufficient for the requirements of the borough be laid down by a competent engineer, with an appropriate estimate of the expense of carrying out such plan; and that the same be submitted to the Board at their next meeting." This gave rise to another discussion, which was brought to an end by the amendment being put: ayes, 6; noes, 7; and the motion, ayes 3; noes, 6. The Town Clerk then observed that by this result the Board had done nothing, *showing they were not competent* to carry out the Act; and they had better make a report to the Secretary of State to that effect. They might be assured that if, when called upon by the Secretary of State, they could not report to him of *something sensible* having been done, Government would be down upon them. It was then stated that a rate was required, as the surveyor wanted money to pay the labourers he had employed in opening the drains. This point being also discussed without coming to any definite result, the Board broke up. Government will be down upon these fellows; *et error nullus*.

MANCHESTER ARCHITECTURAL ASSOCIATION.—At the last meeting of this society Mr. Alfred Darbyshire read a paper on Michelangelo, in which the great Florentine received his meed of praise as one of the greatest geniuses in the arts of sculpture, painting, and architecture. The next paper will be by Mr. Webster, on "The Science of Architecture."

THE LONDON PAINTER STAINERS' EXHIBITION.—The Painter Stainers' Company have issued, in a printed form, a brief notice of the measures proposed to aid the operative painters and the decorative arts by annual exhibition of works and otherwise. The company last year gave the free use of their hall, and 70*l.*, for the promotion of the exhibition, as our article on the subject at the time informed our readers; and they propose to give 50*l.* this year, besides the free use of their hall. The object,—to infuse into the English artisans of the present day, the feeling of artists,—is an excellent one, and well merits success; and we hope the present year's exhibition, which, like the last, will be held in June, will excel it in all respects, so as to give further encouragement to future progress in carrying out the end in view. Mr. Sewell will again fit up the hall at his own expense; but it is to be hoped all interested in the advancement of decorative art will aid with their contributions; as the company's funds, though ample, are mostly bound up in charitable objects, which one cannot even wish to interfere with, even for so excellent a purpose.

BUILDING ACCIDENTS.—On Sunday evening before last, about half an hour before service, a large portion of the wall and roof at the north angle of the nave and chancel of the ancient parish church of St. Leonard, Bridgnorth, gave way, and fell, partly into the churchyard and partly into the interior of the church; smashing a number of the pews and sittings, and covering a great portion of the interior with the *débris*. For some time past the church has been in process of partial restoration; and on Saturday the workmen, while digging the foundation of the portion intended to be restored, had occasion to remove a buttress from the north wall of the old structure: the part thus weakened gave way in the manner described.—As two labourers employed in the erection of a new chimney in connection with the Leeds Co-operative Flour and Provision Society's mill, at Holbeck, were being hoisted up, standing on a corbe, one of them, a stonemason, who had been smoking a pipe, became giddy, and fell to the ground, a depth of nearly twenty yards. He was instantaneously killed.

THE MANGANATES AS DISINFECTING SUBSTANCES.—My attention has been directed to the remarks in the *Builder* of 16th February, on the subject of the wood-staining properties of "Condy's Patent Fluid (green)," when employed of the proper strength, for any required shade of brown; and I am glad your experiments confirm the statement of "One of the Browns" as to its utility for this purpose. On two points touched upon in your notice I venture to offer a few remarks, in justice to my claim to priority in suggesting, simplifying, and carrying out the manufacture and employment of the manganates and permanganates as disinfecting and purifying substances. These claims, Schönbein, on the one hand, or Dr. Angus Smith, on the other, would be the last to ignore. To the first-named and eminent chemist you have erroneously imputed the suggestion of these salts as "a direct and perfect ozoniser or vehicle communicating ozone as a cleansing principle;" and, in the case of the latter gentleman, whose services in the cause of sanitary science all must willingly concede, you have hardly done him full justice, inasmuch as it is understood he perfected and produced for general use an instrument as an air-test, employing the substance which I first brought under the notice of the public and the scientific world as an air-test and a water-test. Dr. Angus Smith's experiments date from the period when I brought the matter under his notice. To Dr. A. Smith himself belongs the credit attached to the special instrument he invented and perfected.

H. B. CONDY.

** The purport of what we said as to Schönbein, the discoverer of ozone, was that he found the manganate to be a perfect ozoniser,—not that he discovered its cleansing or scavenging properties, of the merit of discovering which we had no desire to deprive Mr. Condy. As to Dr. A. Smith, what we stated comes much to the same sense since did justice to Mr. Smith's air-test in the *Builder*, and only slightly recurred to it on the occasion to remind our readers of one of the various uses of permanganate of potash.

"CLOSET" SEATS.—A country surgeon sends us a statement showing the evils that result from these being too high, and urging that 13 or 14 inches is about the proper height. Without going into details, we recommend attention to the advice. In the case of those already fixed, placing a step in front, on which the feet may rest, will be found a wise one.

DWELLINGS OF THE LABOURING CLASSES.—In the House of Lords last week the Earl of Derby gave notice that on Thursday of this week he should present a petition on the subject of the displacement of the labouring class in consequence of the introduction of railways and of other large works in the metropolis. He was not prepared, however, to make any proposition to the house on the subject.

ST. STEPHEN'S, SALFORD.—A memorial window has just been erected in St. Stephen's Church, Salford, to the late Samuel Occleston and his wife, and also to a brother. The subjects chosen represent the Resurrection and Ascension, surmounted with canopy work. The tracery is filled up with ornamental work, having the *Agnus Dei* represented in the centre. The artists employed were Messrs. Edmundson & Son.

INSTITUTION OF ENGINEERS IN SCOTLAND.—The usual monthly meeting of this society was held last week; Mr. W. M. Neilson, the president, in the chair; when a paper "on the different plans of surface condensation" was read by Mr. Thomas Davison, after which a discussion took place, which was adjourned. Mr. David Laidlaw then read a paper on "Gas Manufacture, and Gas Works," making reference to works he is now getting up in St. Petersburg.

FALLING IN OF A TUNNEL AT SHEFFIELD.—About 30 or 40 yards of the tunnel connecting the Midland station with the Manchester, Sheffield, and Lincolnshire line, at Sheffield, is reported to have fallen in on Monday last, burying six or seven men. The remainder of the tunnel is said to be also in a critical state. A building in course of erection immediately above the tunnel has given way and threatens to fall. The foundation of the new building is said to be very near to the masonry work of the tunnel; but no cause is as yet assigned for the accident, so far as we have heard.

NEW TRINITY WORKS DEPOT.—An extensive establishment is being formed by the Board of Trinity on the north shore of Milford Haven, near to Pembroke Ferry. The works are estimated to cost 10,000*l.*, and are to consist of pier storehouses, walled enclosures, and houses for the workmen, forming a perfect depot for the whole of the western coast, so as to store supplies for the light-houses along the Bristol and St. George's Channels, and the Irish Sea. A large body of men are at work under the contractor, Mr. Douglas, in preparing the ground, &c.

IMPROVED DWELLING-PLACES FOR MARRIED SOLDIERS IN BARRACKS.—At the Albany Barracks, Parkhurst, the foundation of an extensive building is being laid for the (somewhat) better accommodation of married soldiers. It is to comprise a hundred spacious rooms, for as many married soldiers, with rooms for washing clothes, and places for drying, the whole to be enclosed within walls. It is said that the cost of this building will be about 18,000*l.*; and, when finished, these barracks will be equal to those of Winchester and other places, in point of accommodation for married soldiers. The heavy cost of providing suitable accommodation is no doubt the great obstacle in the way; but, when the authorities are about a work of this kind, they might well incur the additional cost involved in making the accommodation superior to that afforded to married soldiers at Winchester and other places.

COST OF THE MARYLEBONE INDUSTRIAL TRAINING SCHOOL.—At a recent meeting of the guardians of Marylebone, Mr. C. Beever in the chair, a report was presented from a committee appointed to ascertain the cost of the erection of the industrial training schools for pauper children at Southall. The report stated that the expense of building, &c., up to the present time, had been 15,321*l.* 14*s.* 6*d.* There was, however, a sum of 579*l.* made up of items for furniture, and 100*l.* for garden, sinking of wells, tank, &c., which did not legitimately belong to the building account, and which they recommended should not be paid out of the building fund, but of the current rate. The gross sum borrowed for building the schools, &c., with the sanction of the Poor-law Board, had been 16,500*l.*, and with interest on exchequer bills there was a balance in favour of the building fund of 2,040*l.* Mr. Taverner, in moving the adoption of the report, admitted that there were liabilities still outstanding, to the extent of some 600*l.* or 700*l.*

LINCOLN CATHEDRAL.—A new stained glass window has just been placed at the east end of the north choir aisle, to the memory of the late Chancellor of Lincoln (the Rev. G. Pretyman), by whose family it has been erected. It is the work of Messrs. Ward & Hughes. The window consists of nine medallions, containing subjects taken from the history of the Prophet Elijah, viz.,—The Prophet before Ahab; the Ravens bringing him Food; Raising to Life the Widow's Son; his Interview with Obadiah; his Denunciation of the Priests of Baal; Casting his Mantle over Elisha; the Death of Ahab; Elijah Dividing the Waters of Jordan; the Prophet's Ascent into Heaven. The family of the late chancellor, according to the *Lincolnshire Chronicle*, are about to place two other windows in the cathedral.

TENDERS

For alterations at No. 48, Cornhill, for Messrs. Viney & Son. Mr. Samuel Field, architect:—
Brown & Robinson 250*s.* 0 0
Cock 305 0 0

For a new clock-tower, &c., at Cliefden, Berks, for His Grace the Duke of Sutherland, K.G. Mr. Henry Clutton, architect, New Burlington-street. Quantities by Mr. Crocker:—
Panson 23,143 0 0
Smith 2,548 0 0
Pritchard & Skelton 2,555 0 0
Myers 2,386 0 0

For three new houses, in Crib-street, Ware, Herts, for Mr. B. Young, of Hertford. Mr. W. Wilds, architect, Hertford:—
Walter Hitch £425 0 0
James Hitch 395 0 0
And the old materials.

For the restoration and seating of Monkton Church, near Ransgate:—
Haynes & Elgar £745 0 6
W. E. Smith & Son 731 10 0
Chancel-seats and Desks in Pitch Pine.
Cox & Son £40 0 0
Nave Seating in Pitch Pine.
Cox & Son 204 0 0

For repairs and decorations to New Broad-street Chapel, City. Mr. J. E. Saunders, architect:—
Devereux £468 0 0
Colls 340 0 0
Cooks 350 0 0
Gordon 395 0 0
Heeps (accepted) 236 0 0

For day and Sunday schools, Pendleton, Lancashire. Messrs. Hayley & Son, architects, Manchester:—
Cochran & Co. £2,552 0 0
Penk 2,540 0 0
Statham & Co. 2,500 0 0
Southern & Son 2,479 0 0
Grundy 2,295 0 0
Barlow 2,250 0 0

For assembly-room, White Hart Hotel, Upper Norwood. Mr. Sextus Dyball, architect. Quantities not supplied:—
Jinks £1,398 0 0
Buck 1,394 0 0
Garnham 1,347 0 0
Seymour (accepted) 1,307 0 0

For repairs, alterations, and additions at No. 9, Eaton-place, for Mr. J. N. Murray. Mr. H. McCalla, architect:—
James & Ashby £1,279 0 0
Coutton 1,175 0 0
London Building Company 1,169 0 0
Nye 1,154 0 0
McLachlan 1,136 8 9
Welshman & Gale 1,105 2 0
Avery 1,054 0 0
Simmonds 964 0 0

For proposed improvement of the Assize Courts, Croydon, and Town-hall generally. Mr. E. C. Robius, architect:—

A.—Representing the cost of the alterations and improvements to the courts, including the hot-water apparatus for the civil court, and the enlargement of the court-mart. B.—The general repairs required to the building, inclusive of the proposed finishings for retiring-rooms and surveyor's office. C.—The enlargement of the basement cellars and the construction of public urinals, and water-closets on the ground-floor and most landing of north staircase. D.—The improvements to the principal staircase.

	A.	B.	C.	D.	Total.
Dover	£1,618	4,207	£240	£108	£2,353
Jackson & Shaw	1,590	390	285	73	2,338
Newman & Mann	1,573	284	193	88	2,138
King, Burton, & Co.	1,550	400	225	76	2,255
Ward	1,515	258	201	73	2,186
Stevenson	1,486	39	213	71	2,079
Marsland & Son	1,470	333	215	67	2,087

For enlarging St. Mary's Church, Summers Town, Wandsworth. Mr. John W. Dennison, architect. Quantities supplied:—
Norris & Son £238 0 0
Avis & Sons 882 0 0
Williamson 895 10 0
Nicholson & Sons 845 0 0
Easton 831 7 0
Scott 811 0 0
Adamson & Sons (accepted) 799 0 0

The Builder.

VOL. XIX.—No. 944.

The Temple of Jupiter Panhellenius in Ægina.



E resume this week the thread of the observations which we made in our last number, and will enter with Mr. Cockerell the magnificent Temple of Jupiter in Ægina, which he so well describes in the former half of his volume.* It stands on a high peak (still called Oros) near the northern extremity of the island, and occupies a position admirably illustrative of the

derivation of the Latin word *templum*, or *templum*,† from *tuor*, to gaze upon or behold. Mr. Cockerell therefore shows traces, not only of the architect, but of the scholar, when he reminds us that the temples of the Greeks, when not placed within the precincts of their cities, were purposely erected on the most conspicuous sites that were available. Socrates, if we remember aright what we learnt in our "Collectanea Græca," at school, makes this remark in the "Memorabilia" of Xenophon; and Mr. Cockerell states what is equally curious and true of Grecian architecture, as we know it in England to be true of Gothic architecture in the Middle Ages, that the sacred edifice assumed different proportions when placed in a plain or on a lofty site, the architects themselves finding it desirable "to adapt a low and horizontal system of architecture to a lofty and hilly country, and a perpendicular and aspiring system to a level and flat district, as if convinced of the inefficacy of all human attempts at loftiness amid mountain scenery, and seeking rather to present a contrast to those rugged irregularities of nature by the regularity of art and by a succession of horizontal lines."

It is obvious that it is only in the plain, where nature presents no such mighty contrasts, that we can indulge in ambitious loftiness with any hope of effect. It is thus that throughout Greece and in Egypt, enclosed within rocks and mountains, we find massive, and more or less horizontal edifices prevailing, and in the plains of Assyria the Tower of Babel, and the lofty Gothic spire in the Low Countries, not to mention the level country that surrounds our own Salisbury and Lichfield, and sets off their tapering spires to the best advantage. Accordingly we are not surprised at finding that the Temple of Panhellenian Jove, in Ægina, though loftily situated, was not remarkable for the height or the magnitude of its proportions. It was elegant and beautiful, rather than grand. Whatever the cause may be, Pausanias, in speaking of this temple, barely mentions it by

* "The Temples of Jupiter Panhellenius in Ægina, and of Apollo Epicurius at Bassæ, near Phigaleia, in Arcadia." By C. R. Cockerell, Esq., R.A., Hon. D.C.L., Oxon, &c., &c. John Weale. 1860. See p. 133, ante.

† The words *templum* and *tuor* are generally used with reference to something elevated: thus, in Ovid's description of the creation of man it is said that the Deity made him upright,—

"Cœlumque tueri,
Jussit, et erectos ad sidera tollere vultus."
Macræus, too, speaks of—

"Templa serena
Despicere unde quævis alios."

and in matters connected with augury and astronomy, the four quarters of heaven are constantly termed *celi templa* by the best writers of classical antiquity. It may be added that from *tuor* comes *contempler*. The derivation is one of obvious significance.

name, and passes on, just identifying it, but not pausing to describe it. Can it have been that, in his case, the eye of the architect and the artist was lost in that of the geographer, and that the temple, not being "a first-rate" in size, was thought by him unworthy of more than a passing remark?

"Compared with the temples of Jupiter in other countries, and of more recent date," writes Mr. Cockerell, "the Æginetan temple certainly was small in its dimensions, but at the same time the character of the architecture in the order and distribution of its plan was probably the most magnificent used at that time in Greece, and entirely correspondent with the majesty of the deity to whom it was dedicated. It was hexastyle, peripteral, with a double order in the interior, and hypæthral. * * * The colossal eyes of ivory, and other fragments of the same material found by us within the walls of the cella, must evidently have belonged to an idol or statue 25 feet high in a sitting posture."

We have no inclination to follow Mr. Cockerell, nor to force our readers to follow him, through the course of the learned arguments adduced by him to prove (what no one now can doubt) that the temple was dedicated to Jove and not to Minerva. They are interesting to the Greek scholar in an Oxford cloister rather than to the British architect, and we will therefore take the liberty of passing on to other questions which more nearly concern ourselves.

And, first, as to the date of the building. On this subject two opinions have been entertained. One opinion refers its erection to the era immediately following on the conclusion of the Persian war,* when it might naturally be presumed that the good people of Ægina, who bore so large a share in the contest waged by Greece against "the Barbarian," were likely to have shown their national gratitude towards their national deities by building in their honour a temple out of the spoils of war, as the first fruits of victory, and a fit acknowledgment of the debt which they owed to their tutelary Æacida. The other, which Mr. Cockerell prefers, and which he gives what seem to us good reasons for accepting, assigns an earlier date, viz., quite the beginning of the previous century. It appears from Herodotus† that, as early as B.C. 560, the Æginetans, in the height of their naval and commercial prosperity, were permitted by the king of Egypt (where they traded largely and constantly) to erect in that country a temple in honour of the Great God Zeus or Jupiter, for the benefit of their merchants, who, when abroad on business, were expected to be equally religious as they were when at home in the bosom of their respective families; and, if it be true that "charity begins at home," it is scarcely probable that they would have built a temple to Jove in Egypt when he was houseless at Ægina. We erected our cathedrals in England before beginning them in our colonies. That learned scholar and geographer, the late Colonel Leake, was strongly in favour of this latter supposition, which Mr. Cockerell also supports by "the internal evidence drawn from what are technically termed the orthographic proportions and ichnographical arrangements." Lord Aberdeen, it is well known, lays it down as a law in Grecian architecture that the age of an edifice may be inferred from the different proportions of the columns and their entablature, the latter being low and massive respectively in early ages, but becoming lighter and more elegant as art grew nearer to perfection.

"Now applying this principle," says Mr. Cockerell, "and taking from axis to axis of the extreme columns as unity, the height of the columns and entablatures of four celebrated Greek temples stand as follows:—

Columns. Entablatures.			
Corinth	.....	0.353	... 0.171
Ægina	.....	0.415	... 0.164
Thesum	.....	0.450	... 0.156
Nemæa	.....	0.559	... 0.135

These proportions tend to confirm this opinion as to the correctness of the earlier date, all the most archaic examples showing the most rapid diminution of the shaft."

Mr. Cockerell further strengthens his position by other arguments, which will at once recommend themselves to those of our readers who have made Grecian architecture their study; such as the use of three grooves instead of one in the hypotrachelion; the preference of the parabolic

to the hyperbolic section; the profile of the crowning cymatium; the partial use of Parian marble, and others of a similar nature, which will explain themselves to the architect.

Apropos of this question, Mr. Cockerell writes:—

"It may be remarked generally, on the plans of the Grecian temples, that the hexastyle appears to have attained its utmost magnificence about B.C. 450. . . . This resulted from the practice of surrounding the cella with a peristyle, which, probably, at first, had merely a portico in antis or prostyle. The cella, as the habitation of the Deity, was the regulating principle throughout, and, according to the length of this part, was adjusted the number of columns in the flank, varying from twelve, as at Ægina, to fifteen, as at Pestum and Phigaleia, and to seventeen, as at Selinus. The peristyle in the earliest examples had wider intercolumniations in the front than in the flanks. This arrangement occasioned, it may be remarked by the way, a defective variation in the division of the metopes and triglyphs, which arose from the necessity of giving width to the fronts for convenience of access: the expense and risk of architrave stones of equal length were thus economized in the flanks. . . . With greater experience of the strength and durability of these architrave stones, this rule was reversed, and additional width was sometimes given to the side-intercolumniations, to extend the length of the whole, as in one of the temples at Selinus. In the earliest examples the width of the peristyle in the flanks and front is narrow. In the Thesum we discover the first step towards a marked improvement in the greater spaciousness of the eastern portico, which is nearly equal to two intercolumniations: this is still further extended at Phigaleia and at Nemæa: the same principle also is to be observed at Agriguntum, Selinus, and Pestum, and may be considered as a proof of their comparatively recent date. In many cases, as at Selinus, it is very considerably widened in the flanks; and it may be remarked here, with reference to the intercolumniation of the order and the progressive improvement in the capacity or spaciousness of the peristyle, that the conviction which Hermogenes (as cited by Vitruvius) justly declared of the inconvenience of the Doric style for temples, and of the greater spaciousness afforded by the Ionic, was felt long before, and was thus, in a great measure, remedied by successive experience."

We can hardly discover any criterion of judgment regarding the pronos and the posticum, having no earlier example than Ægina now extant; but these features of the Greek temple appear to be increased in length in the more modern examples. For the same reason the exterior plan, from the want of objects of comparison, affords us no subject of remark, except that it also appears to have been lengthened as time and experience progressed. The last portion of internal evidence in favour of my view, viz., that of the construction itself, offers but few observations. The earliest artists appear, with great justice, to have relied on the size of the stones for the effect and the durability of these buildings: accordingly we find that the columns of Corinth were monolithic, while those of Athens and of subsequent dates are always of more easy execution, being of many stones or frusta; while those of Ægina are equally divided, half being monolithic, and the rest composed of smaller stones."

Most professional readers will probably agree in thinking that in these remarks Mr. Cockerell offers all that we can expect,—a high amount of moral evidence in favour of his supposition as to the real age of the Æginetan Temple, as of a date "equally removed" (to use his own words) "from that of the Temple at Corinth and the more recent one of the Thesum."

It is now time for us to approach the details of the temple.

It was erected on a platform, or "high place" (230 feet by 130 feet), partly formed out of the solid rock, and partly built up around the edges of large polygonal stones, and was paved with large square slabs in two courses. Of these the upper one is gone. Towards the east there was evidently a large open space, where the sacrifices were performed; and some foundations of a small ancient building were found on the spot. "It is probable," says Mr. Cockerell, "that a wall connected this building with a peribolus, formed into a succession of terraces which are still observable towards the south, and where possibly the games in honour of Æacus may have been held." At the north-east angle our explorers came upon a cave, partly artificial, in the solid rock, which was also, beyond a doubt, connected with the mysteries associated with the worship of the temple; and it is much to be regretted that the necessity of making haste to secure the prizes of sculpture did not allow Mr. Cockerell and his friends an opportunity of exploring the recesses of this excavation, which are described with some minuteness by Dodwell, vol. i. p. 566.

It is clear from Mr. Cockerell's third chapter, which he devotes to "the details of the Temple," that the greatest attention was paid by the good people of Ægina to everything that could add completeness or finish to the edifice, which, no doubt, was as much the darling object of their national pride, as ever the Abbey of St. Peter at

* That is, about B.C. 470-450.
† Book ii. chap. 178.

Westminster could have been in the days when the name of Edward the Confessor stood the highest in popular esteem, and roused a feeling of patriotic affection in the breast of every Englishman. We shall see presently how true this remark is of the sculpture accessories; but it cannot have been by accident that the very paving of the promae, and of the nave of the Temple, was covered with an indurated stucco of a deep red colour, calculated to absorb the blood of victims without showing any stain; nor can it have been other than the result of long and pains-taking calculation, that the tympanum beyond the plane of the entablature was made so deep for the reception of the sculpture which adorned it, and the axis of the columns, both in the fronts and in the flanks, made so to incline as to give to the whole pile that pyramidal effect which we so often see in Grecian architecture, and which has never been effected in our modern imitations.

We wish that it were possible to give anything like a complete account of the points most worthy of observation in the "Details of the Temple;" but, in order to do so, we really should be obliged to transfer chapter iii. almost entire into our columns: we must content ourselves, therefore, with noting, in another article, some of the most striking portions of them.

STEAM CARRIAGES ON COMMON ROADS.*

AN erroneous idea is entertained by many that the invention of locomotives and traction engines for common roads is an attempted improvement on the railway system, and hence an invention subsequent in order to that of the locomotive; whereas locomotives for common roads existed long before any railway locomotive, such as we now have, ever ran; and, indeed, some, at least, of the engines in the list of competitors at the opening of the Liverpool and Manchester intended horse-railway, on which the modern railway system may be said to have been established, were locomotives invented and built expressly for common roads. Thus one of Burstall & Hill's, of Leith, which had been tried and ran on a public road there before the opening of the Manchester and Liverpool line, and was made for common roads, was put upon the list for competition on that occasion; and was sent in pieces to England for that purpose; though, from some hindrance in the way of its reconstruction in time, it happened to be excluded from the competition. Other common road locomotives also competed; but the Stephenson or successful one had the advantage of being designed on models previously worked on the railway, in Durham, with which the Stephenson were connected, and where the great problem of railway locomotion, in fact, had already been solved, though not in so public and popular a way as at Chat Moss, or the Manchester and Liverpool line.

By that time, indeed, locomotives for common roads were even a somewhat old invention; and the advantages to be gained by the substitution of the power of steam for horses on the highways appear to have been appreciated and understood for more than a century back.

So early as the year 1759, Dr. Robinson, subsequently Professor of Natural Philosophy in the University of Edinburgh, then a student at Glasgow, threw out some idea of applying the power of the steam engine (or fire engine, as it was called) to the moving of wheeled carriages. The first intimation of a practical application of this power to common roads, however, according to Mr. Young, the author of the work under notice, is that of a locomotive carriage invented by a Frenchman of the name of Cugnot, who completed one in 1769. The next earliest inventor on the records was Murdoch, in 1784. Watt, in the same year, patented the application of his improved steam-engine to wheeled carriages, but does not seem to have attempted to carry it out in practice; otherwise the history of steam locomotion, and even of railway transit, might have been a very different one from what it has turned out to be. It is rather a curious fact that the boiler of Watt's locomotive engine was to be made of wooden staves, iron-hooped, like a cask! and the furnace was to be inside the boiler! but so as to be surrounded on every side by water.

* The Economy of Steam Power on Common Roads; with its History and Practice in Great Britain: by Charles F. Young, C.E. And its Progress in the United States by A. L. Holley, C.E., and J. R. Fisher. Illustrated with engravings. London: Atchley & Co. Great Russell-street.

In 1802, Messrs. Trevithick & Vivian invented a very compact and snug high-pressure engine and boiler in one machine, which may be regarded as the type of engine whence our present locomotive was derived; and in 1804-5 it was actually tried on a toothed railway at Merthyr Tydvil, laid down on purpose; but the great bugbear which prevented the development of the railway system for the time, and turned the attention of inventive minds to the common road locomotive, was the imaginary fear, or rather, the unquestioned and untested belief, that the wheels of the engine would slip round on smooth rails, without producing any locomotion at all.

It is a very curious and interesting circumstance that Trevithick tried the engine he constructed in 1804 on the ground where the Easton-square Station now stands. Unfortunately Trevithick was rather a slightly genius, and soon tired of following out any one idea; otherwise his railway and common-road experiments might have made him much more renowned than he was destined to be, as the founder of the system of locomotion, whether on road or rail.

The first steam coach that was ever constructed in this country, expressly for the conveyance of passengers on common roads, was that of Julius Griffiths, of Brompton, Middlesex; who, in 1821, not only patented, but made, a steam-coach to run on common roads: at least, he had it built by Joseph Bramah.

We do not propose here to give anything like a narration of the subsequent progress of steam locomotion on common roads; but we may just indicate a few of the more prominent steps which were now and then taken towards the end in view; gleanings our materials chiefly from the very interesting volume of Mr. Young, which is the first of its order, at least for the last five-and-twenty years.

Mr. Goldsworthy Gurney, though his inventive merits, Mr. Young thinks, have been overrated, appears to have done some service in promoting the attention of inventors and the public to the subject of locomotion on common roads. In 1822 he was experimenting and lecturing on the subject. In 1824 and 1825 Mr. Burstall, the engineer employed by Messrs. Borthwick and Co., one of the first mercantile firms in Leith, at their saw-mills there, was busily at work with his steam carriage, aided peculiarly by Mr. James Borthwick, who took an enlightened and unwarred interest in the promotion of the great end in view. Mr. Hill afterwards came from England, of which Mr. Burstall also was a native, to assist him as an engineer in the many costly alterations and improvements which were made, especially on the boiler, which assumed at length the tubular form. In 1825 Mr. Gurney patented and produced a steam carriage impelled by legs like a horse, as Mr. David Gordon had previously done: the propelling feet were very injurious to the roads on which they were stamped, and must, one would think, have been rather a clumsy contrivance. In 1827 Mr. Burstall exhibited in Edinburgh a model steam carriage, which submitted to a good deal of rough usage with commendable indifference. In the same year Mr. Gurney produced his improved locomotive, in which the noise of the waste steam was destroyed, and an improved plan for warming the feed water was adopted.

Mr. Hancock, from about 1828 to 1838, was an indefatigable inventor and builder of steam coaches, and made some admirable improvements, as on the wheels of such coaches, and the disposal and protection of the engines. He had a long continued success in running his carriages on the roads and streets of the metropolis.

In 1829 a four-wheeled locomotive carriage was constructed by Sir James Anderson and Mr. W. H. James, and ran at Epping Forest.

Sir Charles Dance, in 1831, started a steam-coach to run regularly on the road between Gloucester and Cheltenham, which it did successfully for four months, till an axle was broken in running over heaps of stones purposely laid to obstruct the steam-carriages; after which, and the passing through Parliament of a vast number of turnpike bills, allowing prohibitory tolls on such carriages, Sir Charles gave up in disgust.

Mr. Scott Russell, in 1834, established a line of steam-coaches between Glasgow and Paisley, as a regular mode of conveyance. These also ran for many months with the greatest regularity and success: a trip of 7½ miles was run in less than forty-five minutes: an accident, caused by the breaking of a wheel, with fatal results (also, if we rightly remember, ascribable to heavy roads purposely laid down by the road-trustee blockheads), caused the Court of Session to interdict the whole set of carriages from running! "A fine specimen," as Mr. Young remarks, of "Caledonian wisdom;" but not a finer than that of the British Legislature itself, in authorizing English road trustees to exact tolls to the extent of ten or twelve times the usual amount.

It was these exactions and obstructions more than anything else which brought the many hopeful experiments with steam coaches on common roads to an almost entire termination. But the more recent invention of traction-engines with endless railways attached to their wheels has already done much to revive the movement.

Mr. Young gives a lengthened account of the construction and doings of Boydell's, which he considers as by far the best of the traction-engines of recent construction. Some traction-engines are constructed on the principle of concentrated weight; others on that of distributed weight: of this latter order is the traction-engine, invented by the late Mr. Boydell, and subsequently improved:—

"The peculiarities of this engine," says Mr. Young, "consist, first, in the shoes forming the endless railway, attached to the wheels, and revolving with them, and also attached to the steering wheels, if needed, by means of which it is enabled to pass over any ground, and to draw heavy loads on common roads without injuring them."

Secondly, in being fitted with means for adjusting and maintaining the water in the boiler at a level, or nearly so, under all circumstances, whether ascending or descending hills; being only needful to know beforehand the greatest inclination to be worked, in order to accomplish it,—an advantage no other engine possesses: it is also under the most perfect control, and is most easily managed."

Next, it can be so fitted as to be used as a stationary engine, when required, for working saw-mills, thrashing-machines, &c. Next, it is supplied with a train of wagons when used for carrying loads, so arranged that each wagon will follow exactly in the track of the engine wherever it goes, turning corners at right angles, and capable of being manoeuvred in any direction, with the greatest ease and precision, only requiring the attention of one man to the wagons, whether there are five or fifty; and an engine and train of five wagons and two carts, a length of more than 130 feet, have been turned round in a space not exceeding 35 feet wide. The engine consists of an ordinary locomotive tubular boiler, has two horizontal cylinders, mounted on a framing, and supported by a pair of iron driving wheels of 7 feet in diameter, to which the endless railway is attached. The endless railway, attached to locomotives, is the only means hitherto invented by which steam can be used advantageously on ordinary roads under all circumstances, by removing all direct friction of the wheels on the surface over which they pass.

Traction engines, with endless railways, it appears, do very little injury to the roads on which they run; and, indeed, if any steam-carriage for common roads be provided with broad wheels, it is not easy to see how roads could be injured by such carriages at all any more than by rollers.

A great deal of attention is now being attracted to the subject of locomotives for common roads, especially with the view of putting them into use as feeders of railways, for which purpose we have occasionally pointed attention to them for years as a desideratum; and it is earnestly to be hoped, that the measure of the present session of Parliament for the regulation of tolls with reference to steam-carriages, &c., on roads,* will be successful in sweeping away all obstacles of this kind, from the inventive progress of those who seek to supply so great a desideratum.

Mr. Young's book is a very timely one; and so far as we have noticed, does fair justice to the subject, and is ably written; forming an interesting as well as important volume, particularly at the present moment.

Mr. John Giles, a correspondent, who some time since wrote us on the subject of "the Steam Plough," has invented "road and field locomotives," on what he calls "a new principle, in which gravity is made an active agent, and by which the horizontal thrust of the driving-wheel is made to express itself obliquely, whereby its adhesive capacity is increased, and rendered capable of sustaining a tractive effort of 2,000 lbs. per every ton weight of the engine it carries." Of Mr. Giles's invention we have before spoken.

* The bill to regulate the use of locomotives on turnpike and common roads provides for the levying of tolls by uniform general provisions, the weighing clauses in the general turnpike Acts not having been framed in anticipation of traffic by locomotives. Certain enactments of the Commercial Roads Continuation Acts are repealed, and the weight on each pair of wheels is not to exceed one ton and a half. The use of locomotives destructive to highways or dangerous to the public is to be prohibited by the Secretary of State, so as to prevent excessive wear and tear. The weight of locomotives over county, parish, or village roads is not to exceed fifteen tons, and any damage is to be made good. The locomotives are to consume their own smoke. Two persons are to drive and conduct every locomotive, and red lights are to be fixed conspicuously in front of locomotive and wagons one hour after sunset and one hour before sunrise. The speed of locomotives on high roads is not to exceed ten miles an hour, and, through towns, cities, or villages, five miles an hour. It is not to be used within the city of London more than seven feet in width and with wheels six inches wide.

This principle, he says, has "all the elements of efficiency and success, in spite of its non-recognition by scientific men." He has lately published a little volume "subversive (as he says) to a demonstration of the social and political influence of the steam-engine in the past, and of the steam-plough in the future," although its title,* does not very obviously imply the connection of the subject with steam-ploughs or traction-engines. In this treatise Mr. Giles endeavours to show the absolute impossibility of a depreciation in the value of gold under a general free trade policy; and his main purpose appears to be the introduction of the steam plough into Australia and our other colonies. In reference to this purpose he says, "While the present high price of all the staples of life and commerce is absorbing too much of everybody's income, and is greatly crippling the prosperity of trade; while India, Australia, and our other dependencies are looking idly on their vast agricultural resources, unable for want of an efficient engine to cultivate them; and while our ships return empty when they might be loaded with grain if our foreign soil was only cultivated; I think that the subject of a 'practical steam plough' is worthy the notice of 'the People and the Press.'" The object in view is certainly a grand and important one, and does credit to Mr. Giles's enlightenment; but whether his steam plough be the precise instrument whereby that object is likely to be realized or not, we do not pretend to judge.

A discovery, we observe, is spoken of, by means of which 2½ oz. of coal, per horse-power per hour, will suffice for the employment of steam-power. Should this rumour turn out to be something more than merely one of those thousand and one myths which are continually flying about in the scientific world, an immense stride towards the realization of locomotive mobility will very speedily be effected. Mr. W. Morris, C.E., of Church-street, Waterloo-road, is said to be the inventor of the process, which appears to exclude all necessity of a boiler between the water reservoir and the piston, the steam generator requiring no stock water.

We hear of another invention (a French one) in which hydraulic power is to be brought into use for the propulsion of street vehicles. This idea of applying some simply and easily worked power to such vehicles we have repeatedly suggested; and are very confident that ere long we shall have them traversing streets and roads in, at least, such shapes as those of cabs and broughams, Bath chairs and velocipedes.

NOTES ON ROMANESQUE ART IN THE SOUTH OF FRANCE.†

SOME friends have suggested to me that it would not be unwelcome if I were to give to the Institute a few notes, which I made during a late trip through France, mostly concerning matters relating to architecture; and although I am fully aware how very slight and superficial they are, still some of my brethren in art may find them of interest and of use in future days; and now that a complete line of rail joins Paris with Marseilles, Marseilles with Toulouse and Bordeaux, and thence by Angoulême and Poitiers to Paris again, such a trip becomes merely the pleasure excursion of a summer holiday. The main object of these notes will be to direct attention to the Romanesque sculpture and architecture of the south of France, as seen in some cities of Provence, Languedoc, and the adjoining districts. Leaving behind us the noble examples of Medieval art at Sens, Dijon, and Auxerre, which last, as regards its architecture, painted glass (thirteenth and sixteenth century), and very beautiful sculpture, will repay the tediousness of a trip en voiture; we will make Lyons our starting point: it is here that there is not much here in the Romanesque style, but what there is very interesting: the principal monument is the Abbey church of Minay, a cross church, with an entrance tower, and a lower tower over the dome: parts of this building, including the entrance tower, have been ascribed to the Carolingian period. Experience has led me to be very diffident as to assigning dates, without very good authority; and although there may be of an earlier epoch, the entrance tower may, I think, be safely assigned to the early part of the eleventh century. The entrance is by a pointed arch, with details of a more decidedly

Roman character than can be found elsewhere in the work, and is possibly an insertion at a later period; the rest of the building is plain and massive; the internal archivolts are not moulded; and the dome, which rests on angle squinches, is supported by antique columns, cut in half, to which the other columns of the nave are roughly assimilated. Like other ancient monuments in France it is undergoing complete restoration. The insertion of red tiles, as an ornamental feature, so remarkable on the tower, is to be seen again on the facade of the bishop's palace, a portion of which (now blocked up), still remains; and as this corresponds with similar Romanesque arcades of domestic architecture in France, all very much of the same class, we may take the approximate date above given as by no means too early. The sort of acroteria to be seen at the angles of the tower have been supposed to indicate a very early date, but that this is no certain criterion may be judged from the fact that they occur also on the tower of St. Radegonde at Poitiers, which may be ascribed to the latter part of the eleventh or the beginning of the twelfth century.

Of the old church of St. Pierre, only the portal remains in its original state; well designed and massive, it appears to be a work of the eleventh century, and exhibits the large cusping so frequently seen on the Romanesque churches of the Rhine and of central France. St. Paul still retains a good octagonal belfry and apse of this style. It is needless to dilate on the cathedral, and on other well-known Pointed buildings of this city; but I would add that no one should fail to visit the Museum, which has been lately enriched by a most interesting collection of works in ivory, enamel, metal, &c., bequeathed by M. Lambert; amongst which the statuette, in ivory, of the Virgin, seated, and holding the infant Saviour, in a vesica piscis on her lap, is pre-eminently remarkable: it is solid, about 1½ in. high, and opens so as to form a triptych; containing panels, with a central crucifixion and subjects from the life of the Saviour, in relief. A similar portable statue of the Virgin is preserved in the Museum of the Louvre, and given in Le Duc's "Dictionary of Furniture," p. 132; but that of Lyons appears to be of somewhat earlier date, and may be ascribed to the end of the twelfth century. From Lyons to Avignon, following the course of the Rhone, there is little that bears on Romanesque art. At Vienne, the towers of St. André-le-Bas, and the desecrated church of St. Pierre, are good examples of their class. Amongst the few old bits left in the cathedral I would draw notice to the external arcade on the north side; to a curious pilaster (from the interior), which is remarkable as exhibiting angular hollows, formerly filled in, no doubt, with coloured substances, of the same character as seen on Childeric's sword-sheath at the Louvre; on the lately-discovered Spanish offertory crowns at the Hôtel Cluny; and on the Anglo-Saxon brooches, &c.; to (also in the interior) a very curious frieze formed by the signs of the zodiac; and to some very rough and mutilated statues in the lateral porch (north), pleasing to antiquarian eyes. I would not leave Vienne without asking attention to the large cusplings of the tower of St. Pierre, similar in character to those on the portal of St. Pierre, at Lyons, just mentioned, and so usual in Auvergne; for it is the last time we shall find them on our way south; and this leads me to remark that I do not think, as Mr. Street suggested in his late lecture, that any influence came from the south into Auvergne; but, on the contrary, that the French archaeologists are right in making Auvergne one of the great centres of Romanesque art, the waves of which decreasing in power as they spread in circumference, died away about this point in a southern direction. The cathedral at Valence is undergoing complete restoration, and its curious porch is closed to the public; the interior, however, and the apse with its chapels, appear to belong to the early part of the eleventh century. Everything here is plain and massive; and the choir, with its stilted arcade, has a peculiarly Hispano-Moresque character, though I believe this arises only from constructional necessities. With the exception of its magnificent Roman remains, Orange has little to detain the architect; the only portion not modernized, of the cathedral is the south side porch.

We now come to Avignon, that queen of Medieval towns, with its grand old palace, quaint towers, crenellated walls, frowning portals, chancelled bridge, the broad and rapid Rhone, and crested rocks, above all of which rises like a protecting spirit the venerable cathedral of Notre Dame des Dons. The early date to which this building has been ascribed by some authors

(amongst whom, I believe, is Mr. Fergusson), cannot, I think, be founded on any good ground: the portal shows the appliance of materials from some late Roman work to its present purpose, and is no indication of peculiar antiquity in a district where Roman remains are common, and their readjustment in new work pretty frequent: as to the body of the building, its masonry, arrangement, detail, and construction resemble so closely other works in France acknowledged to be of the eleventh, and even of the twelfth century, that we are justified in classing it amongst them; and my own impression is that no part of it can be ascribed to an earlier period. Near the altar is preserved the curious and interesting marble chair used by the popes; the back is mitre-shaped, and the sides are carved in low relief with the winged lion and winged bull. The first pope who reigned at Avignon was Clement V., in 1305; and the chair would appear to belong to this period. A more ancient, but less attractive, relic of ecclesiastical art is to be found in the table-altar, supported by five columns, four angle and one central. It is one of the few examples of this class of early altar that has come down to the present day almost uninjured. There are other interesting subjects in this picturesque building, but the place is so dark as to render it almost impossible, unless, perhaps, on a bright summer day, to get satisfactory drawings.

Avignon is an excellent point whence to make several most interesting excursions; and amongst them I would particularly recommend a visit to Villeneuve les Avignon, for its very perfect citadel and noble entrance-gateway, and the rich and beautifully carved stone monument to Innocent VI. in the chapel of the hospital, consisting of three most delicately-carved pinnacles of open work over an altar tomb, on which is the recumbent effigy of the pope, with his feet resting on a lion. It dates about 1360.

Proceeding down the Rhone, the next interesting Romanesque work is the small chapel on the heights above Beaune, belonging to its ruined castle. It consists of a plain barrel-vaulted hall, entered by a round-headed portal, under a square tower. The openings to admit light are very small, round-headed, and plain-headed: the masonry, of the usual good Romanesque character, consists of smallish square blocks, neatly worked, the corbels and arch-band forming the principal ornamental features. The interior is now completely gutted, and serves as the abode of the concierge.

At Tarascon, on the opposite bank, we meet with the first indication of a complete change of style, in the south porch of the cathedral, rich in mouldings and ornament,—dog-tooth, flower, ovolo, and nail-head; with angle columns, and a once richly-carved frieze (now quite destroyed), above which runs a blank arcade, and sculptured string-course, exhibiting unmistakably the influence of the Arlesian style. The date generally ascribed to it, that of the close of the twelfth century, is probably a correct one. I may here remark that perhaps nowhere is this influence of local styles more clearly defined than in the south of France. At Avignon and Nîmes we have a close approximation to late Roman work, with pediments, columns, and friezes; the mass being plain; at Arles, St. Gilles, and Tarascon, deeply recessed and many moulded portals richly sculptured; and at St. Trophime, Montmajour, and St. Remy, cloisters of a distinct type; at Narbonne, Carcassonne, and Toulouse, the single broad-spanned interior and long lancet windows of a later date are quite peculiar; and the Romanesque buildings of Toulouse, with their high and many-staged brick towers and angle-headed openings, are of a marked local character.

But let us return to Arles. The interiors of the churches here are very simple, and of the usual Latin cross plan. At St. Trophime, the piers are plain and square; the caps flat and roughly worked; the archivolts plain and semi-circular; between them are corbels supporting piers, with angle colonettes, from which spring the plain flat bands of the barrel roof: but it is to the sculpture that I wish particularly to allude. The centre of the portal contains the Saviour and the emblems of the Four Evangelists, with the Twelve Apostles below; the archivolt being ornamented with rows of ministering angels: the great frieze represents, to the right of the Saviour, the good led to Heaven; and on his left the wicked, strung together with a rope, and dragged by the devil to Hell: beneath there are the large statues of the Apostles (the Four Evangelists being on large lion pedestals), the statue of St. Trophime, the Martyrdom of St. Stephen, and the ascension of his soul to Heaven.

* Free trade in Gold; being a reply to the Cobden-Chevalier Treatise on the probable decline in the value of gold; also an Exposition of the French Schemes on the Currency, now maturing. London: Richardson, 1860.

† By Mr. J. B. Waring, as elsewhere mentioned.

On the sides of the porch are—to the left, Adam and Eve at top; beneath them an angel weighing the souls of men in scales; beneath that, the devil holding the condemned upside down, which seems to have been a favourite idea of punishment with the sculptors here; under this, again, along the pedestal of the columns is a large reclining figure, nude, but with an animal's skin above his back; he holds a lion, on another side of the pedestal, by the hind leg: this subject, the man, however, being dressed, occurs in the same position at St. Gilles, and clearly means Sampson. On the other return of the porch are represented goats, a ram, a dog, &c., probably symbolic of wickedness; beneath which stands a great fiend, holding his victims upside down, and in other unpleasant attitudes: he stands upon a dragon, and beneath the whole are the flames of Hell.

Such are the main features of this porch. Let us now enter the cloisters, the capitals of two sides of which are historiated, or carved with Scriptural and legendary subjects and foliage. The angle panels of the piers on entering are carved with the Saviour's Ascension, angels at the tomb in the centre; soldiers sleeping at the tomb beneath: on the return are, above the three Maries, Judas receiving the Price of Blood beneath: at the next angle to the left, are angels emerging from clouds, the Transfiguration in the centre; the disciples beneath: on the return the Martyrdom of St. Stephen, to whom the church was originally dedicated. At the next angle the Kiss of Judas, the Last Supper in the centre; and the Saviour washing the Disciples' Feet beneath: on the return, the Temptation on the Mount; and below, John baptising the Saviour.

Such are the principal subjects portrayed on this building; and they are so interesting in point of subject and style, the date also being probably posterior to the year 1152, when the remains of St. Trophime were transferred here, that I would place by their side some notes from other sacred buildings of the same period, and by the comparison we may arrive at some suggestive conclusions. I propose also to separate from this class of sculpture, that represented by the corbels, which, when brought together and compared, will open, I think, another view of their particular meaning.

We are now standing before the three very richly-sculptured portals of St. Gilles, about fifteen miles south of Nîmes, similar in style to St. Trophime, but more profusely ornamented, the round-headed entrances being rich in column, moulding, and ornament. In the centre is the Saviour, seated in an oval aureole on a rainbow in the clouds (Heaven), his head encircled with a glory of alternate star-point and flame; round Him are the usual emblems of the Evangelists; the left semicircle contains the Adoration of the Magi; the right, the Crucifixion. Beneath these runs a great frieze, containing the life of the Saviour; beneath this is a band containing crouching animals, lions, bulls, and others, and human heads. On each side of the great entrance are two Evangelists on lion pedestals, and four apostles to the right and left of these: on the extreme right and left, carved on the wall, are two archangels standing on and spearing the Dragon, and the enemy of man, respectively. The small subjects on the pedestals, represent Sampson, Cain and Abel, a centaur and stag, an old lioness and her young disturbed by a figure, now destroyed; David and Goliath, and David feeding sheep. Other smaller and less important subjects, are partly Scriptural and partly symbolic.

At Moissac we have another very interesting sculptured portal, in the abbey church of Saints Peter and Paul, also a work of the twelfth century, the arches of which are broad-pointed: the entrance consists of a recessed porch, on the left side of which are represented, at top, a figure pointing to a scroll (meaning, probably, "It is written"); next to him is Lazarus, represented in grave-clothes, and of infantine size (as departed spirits are always shown), resting on Abraham's lap; then comes Lazarus reclining (but of the same size now as the other figures), with dogs licking his wounds and angels watching over him; then Dives feasting at table. Beneath these are large groups of devils punishing Avarice and Lust; the soul of the miser is being carried off by one demon, whilst his bag of money is taken from him by another: he is on his death-bed, and his wife vainly weeps over his corpse, whilst grinning demons watch his death-throes: beneath are two large figures of the devil seated on the miser's shoulders, grinning horribly, whilst by his side a naked woman has her breasts sucked by serpents, and from the mouth of the demon by her side springs a toad; amongst the monstrous corbels of

this side may be remarked also a goitred cretin head, popular belief of that day having adjudged this unfortunate people to be the devil's own; two of the caps on this side have, amongst the foliage, demons with bellows fanning the fires of Hell and torturing the condemned. There is a certain grotesque horror about all these figures which may have served in early times to have impressed the beholder with fear and awe. This is the side of the wicked; and on the opposite wall is represented the salvation of the good. First at top is the Flight into Egypt. Mary and Joseph approach the city gates, and the idols fall from the high places, as narrated in the apocryphal Gospels; next comes a group apparently the return to Palestine; beneath is shown the Adoration of the Magi, in two groups; and below these the Annunciation, and the Meeting of Mary and Elizabeth. In the centre of the arch is the Saviour, in an aureole, with crown and nimbus: the winged animals of Revelation, symbolic of the four evangelists; seraphim; angels; and ten elders with lutes and vases; or, as it is described in Revelation, "having every one of them harps and golden vials full of odours, which are the prayers of saints:" these are all surrounded fourteen crowned elders with lutes and vases minister beneath to the Lord, forming a frieze or sculptured lintel. On the left of the doorway is St. Peter with the keys, and on the right, St. Paul, probably, with a scroll inscribed "Ecce virgo conceperit" (Behold, a virgin shall conceive), the prophecy of Isaiah (vii. 14). The central piers, of alternate lions and lionesses resting on each other's backs, and with a figure without the nimbus, at each return, holding one a book, the other a scroll, I do not pretend to explain. Besides the sketch of it here shown, some rather black photographs may be seen in the exhibition downstairs.

The external mouldings and plays of the arches are carved with separate single pieces in relief, of fruit, leaf, fish (some of which have the heads of ducks and foxes), birds, and lastly, next to the door angle, animals, the whole forming together a sort of epitome of the creation, *i.e.*, the days of vegetable, piscatorial, and animal creation. Although out of our immediate province, I cannot pass by the richly-carved cloister of this abbey without remarking also a curious illustration of the Book of Revelations found on two capitals. One is formed by the symbols of the evangelists, a cable necking, scroll angles, and an abacus carved with foliage, and eight lions with their tails intertwined; on the other cap an angel descends from a cloud (Heaven) and leads a dragon captive by a chain, with the inscription, "Serpentes antiqui qui est Diabolus;" whilst on the other side of the cap, after his thousand years' imprisonment, he issues forth from the porch of his prison to meet two men, who appear to receive him with upraised hands, expressive of astonishment or fear; under the dragon is written "Goliath," under the men, Gog and Magog (Revelations, xx. 1, 2, 7, 8); the necking is a plain torus, and the abacus is ornamented with scales and foliage. This is merely mentioned as evincing a connected idea and appropriate ornament. The subject of sculptured capitals would carry us into a wide disquisition. My own impression is that a complete investigation would prove that certain subjects were chosen as a general rule, and applied to different parts of the sacred edifice, doorways, windows, capitals, bases, and corbels, each having certain classes of subjects adjudged to them, either by absolute rule or by traditional custom.

We will conclude this, I fear, dry catalogue of subjects on the Romanesque façades with a brief notice of St. Croix, at Bordeaux, probably of a somewhat earlier date, *i.e.*, of the eleventh century.

The extrados of the centre arch is carved with angles; next come the elders, crowned, and worshipping, with music and incense, harp and vase, a central figure, at the apex, intended for the Lord: the next broad band has the mistake of the zodiac, but this was apparently a mistake of the workman, and was never carried out. After this comes a row of kneeling figures pulling a rope, which binds together two seated figures at the apex, probably the marriage of the Saviour and the Church.

On the arch to the left, Avarice is represented in five groups, each consisting of the Miser and the Devil, in various stages of downward fall; and on the right arch are five groups representing Lust, each of a woman (clothed and not naked, as at Moissac), with an attendant demon, and the usual toads and serpents.

The first thing to be remarked in this enumeration of subjects is that, in the main, they are en-

tirely Scriptural; illustrations, in fact, of the Old and New Testament. The Virgin Mary never is found as a prominent figure, and legendary subjects are not usual. The great points are purely Christian, such as the "Glorification of the Saviour," "Lord of Heaven," and "Judge of this world," as described in Revelation; and the power of the Apostles, amongst whom naturally the Evangelists are especially honoured. Besides this Scriptural sculpture, we have moral sculpture, reading a lesson, and holding out a warning to what the church considered the two great vices of avarice in man, and lust in woman, a very naïve and curious illustration of which the priesthood naturally considered most innate with each sex, although our own sex did not always escape reproach, as shown by the very coarse and matter-of-fact illustrations of lust to be seen in the churches of St. Paul, at Narbonne; St. Sernin, Toulouse; and St. Jean, at Valence.

We have also symbolic sculpture, such as the small pedestals of columns at St. Gilles, and at Arles, in which bears, lions, centaurs, &c., play an important part. Without going to the extent of Durandus, Cahier, Lewis (not the honorary secretary of the R. I. B. A.), and that school, it is impossible, I think, to deny a meaning more or less definite to these apparently fanciful subjects; and I should feel much obliged to any member learned in symbolism, who would explain the centaur and stag from St. Gilles.

Concerning the style of art shown in these works, it is most decidedly of a Byzantine type. In the earliest, such as the very curious marble reliefs round the choir of St. Sernin, at Toulouse (probably of the ninth century), the folds of the dresses are few, and raised in a crease. This method holds good at Moissac (three centuries later), although the heads of the figures naturally show a great advance in art. At Arles and at St. Gilles the folds are minute, peculiar, and of strongly-marked Byzantine character: and this is more evident on a statue in the museum at Toulouse, preserved from a destroyed church there, and which, besides its value in point of execution and style, is interesting as being signed by the sculptor GiliBERTUS, or, as he signs himself on another statue, GiliBERTUS.

My impression is that these works were chiefly executed by French sculptors, after a model or illustration given to them, which, if not actually Byzantine, was formed on a Byzantine sampler.

The figures on the façade of St. Croix, at Bordeaux, are most curiously Assyrian in character. The same remark holds good to some portions—especially drapery—of the sculpture on the cathedral at Angoulême; and it is a question whether Greek or other workmen were not actually employed on some portions. Mr. Lewis (this time it is our excellent secretary that is meant), in his very interesting paper on Arab Architecture, speaks of the impressment of all kinds of workmen by the Spanish Moors, and it is not unlikely that retaliations took place on the part of the Christians, or that Greek workmen (then the most skilful of their time) were here and there employed expressly.*

THE DECISION ON THE DESIGNS SUBMITTED FOR NEW OPERA HOUSE, PARIS.

PLANNING OF THEATRES.

We gave in our last the decision of the jury on the designs submitted for the proposed Opera-house in Paris. We must not say anything to check the progress in England which may have accrued from the frequent applications to architects, after a competition, to assist committees in a selection; but the present case, we think, demonstrates something more than the fact that an absolutely perfect decision cannot be looked for. Seeing that in this country the slightest possible influence is allowed to the professional element in the award, certainly it is pleasing to see, as in France, an instance in which the jury has been formed entirely of architects, with the exception of the president. We must not, however, omit to record that the experience shows that error may thus be committed in the opposite extreme. The writers in the French journals are beginning to see this; and they ask why the jury did not include the names of persons acquainted with the management of the scenery, with that of the lighting and ventilation, and with other details of the theatre, whether of the stage, or of the auditory and the modes of access and egress, which are of the nature of things wherein the professor of a special art might well be expected to add to

* To be continued.

his means and knowledge from the results of practical experience and the scientific attainments of others. The whole question of the relations between architects and those from whom they receive "instructions,"—those who are supposed to know what they want, and who certainly have some peculiar advantages for knowing,—and the relations between architects and men of general scientific qualifications, is a very curious and difficult question; yet it is one demanding attentive consideration at present.

Some of the French journals complain that sufficient data were not given in the programme, in the points of structure and convenience, or that the manner of avoiding the defects of existing theatres had not been settled prior to the application to architects: they thereupon direct their criticisms prominently to the features of the designs as they are expressed in the elevations, neglecting for the most part the examination of the plans and sections in the points which they had said were of the chief question. We must say, generally, that if there be reason to admire the talent of much of the art-criticism in the French journals, and whilst there is evidence in Paris of a healthy appreciation of architecture amidst the taste for ornament, the newspaper criticism of architecture is certainly not further advanced than with us. The writers referred to in the present case, first contend, and very properly, for better arrangements of plan and construction, or rather a fresh start in the search for the form best adapted for seeing and hearing, and then neglect the examination of the designs for the most part in these points of view, to attend to the question of the success in the expression of external character. The latter object, though widely departed from by many of the competitors, no one can doubt the ability of the French architects to grapple with: the object mainly in question now, is not so clear of attainment; but there were several designs in the collection that deserved particular attention in relation to it. Amongst the statements as to the next step of the Government, is one to the effect that the whole question will be now commenced on a fresh basis, and that a structure of wood will be first erected as an experiment. According to *La Patrie*, there is also question of a different site. In our recent account of the projected improvements in Paris, it should have been stated that the site on the boulevard, is named in the programme, and now cleared of buildings, is west, not east, of the present building in the Rue Lepelletier.

There is so much doing and about to be done in this branch of architecture in Paris; the defects of the theatres there are so great, whilst the fresh study of the matter of plan is everywhere so desirable; and the attention, both of the public and the authorities, is so closely drawn to the subject, that we may expect to find much in the different buildings about to be erected deserving the attention of English architects. The disposition of the plan of the French theatre involves the provision for a much greater number of distinctions of classes in the audience, or of prices, than with us; so that each of these, properly speaking, or at least in a large structure, should have its separate way of ingress and egress. The number of the ways now, however, is not greater, and in some of the theatres less, in proportion to the whole cubical capacity of the building, than with us. On the other hand, in the principal theatres, which are subsidized by the Government, the number of persons accommodated is not greater than can be seated comfortably; and the police regulations at the entrances, and the conduct of the people themselves, are so much superior to what we find in London, that the inconvenience or danger are less than might be anticipated. In the *Théâtre Français*, if not in the theatres generally, there is nothing like the porpoise given to the pit and gallery which is essential in London. The effect of the house is therefore improved, and especially by the omission of the yawning chasm of the gallery, which is so great a difficulty for the English architect. The names of the different parts of the auditory, even subsequent to the modifications by a recent order, with the view of making them more descriptive, have much trouble to English visitors. The "gallery," as we call it, the French style "parapet," and each tier of seats is properly a gallery; though even this manner of parlance seems detracted from in the actual nomenclature.

The sites of the new theatres to replace those at the Boulevard du Temple, will, it appears, be widely distributed, and certainly with advantage. We have been lately talked of on the left bank of the river, on the Boulevard de Sébastopol. The theatre and the circus on the Place du Châtelet

are still in progress. The fountain which occupies the site in the line of axis of the bridge, and between the two buildings (having been removed thereto bodily), and the similar fountains, though perhaps unnecessarily made similar, will make a pleasing picture; but the ways for the traffic will be found confined and dangerous.

ERNST RIETSCHEL, SCULPTOR.

RIETSCHEL, the sculptor of the great Luther monument about to be raised at Worms, died in Dresden on the 21st of last month, at the early age of 56. Germany is weeping for him as one of her noblest sons. He was born in extreme poverty, and affords another instance of the power of ability and perseverance over circumstances. His love for art showed itself in his earliest days, and he accomplished so much that in his sixteenth year he was able to enter the Academy of Dresden. Soon his industry procured him the prize in money given by the Academy; when he, who had been formerly deprived of all means of advancement, saw himself able to support himself and continue his studies.

He was persuaded to engrave his beautiful sketches and studies himself; but Rietschel decided on devoting himself to sculpture, and commenced forthwith his studies in modelling under the sculptor Pettrich. German art had just then begun to break through the chains of its old quaint style, and a new epoch was dawning. Dresden, however, had not yet been affected by the change. Thus Rietschel could learn from Pettrich but little more than the actual manipulation: his higher artistic cultivation was to proceed from other sources. Thus left, as it were, to himself, he continued, undaunted by the great difficulties he had to surmount, until he produced his first work, a statue of Neptune, 8 feet high, cast in the iron works of Count Tinsedel, for a market fountain at Nordhausen.

In 1826, Rietschel was able to repair to Rauch, in Berlin. These first days at Berlin were the saddest, as the sculptor himself has said, of his life of struggles; for Rauch would not discover any talent in him; and, above all, took no notice of him. The shy, modest manners of Rietschel were not conducive to attract attention; and this, added to the cool, distant behaviour of Rauch towards him, made him lose all confidence in himself.

While in this state of mind, he was one day drawing, in his leisure hours, two heads from nature, and his sketches drew Rauch's attention to him. The coldness of the master melted and vanished; and soon Rietschel distinguished himself so brilliantly among his fellow students, that Rauch bestowed upon him then, and during the rest of his life, an almost fatherly protection. Hence arose the strongest tie and filial dependence of Rietschel on Rauch; and, even when the former was at the height of his fame, he respected and followed the advice of Rauch in many of his works. In the second year of his residence at Berlin was adjudged to him, by the concurrence of the Academy, the first prize, to enable him to travel into Italy. As a foreigner, however, he could not claim the prize; and, had it not been for the urgent recommendation of the senate of the Academy, he would have enjoyed only the honour of having gained this well-earned reward. In 1832, he was elected Professor of Arts in the Academy. With earnest zeal, Rietschel gave himself up to his new sphere of work as a teacher, and laid the foundation of the school of sculpture which Dresden now possesses. But his own creative genius did not rest, and his unwearied industry was demonstrated by the numerous works that were produced at this time from his own atelier. We may not attempt to enumerate all his works, or to follow minutely the incidents of his life. His fame and position date, probably, from his statue of Lessing, which he finished in 1853 for a monument in Brunswick. Disregarding in this statue the conventional manner of representation, the universal mode of idealising—the mantle and allegoric wreath—he strove to give to his statue life, nature, and individuality.

Rietschel later carried out the same principle of producing a statue which should be characteristic, life-like, in the well-known monument for Weimar of Goethe and Schiller. Both authors stand in the costume of their time, in easy attitude, close to each other; Goethe, looking neither up nor down, but fixedly and firm at the world as it is; lays his left hand confidently on Schiller's shoulder, and holds in his right the laurel wreath, which Schiller leaves untouched: the latter beholds, with his keen eagle eye (soaring on high), the world in which he seeks his ideal. So they stand, the realist and the idealist,—as what the

Germans feel in their hearts their poet heroes were.

Rietschel's greatest and best work, though open to criticism, is the Luther monument, already referred to. It exhibits the fruits of earnest study, in which the long-cherished ideas of the master are carried out. Besides the statue of Wickliff, the statue (colossal) of Luther is the only one completed. The whole of the groups of the monument are left in plaster. This statue of Luther is the crown and brightest close of Rietschel's career. Firm and immovable, full of inward conviction and deepest faith, stands the firm figure of the Reformer; every inch a man; and, in position and expression, recalling the words he uttered,—“Here I stand. I can do nothing more. God help me.”

Rietschel was of a shy, still nature; and, with almost priestly severity, lived only for his art. Consumption, which had attacked him in his earlier years, and which, in 1849, obliged him to desist from work for one year, and necessitated his journey into Italy, finally caused his death.

In 1851, Rietschel received an invitation to Weimar; and, during the last few years, also to Berlin; where he was offered the post of director of the Academy, formerly held by his master, Rauch. In acknowledgment of his refusal of this, and for the services he had rendered to art, the Saxon government built him a house, and a comfortable atelier, which have been but of short service to the artist.

On the Saturday and Sunday morning before his body was taken from the house to the grave, he lay at the feet of his last two grand works, surrounded by a succession of friends, all bringing the usual German mark of respect—a palm branch, of a peculiar kind called grave palm, ornamented at the end with a bouquet of flowers, attached by a bow and long ends of white crape. On Saturday evening a requiem was sung in his atelier. His atelier was hung with black, lights burning round the catafalque; at the end of which, on a white satin cushion, lay the orders that had been conferred upon him in life. His eight pupils watched by turns around his bier. On Sunday, at eleven, the church bells tolled out their solemn tones, and the procession was such as had not honoured any other man there for many a day. A military band, consisting of about eighty men, played alternately Beethoven's, Chopin's, and Mendelssohn's funeral marches. Over the pall which covered the funeral car, decorated with embroidered gold and fringe, were placed the palm branches and other offerings, tastefully arranged; and cushions with wreaths of laurel; then followed his pupils, bearing palm branches; then a representative of the king and royal princes; then the minister, Benst, and other ministers; then the ambassadors, heads of the academies, directors of the theatre, authors, the heads of the press, the principal actors; all the artists in Dresden, headed by Hachnel, the best sculptor left. The procession was terminated by a long row of carriages, from those of the court and ambassadors to those of all the principal families in Dresden. It was a sad sight. A funeral oration was pronounced over him by the ministerial director of the Academy; then, one by one, by his pupils,—short, but full of feeling. The palm branches were laid over him in his grave. Each one present threw in a handful of earth, and all dispersed to their homes.

DISTRIBUTION OF PRIZES TO ART WORKMEN, ARCHITECTURAL MUSEUM.

THE annual distribution of prizes to art workmen took place on Wednesday evening last, in the theatre of the Museum.

There was a numerous attendance of the public, and the chair was taken by Mr. A. J. Beresford Hope.

The Chairman opened the proceedings by observing that the previous meetings and *conversazioni* having been held either in the depth of winter, when the weather was extremely inclement, or in the middle of summer, when it was inconveniently warm, the council had determined to unite both meetings in one, at a period of the year when the weather would be neither too hot nor too cold. He was glad to perceive, by the numerous attendance that evening, that the change appeared to be approved of by those for whose convenience it was made. The Architectural Museum had now existed ten years, and he thought they would agree with him, that it had been a most successful enterprise. Their objects were to create a collection and school—not merely a raree show of specimens, but something which would tend at once to instruct and elevate art-workmen. They did not want to perpetuate

broad rough lines between different departments of art—to separate the architect who designed a building from the man who carved the foliage, or who glazed the window; but they desired to bring into harmony all engaged in every department of architectural art. In short, it had started on a great work, and he hoped it would be carried out so as to merit the approbation of the public. It had, he thought, an especial merit, because it had started upon a special principle, and had carried it out in spite of attempts on the right and the left to deter it. When they were young they lived in what might be termed a cock-loft, in Canon-row; but they were their own masters, and might acquire any amount of wisdom, or commit any amount of folly they pleased, for they were responsible to the public only. They had now grown old, and more genteel; they had taken lodgings at South Kensington, and he appealed to every one who heard him, to say whether they had not come down to that rural suburb and pleasant neighbourhood, out of the noise and turmoil of the metropolis, with the same independent determination to do their best in their own way, as when they were sojourning on the banks of the Thames. They had come with the same definite views of art, the same determination to give them form and expression, the same definite determination to take the workman by the hand and lead him on, and their reward was the kind and courteous encouragement which they received on the present occasion, and which they hoped to receive for a great number of years to come. Although they adopted the name of museum, they were not merely a museum as such, but a teaching and competing School of Art. What that art was it would not be necessary for him to dilate upon at that moment. He did not think it at all necessary that they should defend themselves for making the minor details of a building their principal study. In doing so, however, they did not disregard the mass, or place accessories before the principal; but inasmuch as there were abundant means and appliances for the study of architecture in its more extensive phases, they thought that they might with advantage take upon themselves the education of the workman. They were, in fact, a great school of architectural detail, and though they had no charter or ornamental adjective to append to their name, they were determined to carry out the duty which they had imposed upon themselves. That duty must be tested by the capacity of the men who operated. In referring to that capacity, he wished to step, as it were, from the platform, and to address his audience, not as an officer of the Institution, but as one of the general company, invited to be present on the occasion. Speaking, then, as one of the general company, and looking to the right and left he saw around him that which, in his opinion, had mainly tended to place the Institution in its present position. They had upon the committee persons like himself who were amateurs in art, but the great staple was to be found in the presence among them of men who, in summer and winter, by day and by night, in times of difficulty and danger, followed out earnestly and conscientiously their profession. These were the men who had given to the world those buildings and published those details of architecture which enabled their fellow-men to study in the path which they had chalked out for them. In this respect the Architectural Museum brought together the most renowned and talented architects which the age had produced, and which alone was a fact which ought to recommend the Institution to the confidence of the public. He knew of no body of men—no incorporated society, so deserving of the trust, were it small or large, or so worthy to be the conductors of a great national museum of art, as the professional gentlemen who worked with the committee. In the year that was coming he did not know of any great works pending which would particularly engage their attention: last year and the year before they studied the vicissitudes of a distinguished member of their body, and their honoured treasurer, (Mr. Gilbert Scott), in the commission which he received to build the new Foreign Offices. In this commission they hailed the anticipation of a free development of architecture, such as they had never witnessed before. The building was not in the clouds, but rather among the drains and the foundations, and how it was to be built no mortal man could tell. Within the last few days, however, their attention had been called to the downfall of one of the noblest ornaments of English art,—the beautiful spire of Chichester Cathedral. It was, no doubt, a misfortune in a national point of view, but the disaster was not to be traced to the fault of any one, for the exertions of one of their own body

(Mr. Slater) had been unremittingly directed to support the tottering pile, and to avert the misfortune which had occurred. Personally, he knew something of the cathedral, and he considered it a duty to say that the downfall of the spire was a misfortune which it was absolutely impossible to prevent, and he believed that, if Professor Willis, who had visited the cathedral a few days since, were present, he would have supported him in the statement. So much, therefore, for the present; but next year there was to be a great scheme, which they were given to understand would be carried out on a site not many yards from the place where they then were. He referred to the proposed International Exhibition of 1862. In referring to this subject he wished to do so as one of the general public. Speaking personally for himself and for the Museum, he could truthfully say that they knew nothing more of the intended Exhibition than any one of the public who might have read of it in the columns of the newspapers. They might, therefore, approach the consideration of the subject in a perfectly unbiassed mind; and approaching the consideration of it in this sense, he thought they might safely assert that there was a great deal to be said on both sides of the question. Of course, to use the slang of the day, a great International Exhibition would be a great fact, and it might also be a happy fact. The Exhibition of 1851 was a great fact; it struck a chord to which every one in the community responded; and when its doors were closed everybody seemed to regret that it was not carried on for another season. Next came the French Exhibition of 1855, which also proved a very considerable success. Let them, therefore, hope that the great International Exhibition of 1862 would be equally a success, and that it might be so was, he was sure, the wish of every one present. At the same time, when they remembered that all Europe was crushing and smashing, and that it was only eleven years since we had the Great Exhibition of 1851, and but six years since that of Paris, he thought it just possible that the whole affair might not quite come up to the success of 1851. He would not attempt to draw comparisons, or to comment upon the proposed building (of which he knew nothing save that it was to have a sort of mythical hall 200 feet high). Still, speaking as one of the general public, and speaking also on behalf of the South Kensington Museum, he was bound to say that he could not simply cry up the thing in anticipation as an assured success. He hoped, however, that the zeal and perseverance of Englishmen would in the end convert what he feared might be regarded at present somewhat in the light of a hazardous speculation into an assured success, from the practical utility of the contents of the future building. The Architectural Museum would, he was sure, take its part in the exhibition, if it saw before it a definite line which it could carry out in the interests of art. Before proceeding to mention the prizes which were arranged on the table before him, he wished to state that rather more than a year ago he received a letter from one of the most distinguished of the statesmen who governed India—he alluded to Sir Bartle Frere. That gentleman wrote to him under date the 26th of November, 1859, and stated that although personally unknown to him (Mr. Hope), still he took the liberty of addressing him, as he understood that he felt a deep interest in the Museum of Architecture at South Kensington. He then went on to say that he had forwarded a number of cases by the *Aspasia* from Kurrachee, containing fragments of Hindoo sculpture of the tenth, eleventh, or twelfth century, which he wished to present to the museum. Sir B. Frere added that the objects in question were said to belong to an ancient city which was overwhelmed by an earthquake about 500 years ago, and that there was reason to believe that they were about 700 years old. He had gratefully accepted the offer, and the committee had elected the donor a vice-president of the Institution. He had also to mention the receipt of a number of casts presented by Mr. Albert Way, on behalf of the Archaeological Institute. He should now proceed to allot the prizes, but before doing so, he had a gratifying communication to make, namely, that the executive of the Institution having a surplus in their hands, had resolved to double the value of the prizes next year. Hitherto the prizes had not equalled their desire, but next year, owing to the circumstances he had stated, and to the kindness of Sir Francis Scott and Mr. S. C. Hall, who had promised additional prizes, the committee would be able to offer many further inducements to competitors. With regard to the prizes, he regretted to say that no specimens had been sent in for a key in the Mediæval or Renais-

sance style, but he hoped that owing to a change in the nature of the conditions, a number of competitors would come forward, to claim the prize next year. The next prize was for models in clay, and sums, of five, three, and two guineas, were announced for the best design for a medallion, to be executed in stone, of the late Duke of Wellington. For this prize eleven specimens were received, and one was sent too late. When the committee came to adjudicate upon the merits of the various works, they encountered a difficulty which had not occurred to them when the prizes were proposed. There were two styles which might be followed in a side face,—cut off at the neck, which was that of Classic antiquity; and the other a three-quarter face, peeping out of a ground opening, as if it were growing out of an imaginary body behind. There could, he thought, be no doubt but that the second method was preferable to the first; but as the committee had not defined to which style the prize was to be awarded, it was decided that no exclusion should be made, and that candidates might compete in either. In the successful prizes, it would be observed that both styles had been practised. All present who remembered the venerable face of the Duke of Wellington would probably feel biased in favour of a medallion which would represent him as they were in the habit of seeing him; but such was not the intention of Mr. James Allen, the candidate to whom the first prize had been awarded. He had adopted the principle of a head looking out of an opening, and he had exhibited much taste and discretion in the treatment of the subject. The border was simple, and the manner in which the foliage was conceived and executed, was graceful and faithful to nature. The next prize had been awarded to Mr. Hatchett, who had adopted the method of form usual in the coinage of the land. He had produced a very good portrait of the duke in his older days. The proportions were well arranged and composed, and the frame and border were quiet, and well set off the head. The third prize had not been given for its full extent, but a guinea had been given for the design sent in by Mr. Hale. The prizes following in order were for wood-carving, and two had been announced,—one of five guineas, and another of three, for a piece of carved work suitable for the panel-cover of a Church Bible. Three specimens had been sent in, and he was happy to say all had been successful. The treatment of each was distinct. The first was most successfully worked out. It was a beautiful specimen of foliage and arabesque carving; the second was also extremely meritorious. The first prize was due to Mr. Reynolds, and he had great pleasure in testifying to the extreme delicacy and efficiency of the design. The second prize was due to Mr. Bolton, who was to be congratulated on the happy manner in which he had transferred to wood the metallic design of the Mediæval period. The extra prize had been awarded to Mr. Seymour. It was a graceful and pretty design, and, although not equal to that of Mr. Reynolds or of Mr. Bolton, it was a carving of great feeling and taste. Seven specimens had been sent in to compete for the cartoon for a painted glass window, and two prizes had been awarded,—the first to Mr. J. J. Laing; and the second, to Mr. Sedding. It was impossible not to admire the taste displayed in Mr. Laing's design, who had carried out with much feeling the Tabernacle work which characterized the earliest description of painted glass. He had not, however, been quite so successful in the treatment of the head, as it was rather too staring; but the design was very creditable. In the cartoon of Mr. Sedding, that gentleman had represented with great clearness the Early style of painted glass. The remaining prizes were those which the Museum gave in connection with the Ecclesiological Society, and were for the two best specimens of colouring the same group of figures. This was the third year in which the Ecclesiological Society had joined them in prizes for coloured figures. This year the prizes were declared equal. The names of the successful competitors were Messrs. Harrison and Simpkin. Mr. Harrison was the brighter colourist of the two; while Mr. Simpkin dealt more in subdued colours—browns and ochres—and distributed them with much delicacy and a true appreciation of that which it was most difficult to carry out, namely, the correct and harmonious shading of colour. The prizes being adjudged equal, he would not attempt to draw any distinction between them. One might be said to belong to the German, and the other to the Italian school; but each was carried out with great spirit and feeling for art. All that he wished to say further in connection with the prizes was, that under the

anonymous system, there would in future be a prize belt hung up for them and for others to contend for, and he hoped that many would come in and spar for it, as there was no desire that the prizes should be monopolized by any particular parties. The object was to promote competition in those departments of the art with which the Museum more immediately concerned itself, and the greater the number of competitors, the greater would be the amount of good effected.

The successful competitors came forward and received their prizes and certificates from the hands of the chairman.

Mr. Fergusson made some observations on the Indian sculpture referred to by the chairman as having been forwarded from the banks of the Indus by Sir Bartle Frere, which he stated was an interesting specimen of what might be termed the prosperous period of temple building in India, though not the highest sort of art. It was to be regretted that the history of art in India was written in decay, for as the student traced it back until he came to the early period of Greek or at all events to Rome, he lost the thread, and it was impossible to tell where it came from. The fragment exhibited was a portion of a pillar, and was a favourable specimen of the prodigality with which the Indian architects, from the tenth to the twelfth century, lavished ornamentation subsidiary to architecture. It was of course impossible to estimate it correctly under present circumstances, as it was but a fragment of some larger embellishment, but it was a valuable contribution to our knowledge; and if a series of them could be obtained, it would be useful in assisting to trace the gradual progress of decay which appears to have overwhelmed the architecture of Hindostan.

Mr. C. Hall said he had been asked to make a few observations, but that in truth he had very little to say, except to congratulate the officers of the Institution, and those who were connected with it as art-labourers, on the progress they had made in the last five years, and on the earnestness of the Institution. He had been one of those who had enjoyed more than one or two evenings in what the chairman had very correctly described as the "cockle," in Canon-row; and he observed that the great object of the art-workmen, who had been his efforts up to the present time, would, he had no doubt, attain to far greater proportions in years to come. He was delighted to observe that so much progress was making in that department of the arts, architecture, and he was pleased to see so many intelligent and industrious art-workmen taking a deep interest in the Museum—working for it, giving it the benefit of their aid, and receiving in their turn such advantages as it had to offer. He was not himself an architect; he had little or no knowledge of the peculiar objects which the Institution especially advocated; but he felt a deep interest in that which was the principle upon which their success was based, namely, the promotion of the art-workman. It was, he might say, the exclusive mission of the Society to make the art-workman known, respected, and honored. It was upon the principle of singling out and making known to the public the hands which worked out the ornamental details of the great works which bore the honours names of great designers that he had become attached to the Society. He must, however, express his regret at the paucity of the prizes awarded. The prizes were small in number and insignificant in degree, for their money value could not possibly repay the workmen for the many hours, say, weeks of labour devoted to their execution. This circumstance was, he presumed, to be attributed to the circumstance that the funds of the Museum would not admit of larger rewards. He was glad, however, to hear from the chairman that next year the prizes would be considerably augmented. He himself had undertaken to present some prizes in the shape of illustrated proposals for the design of a series of volumes of an instructive and valuable description, connected with art, and he hoped they would be given as extra prizes to those to whom more important and substantial rewards would be awarded. He was glad to see, instead of being six or seven in number, would be fifty or sixty; and that the example which the South Kensington Museum had set would be followed up in every department of the industrial kingdom. There would, no doubt, be great competition in the year 1862, and he hoped it would be a large element in the scheme to see that the art-workmen of the country were properly brought before the world, and that the wreath might fall upon the brows entitled to wear it.

The Rev. W. Scott observed that it was a subject of congratulation to trace the progress of ornamentation within the last few years. The time was when the art-workman was satisfied to make a model from some foreign country and to make a servile imitation of it. He was, however, happy to say that through the instrumentality of the various schools of art, the workman was no longer content to copy the work of others, but designed and executed for himself. Mr. Scott also referred to the advance which had been made in the art of sculpture, *in situ*, which, he said, was far more desirable than carving in a workshop, and afterwards setting the object up in the place assigned for it.

Sir Walter James said he had little to add to the excellent precepts which the chairman had addressed with so much tact and feeling to the successful competitors. One remark, however, he had been made by the chairman which suggested another, namely, that it was the object of the association to render "small by degrees, and beautifully less," the differences which prevailed in the various steps of art between the workman and the highest artist, and that instead of a painful flight of steps they were now able to substitute a gradual and inclined plane so as to give to the lowest workman such an honest and an elegant means of help that he would be enabled to reach in due time the top of the tree. While reflecting upon this subject the true theory of work and of art was revealed. No writers of modern times were more admired on these subjects than Pugin and Ruskin. Mr. Pugin's theory was that all beauty lay in utility, while Mr. Ruskin took an opposite view, and held that it was only in the superfluous and not in the useful that beauty was to be found. For his own part he believed that truth existed in both theories. He held that there was no utility in a beautiful painting or an exquisite statue; but in the word-art-workman it would be at once seen that the true theory lay between the theory of Pugin and that of Rus-

kin, for every workman, however low, might be impregnated with the true genius and sentiment of beauty.

Mr. Godwin said a note had been placed in his hands which ran thus:—"Please to say a word after Sir Walter James." And, as he had a word to say with he was sure they would be glad to hear, he assented. This was, to propose that their best thanks be given to Mr. Beresford Hope, not only for his conduct in the chair that evening, but for the unwearied interest which he had always taken in the Society. Nor was this any exaggerated term, for when he assured the meeting that the council met for the despatch of business at four o'clock that day, and had continued their sitting until the hour for the meeting had nearly arrived, he would see at a glance that the office was not a sinecure, but that the gentlemen who formed the committee and had come forward from a pure love of the beautiful, and with the sole view of elevating and encouraging the art-workman, were in earnest. With reference to the proposed Exhibition of 1862, he must say that he took a more rejoicing view of it than that entertained by the chairman. Looking to the results of the first Exhibition of 1851, which were obvious in every department of our manufactures,—seeing that similar results attended the Exhibition in later years in Paris,—looking at the Schools of Design, which had since been increased, for the instruction of the youth of both sexes, he thought he was justified in predicting that the proposed Exhibition of 1862 would prove to the world that a considerable advance had been in consequence made in the various departments of art and manufacture, and that a further impetus would be given to another Exhibition in 1872. Sir Walter James, in contrasting the theories of Mr. Pugin and Mr. Ruskin, referred to those who entertained some doubt as to the utility of the purely beautiful, but he (Mr. Godwin) considered the beautiful as the very highest aspect of the useful. What, he asked, could be more useful than that which was beautiful? The contemplation of a fine picture, or of a noble statue, elevated the thoughts, removed us from the material, to poetical and moral beauty, and raised the mind to the highest thoughts. It did not mean to infer that Sir Walter James had slighted the beautiful (Sir W. James said he had not intended to do so), but he maintained that it was a great mistake to underrate the beautiful, which in his opinion was, he would reiterate, the highest aspect of the useful. With respect to the Institution itself, he was sure the council would be glad to see it more used by those for whom it was intended. With the means now afforded for acquiring knowledge of drawing, and the examinations instituted, there was now a free and open road for every man, with no successfulness, and scarcely any toll to pay; for the advantages offered were to be obtained at a very trifling expense. A glorious example of what might be done by zeal and perseverance was exhibited in the case of Ernst Reiser, the great Dresden sculptor, who died on the 21st of last month, and had left a name which would long survive. He was born in the greatest poverty, and, when a youth, found it extremely difficult to maintain himself. But gradually he worked his way on, until he became not only the greatest sculptor in Dresden, but perhaps he might say, the greatest in all Germany; a man whom kings loved to honour, and for whom his townsmen built a house. His latest work was the great monument to Luther, to be erected at Worms.

The Earl of Powis, in seconding the vote of thanks to Mr. Hope, expressed the gratification which he felt at being present that evening, as the president of the Institution. He afforded him to witness so gratifying a spectacle. He entirely approved of the remarks made by the chairman as to the necessity of attention to the detail and execution of ornamentation in connection with architecture. In a climate like ours, which prevented the elaborate exterior ornamentation which was to be found beneath the sunny skies of Greece or Italy, or amid the tropics (where, as they had seen that evening, it had survived even the ravages of earthquakes), it was peculiarly desirable that the interior decorations should be studied, for they alone were preserved from the elements. Nor would there be any danger that in confining themselves to these details they would lose their appreciation of the highest principles of Art, because they would at once perceive that without proportion and without imagination the most elaborate ornamentation would become almost grotesque, and would certainly occupy but a comparatively low position in Art. The various specimens of art which they saw in the Museum contributed essentially to the beauty and grandeur of great buildings, and as in large national buildings the scope for detailed ornamentation was boundless, it was evident that the progress of the art-workman, in detail, the more would the character of the architecture be raised, and the more would the art-workman contribute not only to make his own department attractive, but to enhance the value and importance of the entire piece. He seconded the vote of thanks with cordial pleasure.

The resolution was supported by an art-workman in the body of the theatre, who suggested in an energetic speech whether it might not be desirable to offer more inducements to female artists. He entirely approved of the efforts which the Institution was making to elevate the character and improve the position of art-workmen, and he expressed a hope that it would continue each year to extend its sphere of usefulness.

The Chairman, in acknowledging the vote of thanks, observed that he hoped there would be a numerous audience on the evening of the 20th of March, when their friend Mr. Freeman would describe an architectural journey in Aquitaine; and also on the 3rd of April, when Mr. J. H. Parker would address them on the architecture of the eleventh century.

THE LABOUR QUESTION.

London.—We have received a letter signed "Geo. Potter, secretary," stating that the workmen "have decided to send a memorial from each of the five branches in the building trades," asking for a reduction in their hours of labour, and in closing a memorial from the carpenters and joiners. The memorial renews the request "for nine hours as a day's work," and solicits an answer by the 5th of April next.

The Nine Hours Movement in Scotland.—The masons in Edinburgh insist on working

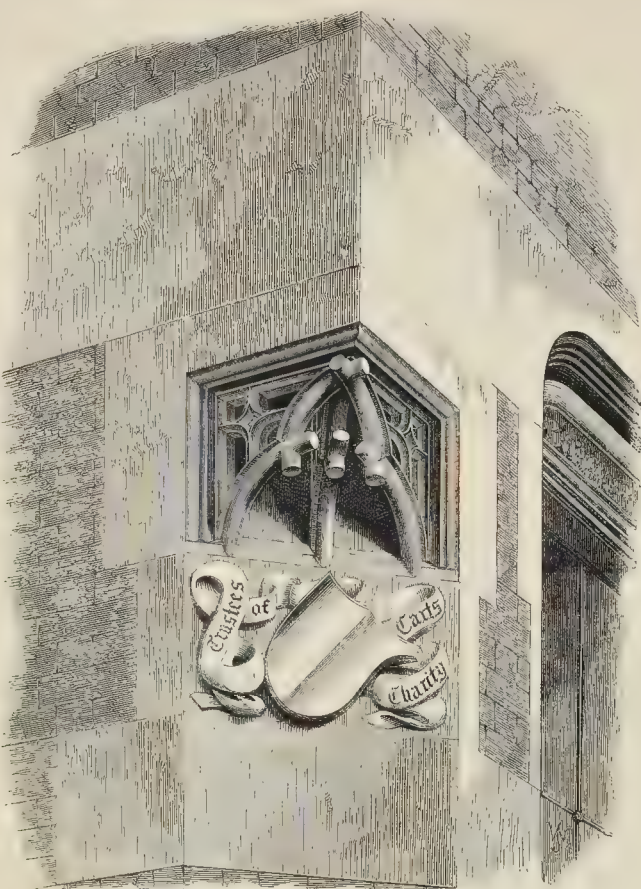
nine hours a day instead of ten, for nine hours' pay, at the present rate of 5d. per hour, and this had led to a strike amongst a portion of their trade. Forty-two masters have refused to accede to the request of the men; the result of which is that 400 men struck. Twenty-four of the masters have yielded to the demands of the men, and those in their employment are now working on the nine-hours system. Some of the masters ask, naturally, if the men can afford to give up 2s. 6d. per week? and think it pretty clear that, as they cannot, the next move will be to strike for an increase in the rate of wages, to make up the deficiency. When is all this uncertainty to end?

Strike of Masons at Bath.—The operative masons on Monday declined to resume work, in consequence of their employers' refusal wholly to comply with their demands. Six months since the men memorialized their employers for an advance of 4d. per day and to be allowed to leave work on Saturdays at four o'clock instead of five o'clock, as heretofore. The men state that masons' wages are lower in Bath than in other towns. The employers told the men that they had heavy contracts in hand, but that their demands would in all probability be conceded from the 1st of March. The men agreed to wait. The masters are now willing to give the extra 4d. a day and to close their shops at half-past four on Saturdays. The operatives, however, insist on the whole of their demand, and have announced their intention not to return to work till their employers agree to let them finish at four o'clock on Saturdays.

The Nailmakers' Strike.—Nearly 2,000 men have ceased labour. They are becoming quite hopeful that the termination of the strike is at hand, because they think it wonderful the supply in the market has lasted so long, and naturally suppose that the end draws near. The masters, on the other hand, seem determined to abide by their resolutions, and to all appearance the settlement seems as far off as ever. The work of the common nailmakers is said to be wretchedly paid, and the market so overstocked with that description of nail, in consequence of horse-nail men on strike turning their hands to it, that after all, these poor men will eventually suffer the most. "Machinery," says the *Derbyshire Advertiser*, "has done this, and it should act as a warning to the horse-nail makers, as strikes invariably turn the eyes of the capitalist in the direction of machinery; and they ought to remember that the impossible of to-day becomes a thing of secondary consideration to-morrow."

THE RAILWAY ORGANIZATION OF THE METROPOLIS.

THAT many dwellings of the poorer classes must be swept away by the carrying out of the numerous schemes now before Parliament there cannot be a doubt; but, although this would form a strong reason as to some stringent conditions for the replacement of old by new and improved dwellings of a similar class, surely it is not the best way of settling the difficulty to suppress all such schemes, simply because some of the worst slums of the metropolis will thereby be destroyed, and close unventilated districts opened up. The difficulty should be met in another way. Nevertheless, suppression of the plans for the railway organization of the metropolis, and leaving things as they are, seem to be the main ideas suggested by the Earl of Derby in his remarks on presenting some petitions to the House of Lords respecting the projected demolitions of labourers' dwellings. His lordship dwelt upon the evils which would result from sanctioning the numerous projects now before Parliament. The lamentable consequences of over-crowding in poor districts would, he apprehended, be enormously increased unless some means were adopted [not to rear compensatory dwellings, but] to check the projects in question. He suggested whether it might not be desirable to appoint a committee to inquire into the effect of the extension of railways upon the moral and social condition of the metropolis. The Earl of Shaftesbury concurred, and said that seven of the railway bills involved the displacement of 5,000 of the labouring classes. The Bishop of London also deplored the necessity of entailing an additional inconvenience on the poor by removing them from the neighbourhood which was the scene of their labour. Earl Granville reminded their lordships that the extension of railways in the metropolis was a great advantage to the public generally, and would relieve the overcrowded streets. He thought they ought not to express any opinion on the merits of private bills which were about to come before them in a regular manner. Earl Grey confessed himself disappointed that



HOUSE IN SMITHFIELD: TERMINATION OF SPYLED ANGLE.

the President of the Council had not suggested any means by which the evils referred to might be mitigated. He was inclined to think that good rather than evil would result from the demolition of these confined and dilapidated dwellings, if steps were taken to provide better accommodation elsewhere. Lord Redesdale was of opinion that if railway projects continued to be presented to Parliament in such numbers and with such important aims, it would be necessary to have a railway board to deal with them. The petitions were ordered to lie on the table. When the old nests are destroyed new ones must be provided.

THE TELEGRAPHIC ORGANIZATION OF TOWNS.

FROM time to time we have suggested the vast effect which the telegraph is destined to have in the advancement of modern civilization. The progress, however, seems more rapid than the most sanguine could have hoped.

In various parts of the towns and country, and in several ways, the telegraph has been "laid on" with so much advantage, that it will soon be as common in all large business establishments as water or gas. One of its new applications, as we have of late intimated, has been in connection with the office of the District Telegraph Company of London, from which office has been passed a tube containing fifty different threads of metal, connecting the City with the West-end, the suburbs with the heart of London, banks with their branches, merchants' counting-houses with their private residences. By means of these magical wires, editors at lightning speed can have reports from the Houses of Parliament almost as soon as the words leave the speakers' mouths, and those engaged in the collection of intelligence are in

constant and immediate communication with all important parts of Great Britain, and, through Mr. Renter's office, with every city on the Continent to which telegraphic communication extends.

The advantages of this system of conveying information at a moderate charge will be very great. It will concentrate the power of both the army and the police. Londoners, and those who dwell in large cities, will, by the speed with which the news can be sent from all parts, be made more safe from the ravages of fire, and thousands of pounds and much life will be saved by this means alone.

In connection with the National Library at the British Museum, and indeed with other departments, the telegraph might be made to answer a most useful purpose. There are in the reading-room always a number of persons at work who are connected with the various departments of the periodical press. Important matters are constantly coming before the conductors of journals on which the contents of the library would throw light. In many other ways a ready means of communication between editors and the large number of writers who are employed in this department of literature would be of advantage.

Seeing that, in a short time, there will be few of the many shops or houses of the well-to-do portions of the community which will be without the telegraph, it would be worth while, in our national and other schools, to teach the manner of working it. No great expense would require to be incurred in making the necessary arrangements, and both instruction and amusement might be afforded by the working of one of the domestic telegraph wires in a school-room. It was interesting to observe, during the Christmas festivities at the Crystal Palace, how inquisitive the children were as to Wheatstone's new telegraph, and how

easily any one could work it, almost at first sight and without instruction.

In the great hotels, where travellers congregate, a small department devoted to this system of telegraphing might be made a source of profit: it would, at any rate, be very useful. A person far distant from his family, who, at home, had thoughtfully provided this means of communication, would be able and be glad to know at once that all was well last thing at night. There are besides, hundreds of other important purposes which could be assisted by such arrangements.

HEATING AND VENTILATING IN RUSSIA.

IN your paper of last week you have a letter from "G.C." concerning the heating of the houses in St. Petersburg. You will find from those who have lived in Russia but one answer to this question—"How are your rooms warmed?" "They are heated by stoves, and are intolerably hot." The Russians themselves can endure a surprising amount of heat, as I know by experience; and what therefore is insufferable to us Englishmen, to them is, as your correspondent says, "genial." I could never manage to secure a moderate warmth in Germany, where I have been during this most severe winter. It was always too hot or too cold. In the one case, thanks to the double windows referred to by your correspondent, there was no ventilation by which we might secure a fresh current of air: in the other, my Russian friends always sat in my drawing-room rolled up in furs. You will find on inquiry this is a common dilemma even amongst the natives.

One word more. The Russians are beginning to appreciate our open fireplaces, and to relish the cheerful aspect which they impart. But there fireplaces alone are unable to heat the rooms: they are, therefore, importing furnaces for hot air and hot water, which they think will answer as well as their closed stoves. In a recent visit to America I saw these furnaces, which are exported thence to Russia. It would surprise many of your readers if they knew the enormous quantity of iron and ironmongery exported from America to Russia, a trade which might have been carried on with England, profitably both to us and the Russians.

E. G. CULLING EARDLEY.

LONDON STREET ARCHITECTURE.

HOUSE IN ST. JOHN-STREET, SMITHFIELD.

AMONGST the structures in Smithfield threatened by proposed improvements is a house of overwhelming height and magnitude, recently erected at the corner of St. John-street and Charterhouse-lane, by the trustees of Cart's Charity, for the London Printing and Publishing Company. It has a frontage of 52 feet in St. John-street, and 70 feet in Charterhouse-lane: the height to the ridge of the roof from basement is 91 feet, and from the pavement level 84 feet 6 inches, divided into seven stories, including basement. We have engraved a view of the principal doorway, and one of the termination to the splayed angle of the building. The materials used are ground Box stone, red Kent facings and cutters, and Ewell black rubbers. Blue Staffordshire bricks are employed in the external plinth; also to piers under the columns, carrying wrought-iron girders of floors. In the basement story we find steam-boiler, coal-store, vaulted fire-proof room for stereotyped plates, paper and ink stores. On the ground-floor, steam-engine, counting-houses, and sale-room. On the first floor, Board-room, secretary's room, authors' rooms, and book stock. On the second floor, bookbinding. The third floor, stock and lithographic printing. On fourth floor, stock, and steel and copperplate engraving. On the fifth floor, copperplate printing. Fireproof staircase for workpeople. There are water-closets and washing-places on landings of each floor; a lift from ground to top floor, worked by steam-engine; crane in Charterhouse-lane, worked by crab, for hoisting stock into carts from printing-offices and building; and cast-iron tank for 4,000 gallons of water at top of building, with hose, fire-main, and cock to each floor. The architect was Mr. G. S. Clarke. The contractors were Messrs. Kirk & Parry, of Westminster; and the clerk of works was Mr. J. Jane. The carving, we may add, was by Mr. Thomas Earp, of Kennington-road.

MAINE MADE "FAST."—Accidentally, a mode of printing the mauve colour upon cotton or other fabrics, so that it may be pronounced "fast," has been discovered. This discovery, we hear, is due to a resident in Salford.



LONDON STREET ARCHITECTURE: HOUSE IN SMITHFIELD.—MR. G. S. CLARKE, ARCHITECT.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The ordinary meeting of members was held on Monday last, at the House, in Conduit-street. Mr. George Godwin, V.P., occupied the chair.

Several donations to the library having been announced, and thanks voted to the donors,

Professor Donaldson, V.P., called attention to two ancient vases which had been sent to this country by Mr. Rous, the engineer to the railway at Alexandria. On the recent occasion when he referred to the monuments of Egypt which he had lately visited, he stated that Mr. Rous, in enlarging the railway station, had come on a number of ancient catacombs. Since the reading of his paper at the Institute, Mr. Rous had forwarded him the largest of the two urns now on the table; and, on examining it, it was found that some of the calcined bones still adhered to the inside. On calling the other day upon some members of Mr. Rous's family, he had been shown the smaller of the two urns, which was one of the most interesting specimens which had ever come under his notice. It was an original cinerary urn, or rather vase, and was full of calcined bones, the top being closed with hard clay. A small hole showed the bones. With respect to the probable dates of the urns, he believed that the larger one (about 18 inches high), was of the period about 200 years before the birth of our Saviour. It was of Greek origin, of the epoch when the Ptolemies ruled in Egypt. He had visited the British Museum with the view of refreshing his memory on the subject, and Mr. Birch had shown him a number of vases, with female figures, carrying vases precisely similar to those now on the table. The women, in drawing water from the Nile, used similar vases in the present day. When full they carried them on their heads, standing upright, and when empty on the side. The smaller vase was especially worthy of attention, as he believed few persons in the room had ever seen a real Greek vase full of burnt bones.

Mr. Ashpitel said, that the smaller vase was quite a unique instance, as he believed no vase of the kind (pitcher shaped, with three handles), had been found used as a cinerary urn. It was also interesting in a historic point of view, as it went to prove that the Greeks sometimes burnt their dead instead of burying them. Another curious feature about it was that the vase was closed with clay, as they had generally a loose cover or no cover at all. The probable solution of the matter was, that the vase contained the bones of a Greek who had died in Egypt, and whose ashes the relatives had placed in the vase with the view of bringing them home to his friends.

Professor Donaldson said he believed that the urn contained the ashes of more than one body.

The Chairman pointed out that as a work of art the vase was elegant both in colour and form. He said, before calling upon Mr. Papworth to read the paper by Mr. Waring, on Romanesque Remains in the South of France - Mr. Waring himself being unfortunately unable from indisposition to be present, - he had to state that a deputation, consisting of five or six members of the council and two of the vice-presidents, had waited upon the Right Hon. W. Cowper, Chief Commissioner of Her Majesty's Works, to lay before him the resolution passed by the Institute in respect of the decay of the stone in the new Houses of Parliament. Mr. Tite, as a member of Parliament, introduced the deputation, and stated the views which the Institute held on the subject. He was followed by some members of the council; after which Mr. Cowper expressed his views at some length, assenting to the opinions expressed by the Institute in both respects; although he did not appear to be quite certain that good would result from the issuing of a commission; inclining rather to the impression that more advantage might accrue from the attention of inventors being called to the subject. He seemed to agree with those who thought that the right invention for preserving stone was still to be found, and that the discussion which had lately taken place on the subject would lead chemists and others to look into the matter, and perhaps to introduce something other than had yet been tried. Mr. Cowper also gave the deputation to understand that nothing more would be done in reference to stone preserving processes at the New Houses of Parliament before inquiry, beyond completing a contract which had been entered into with Mr. Sizerley, for applying his process to some of the inner courts. The council, however, would not lose sight of the subject, but would report any steps which might be taken by Her Majesty's Government, or others, in reference to the matter.

He had also to call the attention of the meeting to the circumstance that at a special meeting, held on that day week, the Institute had come to certain resolutions as to the subjects for prize essays. At the meeting of the council, held that evening, it was proposed that the present meeting should be asked to add to the list of subjects the offer of a medal for an essay on the use of iron in the construction of floors and roofs, illustrated by designs.

A resolution to this effect was then put from the chair, and carried *unanimously*.

Mr. Papworth, preparatory to reading Mr. Waring's paper, explained that in consequence of the indisposition of that gentleman, he was simply the organ of Mr. Waring's views, and was in no way committed to any statements which he might make. He confessed, too, that perhaps, under other circumstances, he might have discharged his duty with more satisfaction to himself than at that moment; as, since he entered the room, he had been informed that the Royal Academy had made a selection from the candidates competing for the curatorship of Sir John Soane's Museum, and had conferred the appointment upon Mr. Joseph Bonomi, sculptor. Mr. Papworth then read Mr. Waring's paper, which was illustrated by a number of sketches taken on the spot.*

At the conclusion, -

Mr. Fergusson, being invited, said that, if Mr. Waring had been present, he would have asked him upon what he had founded his opinion as to the date of the cathedral of Avignon. The capitals referred to were certainly not Roman, nor the pediments either. On the whole, he (Mr. Fergusson) thought the church was in all probability built before the Mediaeval age, that is, before the ninth or tenth century.

Mr. Morris said he thought there was a great infusion of the Saracenic into what was termed the Romanesque style of architecture in France. It should be borne in mind that the south of France was invaded by a large Arab army, who advanced north as far as the Loire, and who were routed by Charles Martel, who hampered them with his mace in such a vallant manner, that he received the sobriquet of "Martel," or, The Hammer. The number of Arabs who poured into the south of France at that time was said to be enormous, and tradition asserted that Martel had dispersed as many as three hundred thousand. At all events, the host was so large that it was not unnatural to suppose that the *débris* might have remained in the country, and exercised some influence over its architecture. With regard to grotesque ornamentation, he might mention that, at Ripon Cathedral, the stone sedilia were defaced with carvings of a profane and somewhat indecent character; and among the figures were human heads with the bodies of beasts cinct in the canonicals of the time; and there was a tradition that these were caricatures of one class of the clergy upon another, - perhaps the regular caricaturing the irregular.

Mr. Street, in proposing that a vote of thanks be accorded to Mr. Waring for his interesting paper, said he was not personally familiar with all the churches to which Mr. Waring had directed attention; but that, from what he did know, he thought that, upon one point, Mr. Waring had hardly done them justice; for the Romanesque architecture which he (Mr. Street) had examined on the banks of the Loire was particularly rich in beautiful foliage.

Mr. Ashpitel observed that, from the examples of church architecture he had found in Auvergne, he agreed with Mr. Fergusson in thinking that they contained a strong element of classic art. With regard to the century as described by Mr. Waring, he did not think that the early architects always intended their carvings to be associated with an idea of the grotesque. The Egyptians, for instance, constantly used the sphinx, and there was no reason to suppose that they intended it as a grotesque. The centaur in question might be the Sagittarius.

Mr. W. Burgess referred to the illuminated volume of the works of Ovid in the library at Rouen, from which it was evidently intended that a Christian moral should be derived. Many of the figures were drawn with half the body a perfect man, and the other half a beast. At Lucca Cathedral, also, there was a figure half man and half bull. It might be meant to convey the transitional position of man, half developed.

Mr. Bell agreed with Mr. Fergusson as to the date of the buildings, although Mr. Waring had given them a later origin by two or three centuries. He thought it impossible to regard them except in connection with the Roman remains, which were found everywhere in the neighbourhood. He thought the Institute were much indebted to Mr. Waring for having called attention to this most interesting country, which was full of fine remains of the Roman and Byzantine period.

Mr. Ashpitel remarked that another reason for the prevalence of grotesque ornamentation in the churches of the date of those described by Mr. Waring might be traced to the narratives of early travellers, such as Marco Polo and others, who, on their return, most probably described in exaggerated language a good deal of what they had seen, and, perhaps, what they had not seen. These traditions were current in the Middle Ages and were illustrative of the Middle Ages and other things. Outlandish and strange races of men were described and depicted; and it would be remembered that Milton had spoken of the anthropophagi and other monsters - men whose heads did grow beneath their shoulders. When so many of these grotesques were observed, it was but reasonable to conclude that they were not all got from one source; neither did he think that, if they were traced to their probable origin, they were so wild or absurd as they were generally supposed to be.

Mr. Seddon called attention to the very erroneous ideas of "restoration" now carried on in reference to the ancient monuments of France. In many instances, the fine old sculpture was taken down and broken up for the roads, in order that modern carved work of a very inferior description might be substituted. He was informed the other day that it was the intention to "restore" the front of the church of St. Michael, at Lucca, by pulling down

the west front, with all its magnificent sculpture, and rebuilding it! This, surely, could not be regarded in the light of a restoration. He regretted to say that even in England this mania for "restoration" had broken out; and he could mention an instance which had come under his own knowledge, in which grotesques had been taken out of their places because they were a little broken, and modern objects put up in their stead, which were grotesque simply because they were ridiculous.

Mr. Hayward said that Mr. Seddon's observations afforded him an opportunity of unburending his mind of a weight which had clung to it for the last twelve months. When he went to Mayence he was disgusted more than he could tell at seeing fine pieces of sculpture detached from the cathedral, and lying in the mason's yard beneath the wall. Among them were some magnificent heads 4 feet high, which had been wantonly pulled down in order that others might be put up in what was supposed to be a better manner. Whoever had the charge of restoring the ancient churches of France ought to be informed of what restoration really was, because it was quite clear that they knew very little about it. He could find no language in which to describe the additional disgust which he felt when he visited the abbey of St. Denis, near Paris. This church had been thoroughly spoiled; and the crypt, which once contained a magnificent collection of tombs, was devoted to them, in order that they might be catalogued in historic order in the choir. In order to effect this object the floor had been adjusted so that the whole thing might be converted into a show-place or museum. He had been informed that the ultimate intention was to place a great monument in the centre, in which were to be deposited the remains of the first Napoleon. He suggested whether the Institute might not bring some influence to bear upon those responsible for these "restorations," in order to save the churches from what could only be termed wanton destruction.

Professor Donaldson thought that, as far as the Abbey of St. Denis was concerned, there was very little to be said in the tombs to which Mr. Hayward referred. In fact, all that was being done there was taking away one sort of rubbish and setting up another.

Mr. Papworth observed that some of the tombs in the crypt at St. Denis were made about the end of the seventeenth century, and that they bore a remarkable resemblance to each other. There was a system of restoration at present going on from the north to the south of France, in which every church was being saved in a most remarkable manner. At Rouen every church had been subjected to this process, and at Paris the buildings had literally lost all trace of their original character.

Mr. Street corroborated the statement of Mr. Papworth, and said that in every part of the country which he had visited he had found an army of discontented workmen busy away at everything they could find. It was the fashion to praise the present Emperor of the French, and to give him credit for restoring and renewing and preserving the national monuments; but the probability was that in ten years they would be all destroyed. The church of Notre Dame, for instance, was completely covered over with new work. The French not only restored Mediaeval works; but, if any ancient statue had a nose or a finger knocked off, down came the whole thing, and a modern ornamentation was stuck up in its stead.

Mr. Kerr said that, in considering the restoration of ancient monuments in this country, we were bound to regard them in connection with important intellectual movements. No such movement, however, had been going on in France. Instead of whitewashing their churches, as English churchwardens did in the last century, the French re-worked them; and in doing so could only bring such limited archeological knowledge to bear as they possessed. If, however, they were deficient in archeological attainments, it must be conceded that they possessed many other valuable qualities.

Mr. Burgess said that, in point of fact, no such edifice as the Abbey of St. Denis now existed. It was utterly spoiled many years since, some years ago an attempt had been made to restore the tombs to their original positions. In Louis Philippe's time a terrible restoration took place in the sculpture, and Blessed Virgins were metamorphosed into blessed apostles, and apostles into blessed Virgins.

Mr. Ashpitel expressed his regret that in endeavour we were compelled to admit that this description of restoration was not altogether confined to our neighbours across the Channel, but that we ourselves were not free from it in the eccentricity. In a church, the name of which he could mention, he found an escutcheon at the foot of a label, at one side put right, and at the other reversed, - an emblem of heretic aggression. When he went into the "restored" church, he found them both new, and both set upright. He also found that new foliated capitals had been put up; and, on asking a gentleman, who appeared to be the incumbent or the curate (he did not venture to inquire which), what had become of the old ones, the reply he got was, - "Well, they were very much broken about, and these are very much better, I assure you."

The Chairman, in putting the motion that the thanks of the meeting be accorded to Mr. Waring for his paper, observed, that there was a strong feeling with one section in France, that what was being done in the way of restoration was hurtful; and that in all probability what had passed at the Institute that evening might be regarded as a mark of charge with the duty, and might lead them at any rate to consider the matter. It should, he thought, be borne in mind that there were different circumstances under which restoration might be executed. If, for instance, a church was in decay, the parapets falling away, and the tracery of the windows decaying, and the parishioners, or the owners, desired to keep up the fabric for use, the thing to be done was to try and restore the original condition of soundness, by substituting new work, as it originally existed. The other state of circumstances to which he referred was the undertaking the restoration of an ancient monument, such as the royal tombs in Westminster Abbey, or ancient sculpture, not needed for use. Such works should simply be maintained carefully, handwritings of the past and rich in associations. With regard to the district through which Mr. Waring had carried them in his paper, it was certainly a matter of surprise that so few English architects even now visited these towns. He had himself been in the country some years ago; and, at the principal inn, where he put up, he was informed that they had never seen an English architect. The dome-covered churches of the district, Angoulême and Poitiers, were full of interest. He thought they were much obliged to Mr. Waring for the information which he had given them.

The vote of thanks having been carried *unanimously*.

The Chairman read a letter which had been received

* See page 158, ante.

from Sir Charles Phipps, in which the writer stated that he was commanded by her Majesty to convey her Majesty's approval of the award of the gold medal for the year 1860 to Mons. J. B. Leveque, of Paris, honorary and corresponding member of the Institute.

The following gentlemen were, on ballot, elected Fellows of the Institute:—Mr. J. H. Hirst, associate, of Bristol; Mr. Charles Henry Howell, associate, of Norwich Union Office, Blackfriars; Mr. R. Kyrke Penison, associate, of Frysidge, Kidwelly; Mr. Alfred Waterhouse, of Manchester; Mr. Richard Popplewell Pullan, of Wimborne; and Mr. Charles Foster Hayward, associate, of 8, Adam-street, Adelphi.

Mr. Theodore R. Green, of 25, College-hill, E.C.; Mr. Charles Buckridge, of Oxford; and Mr. Richard Phœbe Spiers, of Oxford, were elected associates.

THE GAS LEAKAGE FROM THE STREET MAINS.

NEW METROPOLIS ACT.

IN the last volume of the *Builder*, pp. 652, 678, and 741, are published a series of articles on the subject of the subway for the deposit of the gas and water mains, which articles had been induced through the circumstance of an abortive attempt by the Vestry of St. James (Westminster) to get the thing applied to Regent-street.

In the course of these articles some statements are made, on the authority of Professor Spencer, respecting the gas leakage from the street mains, several of which it must be confessed are somewhat startling on thinking of. One of these it is now sought to again bring under notice; viz. that, in the metropolitan supply of gas, 630,000,000 cubic feet, a quantity equal to more than a tenth of all the gas burnt in London, escapes, annually, from the mains, in the course of the passage from the factory to the various points of consumption, and mixes with the street air.

The present communication has been suggested by the circumstance of the writer having accidentally witnessed an occurrence which he conceived to form a sort of practical experiment, illustrative of cause and effect in the matter, and materially corroborative of the position.

On the morning of the memorable fog of last month, the writer, on passing up Regent-street, observed workmen engaged on some of the underground pipework, in an excavation in the roadway, opposite the British Telegraph-office. At about 10 inches below the surface of the road, and extending all along the side of the cutting, which latter was some 8 or 9 feet long, a row of jets of gas was burning. At the moment it occurred to the writer that these little flames issued from a length of perforated iron tubing, such as is used for illuminating the Club-houses on Royal birthday nights, which the workmen had temporarily attached to a gas main, in order to light them in their work in the trench. At a later period of the day, a neighbour having mentioned the observance of the circumstance, the writer revisited the spot, when he found the row of jets still burning; but the flames, instead of issuing, as he at first supposed, from regular gas tubing, were from minute fissures in the earth, immediately beneath the Macadam bed of the road.

The theory of this phenomenon would appear to be this:—The escaped gas from the great mains (which lie under the road at some 3 feet deep), had passed through the loose gravelly soil above, and got as far as the Macadam bed: the closeness and compactness of this stratum, however, preventing its further permeating upwards, it had accumulated in a sort of reservoir, immediately under the Macadam layer, and became thence the source of supply of the flames as described.

Subsequently to the circumstance just adverted to, numerous other trenches have from day to day been opened in the same locality, distant at something like a rood from each other; and in these the writer frequently saw the earth on fire in a similar manner: and although the continuous burning was dispensed with in these cases, yet the strong gas odour emitted from the cutting showed it pretty certain that the like conditions prevailed, leading to a fair inference that the evil of gas escape from the mains, bad as it was before, has become much aggravated by the recent laying down of some fresh unusually large mains.

The mapping out of the metropolis for carrying out the provisions of the new Metropolis Gas Act, which sanctions the appropriation of a special district to each of the thirteen gas companies for its exclusive lighting, has, in many instances, placed the district to be lighted at a considerable distance from the works where the gas is made. For instance the gas for the parish of St. Martin-in-the-Fields (districted to the Equitable),—passes from the factory of the company in Belgrave through the parishes of St. John, Westminster, and St. Margaret's, in neither of which latter parishes have the company a single lamp. The

districts of Paddington and Hampstead—appropriated to the Imperial,—receive their gas from Fulham, conducted *via* Knightsbridge, in an enormous pipe, a yard in diameter. For St. George's, Hanover-square, the gas is sent by a "through" main from the Chancery Company's works in Westminster by the line of Whitehall and Regent-street. These arrangements necessitated the laying down by every company, to a greater or less extent, of new great trunk mains, for conveyance of the gas in the first instance bodily from the manufactory to the field of its distribution. These huge pipes were mostly laid down during the last autumn, and generally take their course through the leading thoroughfares of the various parts of the metropolis.

In the article of November 17th, it is shown that the great loss of gas spoken of is by the leakage continuously going on at the joints of the mains, from defects inherent in the principle of the formation of the joint; that the companies, in undue haste, persisted in laying down these huge trunk mains, on the old defective plan of jointing; the same as has been in use ever since the first of iron being applied to the purpose of gas conveyance, without in any way seeking to profit by the advanced mechanical knowledge of the day—in no branch seen more conspicuously than in the working in iron;—that, in point of fact, far more perfect constructions are in existence, the superior efficacy of which for the purpose has been established by the test of time and extensive use in some of the large provincial towns of the north,—Manchester, Leeds, Liverpool, &c.

By this new districting arrangement the quantity of gas now passing through some of the leading thoroughfares of the metropolis has become enormously increased. In Regent-street, for example, it has been quadrupled; and hence must the quantity of escape into the roadway subsoil be greater in corresponding ratio. And the question now suggests itself,—Is not the phenomenon spoken of as seen in Regent-street immediately attributable to the increased quantity of escape which these additional great gas-mains are permitting? If there be anything in this surmise, it really becomes a serious look-out for the residents on the lines where these huge conduits are laid.

A daily paper (the *Globe*), in an able editorial comment on one of the *Builder* articles referred to (and transcribed into "the leading" and other journals), suggests that a remedy might be found for the evil of this enormous gas escape by directing the attention of gas shareholders to the pecuniary loss they experience from, apparently, a defective administration of their affairs; a very natural inference under ordinary circumstances, but erroneous in the present instance. Heretofore, it is true, the loss referred to has been the shareholders', but the new Metropolis Gas Act turns over that item of "profit and loss" to the account of the gas consumers.

A former Act of Parliament (the Gas Works Clauses Act, 1847), still in operation, limits the dividends for gas companies, to pay their proprietors, to ten per cent. per annum; permitting, however, out of further profits, the accumulation of a reserve fund in amount equal to one-tenth of the companies' paid up share capital. After the completion of that fund, the Act provides that all profits, beyond the amount necessary to pay the ten per cent. dividend, the consumers are to have the benefit of, in the shape of a corresponding reduction to be made in the charge for the gas,—a sort of "participation in profits," as the Insurance Societies have it. The affairs of the metropolitan gas companies do not appear to have arrived at a state to bring this provision into operation. But the economy in manufacture that will follow on the lessened amount of pipeage to maintain, consequent on the concentration of the area of distribution, together with the amply remunerative Parliamentary price of the gas, and other accruing advantages, which the 1860 Act altogether creates, will, doubtless, so enhance the profits of the trade as to yield every company the maximum dividend. That position realized, all further profits, according to the Act of 1847, belong to the consumers. And hence, the loss of stock by leakage from the street mains, so frequently adverted to in the course of these papers, becomes the consumers' affair.

However much additional profit the working under the new districting system may bring the companies into, it is much to be feared, from the inadequate nature of the authorized machinery for carrying out the surplus profits section of the enactment, little advantage on it will ever reach the consumer. Directors will not seek to make profits, over and above that which is sufficient for the payment of

the maximum dividend and providing for the general working expenses, merely for their customers to derive the benefit of; but more on this hereafter. Nor is it likely, under such circumstances, that considerations of economy will move these bodies to the laying down of improved piping in order to save the leakage. And thus the 130,000, worth of gas, which ought to go to the cheapening of the article to the consumer, will still be allowed annually to run to waste; benefiting no one, but, on the contrary, perpetuating a fearful evil in saturating the sub-soil of the roads, the accumulation of which will create a nuisance that must by-and-become most sensibly felt. Let any one look at the state of the turned-up soil of our streets, more particularly that of the leading thoroughfares where the trunk mains mostly run (take Piccadilly as an example): here the soil,—in its native state yellow gravel, bright as fine gold,—is to be seen blackened and odorous as gas-house refuse itself, and every day becoming worse and worse.

Let it not, however, be inferred that any censure is here attempted to be cast on this new Gas Act (1860). It is a very good Act, though it might have been much better. But that it is not a better Act is not to be wondered at, when the fact is borne in mind that, in its progress through Parliament, thirteen powerful companies were arrayed against every section of the Bill that went to the making of improved terms for the public; more particularly as respects those sections which proposed the introduction of controlling powers,—the germ of the Bill,—backed up in their opposition, too, according to their own boast, by the whole joint-stock interest of the country, representing invested capital of something like 500 millions sterling. As an example of the doings on the occasion may be mentioned the following:—

The promoters of the Bill went for a modification of the "participation in profits" section of the enactment of 1847, before adverted to. The Bill sought to lower the maximum dividend to be paid the shareholders, from the stipulated 10 per cent. per annum, down to 8 per cent.; at the same time, however, providing a guarantee of a minimum dividend of 6 per cent. to every company, secured by the authorizing an advance on the stipulated price of the gas, when the ordinary profits of the company were short-coming to meet the minimum rate of 6 per cent.;—a seemingly equitable give-and-take arrangement between the companies and the consumers,—a very moderate concession on the part of the gas companies, for the handsome dividend the Bill was insuring to them for all time to come, and the permanent high position that a fixed dividend, in amount more than double that of the mean dividend of the railway property of the kingdom, would place their stock in. But the joint-stock phalanx in the Legislature stuck by the gas companies, and threw out the admirable clauses that went to the settling of the bargain, and the securing of the means necessary to the equitable annual adjustment of the balance accounts.

In this way one good thing after another got lopped off the Bill, to the infinite mortification of its promoters and the disappointment of the parol delegates, who would have thrown up the mutilated affair in disdain, and tried back with another Parliament, but for the existence of some uncertainty as to the forthcoming of the 5,000,000,—the costs the prosecution of the Bill had incurred.

Yet, fragmentary of the original Bill as the Act is, it will, if vigilant exercise of the few controlling powers conferred be applied, work greatly to the interest of the public. Nor is it to controvert this, to allege that the companies themselves derive advantages even more plentifully by it. A single item in the account may be mentioned in corroboration of the position. The raising of the standard of illuminating power of the gas, from 10·2 sperm candles to 12, as the degree of light to be produced from a fifteen-hole Argand burner, gives the consumer, in reality, the same degree of light as heretofore, at 13 per cent. less cost; or, as considered in reference to the whole metropolis, a benefit represented by 200,000*l.* sterling per annum. For the full realization of this provision the parochial vestries and district boards are responsible to their ratepayers; for, in truth, it lies in their power, by means of the employment of inspectors and the setting up of testing apparatus, to enforce at all times (under a penalty of 50*l.*, to be paid by the company for every proved instance of shortcoming) at least the standard illuminating power of light; as also in the securing to the consumers the other benefits derivable under the Act.

The altered circumstances of the companies for

the better, through the new advantages which the new Act gives them, render it a matter of importance that the companies' general "profit and loss account" should be carefully watched on behalf of the consumers; and to this end parochial vestries and district boards everywhere should have it a standing order, that a certified copy of the "Annual Account in Abstract" of their gas company, which is lodged with the clerk of the peace, in compliance with section 38 of the "Gas Works Clauses Act," should from time to time be procured so soon as the same has been deposited; and that such account, or balance-sheet of the company's year's trading, should be printed with the annual accounts of the vestry or district board, with a view to the securing a reduction in the price of the gas, on the appearance of the requisite surplus profits, under the provisions of clauses 30 to 37 of the latter-named Act.

And, secondly, every such board should appoint either by itself, or, as is permitted by the Act, several boards in union—a competent person to the newly-created office of "Chemical Examiner and Gas Engineer;" and which officer might also be made to combine in his office that of Inspector and Tester of Meters under Lord Redesdale's Sale of Gas Act. The latter, though a most useful Act, is as yet a dead letter so far as the metropolis is concerned, no action having anywhere been taken on it. It was shown in evidence before the Committee of the House of Commons that gas-meters generally were so constructed and placed as to register an excess of gas in favour of the companies to the extent of from 15 to 20 per cent., and in many instances considerably more. Hence the importance of the adoption by vestries of this Act also.

The advantage of executing the two Acts simultaneously through the medium of one officer must appear obvious. The proper discharge of the duties of this functionary will insure to every consumer of gas within the district of his ministrations at least the following conditions in the supply, viz.:—1st. The gas properly purified by being freed in the greatest known practicable degree from the more deleterious properties of ammonia and sulphuretted hydrogen; 2ndly. The enforcement of the full Parliamentary standard of illuminating power; and, 3rdly. Correct measurement and register of the quantity used.

F. C.

THE CURATORSHIP OF SIR JOHN SOANE'S MUSEUM.

THE President and Council of the Royal Academy, from more than seventy candidates, as we understand, selected six for special consideration. The claims of these were thoroughly canvassed, and ultimately Mr. Joseph Bonomi was elected Curator of the Museum. The election has been notified to the trustees of the Museum, but as yet they have made no reply. Amongst the candidates, we believe, were Mr. John Papworth, Mr. Edmund Fulkener, Mr. John Davies, Mr. James Wyld, Mr. C. H. Smith, Mr. Norman Shaw, Mr. Eastlake, &c.

MR. EDITOR.—Mr. Bonomi has been appointed by the Council of the Royal Academy curator of the Soane Museum, and thus has the Royal Academy dealt another blow at architecture by transferring one of the few prizes of the architectural profession to a sculptor and antiquary. The question is not a personal one; for all must have the deepest regard and respect for Mr. Bonomi. He is a gentleman of the highest honour and most amiable disposition, largely acquainted with the whole range of antique art, specially Egyptian and Assyrian; he is the author of various works, showing great erudition and taste and considerable labour of research. But is he an architect in the sense of the Act of Parliament, which limits the choice? The Council have "to select and nominate and appoint as such curator an English architect, who may have distinguished himself or gained any academical prize." Mr. Bonomi is the son of an architect and brother of one; but he was a pupil of Nolken, and was educated and practised professionally as a sculptor. He passed several years in Egypt, and some of the results of his painstaking study of his art exist in the British Museum as some marvellous casts from gigantic sculptures on the banks of the Nile. Accidentally—incidentally—he must of course have acquired a certain knowledge of the very simple elements of Egyptian architecture, which some enterprising cotton-spinner in the north wished to transplant to his city, by having his warehouse a reflection of the art of the Pharaohs, like our Egyptian Hall in Piccadilly. Mr. Bonomi, from his general Egyptian reputation, was applied to and furnished the design. If such qualifications constitute an architect, the professional man may be said to be the high rewards of the profession; for every antiquary has a smattering of architecture, so as to be able to put together something for better or worse, and constitute himself an architect; and his friends and admirers, who cry wonder, and prefer the self-taught, the genius-inspired designer, to the well-grounded, laborious and professionally acknowledged architect in deed.

ARCHITECTS.

The position and worth of the writer of the above claimed from us its insertion. The Council of the Academy, however, may safely rest their

decision on the very remarkable testimonial presented by Mr. Bonomi, signed by sixty gentlemen, mostly members of the Royal Academy and of the Royal Institute of Architects, including the President of the latter body. This testimonial sets forth "the profound attainments, amiable qualities, and unblemished character," of the gentleman who has been elected, and recognizes the services "he has rendered in every department of art and archaeology by arduous and disinterested labours during the whole of his career."

NEWBURY CORN EXCHANGE COMPETITION.

WE see, by Berkshire papers, that fifteen architects competed for the New Corn Exchange and offices, on the 17th of January last; and that the Board of Health, after several meetings, diminished that number to two;—Mr. Dodd, of Ipsden, near Wallingford, and Mr. Charles Phipps, of Bath. Both gentlemen were officially communicated with as to the cost, &c., of their respective designs; and, on the 27th February, Mr. Dodd's was chosen by a majority of eight to six, subject to the approval of the Secretary of State.

BUCKINGHAMSHIRE GENERAL HOSPITAL.

THE tenders for the Buckinghamshire General Hospital were opened on the 20th ult., and that of Mr. Conder, Kingsland-road, has been accepted at 7,377l. Separate estimates were requested for oak floors and polished Parian cement for the walls and ceilings, and the wards, which have windows on both sides, are to be finished in that manner. The hospital is intended to contain fifty-five beds for patients, allowing 1,500 cubic feet of space to each patient; and accommodation has also been provided for the relief of a considerable number of out-door patients. Mr. David Brandon is the architect.

COMPETITION, BRADFORD, LANCASHIRE.

IN a competition of several Manchester architects for a new church to be built in the populous district of Bradford, Lancashire, the designs of Messrs. Hayley & Son were selected, and those gentlemen are instructed to proceed at once with the work. The church will have nave, chancel, and transepts, with vestry, and organ chamber. There will be sittings on ground-floor for 800, and the cost is estimated at about 3,300l. The walls are to be of brick, the capabilities of which material are but beginning to be understood in the neighbourhood.

WHITTINGTON CHURCH, DERBYSHIRE, COMPETITION.

NINE architects were invited to send in plans in competition for this church. After two days' examination the committee decided to adopt those sent by Mr. S. Rollinson, architect, of Chesterfield.

THE NORTHAMPTON TOWN HALL COMPETITION.

THE six designs now selected from the forty given in are those bearing the following mottoes:—Non Dubitantur; Circumspice; M (on a cross); Non nobis Domine; Fidelitas; Fac et Spera.

At the council meeting to which this selection by their Estate Committee was submitted, after some discussion as to the terms of the understanding between the council and the competitors in reference to their restriction to an expenditure of 12,000l., and to plans for which tenders within these limits were obtainable, Mr. Higgins moved that the plans selected that evening should be referred to a committee; and suggested that that committee should be the Estate Committee, who were, he said, very able men, and selected for their knowledge of architecture. Dr. Pearson moved as an amendment, "That it be an instruction to the Estate Committee to take into their consideration that no hall will be adequate to the wants of the town that is not capable of seating 1,000 people." The limits to which the competitors were in this respect restricted were to a hall with an area of 3,000 feet, he remarked; and that was only sufficient to seat 650 people, which was much too small for the population of the town, and almost an insult to them. Mr. J. Hensman, who had objected to any selection of plans except by a competent architect, and declined to act on the committee, seconded the amendment, and recommended that the committee should retrace their steps as to the size of the hall. The amend-

ment, however, was lost, and the original resolution carried.

Mr. H. P. Markham then moved "That the committee be requested to take the best opinion they can upon the plans, and report the best way of carrying them out after having obtained that opinion." This resolution was also carried.

It was stated, at the meeting, that one at least of the six selected designs admittedly could not be carried out for 12,000l. As to the number of votes for each, the mayor said that three of the thirteen only voted for one plan, and two others for only two plans, and that nine had omitted to send in any selection.

NOTES ON COMPETITIONS.

PUBLIC MARKET AND HALL, IFFRACOMBE.

Proposed amount of outlay £2,500

Premium 25

NOTE.—The works are to be carried out under the superintendence of the local surveyor.

INVESTIGATOR.

STAINED GLASS.

East Retford Church.—In one of the windows of the south aisle a compartment of stained glass, executed by Mr. Wailes, of Newcastle, has been inserted. The compartment has inscribed upon it, "To the glory of God and the memory of departed friends." Three incidents in our Saviour's life are illustrated, one being that of the Visit of the Shepherds to the Holy Babe and his Mother at Bethlehem, two seraphs holding a scroll being introduced, on which is inscribed, "Glory to God in the highest, and upon earth peace." This picture contains eleven figures. The middle picture represents Christ's Agony on the Cross, and his being attended by his Mother and Disciples; and the upper one portrays the Resurrection.

St. George's, Altrincham.—Mrs. Holland, of Sandiway House, Altrincham, who recently made a gift of 1,000l. to the incumbent of St. George's, to be invested, the interest to go towards the further endowment of the church, has also given a stained glass memorial window for the east end of the church, and a liberal subscription towards the enlargement which it is now undergoing, amounting together to about 1,500l.

St. Thomas's, Newport (Isle of Wight).—A stained-glass window for this church has been on view at Mr. W. Holland's, of St. John's, Warwick. It is 26 feet high by 12 feet wide, and illustrates the rise and fall of Jerusalem. It contains 150 figures, and is designed in the Early Decorated style. The first four subjects show the building and prosperity of Jerusalem: No. 1. "Building of Jerusalem." 2. "Consecration of the Temple." 3. "Christ Disputing with the Doctors in the Temple"—illustrative of the prosperity of Jerusalem. 4. "Christ's Entry into Jerusalem." 5. Centre subject,—"Christ Weeping over and foretelling the Fall and Destruction of Jerusalem; Angel in Pedestal bearing Scroll." 6. "Christ Driving Buyers and Sellers out of the Temple." 7. "Christ Betrayed." 8. "Christ crowned with Thorns." 9. "Destruction of Jerusalem." In the tracery are represented our Saviour in His glory, surrounded by angels playing upon various instruments of music; the lamb and pelican, emblems of the four Evangelists; and, in the smaller openings, are the vine and Gothic foliated ornament.

Bromsgrove Church.—The preparation of the stained-glass for the east window of this church has been entrusted to Messrs. Lavers & Barrard, of London. A series of cartoons, arranged in chronological order, will be introduced, illustrating some of the principal events in the life of our Lord. The centre compartment will contain "The Nativity," "The Baptism in Jordan," and "The Crucifixion." The total cost of this work will be about 260l., of which 35l. are still unsubscribed for. It is expected that the window will be in position by Easter.

Westbury-upon-Trym Church.—The old church of Westbury-upon-Trym has been further ornamented by the addition of four stained-glass windows; three being placed in the chancel, and one near the porch, in the south aisle. Those in the chancel, together with the one previously placed there, are illustrative of the great events of the life of our Saviour; namely, the Annunciation, Nativity, Circumcision, Baptism, Temptation, Cross and Passion, Death and Burial, Resurrection and Ascension, and the descent of the Holy Ghost. The subject of the one in the south aisle is Charity, which is the gift of Mr. H. Granger. The whole are the work of Mr. O'Connor.

St. Thomas's, Old Trafford (Manchester).—The

east window in this church has been filled with stained and painted glass by Messrs. Edmundson & Son, of Manchester, as a memorial to the late wife of the Rev. Thomas Buckley. The six centre lights are occupied with two subjects nearly life-size, viz. Our Lord giving sight to the blind in the top three, and giving speech to the dumb in the three below. The church is in connection with the Deaf and Dumb Institution and Asylum for the Blind. The remaining four compartments, two on each side, are each filled with a subject, viz. "The Baptism," "Last Supper," "Crucifixion," and "Ascension." In the tracery the two openings are occupied by the "Incredulity of St. Thomas." The remaining openings in the tracery are filled in with angels, emblems, monograms, &c.

St. Lawrence's, Chorley.—The tenantry of Mr. W. L. Carr Standish having ascertained, says the *Gateshead Observer*, that he was about to erect a memorial east window in the parish church of St. Lawrence, Chorley, to the memory of his late father, held a meeting recently, where it was unanimously agreed to request Mr. Standish to allow them to become the donors, as a tribute of respect for their late landlord. The request was granted, and Mr. Wailies, of Newcastle-upon-Tyne, was commissioned to execute the work. It has been completed, and has just been erected in the church. The subjects of the window are the Crucifixion, Resurrection, and Ascension of our Saviour, with the Old Testament types underneath:—1. Abraham's Sacrifice. 2. Taking Joseph out of the Well. 3. Elisha's Ascent. The upper part is filled up with the Lamb, the family arms, and tracery, and underneath the window is the inscription.

Low Moor Church, Bradford.—There has been erected in Low Moor Church a stained-glass window to the memory of the eldest and last-surviving daughter of the incumbent. The work consists of a centre medallion representing our Lord in the act of blessing little children. The rest of the window is filled in with coloured glass of the Decorated period. Mr. F. Barnett, of Edinburgh, was the artist.

Doncaster Parish Church.—At a special meeting of the Sharpe Memorial Committee, "for the purpose of considering the designs, and for selecting the artist, if the committee shall be so minded," a long discussion took place; and, on the motion "That Messrs. O'Connor be the artists," an amendment was proposed "That the designs be submitted to Mr. G. Gilbert Scott for his opinion." The amendment was carried. "From what we can learn," says the *Doncaster Gazette*, "neither of the designs has met with universal satisfaction. Hence the necessity of inviting the opinion of the eminent architect of the parish church."

CHURCH-BUILDING NEWS.

Wokingham.—Mr. Walter, M.P. (of the *Times*), whose family have already built and endowed a church at Bearwood, has expressed his readiness to build and endow a church at Wokingham, near Reading, and to build a parsonage and schools, at a cost of 10,000l.

Hereford.—The dean and chapter of the cathedral have given instructions to their contractors, Mr. Thompson, of Peterborough, and Mr. Godwin, of Lugwardine, to proceed immediately to lay the floor of the north transept with encaustic tile and Forest of Dean stone, in accordance with a design prepared by Mr. Scott, the architect. The restoration of the stalls for the choir is also progressing.

Liverpool.—The first place of worship erected in this town in connection with the Reformed Presbyterian Synod of Scotland, and which is situate in Shaw-street, nearly opposite the Collegiate Institution, has been opened for Divine worship. The new church is in the Decorated Gothic style of architecture. The site is 39 feet wide by 120 feet deep; and, being closed in with houses, the edifice is lighted entirely from the roof. The end elevation presents a façade to the street, flanked by octagon piers, terminating in crocketed pinnacles, and pierced in the centre with a six-light window. The main entrance is 7 feet wide, having moulded jambs, and archway, decorated with the ball flower. In the jambs are inserted polished shafts of Aberdeenshire red granite, finished with moulded bases and floriated caps. The label moulding over this entrance is terminated on the one side with a figure of the head of John Knox; and on the other, the head of Alexander Henderson, who was the moderator of the General Assembly of the Church of Scotland in 1638. The whole of the front is built of Minera stone, from North Wales. The interior of the church is 78 feet long by 35 feet wide, is

divided into seven bays, and contains 116 pews, 88 in the body and 28 in the gallery, the whole affording accommodation for upwards of 600. The pews, which are made of pitch pine, are in the old style of open benches, and, of course, have no doors. At night the building is illuminated by a mode which seems, from the description of it to resemble that by means of which the Crystal Palace at Sydenham is lighted in the evenings. "There is a wrought-iron tube, 1½ inch diameter and 65 feet long, commencing with a kind of rosette from the centre of the gable-wall behind the pulpit, and having a large bend over above the platform. The tube, which is 9 feet from the roof and 22 feet above the pews in the body, is suspended by strong copper wire, and contains 127 gasburners, which are screwed into it zigzag, on each side, 6 inches apart. In addition to the two lights for the pulpit there are 17 brackets along the walls." The church is warmed by hot air and water, communicated through pipes leading from one fire inside a cockle or heating apparatus, made of wrought-iron, placed under the front entrance. The heating apparatus was designed and executed by Mr. James Taylor, of Birkenhead. Messrs. Hay, of this town, were the architects. The erection of the building was contracted for at 2,200l. by Mr. J. Morris, mason and joiner, Birkenhead; Mr. T. Jones, slater and plasterer; and Mr. T. Holt, painter and glazier, both of this town. The land cost 350l.; sundries, 300l.; making a total of 2,750l. To meet this, about 2,000l. have been subscribed.

Whittington.—Through the instrumentality of Mr. W. Fowler, and the principal inhabitants of the rising town of Whittington, it has been determined to build a new church, at a cost of 1,700l. The design of Mr. Rollinson, of Chesterfield, has been accepted.

PROVINCIAL NEWS.

Northampton.—A meeting, convened by circular, has been held in this town, for the purpose of discussing the practicability of erecting a new theatre. It was deemed advisable that the matter should stand over for a time, as the meeting was not a numerous one.

Grubbing.—The new public hall here has been opened. It is situated near the entrance to the town, on the right-hand side of Bridge-street. Its outward appearance is unpretending. The hall itself is 47 feet by 43 feet, and 24 feet in height, and is capable of accommodating five hundred persons. It is fitted with gas chandeliers, and is also a reading-room and a class-room attached. The contract price of the whole building was 5992l.; the fixtures cost 707l.; and the undertaking was completed at a total outlay of somewhere about 850l. Mr. Peak, of Guildford, was the architect; and the contractors were Messrs. Holt & Cook.

Pembroke.—The completion of the dry dock at Pembroke is being urged on. When finished, it will be capable of accommodating the largest ship in the British navy. A gradual reduction of the establishment, both of skilled artisans and laborers, is to take place at Pembroke. The number of men now employed is about 1,800. The sum of 60,000l. is to be expended on the new fortifications in the bays to the south, and at Scoveston, up to the 1st of August next.

Skipton.—The directors of the Skipton Public Building Company (Limited) have accepted the tender of Mr. J. Croxley, builder, for the erection of the new town hall. Provision is made in which to discharge magisterial and other public business. It will be situated in the centre of the town, occupying the site where the old vicarage now stands. The cost of the erection will be about 4,500l. Mr. J. D. Gee, of Liverpool, is the architect.

EAST-FIELD, NEAR WARKWORTH.

It is not often that we feel called upon to notice the efforts of amateur architects: they are too often of that nature of which the less that is said the better; but, in the instance before us, considerable skill and boldness have been shown in the design for a Northumbrian country-seat, for Anthony Strothers, Esq.; and much curiosity has been expressed about it in consequence of the architect being known to be an Oxford clergyman,—the Rev. F. C. Hingeston.

This contribution to Northumbrian architecture is commendable in many respects: while partaking, as might be expected, of an intensely collegiate aspect, it affords a strong contrast to the military character of the local feudal buildings; but on examination of the details the ab-

sence of practical experience is brought into notice. Thus, no calculation has been made for the rough wear of the climate and the coast, in the roofing,—the slates overhanging the gables in a thin edge. Again, in the specification the resources of the district are not taken into consideration by the amateur architect; who, apparently ignorant of the fact that abundance of sandstone, whinstone, freestone, and limestone are to be found on every mile of Northumbrian ground, suggested that Bath stone should be used.

The house is situated on an elevated site, within view of the remains of Warkworth Castle and of the sea, with its panorama of ships and fishing-boats. The east front, containing drawing-room, library, and billiard-room on the ground-floor, with bedrooms above them, is carried up into three acutely pitched gables, of which the southernmost is bedstrided by a bell-cot. The south front is formed by a low square entrance-tower, and a projecting wing, containing dining-room and bedroom over, terminating in a fourth gable. The room over the dining-room is lighted by a large ecclesiastical window, after the manner of a college hall: the polygonal bow window of the drawing-room is mullioned, and all the other window openings are cusped. The entrance tower is considerably lower than the roofing of the gables, and is therefore limited to one direction for a prospect. The style of the building is Early Domestic Gothic. It is only fair to add, that the contractor, Mr. Middlemas, Morpeth, found good stone nearer to his hand than Bath.

THE UTILIZATION OF TOWN SEWAGE.

At the quarterly discussion meeting of the Ipswich Farmers' Club, the question was "Town Sewage: can it be profitably applied to Agriculture?" The great interest felt in the subject caused a large number of gentlemen to be present at the discussion,—not less than 100; comprising, besides gentlemen belonging to the club, various members of the Ipswich Local Board of Health, and other gentlemen of the Town Council.

The Mayor spoke at some length; and, in course of his remarks, he said he had made some inquiries of Mr. Hawksley, the engineer, on the subject of Leicester, and had been very much staggered at being informed by him that the manure in passing through the sewers became so oxidized that by the time it got to the end it had lost every particle of its value as manure. He gave this only as Mr. Hawksley's opinion; and he confessed it staggered him, because he had thought of its being put into sewers and carried directly upon farms. But either Mr. Hawksley was very much mistaken, or a vast number of those who had studied the subject were altogether wrong. In Edinburgh there were now nearly a thousand acres brought under cultivation by means of the sewage, and this land was cropped over and over again, with grass especially adapted for the feeding of cows. This was done upon land which was before useless, and now was let for 30s. or 40s. per acre, and all by that sewage which Mr. Hawksley said was good for nothing. If town sewage was to be made profitable, it must be by irrigation by gravitation.

Various other gentlemen addressed the meeting, and among them Mr. J. A. Ransome and Mr. R. Ransome. Mr. T. S. Gowing, in course of his observations said there were persons who considered water-closets the greatest curses of modern times, and he was very much of that opinion. He once had a water-closet in his house, but it was a very great nuisance, and he had got rid of it, and the house had been much more wholesome since it had been removed.

The Chairman, Mr. Hempson, thought it was desirable that the meeting should come to some definite resolution on the subject. The meeting was divided into two classes,—buyers and sellers. He submitted the following resolution:—

"That it is the opinion of this meeting that it is necessary, in order to preserve its value for fertilizing purposes, that night-soil should be kept as free as possible from dilution, and that such must be collected by the town authorities in some place of convenient access before they can expect to get rid of the nuisance with any chance of compensation."

After some further discussion, this resolution was almost unanimously agreed to.

MODERN MORTAR.—Sir: Some houses are being built between Kennington-road and the Walworth-road, the mortar for which is chiefly composed of the slush of the roads. Is that a good ingredient to hold bricks together? and is there any public inspector of these matters?

KENNINGTONIAN.

THE SUPERINTENDENT ARCHITECT OF THE BOARD OF WORKS.

At the meeting of the Chelsea vestry last week, Mr. Jones made a fierce attack upon the Metropolitan Board of Works, in regard to what he considered the enormous salaries voted by the Board to their late superintendent architect, Mr. Tite, Mr. Marryat, and Mr. Marryat. He considered that the admitted abilities of the architect were a sufficient reason why he should not have been appointed. For, if the Board took a man at the top of the tree in his profession, they must expect to give him a large salary. There were a thousand architects who had no large connection who would undertake to perform the superintending architect's duties for 800*l.* per year. Mr. Lawrence, another vestryman, seconded Mr. Jones's motion of censure.

Mr. Tite, Mr. P., and who represents the Chelsea vestry at the Metropolitan Board of Works, at considerable length defended the salaries given to the officials; and with reference to the office of superintendent architect, the speaker warmly maintained the interests of the profession. He said Mr. Marryat had reported upon 1,101 caves, and had given estimates amounting in the aggregate to 15,000,000*l.* This vast amount of labour was rendered necessary by projects for new streets and other improvements in the metropolis. The total sum saved by the architect upon enormous claims could not amount to less than 200,000*l.* He certainly considered Mr. Marryat had been unjustly treated in the matter; and, having resigned, his loss would not be replaced by a competent man for a less sum than it had been proposed to give Mr. Marryat. It had been charged against the Metropolitan Board of Works that they had built a palace for the gardens. What was the fact? The office in question would only cost 16,000*l.*—a little more than the cost of the new Chelsea Vestry Hall,—and this new office their architect had superintended without any further remuneration than his salary of 800*l.* a year—an amount which, he said, was not more than the salary of the architect to the Chelsea Vestry Hall nearly received as his commission upon one building. The Metropolitan Board were charged with things they should not have alleged against them. On his (Mr. Tite's) honour, he knew of no business better done than the business of the Metropolitan Board. He believed the Metropolitan Board to be gentlemen who felt just as anxious as all the vestries in the metropolis, let alone Chelsea, to act up to the strictest economy; and he was afraid that the retirement of Mr. Marryat would be a loss, in more ways than one, to the Metropolitan ratepayers.

Upon a division, the motion for a vote of censure was lost by 16 to 16.

ARCHITECTS AND PUPILS.

Sir,—It is a very easy and a very general mode of making mistakes the scapegoats of their pupils' short-comings. I think there will be found few of your readers but who will agree with me that there are very many pupils who, during their term of articles, will not take the slightest interest in their studies,—who, on every trivial occasion, absent themselves from office on plea of illness,—who allow the most frivolous thing to deter them from their work,—and who, after the lapse of two-thirds of their articles, are, in consequence, without the slightest knowledge of the most simple and ordinary office theory. The architect's work, which cannot be disputed; and it is also well known that so adverse are many young men to work that, however much a master may advise and persuade them for the most part, they will not devote their attention to the work given them to perform.

This, then, Mr. Editor, is the sole cause why, at the expiration of their articles, pupils know very little more than when they first entered the office; and then, when they discover the fact that they are in ignorance and in want of knowledge on the most simple points of architecture, they are ungenerous enough to declare it to be solely owing to the master having wilfully neglected his duty. The most simple and ordinary office theory, the case, unless they make up their minds to work, and strive to do their best in every thing that may be given them to do. Let them do this, and they may feel assured that their masters will not then have any more cause for complaint on either side at the expiration of pupils' articles. AN ARCHITECT.

Books Received.

VARIORUM.

Parts B and C, of "Monograms," by G. Barclay, assisted by others. London: Gerrard-street, "have been issued by Mr. Barclay, of Iron-street, Leicester-square. Having already spoken favourably of the first issue and object of this work (see *Builder* of 19th May, 1860), we need here say little more than that the parts now issued sustain the character of the work. The monograms are very varied, and show what can be done with the same few elements, by an artist of inventive taste. Many of them are plain and simple enough, but others are much more ornamental and complex, and a few so much so as to require some skill in such initial art-works to render them intelligible at sight; so that all tastes are suited by the variety and fancy displayed in the treatment of the same or similar initials.—"The Engineer's, Architect's, and Contractor's Pocket-book for the Year 1861," has been issued by Lockwood & Co., Stationers' Hall-court, by assignment from Mr. Weale, of High Holborn. This is a most useful work, as we have before had occasion to say: it is full of valuable matter as to the strength of materials of various kinds, resistance of tubes to collapse, iron roofs, hydraulics, mineral statistics, pillars, columns, woods, sewers, &c., &c., besides many important tables, Mr. Telford's memorandum book, and much other useful matter.—"The fortieth annual issue of Vacher's Parliamentary Companion has been published by Vacher, of

Parliament-street, stationer. This is a long-established and useful list of Lords and Commons, with town residences and other information indispensable in Parliamentary business: it is published monthly during the session.—"The Ladies' Sanitary Association have issued a little three-halfpenny tract or pamphlet, on "The Power of Soap and Water: a Dream that came true" (Office, 14*a*, Princes-street, Cavendish-square; and Jarrold, 47, St. Paul's Churchyard). Its obvious and beneficial purpose is to initiate the slattern of the lower orders into the mysteries of soap and water,—a purpose to which it seems excellently well adapted; and we hope that, by its extensive distribution amongst dirty households, it may indeed prove to be a dream that will come true to hundreds who require the wholesome lesson.

Miscellaneous.

ARCHITECTURAL ASSOCIATION.—We are forced to postpone a report of proceedings at the last meeting. Mr. Kerr has undertaken to lecture on the evening of Friday, the 15th instant, in place of Mr. T. Allom, who is indisposed. The subject will be "The Plan of a Country House."

SOLID INK.—It is said that ink in a solid state is being sold for use in ordinary pencil-cases instead of leads. It is described as being fully as indelible as fluid ink; but this remains to be seen: the indelibility may refer to the colour or material alone, and not to its absolute fixity in or on the paper, into which it is not likely to be able to penetrate like the fluid ink.

THE NEW LIBRARY IN THE TEMPLE.—The new library, of which we have already given illustrations, is now nearly completed, and simply waits the bookcases with which it is to be fitted. On Saturday last, the architect, Mr. H. R. Abraham, received a number of his friends there, including some of his professional brethren, and afterwards entertained them in the Parliamentary Chamber. Professor Donaldson, in warm terms, proposed his health, and thanked him for this important addition to the edifices of London.

FALLING IN OF A ROOF AT CROYDON.—The roof of a new building now being erected by Mr. Hodge, on the Windmill-road, has fallen in, and a man, who was working in the inside narrowly escaped. A building, intended for a hotel, near the new cemetery, has been raised, and at the back of this it appeared that men were engaged in erecting a coach-house and stabling. This out-house was nearly completed when, in consequence, it is said, of there being no tiers to strengthen the walls, they gave way, and the roof fell in with a loud crash.

THE FALL OF A TUNNEL AT SHEFFIELD.—On digging out the poor men who were buried under the debris, it was found that six of the seven were killed. The other was severely injured. The inquest has been held. There can be little doubt, says the *Sheffield Independent*, as to the immediate cause of the accident, but there may be considerable difference of opinion as to the numerous collateral points bearing upon it. The accident occurred because of the removal of the earth which supported the tunnel on the low side. Owing to the uneven nature of the ground, there must always have been a very unequal pressure upon the arch of the tunnel, the weight on the north side being very much greater than that on the south, and thus a constant tendency on the part of the tunnel to collapse must have existed. It required, therefore, only the additional uneven pressure caused by the removal of the supporting soil for a few yards, to fracture the brickwork, and cause the catastrophe which has followed. Whether the tunnel was properly and securely built in the first instance is of course a question for the coroner's jury. Certain it is that the long continued wet weather must have assisted in the unfortunate result. The shape of the tunnel at both of the broken ends presents a very marked tendency to lopsidedness, and it is plain at least that the removal of the southern earth may have been the last straw required to break the camel's back. We understand the tunnel was built by the Messrs. Waring, some sixteen or eighteen years ago. It was in contemplation to make a public road over the course of it. The following is the verdict of the jury:—"That these men have met with their death by the fall of the tunnel, caused by the injudicious removal of the earth from the lower side of the arch; and the jury are of opinion that there has been a want of discretion in the architect, on the first fall of the stable wall, not giving notice to the Midland Company."

CHESTER ARCHITECTURAL AND ARCHEOLOGICAL SOCIETY.—This society held its first monthly meeting for the present session on Tuesday evening before last, when the Rev. Canon Blomfield read a curious and learned paper, written about forty years ago by the late Mr. Thomas Rickman, on "the Architectural History of Chester Cathedral." The lecturer prefaced the paper (which will appear in full in the society's printed Journal) by giving a spirited and interesting memoir of Rickman, whom he traced from behind his quaker father's grocery counter, through a long and laborious life; showing how, gradually, but without challenge, he rose in his profession. Remarks in connection with the paper were afterwards volunteered by the chairman, the bishop, and others. Mr. W. W. Foulkes introduced the plans for the restoration of St. Mary's and Holy Trinity churches, Chester, the designs for which were contributed by Mr. James Harrison, the society's architectural secretary.

DISCOVERY OF A THEBAN TOMB AND PAPYRUS OF THE TIME OF DAVID.—In 1858 a Theban mountaineer is said to have discovered, in a hill, called by the Arabs Shin-el-Gourna, a tomb cut out of the rock, in which he found a mummy-case, with a gold spread eagle and a golden asp; also a tablet of green stone, a box with four canopi of Oriental alabaster; and, on the side of a magnificent mummy with a gilded mask and a large gilded scarabæus of porcelain on its breast, a most remarkable papyrus scroll, 5 feet long and 10 inches wide, written in the finest hieratic and hieroglyphic characters. The four jars were sold to Lord Henry Scott. The papyrus, as also the scarabæus, the tablet and the eagle, according to the American papers, came into the hands of Mr. George A. Stone, of Roxbury, Massachusetts, then travelling in Egypt. Professor G. Seyffarth, of St. Louis, Mobile, has just published translations and explanations, from which it appears that the biography of Horsebe (the sword of Horus) is to be found in the first column of the papyrus; that Horsebe must have been a contemporary of Saul and David, and the papyrus written about the year 1050 B.C., or 300 years before the foundation of Rome; so that it is at present 2,900 years old. The residue of the manuscript is said to contain a new religious book of the ancient Egyptians.

FEARFUL EXPLOSION OF A GASOMETER.—An explosion of gas, attended by serious injuries to several persons, is said to have occurred at the gas company's works in Walker-street, Preston. It appears that an enormous gasometer was in course of construction by Messrs. Houghton and Co., of Birmingham, and nearly completed. It was 105 feet in diameter and 44 feet in height when inflated, the tank of water in which it was floated being 23 feet deep, and it was estimated to contain 330,000 feet of gas. To state distinctly the precise cause of the explosion, it is said, appears almost impossible, so that it may never perhaps be known; but it seems clear too that there must have been, in the first place, a mixture of gas and common air in the proper (or rather in the improper) proportions to produce an explosion; and this was very likely to be so in a new gasometer: there must also, of course, have been fire or light and some open communication with the interior of the gasometer if an actual explosion took place and not a mere setting fire to the gas while issuing from the gasometer in great quantities, as during a tip of the under edge out of the water. That a true explosion does seem to have occurred may be inferred from the circumstance that one man, who was sitting on the top of the holder, is said to have been blown into the air and to have fallen into one of the rents, and been held in the crevice by the neck until rescued. The others were fearfully scorched and bruised. The "outfit" or lower portion of the holder, which remained entire, was completely displaced from its position, one edge being level with the water in the tank and the other being 20 feet above the edge of the water. Within this space lay the collapsed dome, bent and crushed to an indescribable shape. The columns remain standing, and only one of them is injured, that one having a large fracture on the side nearest the holder. All the connecting bridges are fractured, and the conducting rods broken in so many matches. The heavy iron slabs suspended as weights to the chains fell with a frightful crash, smashing the stonework and cutting up the earthwork near. The damage done to the property in the neighbourhood was very great. Since writing the above it has turned out that air had actually been pumped into the gasometer, and a red hot bolt was afterwards thrust through it! No wonder, therefore, that the gas exploded.

A THEATRE AT NAPLES BURNED DOWN.—The old and spacious Teatre Nuovo has been burnt down. The flames burst out about midnight, and at two o'clock the roof fell in. The Teatre Nuovo was devoted principally to the opera buffa, and was one of the oldest in Naples.

GAS.—The Cardiff company have held their fortieth half-yearly meeting, and declared a dividend of 10 per cent. per annum on their old shares, and 8 on their new.—The Grimsby company have declared a dividend of 10 per cent. on their original shares.—The South Shields company have declared a dividend at the rate of 8 per cent., free from income-tax.

SELF-SUPPORT OF CRIMINALS.—This is a point we have often urged, but as yet few attempts have been made to render our goals in any way self-supporting. In other countries the experiment has been tried, and has succeeded. In the county of Middlesex and at Chelmsford, however, a considerable saving has been effected by making bread in the prison; and Alderman Copeland, in the Court of Aldermen, has carried a resolution referring to the gaol committee the question whether the prisoners at Holloway could not make bread for themselves and all the City prisons. This is a step in the right direction.

SCAMPING THE FORTIFICATIONS.—A discovery of considerable importance is said to have been made in connection with the construction of the new lines of defence for Portsmouth harbour, on its western side, extending from Frater Lake to Fort Gomer, and thence to Fort Monkton, and which works are being carried out by contractors. Piles have to be driven, particularly at Alver Bank; and, owing to some cause, the authorities drew some of these piles; and, on examining them, each pile, it is said, was found to be not only without its iron "shoe," but also 4 feet short of its stipulated length. This led to further examination; and, in some work being carried out by another contractor, upwards of 100 piles which were drawn out were found to be all without their iron "shoe."

A LIGHTHOUSE FOR THE SPANISH COAST.—An iron lighthouse has been temporarily built at Birmingham by Messrs. Porter & Co., for the Spanish government, to be sent to the island of Buda, at the mouth of the river Ebro. It is a tapering structure of wrought iron, consisting of a tube enclosing a spiral staircase, which will ultimately be surmounted by a glass lantern (manufactured by Messrs. Chance), to be supplied with revolving lights of many colours. The tube is surrounded by a net-work of diagonal tie-rods. Nine screw piles, each weighing three tons, imbedded in the sandy soil of the island's peak, will form the foundation of this lighthouse. In the second tier of horizontal framing it bears a series of apartments to be rendered impervious to wind and weather by an internal panelling of wood. The lighthouse is 150 feet high, exclusive of the lantern, and its summit is reached by traversing 242 steps. The diameter at the base is 56 feet, tapering to about 9 feet at top. The construction was explained in a paper read by Mr. John Porter at the recent meeting of Mechanical Engineers in Birmingham.

THE NEW DRY DOCK, LEITH.—At a recent meeting of the Royal Scottish Society of Arts, Mr. George Robertson, C.E., read a paper giving a description of the "Reclamation Embankment for the New Dry Dock at Leith." The great source of difficulty was the low level of the natural clay, and the thickness of the overlying bed of moving sand. The principle upon which the success of the bank depended was this—that water, in traversing a certain distance through sand, will encounter so much friction that at last the initial pressure will be destroyed, and the water throttled to such an extent as to be within easy control of pumps—that, in short, within limits, a cofferdam can be formed of sand itself. The bank is a quarter of a mile long, consisting of three component parts; a wall of puddle 7 feet thick, connected with the clay, where the dock approaches within 90 feet of the coping of the bank, by a row of 9-inch sheet piling; on the sea face of this a bank of dry rubble pitched with whinstone or Craigmillar sandstone; and on the land side a backing of common sand. The method in which these component parts are pushed on successively was explained in detail. The bank was closed on the 9th of last June, and the water which collected inside from the drainage of the saturated sand was thrown over the top of the bank by a double syphon. The reclaimed ground then became hard and dry, and the excavation for the dry dock has since been done without any trouble, to its full depth of 33 feet below high water, or 9 feet into the clay.

THEATRICAL STAGE ARRANGEMENT.—May I take this opportunity of kindly requesting any of your readers who may have obtained the plans of the Victoria Theatre, Berlin, to send them to you, in order that you may give in your paper the longitudinal and latitudinal sections of that stage, to further the knowledge of stage architecture and arrangement in England, as that theatre is above all others the most novel, interesting, and practical.—A. W.

TOWN SURVEYOR WANTED.—The Bridport Board of Health, to whom we referred last week, are entirely eclipsed by the Improvement Commissioners at St. Ives, Huntingdonshire, as their hand-bill testifies. They want a surveyor of the paving, drainage, and other works authorized under the Improvement Act, and they offer the annual salary of 15*l*. The surveyor is expected to be a first-class man, worthy the approval of the Home Secretary! From the absence of a proper system of sewers and other sanitary arrangements, wells and cesspools are in disgusting proximity, the mortality of the place is above the average, and the unsavoury odours wafted about by every breeze prove that the duties of the office will be onerous if faithfully performed. It is essential that the surveyor must reside at St. Ives: this of itself is worth some compensation; and

"For the insouciance of office, and the spurns That patient merit of the unworthy takes,"

and for the skill necessary for the efficient execution of his official functions, he is insulted by being offered 15*l*. a year, or 11*l*. 4*s*. per day; barely the cost of keeping a pauper in a parish workhouse. Had the local Board of Commissioners any feelings of magnificence, they might at least (with the approval of the Home Secretary) have increased the emoluments of the office by offering the successful candidate lodgings and rations in a workhouse, with an annual suit of fustian. The work required from the surveyor will so fully occupy his time, that the Board will not have "two single gentlemen rolled into one," but they intend appointing another functionary, "an inspector of gas-lamps," at 3*l*. per day!

TENDERS

For a dwelling-house at Wimbledon. Mr. B. A. C. Herring, architect. Quantities supplied:—

Marsland & Son	£1,244 0 0
Macey	1,400 0 0
Downs	1,476 0 0
Coleman & Son	1,466 0 0
Brown & Robinson	1,386 0 0
Turner & Sons	1,363 0 0

For new premises to be erected at King street, Covent-garden, for Messrs. Lepard & Smith. Messrs. Francis, architects

Revett	£4,922 0 0
Holland	4,781 0 0
Johnson	4,784 0 0
Myers	4,765 0 0
Collis	4,687 0 0
Key & Head	4,540 0 0
Howard	3,803 0 0

For new orchestra, in Sydney-gardens, Bath. Mr. C. J. Phipps, architect

Mercer	£247 0 0
Roper	231 0 0
Bussell	213 0 0
May & Son	185 0 0
Castle	175 0 0
Rawlings	174 0 0
Matthews (accepted)	165 0 0

For new shop-front and addition at Nos. 30, 31, and 32, Sidney-place, Commercial-road East, for Mr. George Emery. Mr. Charles Dunch, architect.—

Extra for Brass Sashes.	
Blackburn	£543 0 0
Brown	524 0 0
Wood, Bros.	495 0 0
Emmott	485 0 0
Ebbage	450 0 0
Hearle	445 0 0
Curtis	419 0 0
Davey & Co.	320 13 7

For re-building Holme Church, Hunts. Mr. Edward Browning, architect, Stamford:—

Rudd	£2,519 0 0
Baker	2,300 0 0
Richardson & Son	2,083 0 0
Sneth	2,659 0 0
Copswell & Day	2,012 0 0
Wilson	1,945 0 0
Bradshaw (accepted)	1,926 10 0
Timms	1,807 0 0

For alterations and additions to premises, High-street, Kingsland, the property of Messrs. S. & J. Smith. Mr. James Wagstaff, architect:—

Dove, Brothers	£955 0 0
Brice	918 0 0
Brown & Robinson	887 0 0
Over	859 0 0
Menzies	854 0 0
Hill & Son	820 0 0

For building new work-room, and repairs to No. 294, and 26, Lamb's Conduit-street, for Mr. R. Gantson. Mr. H. B. Goring, architect.

Hawkes	£511 0 0
Elston	507 0 0
Nixon	497 0 0
Braser	494 0 0
Fowler	457 0 0
Roberts	338 0 0

For Lincoln Grammar School Master's House. Messrs. Bellamy & Hardy, architects:—

Ashton	£1,950 0 0
Pretwell	1,900 0 0
Jackson	1,900 0 0
Huddleston	1,884 0 0
Stiles & Robinson	1,877 0 0
Young	1,870 0 0
Holton & Taylor	1,833 10 0
Slingaby	1,830 0 0
Barnes & Birch (accepted)	1,825 0 0

For building new coffee-room and club-room at the Sun and Sawyers public-house, High-street, Poplar, for Messrs. Taylor, Walker, & Co. Mr. Charles Dunch, architect:—

Ebbage	£694 10 0
Wood, Bros.	586 0 0
Emmott	569 0 0
Hedges	547 0 0
W. H. — J. A. Builder (see account next)	540 0 0
Brown	524 0 0
Blackburn	499 0 0
Lester	350 10 0

For building new party-wall and making an addition, &c., at No. 14, Waterloo-place, Commercial-road East, for Mr. John Ashbridge. Mr. Charles Dunch, architect:—

Wilson	£479 0 0
Curtis	450 0 0
Emmott	347 0 0
Ebbage	316 0 0
Brown	297 0 0

TO CORRESPONDENTS.

T. H. B. (last week).—A Clasp (Hills).—R. B. Jun. (Rude Roman).—H. & R. S. W. Dr. M. — J. G. S. One of the Fifty. J. C. (paper has not arrived).—W. J. G. (has not heard of all the circumlocution).—A. Compton.—B. C. A. A. F. M. G. C. P. R. D. R. J. R. — W. E. P. — J. W. Wainwright. The Co. holder people must put back in or spare, not a dome. C. H. S. — One who would like to try (could get what he wants at any stone yard).—W. H. H. (should appear).—B. F. (ditto).—W. S. E. G. C. E. (we will remember the suggestion).—W. H. — R. H. — A. Builder (see account next).—R. W. — J. W. — (received late on Thursday).—S. D. C.

Post-office Orders and Remittances should be made payable to Mr. Morris R. Coleman.

NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the Builder," No. 1, York-street, Covent-garden. All other Communications should be addressed to the "Editor," and not to the "Publisher."

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ORGAN for SALE, in excellent condition, in a handsomely carved Spanish mahogany case, containing seven stops, two new organs, and a complete set of separate blowing organs. Apply to F. M. MARKS, 27 and 28, Market place, Reading.

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TO BUILDERS' FOREMEN. A BUILDER in the Country requires a WORKING FOREMAN OF CARPENTERS AND JOINERS. He will be required to set out all work, both in and out of the shop. It is necessary that he should have a thorough knowledge of building, and all its branches. To steady, quiet, and industrious man, it would be for a remuneration—Apply by letter, to Mr. St. Guilford-square, London, where last and how long employed, with a reference to the testimonials as to character and ability, and stating wages required for a fortnight.

A THOROUGHLY COMPETENT BUILDER'S CLERK, WANTED IMMEDIATELY. For address, apply to Mr. MILLER, Blatton, Bridge-road, Lambeth.

TOWN TRAVELLER WANTED, by an old-established House in the Lead and Glass Trade. One accustomed to the trade would be preferred. Address, stating sex, present employment, and salary expected, to Messrs. R. and Co., of Messrs. Matthews & Drew, Blatton, 38, High Holborn, W.C.

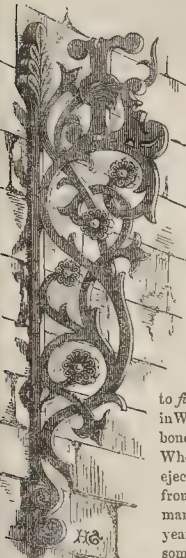
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WANTED, in an established Plumbing and Decorating Business, a steady YOUNG MAN, who can lead a party. Can have constant employment. A young man as an improver, with the above said, preferred. Address, A. B. F. Commercial-road, Finsbury, W.C.

TO WORKING BRICKMAKERS. WANTED, a person to SUPERINTEND the WORKING of a brickfield. To be paid by the thousand during the season, and a salary during the winter months. The applicant must be a qualified and experienced department.—Address, stating particulars, J. H. QUES of "The Builder."

The Builder.

VOL. XIX.—No. 945.

Overcrowding the Crowded.


ONG and long ago we pointed out the evils which followed the removal of masses of houses in the metropolis, occupied by the poorer classes, without the provision of other dwellings in the neighbourhood of their means of living. We have seen with our own eyes, after such a clearing, the occupants of a single room increased from one family to three, from three families

to five. We have seen this in Whitechapel, in Marylebone, and in Clerkenwell. When 1,500 people were ejected, on other grounds, from Orchard-place, Portman-square, about seven years ago, we followed some of them, step by step, and saw that the

eviction resulted in a dangerous addition to already thickly-crowded parts of the metropolis.* "Destroy the nest, and the rooks will fly away," said the Scotch Reformer, speaking of drones of the church. And so say some now who deplore the condition of other "rookeries," and would give the occupants a larger area and better conditions; forgetting that as the rooks cannot, or at any rate *will not*, go far from the old site, they will mass together in the old nests that remain, and make all worse than before. We have asked that some enactment should be made to lead railway companies and others to provide accommodation, to some extent at any rate, for those who are displaced. A step towards this has now been taken. On the motion of Lord Derby, on Monday last, the House of Peers resolved,—

"That it be an instruction to the select committees on the metropolitan railways to inquire into and report upon the number of houses and of inhabitants likely to be removed by the works of the respective railways; and whether any provision has been made, or is required to be made, for diminishing the evils consequent on a large simultaneous displacement of the labouring population."

The mover very properly pointed out that he did not wish to interfere with the progress of railways; but he did wish, as far as possible, to reconcile that progress with the interests and the welfare of the inhabitants of the poor districts through which they passed. The committee would have no power to reject the bills, but they might insist on the introduction by the promoters of certain clauses for the purpose of diminishing the evils which would be occasioned by the prosecution of these works. He only asked the House to give to the poor a right which the rich possessed already; namely, the right of stating their case before a committee, who might then judge whether provisions might not be introduced diminishing the evil of which they complained. In proposing his motion Lord Derby gave some statements confirming the view we have taken. He pointed out that while the population of the city parishes had remained stationary, the number of houses since 1801 had not only not increased, but had actually diminished to the extent of about 3,000; and therefore that the same population

which, in 1801, inhabited 17,000 houses, were, in 1851, crowded into 14,000 houses. In the parishes within the walls there had been the greatest decrease in the number of houses—2,776; but then there has been a corresponding diminution of population in these parishes to the extent of 19,000 souls. The result is that the average number of inhabitants of each house within the walls is the same in 1851 as it was in 1801, namely, $7\frac{1}{2}$ to each house; but, in the city parishes without the walls, to which the poor have been driven by improvements effected in the metropolis, it appears that the houses have decreased in number about 300, while the population has increased by 19,000. Thus, while the proportion of inhabitants to each house in the inner parishes is $7\frac{1}{2}$, in the outer parishes it has increased to 9 and 6-7ths in each house. The figures were given with reference to the year 1851; but, since then, great improvements have been going on in the City, the result of which has been to displace a very large number of the inhabitants.

In the Fleet valley, in the neighbourhood of Field-lane, about 1,000 houses were pulled down. These in the most miserable manner sheltered 4,000 families, comprising 12,000 persons. In single rooms in this neighbourhood we have found more than twenty persons, men, women, and children, packed together,—in others, large families sleeping on a miserable pallet; and, although a considerable time has passed, we have not yet forgotten, nor are we likely to forget, the scenes which were met with on this now open spot. Close to the crowded dwellings along the banks of the pestilent Fleet were slaughter-yards, and offensive and unhealthy trades: in the dark and dingy streets were training-places and homes for thieves of the worst description: large groups of tenebrous swarming with people were undrained: dust-yards and other receptacles of filth were allowed to remain untouched for years, offending the air: the water-supply was neglected: the majority of the houses were dilapidated and without means of ventilation. A sample of the former condition of this district, although even this has been improved, may be seen in Rose-court, Fryingpan-alley, and the labyrinth of courts situated near the Clerkenwell Session-house. Although, as it is stated, 12,000 persons have been removed from this site, and inconvenienced, those who were acquainted with the conditions of it must rejoice that such a blot on the metropolis has been removed. It would have been well, however, if the corporate authorities of the city of London had then applied the large grant of money which was made some time previously for the erection of dwellings for the use of the industrious classes.

The resolution arrived at must not be allowed to prevent the formation of metropolitan railways. It is clear that the immense and constantly increasing traffic of London cannot be much longer carried on with the present arrangements. A wise Providence has given to us the means of meeting the difficulty. It must be thought remarkable that in a most important division of our legislature voices should still be raised against railways, which have aided so much the progress of this and other countries.

Packhorses have given way to waggons: waggons have been driven off the road by the "royal mails;" these in due course succumbed to the locomotive: cabs have driven out the hackney-coaches; and omnibuses are now so largely used that it would be difficult to compute the inconvenience that would be caused if they should be suddenly put out of use. In the natural course of progress, nevertheless, omnibuses and cabs will be superseded by locomotives, which, before many years have passed, will come into general use in all large cities.

Railways must be carried forward, notwithstanding that many dwellings may be removed. Benefits indeed will follow the removal.

All we ask for is that a thought be given to the necessities of those persons who are turned out.

According to laws made during the last few years, no dwellings within the metropolitan district can now be built without attention to drainage, paving, and other considerations: it must therefore be an advantage to the poor and industrious classes to be put into homes thus cared for, in lieu of the dens, of which, in years gone by, we gave so many illustrations.

At the present time London is in a remarkable state of change. In the very heart of the City the houses and places of business are putting on a new and much grander aspect. At the West End rows of dwellings are rising in thousands yearly, making the streets of fifty or sixty years of age look dwarfed and dingy. As these houses are finished those which had been occupied by the prosperous portions of the community are left to people in poorer circumstances; and, by this process, houses which, in Queen Anne's days, were inhabited by persons of fashion, are now let in tenements to several tenants. In this there is evil, but upon the whole the advantages predominate.

We want a class of houses formed with especial reference to their inevitable occupation by more than one family; looking like ordinary residences, but with a separate entrance to each floor, and with separate conveniences. By and by, it may be hoped, old prejudices will be overcome, and numbers who now live in the courts, alleys, cellars, and garrets of the teeming hive London, may find their way, night and morning, to healthy rural villages, sub-suburbs, with the aid of the locomotive and far-seeing railway directors. Pending this, we fully agree with the instruction given by the House of Lords to the Select Committee on metropolitan railways,—"to inquire into and report upon the number of houses and of inhabitants likely to be removed by the works; and whether any provision has been made, or is required to be made, for diminishing the evils consequent on a large, simultaneous, displacement of the labouring population."

NOTES ON ROMANESQUE ART IN THE SOUTH OF FRANCE.*

THE subject which most took my attention in these Romanesque churches was the corbel, since its explanation was the most difficult, and, I believe, has been but little considered by archaeologists. Let us compare some of them. First, on the façade of the Beaucaire chapel, we have a goat's head, a cock's head, a leaf, an eagle, a lamb, a leaf, a lion with a human head in its mouth, a monster (mutilated), and a demon's head, roaring, nailed to the corbel.

Next, at the cloister of Montmajour, near Arles, a bear, a goat, a bull, monster and human heads, a leaf, a lion's head with a human head in its mouth, and a lion's head devouring a small naked human figure. Then, in the cloister of St. Trophime, a goat, a figure (man) in somersault, a bird much mutilated, but apparently a cock, a running figure, a donkey's head and neck, a lion with a human head in its claws, a female figure in somersault, a lion, an angel, and a long-horned goat. And at St. Gilles (façade), a small angel in foliage, a human head in foliage, a ram, an eagle with a sheep in its claws, a lion's head, a bull, a running figure, and a leaf. The corbels on the façade of St. Trophime are nearly the same as those in the cloister.

Now, I am not going to assert that these are the only subjects to be found on the corbels of the Romanesque churches; for, not to mention numerous others, at Moissac alone may be remarked a man and woman kissing, a figure holding its mouth open with its hands, a head with water apparently over one eye, one figure laughing, another scratching his head, a fox, monsters, grotesques, and foliage, which can hardly bear serious interpretation (I mean Scriptural interpretation). But it does seem most probable that these animals and figures, so constantly repeated, allude to the animals present at the birth of Christ; and that the peculiar bars sometimes seen on the corbels, as at St. Sernin at Toulouse, Noire

* By Mr. J. B. Waring. See page 156, ante.

* See also "London Shadows," 1854; and "Town Swamps and Social Bridges," 1859.

Dame at Clermont, represent the manger. As the old church hymn has it,—

"Coram it bos et asinus
Et, iaculus manu dominus."

Indeed, most of the minor incidents connected with the birth and youth of the Saviour are seen, just as at a later date the accessories of the crucifixion, the sponge, the nails, &c., were brought into use.

The domestic animals are those present at the birth; the ass bore the Holy Child into Egypt (at Arles it is represented kneeling); the falling figures, male and female, are the gods and goddesses that fell at the child's approach; the angel in foliage appeared to the wise men of the east; the running figures are the messengers from Herod; the lions with figures or heads in the mouth and the claws, are Herod, as temporal power, destroying the infants; the monster heads are enraged demons, whose doom is now come; and the nailed devil's head, which occurs at Beaucuire, at Arles, and, later still, at Dijon, where he has a ring in his mouth, typifies his fall through the birth of the Holy One.

However this may be, a most interesting collection of sculptured corbels might be made, the result of which would be, I think, to show that the earliest examples bear directly or indirectly on the birth and youth of the Saviour; that other subjects were gradually introduced, until they became as varied as at Moissac; and that, when the Pointed style took shape, and gave greater scope to the individual sculptor, new ones were introduced at will, whilst the old traditional subjects were still retained. Thus, in the cathedral at Poitiers (dating early in the thirteenth century, and a most noble monument of the Early Pointed style), we find, in about 300 corbels of the interior, a mass of purely secular subjects, sometimes characterized by a power of caricature and broad fun which would be worthy of a modern pantomime. Having just alluded to the lion's head with the temporal power, I cannot refrain from saying a few words on the lion and his remaining in Romanesque sculpture. We must remember that the lion may symbolize several things, and that it is necessary to discriminate, by his position and attitude, his meaning. Taking St. Gilles only, we find him on the band running beneath the life of the Saviour, slinking and crouching with his head to the ground, and his tail between his legs; he is also in company with tigers and serpents and dragons, whilst human heads, with an intense expression of fear, turn away from him: he is here the evil one, roaming about like a lion seeking whom he may devour, but crouching in subjection and fear beneath the feet of the Saviour and his apostles. Now the lion, as we know, in a secular sense, always signifies force or power. The Byzantine emperor on his throne, with moving lions, is minutely described by historians. The mediæval judge had his seat *inter leones* and the lion's head, head and claws, or entire body, occur universally on thrones, &c., as allied with power, secular and ecclesiastical. We are then, I think, justified in taking the lion, with a human head or figure in his jaws or claws, to typify the abuse of power. At St. Gilles the four Evangelists stand on moulded brackets, which rest on lions' backs; and, although one is too much injured to make out, yet we have still remaining three of these lions of the church. Two of them are tearing to pieces human figures,—a woman and a man,—which I take to represent a heathen god and goddess: the most perfect is a man naked to the waist, and thence clad in a sort of antique trowsers; there is no mistake here; the lion savagely clutches one arm with his mouth, and with his right paw, the claws well out, drags the naked flesh of the man's side in strongly marked creases. The man's head is unfortunately broken off, but beneath it, and proceeding, maybe, originally from his mouth, creeps away a draconine creature, symbolic of the Evil One escaping from his hold. Next to this a lion holds a lamb (or ram rather, for I believe it has horns); he, however, does not in this case destroy, but protects; resting one paw, with claws retracted, on the sheep's back, and the other on his head; it is clearly an attitude of protection, and the head is placid. Here we have the lion of the Church ready to defend the Christian,—“Ye are my sheep,”—who rests evidently happy and at ease beneath his fostering care. The bases of the small columns of the left doorway rest on two lions couchant, who with reverted heads gnaw at the base: this is probably the power of the wicked which the Church keeps down, but which is for ever biting its bonds. Besides these interpretations we shall find the lion sometimes employed as a type of David (the Lion of Judah), and also not far removed from any figure of Sampson or

Daniel; I say not far removed, because the old sculptors were not very particular in keeping the lions and the heroes together, as may be seen at St. Trophime and at St. Gilles, in the case of Sampson; and on the porch of St. Porchaire at Poitiers, and in the cloisters at Moissac, where, if my memory does not deceive me, the lions are shown on one side and Daniel on the other: on the St. Porchaire portal at least, Daniel is in an aureole with angels overhead on a capital to the left, right, and the lions on the capital to the left, with the inscription “Daniel inter Leones.”

I will now revert to a still earlier period of Christian art, as exemplified in the very important and interesting series of sarcophagi preserved in the museum at Arles; dates, unfortunately, are wanting, and the names, which are Roman, though the persons were probably Gauls, afford no aid; they may, however, be generally assigned to between the third and sixth centuries. They are of the usual Roman sarcophagus shape, carved with subjects from the Old and New Testaments; those most in vogue were the Saviour and the apostles, sometimes in a continuous row, sometimes separated by columns. Once here, and once at Narbonne, we find trees instead of columns, very tastefully arranged with birds in the foliage; the trees are apparently olive, and the birds are doves: the miracles of the Saviour; these, also, are sometimes continuous, sometimes divided by colonettes; in the centre is usually a female figure with hands outstretched, intended, no doubt, for the Virgin Mary. From the Old Testament we have mostly Moses striking the rock, Pharaoh in the Red Sea, Daniel in the lion's den, and the sacrifice of Isaac. The tomb of the Labarum is carved with the twelve apostles, without division; a line of cloud passes behind their heads with stars, and over each head a lion's claw holds a wreath or crown: in the centre is a large wreath, containing the monogram of the Saviour resting on a cross with two doves: two soldiers kneel at the foot of the cross, one on each side: over the apostles are two genii or angels, supporting circular medallions containing a male and female bust; and again two genii holding an oblong tablet without an inscription: each angle terminates in a large mask, the facial line forming the angle: on one end is St. John baptizing, and on the other Moses striking the rock. This tomb is known locally as that of Constantine; it not improbably belonged to his family; and we may conclude it to be a work of the second half of the fourth century. Sculpture is here seen, founded on a good model; but somewhat rough of execution, and heavy in proportion. The faces are singularly *à l'antique*; some of the apostles are also of the Jewish cast, of the best kind; no nimbi occur in these or in any other example (except one rough and unimportant one) in the collection. The dress consists of tunic and sandal; all the eyes have holes in the pupils and generally also at the angle of the nose, to give expression. The whole character is strongly marked Roman: though the heads are large, the hands clumsy, and the style conventional, yet there is a certain simplicity and nobleness about them by no means to be despised. Some few of the heads are indeed first-rate, exhibiting such peculiarities as to lead one to conclude they are portraits; at any rate, we find here a school of sculpture at an early Christian period, the best I should say then existing, and which ranks much above the stolid faces and lanky figures, the streaky hair and stiff drapery, the minute folds and jewelled borders, of sculptured art in the same district which reached its bathos in the twelfth century. However tempting it is, I must not continue my meditation among the tombs, and will only add that at Narbonne, Toulouse, Lyons, Vienne, and Moissac, we meet with numerous sarcophagi, in which foliage and Christian emblems take the place of figures, which fell into disuse probably from want of good sculptors; and yet it is curious to see how closely the same model, conch-shell, columns, and figures, was followed at a later period, *i.e.*, the eleventh and twelfth centuries.

No one should leave Arles without paying a visit to the ruined abbey of Montmajour: not to speak of its situation, perched on a rocky island, as it were, rising from the well-watered plain, encircled with the olive and laurestinus, capped by the frowning tower of defence and refuge, the palatial ruins of the Italian style, and the gray, sombre, Romanesque abbey, with its dark, vast, mysterious crypt and sculptured cloister, there alone would well repay the walk; but besides these are the rock-cut church, of a most primitive and remarkable type; and the mortuary chapel of the Holy Cross. The latter was built in the early part of the eleventh century, square on plan, with four semicircular apses and a western porch; the roof consists of

a funnel-shaped dome; there are no openings for light; and when the *conciergerie* slams the door violently, a whole park of artillery seems to be discharged, echoing faintly away into solemn silence. With the exception of the baptistery at Pisa, it produces the most extraordinary reverberations I ever heard. And if Mr. Roger Smith is ever in that part I recommend it to his notice: the masonry of this building is a perfect model of execution. Proceeding from this to the Primitive Church we remark the rock honey-combed in all directions with open graves, the former occupants of which, in their simple devotion, sought to be interred as near as possible to the Holy Cross: vain, however, was the hope, their resting-places are now bare, and their ashes are scattered to the wind; whilst the Holy Cross, if any true portion of it ever was there, served probably to light a fire in the Revolutionary troubles of the eighteenth century. Descending by steps in the rock, we enter the narrow passage of the original church, and a few steps bring us to an oblong space with circular roof cut in the rock; on one side is a plain window opening, on the other two are stone graves above which are cut two round-headed hollows, or niches, now empty: beyond this portion is the church, divided into two aisles by columns; on one side are three round-headed windows, on the rock side is a long low stone seat; there is a small semicircular apse to one aisle, and in the other is an altar in the wall with an open space beneath, probably a place of interment: and passing beyond this, through a passage barely large enough to admit one person, we come to four separate apartments, quite plain, with only one small light at the end of the passage, a curious rough stone chair by the window, two stone seats, and a so-called rock-cut bed. The round roof is formed by the rock itself, except in the chapel, where it is built; it is in the chapel also that the only ornament is found, the style of which may be assigned to the tenth or eleventh century. Tradition ascribes this rock-cut church, with its graves, altars, confessional, stone seats, and sleeping apartment, to the Saints of the Holy Church at Arles; and more especially to St. Césaire, Bishop of Arles, in the sixth century: nor do I think but what its existence may date from that epoch, although probably enlarged and ornamented at the time of the foundation of the great abbey, in the early part of the eleventh century; for this curious ornament of Christianity contains in itself, on a small scale, catacombs, chapel, hermitage, and place of refuge and defence, the whole serving as a place of safety from the Goths and Saracens, who overran Arles in the seventh and eighth centuries; and bears a marked analogy to the crypts or *cubicles* of the catacombs at Rome, which served as mortuary chapels and places of instruction for the *catechumens*, having stone benches for pupils and penitents, and stone chairs for teachers and confessors.

The entire group of buildings here forms a most interesting study for the archaeologist and architect; and I hope if any member of the Institute visit Arles, he may be enabled to dedicate a few days to their pictorial and descriptive study. Nor must we leave this district without saying a few words about the curious Mediæval village or town of Les Baux. The traveller leaves Tarascon by omnibus for St. Rémy, and must wend thence about ten miles *en voiture* to Les Baux. As regards picturesque nothing can exceed it: a fortified town perched on the natural fortification of a rugged rock, and surrounded in all directions by upheaved granitic masses, it is the ideal of a robber knight's eyrie; its value, however, to the antiquary, has been much overrated, for, except the ruined castle and hall which appear to belong to the thirteenth century, most of the remains bearing any impress of architectural art, are of the sixteenth century. The rock-cut houses, which may belong to any period, and are of the rudest arrangement, form the most striking and curious feature of the locality; they are, however, quite plain, with the exception of a few ruined chimney-pieces of the fourteenth and fifteenth centuries. A curious columbarium, or pigeon and dove-cot, that necessary larder of live stock for the besieged, formed by numerous holes partly cut in the rock, and partly built, still remains.

The only Romanesque remains at Nîmes are to be found in the cathedral façade, and at a house on the *place*. Of the former very little remains; but what there is exhibits a close following of a Roman model, with frieze and pediment, not often seen even in this last home of Roman architecture. The frieze, very roughly executed, illustrates the first books of the Old Testament, commencing with the Serpent twined round the Tree of Knowledge; on one side, Eve, whom he addresses; on

the other, Adam, who seeks to hide his nakedness: this combination, of different points in one story, is common with the early artists: the next subject is defaced: in the third, Adam and Eve are hiding themselves in trees, their busts only being seen. The Lord addresses them. We have then the Expulsion; the Offerings of Cain and Abel; the Murder of Abel; Noah and the Ark; Lot and his Sons; and so on, all these subjects being continuous, as in the early Christian tombs: this fact, and the general character of the figures and drapery, lead me to conclude them to be of a very early date. We, in England and the North of France, have, perhaps, been too apt to fix on the first half of the eleventh century, as constituting a clear line of demarcation in the history of architectural and sculptural art. It was so with us, no doubt, in a very great measure; but in the South, the course of art was more even; and in this particular example, I think we may discover one of the earliest efforts of native artists at constituting a style founded on the Roman models left them, and which finally received a peculiar character from its combination with the semicircular arch, which we remark also on this façade on a small scale, and quite devoid of moulding or other ornament. The base of this cathedral appears to have had also a large frieze, on which some remains seem to indicate the form of the griffin; but all the rest of the building is too mutilated or altered to admit of investigation. What remains of the house, which was no doubt the bishop's palace, shows some very good sculpture, which is so essentially similar in style and subjects to certain parts of the church of St. Gilles (circa 1090), that we may ascribe it to the same period. I am happy to say that Monsieur Henri Revoil, the Government architect at Nîmes, is engaged in publishing a work, with carefully measured drawings and with letter-press, on these monuments of Romanesque architecture in the south of France (the first part of which will appear this summer, published by Bance, at Paris), and which I venture to recommend to the notice of the Institute. No complicated system of construction is to be found in these buildings; the semicircular arch and dome in various combinations give, in this respect, its only claim to anything like science; and these are frequently heavy, and not well adjusted; solidity and simplicity are, however, no bad substitutes for the more complicate and often less reliable systems of after-times: the mouldings are generally Greco Roman, combined with the hollow and torus common to Romanesque art everywhere: the ornaments of the mouldings are generally Roman, the ovolo, leaf-fret, dentil, &c.; the capitals of the columns, where not historiated, are mainly founded on a Corinthian or Composite type, and the bases are usually Attic. The sculpture, as a rule, is stiff and lifeless, and the drapery, especially on the more richly clad statues, of a thoroughly Byzantine character. The masonry is of medium-sized blocks, slightly oblong, well worked, and carefully set in thin beds of mortar. No ornamental inlay is found, as in Auvergne and at Lyons; no combination of brick and stone, as at Toulouse; and we may affirm that few more interesting classes of buildings are to be found for the architect and archaeologist than these Romanesque churches of the South of France. It is impossible to leave this district without putting in a word also for the grand remains of Roman architecture which ornament its soil: the noble walls of the theatre at Orange, the grand arcades of the arenas at Nîmes and at Arles, the richly sculptured triumphal arches of St. Remy and Orange, the colossal aqueduct of the Pont du Gard, the mausoleums of St. Remy and Vienne, bear witness with a force stronger than the most powerful oratory to the manly genius and profound feeling for what is noble in architecture which characterized the old Roman race: however admirable, picturesque, and striking, however full of interest to the lover of Christian art, the most ambitious works of Medieval Europe may be, yet, owing to the littleness and confusion of their parts, they appear as the work of pigmies in comparison with the grand simplicity and indestructible strength of these labours of the giants, against which the violence of man and the corrosive envy of time have expended themselves in vain.

On the direct route and between Nîmes and Toulouse there is not much Romanesque work: the interior of St. Paul, at Narbonne, exhibits, in the sculpture of the capitals, some curious applications of the palm combined with figure-subjects, among which appear some very coarse and matter-of-fact representations of the vices of man; the exterior of this church is in the Pointed style, as are all the other principal monuments of this old

but somewhat uninteresting city. The museum, however, besides the early Christian tombs before alluded to, contains some good bits of Romanesque art, in the shape of capitals and fragments from buildings now destroyed; two richly-worked bronze censers; and a pastoral staff, in ivory, very plain, ending in the usual serpent-headed crook, on which stands an angel regarding an empty chair or bishop's throne. The eighteenth century is also peculiarly well-illustrated in this museum, owing to the bequest of a local collector, who confined his attention almost entirely to that period. From this point the traveller should by all means endeavour to visit Perpignan, with its Mozarabic and Spanish styles of architecture; and the adjacent church and cloister of St. Elne, so remarkable for the Egyptian character of several of its capitals, executed early in the eleventh century.

At Carcassonne, with the exception of some unimportant portions of the cathedral in the old town, everything is Medieval. Carcassonne is Mons. Le Duc's pet patient; he is busy trying to bring the old body to life, and rehabilitate its decayed and shrunken form: but although the doctor appears to have it all his own way, and to prescribe regardless of expense, I cannot say that the result is satisfactory: there is something ludicrous, to my mind, in this expensive and useless restoration of the old fortifications; nor can one approve of the wholesale manner in which old work is pulled down and carted away to make place for new. I must add, that here and in almost every case where this distinguished architect (to whose research, taste, and industry we are all so much indebted) has added designs of his own, whether in stone or in metal, they appear to me to be of the most eccentric and emasculated character; the same rather anomalous result struck me also, during a late tour through Germany, as regards Herr Heideloff's designs.

At Agen some good bits of Romanesque architecture remain in the choir and apse of the cathedral, but more interesting than these are some old, arched streets which still exist in the centre of the town. The breadth of the pavement is about 25 feet, that of the street about 40, and the width between arches, about 20 feet. The houses themselves are modernized or rebuilt, but the plan still holds good, and as the weather was very wet, and I had not an umbrella, my blessings fell on the departed manes of the old municipal authorities. The same remark applies to the Bastide, or Freetown of Libourne, near Bordeaux; the great square of which measures about 180 feet each way. The passages are about 21 feet broad, the width between the arches, about 14 feet; this example, though more complete, is ruined in effect by the lowness of pitch, and narrowness between the piers of the arcade. The rest of the town, though of modern construction, still retains the right-angle arrangement of street common to most of these (what may be termed), "model towns" of the fourteenth century.

But we are hastening on somewhat too fast, for we have got beyond Toulouse, a city which, besides its very remarkable Romanesque churches, possesses decidedly the most important and interesting museum of antiquities to be found in the south of France; these are deposited chiefly in the cloisters of the suppressed church of the Augustin Friars. The most numerous and varied section relates to Romanesque art, and we have here tombs, capitals, statues, and friezes, ranged round the open traceried cloister, in a manner which recalls pleasantly to mind the charms of the Campo Santo at Pisa. I do not mean to uphold the design or contours of these capitals and ornamental bands as exhibiting any remarkable degree of study and refinement, but they have hardly received the attention they deserve; their character is in a high degree, rich, bold, and effective.

The museum contains numerous most interesting inscriptions; and it is to be remarked that in one of the oldest, that on the very curious slab tomb of St. Victor, at Marseilles (1048), we find the same style abbreviated, by placing small letters within large ones, as at the Abbey of Moissac, on the sculptured figure of Abbot Ansuetil (1100). This custom, with the use of Roman letters, continued down to a comparatively late period; and one of the earliest examples of the use of Gothic or German letters is to be seen on a tomb in the Museum, dated 1347. Two of the figures on the portal of an ancient church, now destroyed—that of La Daurade, I believe,—retain the sculptor's name: they are the best of the series, and the sculptor clearly was proud of his work: one has *Gilbertus me fecit*; the other, *unincertus* (?) *me clavit Gilbertus*: these statues are draped thoroughly in the rich Byzantine style, with small folds and gem-studded borders. Amongst the

more fragile treasures of antiquity up-stairs, although it will not be shown without some trouble probably, the archaeologist should not fail to see the so-called horn of Roland, which (if it really belonged to him) may be the one the hero died blowing, as he vainly sought with its notes to retrieve the rout of the Paladins; it appears to be the work of a European sculptor, after the Byzantine manner, and was probably a tenure horn.

The most noble monument of Romanesque art in Toulouse—and, indeed, of the south of France—is the celebrated church of St. Sernin. It is built of brick and stone, as a three-aisled Latin cross basilica, with a semicircular apse and five apsidal chapels. There is a west entrance, with two north and two south ones. The general character is large and massive, the ornament pure and good Romanesque, and the brickwork very careful, judiciously relieved by courses and dressings of a warm-coloured stone. The whole is surmounted by the peculiarly-fine brick tower, of five tiers of arcades, with which we are so familiar, through engravings and photographs. The church is stated to have been finished and consecrated A.D. 1090. The best sculpture is to be found on the doorways, and I take the subjects of the south porch (nave entrance) as an example. The cornice of the projecting wall shows the peculiar ornament and patterns of Nîmes cathedral combined with the brackets of Notre Dame du Port, at Clermont. The archway is semicircular, and in the centre is the Saviour in glory, attendant seraphim and angels, and the twelve Apostles beneath. The angle corbels of doorway are formed by David seated on a lion's back, playing the viol, on one side; on the other two men, seated cross-legged, and caressing lions. The capitals of the columns are carved with subjects from the life of the Saviour, monsters, foliage, &c. There are two columns on each side; the mouldings are the plain hollow and round; the corbels of the cornice show in succession a monkey with a lion's head in his paws, a bunch of grapes, a lion, a monster vomiting his own legs, a young woman's head with wild dishevelled hair, a matron hooded, a goat, and an animal too much broken to be made out. It would be difficult to explain the two saints carved on each side of the portal with allegorical sculpture above and beneath.

But however interesting the exterior may be, the interior is equally remarkable; and the marble slabs of the Saviour and the Apostles on the choir wall, stated to be saved from the old church, built by Charlemagne, particularly merit notice. It is with great regret that an accident prevents my giving a more detailed description of this church. I understand that Mons. Le Duc intends dedicating a monograph to it.

Toulouse is rich in buildings of the Medieval and Renaissance periods; the brick towers of the churches of the Augustines (*musée*) and the Jacobins (*caserne*) are modelled on, and rival the tower of St. Saturnin. The cathedral contains many portions of good Pointed architecture of various dates, and some good painted glass of the fifteenth and sixteenth centuries; the triforium is peculiarly rich and effective. Adjoining St. Saturnin is a large brick house of the fourteenth century, crenellated and arcaded, with angle turrets. It formerly stood within the wall which surrounded the church precincts, and is still in fair repair, externally. The present *lycée* retains many picturesque and remarkable Late-Pointed portions, while its Renaissance court is peculiarly striking. The "pestilent" Renaissance buildings of Toulouse (mostly mansions) are, indeed, as a rule, very broadly designed, noble-looking, and well calculated to satisfy the eye of every properly-educated architect.

There is not much Romanesque art except at Moissac, on the direct route between Toulouse and Bordeaux, at which city the monuments of Medieval architecture, civic and ecclesiastic, are very beautiful and interesting: the artist and architect will find plenty of work there. But we have now passed almost beyond the boundaries of the south of France, and however tempting the subject, I must leave for a future day the Romanesque buildings of the centre and the north, and conclude what I am afraid will already have been to many present "a twice-told tale."

PROVIDENT INSTITUTION OF BUILDERS' FOREMEN AND CLERKS OF WORKS.—On Wednesday evening, March 13th, Mr. G. R. Burnell delivered a lecture "On the Application of the Science of the Beautiful to the Common Details of Building," at the meeting-place of the Institution, Lyon's Inn, Strand.

VENTILATION AND LIGHTING OF THEATRES AND HOSPITALS.

THE results of the attention lately given in Paris to the questions of the lighting and ventilation of theatres may be taken not merely as conclusive against the *rampe* or "float," as obstructive of the view and injurious to the health of the actors, and against the chandelier for similar reasons, but as tending to establish that the last-named contrivance for lighting the *salle* does not operate in the ventilation in the manner supposed. They serve, further, to justify opinions and recommendations given in the *Builder* years ago. In a recent publication* the author, Mr. Emile Trélat, Professor of Architecture at the Conservatoire des Arts et Métiers, has, we believe, given more precisely than it had appeared before the reason of the great elevation of temperature which is produced in the upper part of a theatre towards the close of the evening. This temperature we find it is stated by Mr. Louis Figuier, in the present year's volume of his "L'Année Scientifique et Industrielle," has been found at the Opéra Comique, in the upper boxes, after ten o'clock, to exceed "forty degrees," or what is 104 degrees of Fahrenheit; a condition which, he says, evidently could not exist were the agency of the chandelier sufficient to extract, and induce renewal of, the air of the "salle" to the extent needed. In the work of Mr. Trélat the insufficiency of the chandelier is attributed to a supply of air from the stage exceeding that from the front of the house, which supply, he says, traverses in a curve the middle of the space between the stage and the "ventilator," but without touching the parts occupied by the audience. It is one of the attendant evils that sound passes by the same course. "So that," in the words of the author, "if we could tint in striking colour all the particles of air put in movement in our *salles*, we should see constantly a compact and coloured mass, from embracing all the opening of the scene, advance above the pit to about two-thirds of the depth of the *salle*, and bending inwards and straightening itself to go vertically and converge in the chimney of the lustre." That mass of coloured air might be met by some threads starting from scattered points in the *salle*, but such, he says, is the action of the ventilation, one where a great quantity of air is put in movement, only without benefit to that atmosphere which actually is required. The question, therefore, suggests itself whether the method attempted is not one of little value in the one respect, as it is admittedly injurious to the passage of sound to the audience.

In June of last year, Mr. Le Général Morin, the director of the Conservatoire, read, at the Academy of Sciences, a note, in which he endeavoured to show that by some arrangement of apparatus for lighting, gas-burners might still be the means of ventilating theatres. The arrangement he proposed seems little different from that so often referred to by us, as adopted in the box-lobbies of the former Covent Garden Theatre, where, at least in general, it operated with excellent results. Our information of the nature of the proposal, however, is not derived from the *Compte-Rendu* of the Academy, but from the publication of Mr. Figuier. It there further appears that a communication was received by the Academy from Mr. Walters, an Englishman, probably the architect resident at Manchester, tending to show, says our authority, that the method, when practised, had never been attended with the success expected. Either the ventilation was insufficient, or it was too active; and the air "drawn from the exterior not being warmed" people caught cold. Writing without the opportunity of checking this information as to the suggestion and the opposing evidence, we are not sure that the contrivances in question were the same; but it is stated that in one case, at Birmingham, where the burners were placed near the ceiling in connection with pipes, in order that the gas might serve the two purposes of lighting and ventilation, the currents of cold air were such that the hall was at length no longer frequented by the public; whilst in another town, in the case of a smoking-room intended to accommodate forty or fifty persons, where ventilation was effected by pipes above the burners, the effects were still so unsatisfactory that not ten smokers could remain comfortably in the apartment. Mr. Walters afterwards referred in terms of praise to the system of ventilation in certain of the hospitals of Paris. Such system, it appears, Mr. Trélat and others desire to see introduced in the French theatres.

With the press of matters upon us, we can no

do little more than note the subject of ventilation of the hospitals, important as it is and interesting to readers of the *Builder* especially, as one which deserves our attention. At the chief hospital of Paris, the Hôtel Dieu, when lately visited, the air of the wards was certainly pure; but it did not appear that there were any contrivances in operation such as those which seem to be more especially referred to, as at the Hôpital Lariboisière, which has an arrangement whether in addition to or independent of that of the windows, and at the Hôpital Beaujon, which latter has been much praised. Of the system adopted a minute account has been given in the *Builder*. At the Hôtel Dieu, however, we found no surgical cases. We may just mention that if figures which we have before us are correct, there is sufficient difference in the mortality in the hospitals of Paris to show the importance of study of their features of divergence in plan and structure.*

Where the system of ventilation is adopted which the English authority admired, the air, he said, is pure as that of a field: there is not the least odour, and not the least current of air. The wards are maintained at a temperature of 15 deg. (59 deg. Fahrenheit) winter and summer, by heating or cooling the air as needed. The arrangement is one of injecting the air. The excess of vapour from the small engine which gives the motive power, is profitably applied for the vapour baths and heating the other baths; and the attention of a single man is sufficient. It would be necessary, however, to have further particulars, to discover what are the special features which make the success of a principle which, as here described, does not seem to be different from that of continuances which have been, in numerous buildings, long in use. But, to that system, as in the Lariboisière, Mr. Trélat gives his full approval, as well for adoption in the theatre as in the present use in the hospital. The mechanical contrivances and arrangement by which in the one case, air originally taken from a high level, and afterwards heated as may be necessary, is passed into the wards behind the heads of the beds, might, he thinks, be used in the theatre. The air similarly prepared, might be wafted into the *salle*, and made to traverse it in all directions, and passed out at orifices contrived under the seats of the orchestra and pit, and in the lower part of the boxes at the back. A constant and homogeneous temperature; an equal density of air and all the conditions of good and prompt distribution of sound, he believes would thus be fulfilled.

This question of the ventilation of theatres has been treated by others, and, perhaps, in a different manner, though one tending to show the possibility of great improvements. Amongst these essays are those of Mr. Tripiet, in 1859 and 1860, in the "Annales d'Hygiène publique et de Médecine légale." There are, however, more publications relating to the theatres of Paris, or on the general subject, published in France, than we can now notice. Useful information on the existing arrangements in Paris, may be found in Hachette's Guide, "Paris Illustré," in the "Album des Théâtres de Paris," and "Guide dans les Théâtres de Paris;" albeit, the plans in the first-named are neither complete, nor in all points correct; whilst the views in one or both the other works require a similar qualification. The principal work recently published in Paris, however, is that of Filippi and Contant, "Parallèle des Principaux Théâtres Modernes de l'Europe et des Machines Théâtrales," which includes plans of theatres at Paris, Versailles, London, Berlin, Munich, Naples, St. Petersburg, Bordeaux, Turin, Milan, Genoa, and Vienna, and many others. Some of the illustrations were published by Mr. Contant, ten or twenty years since. It is the fault of the publishers chiefly, that there are a large number of French architectural works which are wholly unknown in England. Their indifference to this state of things is neither just to the authors, nor to the reputation in art of their country. This subject is one, the great importance of which we have had much reason to see of late; but we must not be drawn away by it from that with which we commenced.

Along with the question of ventilation of theatres, we had just now presented to us that of the lighting. Mr. Trélat says, that the chan-

* It may be well even in this place, to call attention to figures of the mortality as we have collected them from Goldmann's "New Paris Guide for 1861." In the principal Maison de Santé, the deaths are as much as 1 in 7, whilst in the Hôpital des Enfants Malades, they are as little as 1 in 38. The Maisons de Santé are establishments for persons of a superior class. In the general hospitals, the numbers range from 1 in 10, to 1 in 22. In the case of two hospitals for a special class of diseases, the mortality in the hospital for men is 1 in 257, and in that for women 1 in 27. The mortality in the Hôpital Lariboisière, however, is not stated.

delier, condemned as a means of ventilation, is so objectionable in another respect, that it causes a deficiency of returns from seats in the gallery. We have already remarked that in the principal French theatres, there is scarcely anything resembling the gallery of the English theatre. A substitute for the chandelier would be a great number of small lights distributed in the house. But this disposition would have the fault of dazzling the sight, which ought in every direction to repose on points illuminated, and not on points luminous. Mr. Trélat, therefore, proceeds to recommend a system of "exclusive lighting," or of lights arranged in the roof above a transparent medium, and fed with their supply of air for combustion independently, or not from the house. We do not know whether he is aware of the cases in which this method is in use in London, not in theatres; but he does not fail to see the necessity for a great increase in the number of burners to ensure the needed quantity of light. An expense even quadrupled, however, he thinks, would be paid by the increased value of certain seats in the auditory or "salle," and the other immediate results. Mr. Figuier having quoted from Mr. Trélat, thinks fit to come to his aid in replacing gas by the electric light. Of the modes of lighting known, he says that the electric light is the most economic, as having only half the expense of gas. Thus with the location recommended by Mr. Trélat, of the illuminating agent, the lightning power might be doubled without adding much to the actual expense. Inconveniences which have opposed themselves to the adoption generally of the electric light, would in such a case as this of the lighting of a theatre, not only disappear, but would be turned into advantages. The reproach against the system in general, has regard to the great intensity which dazzles the sight. But with the sort of illumination placed out of the field of view, or even enveloped in a kind of globe of ground glass, the rays would be disseminated as from the globes recently adopted for the street lights of Paris. As to the latter we must ourselves say, the effect on the sight is not quite so agreeable as might be anticipated: whether this results from the ground glass, we are not prepared to say. Mr. Figuier believes the means are at hand for regulating, and for thus ensuring the fixity and permanent equality of the electric light. We may add that during the last few weeks, experiments in many respects satisfactory in the point of view just referred to by Mr. Figuier, have been tried with the electric light in the Place de la Concorde, where, in contrast to the brilliant illumination of the eastern side, and of the fronts of the new buildings, there is a vast area, besides that enclosed by the railing of the Tuileries, which is far too much in darkness. The same state of things occurs in the *place* in front of the Palais Royal, and the quadrangle of the Louvre to the extreme east; and in every respect, the experiment we have spoken of, is one of great importance to the effect and the safety of passengers in such a capital as Paris; and it appeared to us in everything except the dazzling effect, to be highly successful.

The subject of the lighting of theatres again received attention at the Academy of Sciences on the 7th of January last. The immediate question, which was brought forward in a *Mémoire* by Mr. Bonnafont, and which has been referred to above, had reference to injury done to the health of the actors by the present method of lighting the stage, and to the discovery of a different system. According to the "Gazette des Hôpitaux," observations of the author of the paper had shown him that the *rampe*, or "float," by its too brilliant light and the heat which accompanies this, is very hurtful to the organs of speech and respiration. Further, the communications existing between the stage and the portions below it, through the openings for the float and gas-taps, establish a current which is very disagreeable and hurtful, just in face of the singers. The mode of lighting from the level of the base of the object to be illuminated is essentially bad, and inconvenient for every one concerned. Mr. Bonnafont therefore proposes, first,—To close, especially during the representation, all openings existing between the stage or scene, and the inner parts; and second,—To replace the existing *rampe* by one suspended; and having reflectors conveniently disposed, which, sending from above their luminous rays downwards, would light the actors and the objects in the scene in a manner more comfortable to the rules generally observed, whether by nature or by painters, in the distribution of the light. There is nothing particularly new in these suggestions, which indeed are, as we have said, the counterpart

* "Le Théâtre et l'Architecture." 8vo. Paris, 1860.

of some long since made in these pages: but it is well to see them so well set forth; and it is evident that there is a strong feeling in Paris in favour of improvements of the kind in the new Opera-house.

According to the Parisian correspondence of the *Independence Belge*, a question is entertained of the creation of a new theatre which could be located in a pavilion of the Louvre. It would be consecrated exclusively to the representation of works of the old repertory, or those which could be regarded as classic, so as to be in fit connection with the Museum. The Théâtre Française, already much withdrawn from its original destination, would then be so entirely, and devoted to the productions of living authors.

The fostering care of the State in what concerns the old drama, as in other departments of literature and art, and in science and education, becomes more striking to an Englishman the more the subject is attended to. Those who have followed the discussions in the French Senate of late, will have observed that no inconsiderable portion of time was taken from the question of the policy of the Government in Italy, and given to recommendations and replies concerning other subjects which could never find place in the English Parliament in the discussion on an address, or in the presence of matters political of which the interest might indeed have seemed absorbing of every other. Such observers may also have seen that the obligation of the government in these particulars, was never for an instant disputed; and that if the claimants succeeded in showing that England had in some cases given the aid of the military and naval services to the acquisition of ancient marbles, and expended a much larger amount on the national library than France on the Bibliothèque Impériale, as well as that restoration of the old cathedrals had most favourable effects in improving the handicrafts of the provinces through agency of artisans sent from the capital, thus counteracting the centralizing tendency in France,—the replication merely endeavoured to show increase in subvention and expenditure which had taken place, and that the government were only anxious to dispense further amounts in the manner least open to the evils of an eleemosynary system.

It is impossible to deny that this latter evil has resulted in many cases from the French system: we have evidence of it in the fact, that in some of the churches of Paris, almost side by side with works of the grandest style of art,—frescoes nothing the like of which we produce,—there are colossal but most abortive works which seem to have been commissioned in the endeavour to find work for men of talent unimpaired, or those who had mistakenly followed the historical branch of painting. It is said too that the subvention of the theatres only leads to higher demands by actors and singers. It is clear, however, that the French system permits the pursuit of researches, and the production of literary works, which in our country too often only bring ruin on their authors in return for the benefits they afford. All that we say is, that in this matter of patronage or subvention, as in all other matters, a study by each country of what exists or obtains in the other, would disclose, if also defects, avenues to improvement. Besides the circumstances which differ, there are many which resemble in either country to the other, showing how like causes acting even on different races, conduce to like results. Such points of resemblance may be seen in the condition of a large proportion of the working classes. Some of the good points of these classes in France, we hope we have in a former article shown that we appreciate. The theatre and drama must have a far larger power of influence, through prevalence of a taste, accidental or to whatever due, on these and other classes, than in England; we trust therefore that the increased supervision of the government, lately required, and by them admitted to be called for, will be exercised in a manner so as to lead to the development of all that is noble and good in the French character and nation.

THE PROPOSED BUILDING FOR THE EXHIBITION OF 1862.

The building which Messrs. Kelk & Lucas have undertaken to erect, from the designs of Captain Powke, for the proposed Exhibition of 1862, is of great extent, covering the whole area of land belonging to the Royal Commissioners between Cromwell-road, Brompton, and the land leased to the Royal Horticultural Society, besides the space at the side of the Horticultural Society's garden in Prince Albert's Road, on which a more temporary building (an annex) for machinery, 870 feet

long and 200 feet wide, will be built. The frontage of the Exhibition building in Cromwell-road is 1,152 feet, and here we shall have a brick structure 50 feet wide and about 70 feet in height from the ground, in two stories. The upper story, together with two additional galleries attached, will be lighted from the top, and be appropriated to pictures. Beyond this, running east and west, will be formed the great nave, 100 feet in height and 800 feet long, irrespective of the space under a vast dome at each end over an octagon of about 130 feet. The extreme height of the domes is 250 feet. Intersecting these octagon spaces, at each end, will be transepts extending north and south. The whole extent of the building in this direction, irrespective of the annex, will be nearly 700 feet. The nave will have a span roof of wood, covered with felt, and will be lighted by a clerestory about 25 feet in height. The roof will rest on semicircular girders, carried on iron columns against iron uprights, and these will also carry the galleries. Large and lofty arched entrances, and a series of semicircular headed windows or recesses, we are not certain which, are the principal features of the front next Cromwell-road.

In comparing the Buildings of 1851 and 1862, our admirable contemporary the *Times* was led for once into an error or two, which we may as well rectify. The building of 1851 occupied on the ground 18 acres, with 5 acres of gallery: the 1862 building is to occupy 20½ acres and have 6½ acres of gallery. The greatest height of the 1851 building (the transept) was 106 feet: in the present case the whole nave will be carried to that height within 6 feet, while the domes, as we have stated, are to rise to 250 feet. The height to the gallery will be 50 feet. The amount paid for the old building was 127,248*l.*, with the further sum afterwards presented to Messrs. Fox & Henderson, of 35,000*l.* The estimated cost of the new building, is 800,000*l.*, but Messrs. Kelk & Lucas contract to supply it (use and waste), for 200,000*l.*, receiving the additional 100,000*l.*, if the gross profits exceed 500,000*l.*, or proportionally after 400,000*l.* We shall have many opportunities to go further into detail.

THE GREAT EXHIBITION OF 1862.

TEN years ago, in Hyde-park, England learnt a valuable lesson. For the first time in her history, she had a fair opportunity of arriving at accurate knowledge of her own art-producing powers, her mercantile art resources, and her art deficiencies. This she could only realize by careful and analytical comparison with similar features in the exhibited works of other nations. And it was by no means the least valuable effect of the Exhibition, that in Redgrave, Wornum, and the editors of art periodicals, there were men found who were capable of taking the opportunity of analysis, and enabling us to profit by their research. Redgrave's "Report on Design," and Wornum's "Essay on the Exhibition as a Lesson in Taste," are two valuable results of the exhibition. The illustrated catalogue is another, useful as were many other similar works, in giving us the plain unvarnished truth, about ourselves as art-producers. To all these, in a great measure, and to the effect of the Exhibition on the manufactures of England, we owe the gigantic stride in every branch of ornamental art which has since occurred. Improvement in design and manufacture has been gradual, but at the same time rapid. Those whose avocations do not lead them to notice such matters can hardly be aware of the vast difference in the ornamental and decorative art of the year 1861 and the year 1851. They will shortly have an opportunity of discovering the change and the advance made.

I attribute this change and this advance solely to the circumstance that our art critics insisted on unmasking, with a pitiless hand, our deficiencies and shortcomings; and that being convinced of these, we took immediate action to remove them. Ten years' steady progress has been made; and now, in this coming year, 1862, we are to have another Great Exhibition. To make the best use of this, whilst there is yet time, and to open a subject on which other men may have something useful to suggest, is my wish at the present time.

At the time of the first Great Exhibition there existed in the United Kingdom nineteen schools of design. In the present year there exist eighty-four schools of art. The first then, had 7,000 persons under instruction in art and design; the second, now have 84,082 persons as pupils in the schools, or under its masters. Such a comparison as this, from figures in the almanac just published by the Science and Art Department, and from the last report of the schools of design,—such a com-

parison will suggest to us that schools of art are now one of the great institutions of the country. As such, they must be thoroughly represented in the Exhibition of 1862. This is what I wish your numerous readers to look forward to, and invite all masters of schools of art to provide for. Each master may do much, and I for one will endeavour, in as few words as is possible, to suggest in what manner a united course of action may be taken.

1. In the name of the schools of art throughout the country, and of the masters and students of the same, the Science and Art Department should, at the proper time, apply for and obtain from the Royal Commissioners, sufficient space in the Exhibition Building for the efficient representation of schools of art, by means of exhibited works—permission for the delivery of illustrative lectures on the course of study pursued in the schools in the department allotted to them—permission for the distribution of the national medallions awarded during the year 1862, to works then exhibited—and a general allowance of free admission to all *bond fide* pupils of schools of art possessing a signed card from the secretary of the Science and Art Department, which card should be only issued to students who have attended schools of art during six months of the preceding or current year, on the recommendation of the head master of each school.

2. That the Science and Art Department immediately invite all the head masters of schools of art throughout Great Britain and Ireland to a conference on the best means of representing the schools as a public institution in the forthcoming Exhibition—and that, previous to this meeting, suggestions be made by circular to the various masters, issued from South Kensington; first, as to subjects likely to be discussed at the conference; second, information to be required from each master concerning the machinery of his school and the means likely to be at his disposal for the efficient representation of its studies, and the branches of art manufacture influenced by the school, of which he can produce both designs and manufactured specimens; third, to embody in writing, and to lay before the conference, any suggestions he may have to make likely to favourably influence the scheme. (Note.—As 1862 is not far distant, the sooner this conference occurs the better.)

3. As the property belonging to the Commissioners of the Exhibition of 1851 is to be regarded as public property, so far as its expenditure is concerned,—i. e., it is to be understood as means for the furtherance and development of art,—it would be well and in harmony with this idea, that a memorial to the Commissioners be presented by the masters of art schools, praying that a portion of the fund be now expended in giving the means to advanced students in such schools of profiting to the utmost by the coming Exhibition; of allowing a sum of money to each school, to enable one or more of the most deserving of the students to visit and study during the period of the Exhibition, such portions of it as would most probably influence their future studies. The Science and Art Department might also, by similar assistance, enable the junior assistants of art schools to visit the Exhibition, and profit by a careful study of its contents. In this the Department would only be repeating what it did with reference to the Paris Exhibition of 1855, and from which much good resulted. There can be no doubt that, regarded as a whole, the present system of art education pursued by the Department is a decided success. An opportunity now occurs of showing this, and it is one not frequently occurring, and which ought, therefore, to be made use of.

I make these suggestions both in virtue of my position, and as feeling deeply interested in the condition of progress of ornamental art. It is necessary that we should show some results achieved for the enormous amount of public money expended on schools of art, otherwise the threatened reduction of the educational estimates may fall heavily on the Science and Art Department. Schools of Art, at least, can show results equivalent to the national expenditure in them, and will be anxious to do so, should the opportunity be given them in a somewhat similar manner as that I have proposed. But to show such results satisfactorily, sufficient time should be given for the preparation of works, and to ensure unity of action, on the part of the conductors of the schools.

The complete theory of art education in them should be fully displayed by the whole acting in concert. Individual schools should be able to show the highest art applied to the manufactures of the locality. Sheffield and Birmingham will

show us what may be done in metal: Manchester, London, Glasgow, Southampton, and Coventry, will enable us to see good art applied to cottons, fabrics of various descriptions, ribbons, &c., Halifax will develop her taste in carpets, hangings, damasks: Dublin and Queen-square (female schools), will let us admire the exquisite designs for lace executed by pupils in those schools, and manufactured by various firms. And I believe that in almost every school, some speciality will be found to have been studied. The potteries would no doubt, as heretofore, carry off the palm for the porcelains, the encaustic tiles, the chinias, and the statuettes in Parian and Bisque, and show a vital action of art on manufactures. All would in fact be able to do something towards the illustration of the particular speciality of design, as well as the general theory of art education.

Through your columns, therefore, I appeal, and I hope successfully, both to masters of schools of art and the directors of the Science and Art Department, to begin in time, and be fully prepared to obtain all possible advantage from the Exhibition of 1862. There is no time to be lost, if anything is to be done. For some time past, large manufacturing firms have been preparing works for the Exhibition. There is little more than a year to come, before, in all probability, it will be open to the public. Now is the time, therefore, for action.

WALTER SMITH,
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THE FRUITLESS SEARCH FOR PERPETUAL MOTION.

ALCHEMICAL seekers after "the stone of the philosophers" had, at least, one simple, settled, idea in their heads,—a monomaniacal idea if you will, but still a definite and identical idea,—however various may have been their ways of trying to work it out. Every one of them entertained the identical idea that a certain chemical agent combined with lead or other metal constituted gold,—that the sages or philosophers whose works they studied had actually found it to be so;—and what they one and all wanted to do was to make gold,—that was, to imitate nature in her metallic processes, and produce, artificially, a thing,—namely gold,—which stood before their eyes, and about the reality and existence of which thing, at all events, there could be no mistake. But the seekers after perpetual motion had no one definite thing before their eyes, which they desired artificially to produce. Nature presents us with perpetual motion, certainly, in various aspects; but it was no one of these various exemplars of perpetual motion, which any one of the projectors of perpetual motion wanted to produce, or imagined he had realized. In the tides we have perpetual motion, but no one wanted to produce the tides: and so with the motions of the planets: no one desired artificially to produce planets. What they wanted, if it can be said they had anything definite in the general idea, which, as a class, they held before their longing eyesight, was perpetual motion in the abstract; and as to which each projector had his own idea, or class idea.

One set, for example, wanted merely to have perpetual movement without any power applicable to machinery. What they desired to do was to obtain a movement which, from being perpetual, would enable them to discover the longitude. Others desired to keep a ball perpetually revolving, by means of magnetism. Others wished to have a water-wheel which would go perpetually by means of water which it was perpetually pumping up for the purpose; and probably even they did not care to have any surplus power thereby, to avail themselves of, for any useful purpose; although some did have the preposterous expectation, not only that they would realize 100 per cent. of the power thus obtainable, but something to spare, so as to be able, for example, to fill a reservoir above, while working their wheel with a portion only of the water pumped up from below.

The ideas of perpetual motion projectors, however, were not always so preposterous as this. There were some who actually realized the idea they set out with. Thus a Mr. Cox, an automaton maker, produced a watch which he so applied to the mercury in a barometer, that the rise and fall gave motion to the watch, or rather kept it in perpetual motion; for of itself alone the watch could go a year. Even here, nevertheless, the inventor was not necessarily nearer than before to the point he ultimately had in view, of constructing a perfect chronometer, or of thereby discovering the longitude; because, in fact, it was not perpetual motion at all which was really required to do this: a common watch, wound up re-

gularly, and never allowed to stop, is in perpetual motion. It was perfect regulation which was requisite; and although Cox's watch is said to have had a self-regulator to let off or adjust all excess of power caused by the irregularities of the rise and fall in the barometer, there is no reason to believe that he had thus attained a perfect regulator; and even if he had, that at least was not "perpetual motion."

Again, another projector proposed to make a common clock to be a perpetual mover by means of the tides, so that in the rise a pipe communicated the water to a bucket, which thus descended by the increased weight; and, in so doing, wound up the clock; when it was to be tipped over, by a projecting knob, or some other means, and so allowed to re-ascend as the weights descended. Here, too, was a very feasible and practicable idea of perpetual motion; and a correspondent of our own, some time ago, we recollect, proposed some such means of keeping the Westminster Palace clock going.

There were and are entertained ideas of perpetual motion, however, of quite a different description from any realizable by means of these perpetual forces of nature, and independent of all but gravity. One very favourite notion seems to have been the perpetual revolution of a wheel, by means of weights, which were ever to bolt out on one side, to a distance from the axle, so acting as a lever power, worked by means of gravity; and ever to be gathered in again on the other side, towards the axle; so as not to interfere with the desired "mechanical power" thus obtained on the other side. Many forms of this sort of perpetual motion have been invented; but the most curious thing of all is the fact that the ingenious and certainly veracious enough Marquis of Worcester, of ancient fame, explicitly declares that one of his wonderful "Century of Inventions" was precisely such a wheel; and that it had been made, and set a going, too, in the Tower; although he is, as usual, and purposely, somewhat obscure in his description of it.

"The wheel," says the Marquis, "was 14 foot over, and 40 weights of 50 lb apiece: Sir Wm. Belford, then Lieut. of the Tower, and yet living, can justify it with several others. They all saw that none sooner these great weights passed y^e Diameter Line of y^e upper syde but they hung a foote further from y^e center, nor so sooner passed the Diameter line of the lower syde, but they hung a foote nearer: be pleased to judge y^e consequence."

Another famous wheel of this kind, which also "went," was that of Orffyreus, which was probably invented on the Marquis of Worcester's principles, and from his obscure description. It is said to have gone for two months under jealous supervision; when the inventor, in a rage with what he conceived to be ill-treatment, broke it to pieces.

In a curious and interesting work, recently published,* the author, Mr. Dircks, whose chief purpose it was to collect together all the materials requisite to form a record of what has been done—or attempted, rather—in this curious branch of quasi science,—and most instructive in one sense it is,—speaks respectfully, although of course dubiously, of this wheel-form of the perpetual motion. In his Introductory Essay, he says,—

"Appearances are every way so much opposed to offering any plausible hope of success, that all the wisest can say amounts to no more than: It may be found, or it may never be found; and, if found, the discoverer will probably establish the fame of others quite as much as, if not more than, his own. The insufficiency of the only supported means of solving the problem,—namely, by contriving a wheel so that all the weights on one side shall be constantly further from the centre than the weights of the opposite side—has been attempted to be shown in a palpable manner by Desaguliers; but the author has invented a model apparatus of a more convincing character, being an actual wheel, as represented in the diagram. We have here a wheel having a number of spokes, each terminating at or beyond the periphery, with a weight. It is represented with all the weights extended farthest on the right-hand side. Now, on giving it a reverse revolution, all these weights will recede, and the weights on the left-hand side be extended in like manner. Yet will nothing be gained: in every position it will remain neutral. It consists of spokes, each terminating at their ends in compound levers, or lazy-tongs, while their opposite ends, passing through a hole drilled in the axle, and so for each spoke, which must have a weight equal to the weight of the opposite end. Spokes thus made, when vertical on the top side of the wheel, are extended, while the opposite bottom spoke is depressed or shortened; and so on with each.

In conclusion, we would briefly observe that we think a careful perusal of all that has been gathered respecting perpetual motion clearly establishes that much remains to be done to prove the impossibility of practically solving this knotty problem; and that a full demonstration of the difficulties that environ it is worthy of being attempted, even by the most exalted mathematicians."

* Perpetuum Mobile; or, Search for Self-motive Power, during the Seventeenth, Eighteenth, and Nineteenth Centuries, illustrated with Introductory Essay. By Henry Dircks, C.E. London: Spon, Bickersley, 1851.

Should any of our readers imagine that the search for perpetual motion must now be given up, in "this enlightened nineteenth century," they will find out their mistake when we tell them that, down to the year 1860 *inclusive*, there has been a perpetual dribble of patents taken out in this and other countries, each and every one of them professing to have discovered it. In the English records of patents alone, and most of them since the beginning of the present century, Mr. Dircks, in his indefatigable historical researches into this curious subject, has found out 74 patentees, who have obtained no less than 84 patents for perpetual motion,—not by that now hackneyed name, certainly, but in the less questionable and more scientific form of "improvements in obtaining motive power," and such like.

"It is curious," says Mr. Dircks, "to observe these several stations in life. We find a prince, a baronet, two counts, a knight of the Tower and Sword, a general, a groom of the privy chamber, the governor of Trinity Ground, a doctor of divinity, two doctors of medicine, two surgeons, a bachelor of arts, ten gentlemen, four merchants, ten engineers, three civil engineers, an architect, a surveyor, a contractor, a manufacturer, a brewer, a millwright, a miller, five machinists, a carpenter, a draftsman, a jeweller, a watchmaker, a confectioner, a shoemaker, a custom-house officer, with nine persons and seven foreigners undescribed. The major portion of these must have been persons above mediocrity in position and education, so that the pursuit of perpetual motion has been far from being limited to an unintelligent class, as boldly assumed by many inadequately-informed writers. Their patents cannot have cost much, if any, less than 4,000l.—a large amount to pay for the empty privilege of possessing letters patent to so much moonshine!"

Mr. Dircks's volume is well worth looking into. Although a sad record of misspent time and talents, it contains a vast deal of entertaining matter. He has gleaned, in the course of fifteen years of desultory note-making and researches, a large mass of curious details and arguments *pro* and *con*, which he sets forth with entire impartiality. His volume includes many papers from scientific and other journals and newspapers, definitions and descriptions from treatises on natural philosophy, encyclopedias, and dictionaries, as well as specifications of patents from the patent records, early papers from the Philosophical Transactions, and those of the Paris Academy of Sciences, &c., &c.; so that, together with the introductory essay, the volume forms a complete record of the progress, shall we call it? of the fruitless search for a perpetual motion.

PUBLIC WORKS AND IMPROVEMENTS IN FRANCE.

By order of the Emperor of the French an *exposé* of the situation of the Empire was last month laid before the Chambers relative to Public Works. We learn from it that for the interior the example shown by Paris has been followed by the departments and communes in the undertaking of various works which continue actively. The network of the departmental and vicinal roads has been considerably extended. At Lyons the tolls of the bridges over the Rhone have been suppressed, the Government having furnished 5,300,000*fr.* Other towns have received subventions from the State. Lille received an allocation of 100,000*fr.* for its constructions of workmen's lodging-houses. An equal sum has been granted to the town of Cuen for public baths and wash-houses. Reims has obtained 30,000*fr.* in aid of a refuge for the invalided working classes. Infant and training schools have received much attention. This branch of the public service assists no less than 121,916 children from one to twelve years of age, and 38,281 minors from twelve to twenty-one. The annual expense is 10,500,000*fr.*, of which sum four-fifths are borne by the departments; 119,117 children are placed to work throughout the country; the surplus 61,180 being taken care of in towns by Orphan Asylums or hospices.

In Paris the workmen's "*cités*," the Asylums of Vincennes and Vésinet, that of the Prince Imperial, &c., continue to justify the sympathy of the people, who daily contribute large sums to their maintenance.

Gratuitous medical attendance is gaining ground in the rural districts. In fifty-three departments, 300,000 indigent received attendance, &c., during the year 1860. Societies of mutual assistance have sprung up rapidly; 4,500 of these contain 500,000 participating members, and 64,000 honorary. Their capital united exceeds 24,000,000 francs. To this sum must be added the fund of 1,500 annuity or pension societies, already amounting to 5,000,000 francs. Moreover, private charitable institutions have multiplied under the encouragement and control of Government.

The question of the extinction of mendicity has been the object of practical studies. Among the

A new National Bank is about to be erected

Ennis, county Clare, from the plans of Mr. Caldwell, architect.

A new clock-tower is about to be erected in the Market-square at Letterkenny, county Donegal, from the designs of Mr. Goldie, architect.

THE CHEMISTRY OF THE DRYING OF AN OIL.*

Some of the Phenomena of Solidification.—The functions exercised by a drying oil on its most common applications are but little, if at all, understood by those most interested in them. The peculiar changes such an oil passes through when, forming a part of such compositions, it is used as a paint, a varnish, a printing-ink, or in any other of its numerous forms of application, are, in like manner, as little known as they are seldom studied. Yet a clear insight into the character of these functions, and into the at least general nature and order of these special and peculiar changes, is certainly as essential to those who operate with the oil, as it is indispensable in the present inquiry.

Of the 65,000 tons of linseed oil now annually produced in this kingdom, when from this there have been deducted the 33,000 exported, there remains a quantity equal to some 32,000 tons for home consumption, to be distributed throughout the many and various occasions that exist for the application of this oil. So universal and multifarious are its uses and the compositions it enters into, that, in one form or another, it is met with everywhere and at all times. It is unceasingly, and under all circumstances of every-day life, in one's presence and under one's observation. Every manufacturer, artisan, and artist, who is engaged in preparing or in distributing this oil through the various channels of its use, as well as each one of the multitude of people who, directly or indirectly, are affected by its use, is deeply interested in that one conspicuous and essential property of it, namely, its drying. Yet, amongst all these there prevails an almost complete ignorance as to what really takes place during the act of drying, and a consequent incapacity so to handle this oil as to bring into exercise this, its most important property, with efficiency and certainty. Our very familiarity with the presence and appearances of this oil under its numerous applications would seem to operate in staying all but the most superficial observations as to what changes and phenomena attend its employment, and whether they be important or not.

A drying oil has a natural tendency to pass from its fluid into a solid state. Experience—doubtless an empirical one in the first instance—has taught us that this tendency is to be promoted by certain artificial appliances. At the root both of this natural and of this artificially-promoted tendency there must lie some principle whose operation brings about this result, and what this principle may really be can, it is not impossible, be discovered if only searched for. Accordingly, a careful examination of attendant phenomena discovers to us the occurrence in the oil, as this transformation goes on, of a series of curious and complicated reactions, both among its own elements and between those and certain other elements exterior to it, that is, those of atmospheric air chiefly.

The result of all these reactions, when once accomplished, is a substance—namely, the oil solidified—whose properties, in several important respects, are altogether different from those of the original fluid oil.

When a water or a spirit paint dries (that is, a paint composed of a pigment ground in water, or in some volatile spirit, along with, say a little gum, added in order finally to bind together the particles of the pigment), this case of drying or of solidification issues out of the evaporating or flying off of the water or the spirit, and the leaving behind only the solid particles of the pigment and the gum. In this case there is a loss of weight in the residual paint corresponding with the weight of the dissipated water or spirit.

But when an oil or an oil-paint dries or solidifies, this is not the result of an act of evaporation, properly so called, but, on the contrary, after a series of curious interchanges among the elements of the oil (some of which, in new forms of combination, are thrown off from it) and between these and the elements of the atmosphere (through which there follows a combination with the oil), this drying is the consequence mainly of an act of absorption, resulting finally in an increase in the weight of the residual product. The phenomena,

therefore, that accompany and issue in the drying of an oil are special and altogether different from those of other kinds of drying or solidification.

When linseed oil thus solidifies, the resulting product is, as already said, of a greater weight than that of the original fluid oil. This increase is so marked and considerable as (with occasionally only a trifling variation due to some special condition of the oil) to amount to from 14 to 16 parts to the 100,—that is, 100 parts of the fluid oil will, on solidification, be found to weigh from 114 to 116 parts.

Again, this solidified product possesses, as already said, some properties that are totally the contrary of those of the original fluid oil. It is now, for example, insoluble in several of the menstrua with which the oil in its fluid state is miscible to any extent. It has now assumed properties, some of which are *sui generis*, and which, though bearing a resemblance to the properties of some few other substances we are acquainted with, are really identical with none other. But it is this assumption of those special and peculiar properties, that so well adapts this oil to all its various applications. Its solidification once accomplished, we have given us a substance that appears to be proof against all further changes under the ordinary and surrounding circumstances it is placed in. The external atmosphere would seem, then, under any of its ordinary conditions, to have no further power of action over this product for, at least, a very long period of time. There has now been established in it another and more permanent state of equilibrium, than the comparatively easily affected one of the original fluid oil. It is now only the materials that may be mixed, or be brought in contact with this solid product that can possibly further change its condition, or affect its stability. If such substances,—pigments or others,—be inert, then any mixture so formed is a permanent compound,—paint or varnish. If reactionary, then there follows in it some or other of the malverse consequences that inevitably, sooner or later, must break up all integrity and durability in such a compound.

Elements of the Oil concerned in its Solidification.—Now, an empirical experience, whose existence is traceable through ages back, tells us that this assumption by linseed oil, of the solid state, can be greatly facilitated by addition to the fluid oil of certain (but in number few) substances, among which stands pre-eminently,—because of the universality and antiquity of its use—oxide of lead, or common litharge. This one of these few materials it is here convenient to select as the instance, and for demonstrations as to the nature and results of the peculiar reactions their application to the oil gives rise to. But the series of organic changes that follows such applications can be described only through the technical phraseology chemistry finds it needful in such cases to resort to; and that is as follows:—

Oil of this class is, in chemical language, called olein; and this olein is a compound of oleic acid and of glycerine, or of its synonym, the oxide of glycerule. In other but synonymous words, olein is an oleate of the oxide of glycerule, or an oleate of glycerine.

Olein, in the form of linseed oil, differs from olein in the form of other fixed oils, say, for example, of olive oil, because in each there exists a special kind of colouring matter, an essential oil giving to it its peculiar and special flavour, some two or three other impalpable adjuncts, each in quantity almost inappreciable, and held to be extraneous to the real oleaginous elements, though serving to impart to the oil its individual, special, and distinctive character.

This uniformity in the elementary composition of these oils, conjoined with the intermixture of substances held, chemically considered, to be extraneous and foreign to the fundamental element, is analogous to what we find to be the case in the composition and special qualities of wines. The essential fundamental elements of all wines are alcohol and water; but each kind has given to it its distinctive characteristics by the presence in quantities that generally are almost infinitesimally minute of matters extraneous and foreign to the main and essential elements. These incidental adjuncts consist, in this case, of colouring and saccharine matter, tartar, incipiently developed acid products, the bouquet in form of some essential oil, and of a variety of other, but impalpable, and in weight inappreciable, substances. The characteristic differences between Port and Sherry, Hockheimer and Nierstein, between white Burgundy and Lachryma Christi, for examples, are due to extraneous constituents, special and peculiar to each, conjoined with the alcohol and water, the common base of all.

In like manner does the presence in the olein—the fundamental element of each oil—of matters equally extraneous and peculiar, give to rape and olive, to cocoa and ground nut, and to poppy and linseed oils, their several special and distinctive properties. So that, when we come to treat these products for their economic applications, it is the elementary base alone—the alcohol in the one case, and the olein in the other—that becomes the sole object of our chemical operations.

For the possession, by linseed oil, of the peculiar property of drying, which it holds in common with but some two or three other oils of the drying type, and in which it differs from all other oils, there can be found no satisfactory explanation on a study of either its extraneous adjuncts or of the ultimate or proximate elements of its olein, as those are developed on analysis. We know nothing respecting the source of this property. We recognise the fact of its existence in this and in the few others of the drying oils; and of its absence in others of the so-called fixed oils with which, because of their, in common, non-volatility, the linseed is naturally classified. And we know that it is through organic changes in the olein that it exhibits itself, and, therefore, that it is to this element of the oil, in the phenomena of its drying, and our practical appliances for controlling those phenomena, that our researches should be directed.

Some relevant Properties of these Elements.—Now, the oleic acid of the olein of these oils has a greater affinity for certain other substances than it has for the glycerine with which it is in combination in them in their normal state. These preferred substances are remarkably few in number; and this number, moreover, becomes still fewer when the fitness of their other properties for application to the oil be taken into consideration. One of these is the hydrated protoxide of lead, and which is not to be confounded with the anhydrous oxide, whose application (an improper one) has already been referred to. When, therefore, this hydrated oxide of lead is, under proper arrangements, brought in contact with linseed oil, its oleic acid enters into combination with the oxide of lead, forming an oleate of lead, and on doing so, throws off or out the glycerine or oxide of glycerule.

This oleate of lead has (as necessarily has every individual and integral substance that exists) its own special properties. It is already familiar to us all in the form of that well-known item of a druggist's shop, vulgarly called "diachylon plaster," the *emplastrum plumbi* of the pharmacopoeias. When to be used surgically, this product is made by boiling olive oil and water along with oxide of lead in form of litharge—the anhydrous oxide. It is, however, as readily produced from linseed as from olive oil.

When carefully prepared, this oleate of lead is of a yellowish white, or cream colour. It readily softens on application of a gentle heat, and as readily melts when the heat is increased. It is this property that enables it to be spread, by a warm iron, over the surface of linen cloth, to form the sticking-plaster of the shops. When the heat applied to the mass is above 400° Fahrenheit, its colour is changed into a deep brown, or almost black. It is soluble, to some little extent, in cold, and to a greater extent in warm linseed oil, forming a clear transparent solution. But it can be diffused to any extent through (that is, mechanically mixed with, or suspended in) linseed oil, when it forms an opaque cream-coloured emulsion. And when either this transparent solution or this emulsion is heated to from 500° to 600° Fahrenheit, it assumes a deep and permanent black colour. This emulsion, when made thick enough, could (and unfortunately does, too frequently, as will immediately be shown, find its way unwittingly into paints) be used as a paint, were it not for the malverse effects that follow such an application.

Out of a consideration of these properties of this oleate of lead—when it is mixed with and conjointly acting with linseed oil—we gather explanations of some well-known but previously unaccountable effects in paint compositions. The same study gives us deductions for our guidance in such matters that are of the greatest practical importance. These are—

1. That it is to the presence in linseed oil of this oleate of lead in form of its solution, but more generally, and in large quantities, as an emulsion, that the oil-boilers (who always use litharge,—that is, anhydrous oxide of lead,—in large quantities) are indebted for the dark colour of their boiled oil. It is the same emulsion compound, in the form of a thickened and half-baked residue, that, when his operation is finished and

* In connection with this, see also articles "On Some Malverse Reactions occurring in Oil-Paint Compositions," pp. 3, 31, and 121, *ante*.

the oil is cold again, falls to the bottom of the vase of the oil-bailer.*

2. That frequently it is as much to this presence in paints as to the presence of resin or of non-drying oils, that their tackiness and long-continued non-drying condition are to be attributed. That paints are, in fact, under this presence (and how it comes, and how generally it prevails, will appear hereafter), but kinds of sticking-plaster compounds, that often and adhere when touched, under the application of even a gentle heat, and under other actions speedily alter or decay.

3. That (as will immediately be more fully demonstrated) this oleate of lead finds its way, in injurious quantities, into paints, through the inordinate use of lead-compounded driers, and to this source is undoubtedly attributable no inconsiderable portion of what is now found so defective in our paints.

4. That we should, for the reasons above given, altogether abjure oxide of lead, and, consequently, the oleate of lead, whose formation it leads to, as an ingredient in our drying oils, excepting only, perhaps, when it is used in the form of the transparent cold solution of the oleate just referred to, or when the quantity present is relatively so minute as, in many kinds of rough paintwork, to be comparatively harmless. But from a drying oil, or from a paint intended to be kept exempt from all after malverse reactions, this oxide should be religiously excluded; and in favour of even a total expulsion from our repository of paint materials, there exist other and most cogent reasons, to be more explicitly referred to hereafter.

Initiation of the Drying: How induced, Naturally and Artificially.—This special property of olein, in the form of linseed oil, to undergo, on exposure to atmospheric air, organic changes that result in its solidification, does not readily come into play when the oil is in its normal condition, or in the state simply in which we receive it on expression from the seed; that is, when in (as it is called) *raw state*. Under this state these reactions take place, as it were, reluctantly: and it requires a long time of exposure before they begin and terminate in solidification. There would seem to be established in the oil, in its normal condition, a kind of equilibrium of affinities amongst its own constituents, and a power of resistance against external influences, which require to be disturbed or shaken before the finally stronger affinities between these and some element or elements in the atmosphere can come into play.

If, however, whilst the oil is in this suspended state, there be added to it a little of the hydrated protoxide of lead, or, preferably, of some other agent to be hereafter indicated, the affinity of which for the oleic acid is (as already stated) stronger than that of the glycerine for the acid; then this addition at once breaks up the normal state of equilibrium; and the action of the air upon the oil, and between the elements of the oil themselves, immediately begins, and spreads rapidly throughout the mass, and continues till it ends in complete solidification. The oil, in its normal state, would seem, as it were, to maintain a struggle against any inroad on its equilibrium, for a time extending to some four or five days, or a hundred hours. But immediately this addition to it has been made, a commotion among its elements begins; and in the shorter period then of only half a day, or some ten hours, its solidification is accomplished. The simple addition of the re-agent *initiates* the drying; and, once begun, it then goes on uninterrupted to completion.

The process, in its general character, but not in its specific details, is analogous to that of common fermentation. A mass of saccharine matter in solution, in water, passes, of itself, but slowly and reluctantly into the action of vinous fermentation. But that change is *initiated* instantly on addition to the mass of the smallest particle of a fermenting agent. There is a perfect analogy in the operations in these cases; with, and necessarily so, a difference in the substantial results. Contact of the fermenting agent with an atom of the mass of the saccharine solution in the one case, and between the drying re-agent and an atom of the olein in the other, breaks up the existing combination of elements in these atoms; and then this local disruption is, under the operation of another and an equally peculiar law, propagated throughout the entire masses; ending, in the one case, in the conversion of the sugar into alcohol, and, in the other, in the solidification of the oil.

Interplay of Affinities between the Elements of

the Oil and those of Atmospheric Air.—The drying once thus, or in any other way, initiated, there then follows a series of curious and complicated re-actions among the elements of the oil and between those and the external air; and it is in this series there take place those special re-actions through and out of which the drying of the oil evolves.

The nature and order of this series of changes possesses, as a study in inorganic chemistry, the deepest interest to the investigator; and it is much regretted that only their general character and results can be given on the present occasion. To follow them chemically, throughout all their stages, would require the employment of formulae and of kinds of demonstrations that are necessarily precluded here, as well by the limited space at command, as by their disproportionate interest for the generality of readers and their inutility in immediate objects. But whilst this is so precluded, it is indispensable that we should select a few points that have certain practical and important bearings, and for this consideration the reader will, perhaps, tolerate the unavoidable interfusion of a little abstract chemistry.

Neither the house-decorator nor the artist *par excellence* would probably thank him who should insist on the value, in art-work, of a very complete acquaintance with the philosophy or the handicraft of a chemist.

Nevertheless, as an exceptional instance,—might be supposed to mourn over the chemical impotency he was unblest with, when his famous “*Naufrage de la Meduse*” was an occupant of his *atelier*, and had not, as now it has, within a single and brief age, mouldered on the walls of the Louvre.*

But generally the artist (he, certainly, whose creed is Ovid’s, “*opus superabat materiam*”) may well be supposed unwilling to substitute for his own delightful work, the—to others, perhaps—equally interesting abstrusities of organic chemistry—abstrusities which but a little while ago, before the epoch that the genius of Liebig so happily inaugurated, but few in England, even of the chemists, it is said, felt any interest in or could understand.†

The differences in ultimate composition between starch and sugar, between sugar and alcohol, or sugar and oxalic acid, as those differences are determined by analysis and expressed in symbolical formulae, do not explain to us how the one compound is transformed into the other, nor do they indicate the artificial means we should resort to in order to effect this transformation. In like manner do the differences in the ultimate compositions of the fluid and the solid oil fail to show through what mediation the one is changed into the other, and what practical means we should use either to aid or impede that transformation. For such an insight and such practical guidance we have to appeal to other kinds of research or of experience. Hence, as well as for want of space, would the details relating to these intermediate phenomena be out of place here. But with the following selected points and practical deductions from this series of reactions it is different.

1. When the medium of oxide of lead, or other initiating agent, has abstracted its equivalent of oleic acid from the olein, there is thrown out of chemical combination, and distributed mechanically throughout the whole mass of the oil, the equivalent of glycerine that previously had been combined with the acid. There then occurs, in addition, the simultaneous or immediately succeeding formation, in the oil, of another and totally different compound, called *acrolein*, and making its appearance as a volatile and extremely pungent and acrid vapour, which is thrown off from the oil on its further process of drying.

Every stage of these reactions is replete with speculative as well as with practical chemical suggestions.‡ At this point, for example, one is natu-

* The paint of this celebrated picture is, unhappily, in a state of such rapid decay as just to have made it necessary, before complete destruction, that it should be copied, as the only expedient for nationally preserving a memorial interesting to the French, alike as the record of an affecting incident, and as a masterpiece of native art. How long will it be before there must go forth a similar decree respecting our frescoes in the Palace of Westminster?

† When Mrs. Somerville published her “*Mechanism of the Heavens*,”—that rival as well as rescript of the “*Mécanique Céleste*” of La Place, it was said by some reviewer that this profound, elegant, and costly book would be unread on the tables of our nobility, and there were not twenty men in England who could understand it. It was much the same, some fifteen years ago, with organic chemistry. Now there is, in England, no lack of accomplished chemists, as well able as their German prototypes to handle efficiently this fascinating branch of the “*educta scientia*.”

‡ For a variety of additional information and experimental details, the reader is referred to some papers by the writer in the *Journal of the Society of Arts*, vol. V. Nos. 211, 212, and 214.

rally led to inquire what participation this liberated glycerine may have, or whether it have any at all, in influencing, to facilitate or retard, the ensuing process of the drying of the oil? And as to whether this acrolein also may exercise any such functions, or subserve any other material purposes; and, if so, what may be their real character. But in following out the more immediately required practical deductions we found further,—

2. That when the oxide of lead, or other re-agent used for appropriating the oleic acid, is present in the oil in inordinate quantity; then the liberated equivalent of glycerine makes its appearance on the surface of the oil or paint, covering it with what looks like condensed moisture, or a kind of dew. This is one of the varieties of “*sweating*” a painting is liable to; and, when so affected, is said, by the artists, to be “*clammy*.”

3. When atmospheric air is passed in profusion into and through linseed oil, holding suspended in it certain metallic hydrated protoxides (as under one of the writer’s new methods of preparing drying oils), and this aeration is purposely carried to excess (that is, beyond the extent needed in such operations); then vast volumes of this acrolein are given off from the oil, and distributed through the surrounding atmosphere. But the oil that thence results is, for certain purposes, the very perfection of a drying oil. Now, the same formation and emission of this acrolein (but effected and proceeding, in this case, more gradually, and, therefore, not so perceptibly), takes place on and from the walls of a freshly-painted apartment; and serves, as much as any other of the causes in action in such cases, to impregnate the air with the repulsive, headache-giving, and indescribable effluvia so well known always to pervade a newly-painted room.

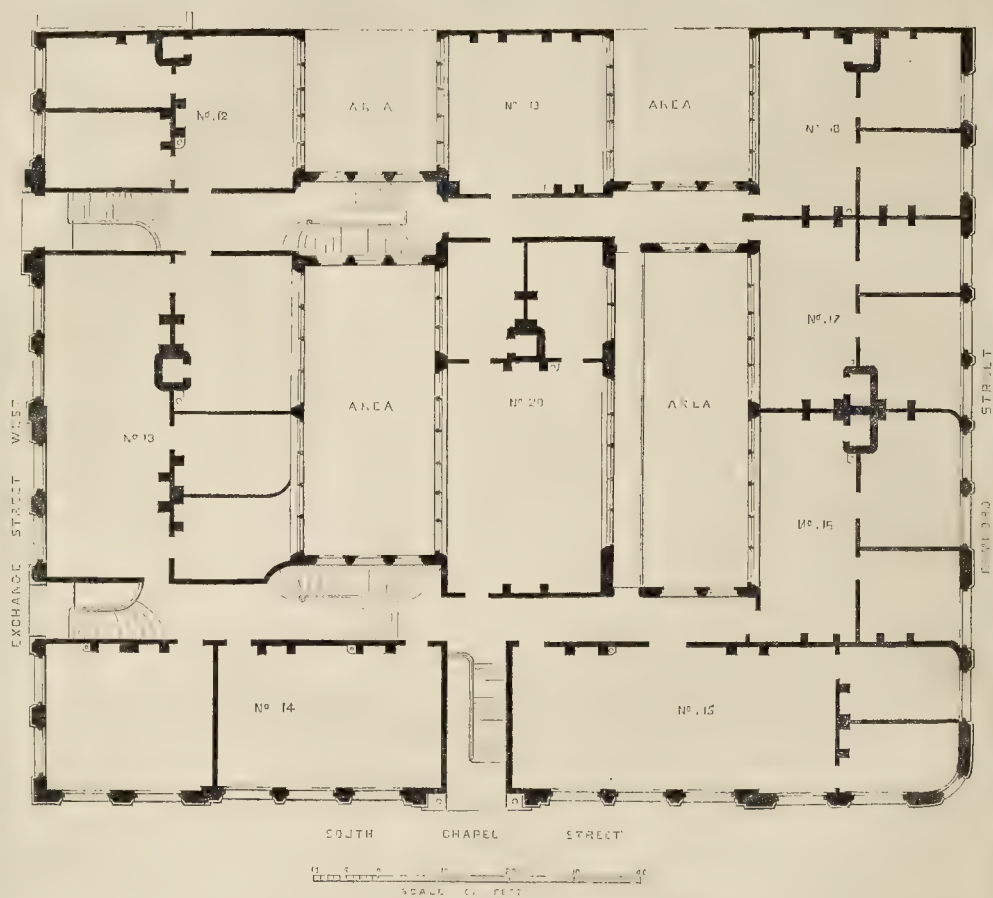
It is the same acid and unsavoury emanation—but prevailing in these instances to a greatly aggravated extent—that fills to suffocation the hot drying-rooms of the water-proofs, of the oil-cloth-table-cover, the American cloth, the vegetable-leather manufacturers, and others, and that adds another mephitic element to the already sufficiently tainted atmosphere of our large letter-press printing establishments, where the acrolein is an inevitable and abundant product of the drying of the linseed oil in the printing ink. Its distribution in thin films (type-marks) over the immense area of the surfaces of the paper gives every facility for contact and consequent re-actions with the air.*

4. Why, not, therefore, before the oil is applied as paint, or to these or any of its other purposes, remove from it, by some preliminary operation, both this liberated glycerine and this subsequently generated acrolein? By so doing we should reduce, to at least this extent, the chances of malverse reactions, and should obviate the unpleasant and injurious emanations of these two curious products and accompaniments of the drying of an oil.

5. We obtain, moreover, from the study of these reactions a variety of other explanations and practical guidances. They are, like all other purely chemical actions, greatly influenced, as to the time of completion, by temperature; so that paint that, in cold weather, dries but slowly and unwillingly, solidifies rapidly on a warm day. With the thermometer at 32° Fahrenheit, twenty-hours may be needed; at 60°, fifteen hours; at 76°, ten hours; and, when the American leather-cloth maker applies 150°, he can harden each coat of his paint in six or eight hours. They are influenced by the hygrometric condition of the air, and consequently a paint keeps long “*wet*” in a damp, foggy atmosphere, though there may be no contingent deficiency of the warmth required for rapid drying. The suspended vapour (especially at nightfall) deposits itself, dew-like, on the face of the paint, and keeps off the free contact of the air. Under a stagnant atmosphere the operations linger; whilst, on a breezy day, they are vastly accelerated; for the air absorbs and sweeps off (as it does a pool of water on the ground after a shower) the educts at the surface issuing from the interior of the oil; and presents, at the same time, a continually recurring supply of fresh elements for absorption. Under a sunny sky, they proceed always at a comparatively quickened rate, as well because of the specific action of the sun’s rays, as of the greater accompanying warmth. And here there is incurred the risk of the external and superficial reactions (those of the air upon the outer stratum of the oil) proceeding more rapidly than the interior molecular action

* Freshly printed sheets of paper, closely piled up, and in sufficient quantity, are certainly in a fit condition to induce spontaneous combustion.

* The sedimentary deposit previously referred to, and which the oil-bailer so vastly rejoices in, and dignifies by the name of “*foots*.”



BROWN'S BUILDINGS, LIVERPOOL.—Ground Plan.

within, and thence of the "skinning" over of a paint before it is solidified internally, or throughout. It is through this there takes place the "blistering" of a paint; for the volatile or gaseous products of the reactions within the body of the oil must find a vent somewhere; and if a skin have formed over the surface, these must either force their way through that skin, or appear in blisters below it. A freshly-painted wall, with a July's sun upon it, seldom escapes this blistering, for which there will hereafter be made obvious the practical remedy. An experience emerging out of the same kind of actions teaches the coach-painter that, for his finest body and polish, he must deposit his "wet" panels in some cool place, and give his work, at every stage of it, plenty of time to harden throughout. And it equally (though seemingly paradoxically) teaches the oil-cloth table-cover manufacturer that, to give firmness and solidity to his penultimate coat of oil composition, and, at the same time, not halt in his manufacturing activity, he must place the cloth in stoves, heated to from 120 to 170 degrees Fahrenheit, which quickens and completes the internal reactions in the oil, and consequent expulsion of all volatile products, before the action of the air can prematurely "skin" over the surface.

6. Finally, so far as bears upon immediate objects, this study of these peculiar reactions teaches that we should be especially careful not to have present with the oil, in this its act of solidifying, materials—pigments or others—that, either by their own composition or reactions with the oil, add to the volume of volatile products to be thrown off; for such evolutions, occurring as the oil thickens, must serve to disarrange or break up the organic structure proper to a sound paint. It teaches us, still further, what we should

do in order to secure the permanent integrity and unchangeableness of a paint or varnish after solidification of its oil; namely, that we should equally keep out of such compositions all substances, pigmentary or others, capable of mutual chemical reactions, and thence of creating molecular disturbances (changing in form and bulk, as water, on freezing, changes and disintegrates soils and even rocks), ending in the destruction or deterioration of the varnish or the paint.

And this leads to the demonstration that a good deal of the pernicious agency now at work has its origin in a cause that has not hitherto been dreamed of; that is, in the modern use or abuse of driers.

C. B.

LIVERPOOL ARCHITECTURE: BROWN'S BUILDINGS.

We have before now pointed out that while Warehouses form the special architectural feature in the streets of Manchester, buildings appropriated as Commercial Chambers play that part in Liverpool. In these chambers business is transacted to an enormous extent: Liverpool, the small fishing town of the last century, is now the greatest emporium in the world.

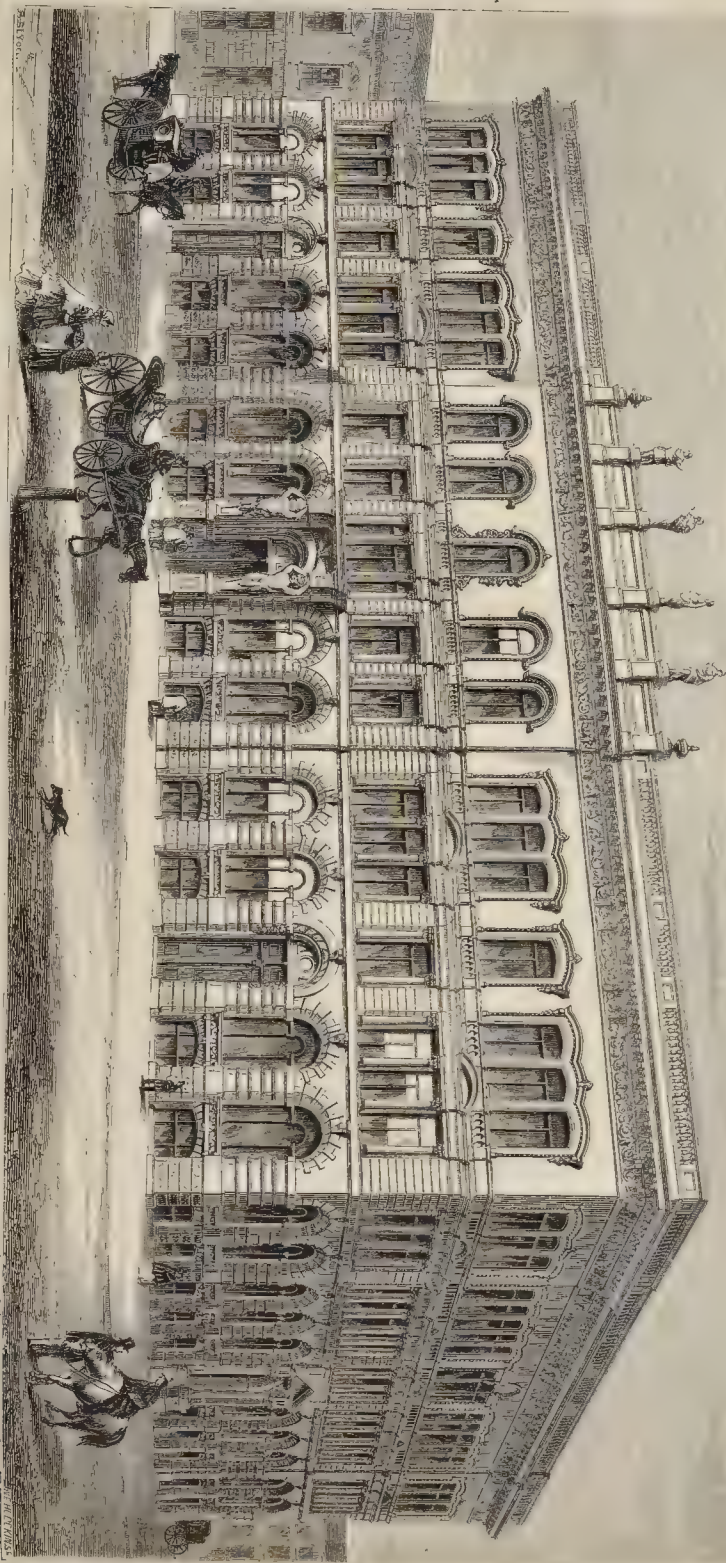
Several of these sets of chambers have been lately erected. We illustrate, in our present number, one that has been recently commenced at the corner of Exchange-street and South Chapel-street, from the designs of Mr. J. A. Pictou, for Mr. William Brown, known to our readers and all the kingdom as the munificent donor of the building for the Liverpool public Library and Museum. The history of the firm of which this gentleman is the principal member would forcibly illustrate the growth and importance of Liverpool; the amount of business annually transacted by them

has to be counted in millions of pounds sterling; but our purpose just now is with "Brown's Buildings," not his firm.

The Phoenix Fire-office forms the left wing of the structure. It is a separate property, but the directors of the company came into an arrangement, and commissioned Mr. Pictou to amalgamate the two buildings into one general design. Their portion of it is seen in the view, but is not shown in the plan: this refers solely to the commercial chambers.

The site of Mr. Brown's portion has cost very nearly 80,000*l.* for an area of about 1,900 square yards. The contract for the erection is about 30,000*l.* It is in the best situation in the town for the intended purpose.

The main features of the design have been dictated by the circumstances. The division of the front into three nearly equal parts was necessitated, by having to keep the two properties distinct. The cost of the land, and the internal distribution, prevented the display of any marked projections, whilst the necessity for the largest quantity of light enforced very extensive window openings and large internal areas. These were the data on which the design had to be composed. It is astylar, and depends for its effect on fenestration. The small columns in the wide openings will be detached, and the glazing extend behind. The material is white free stone from Ruabon, in Denbighshire. The basement is of grey granite from Dalbentle, Dumfriesshire. Portions of the doorways and of the window columns will be of polished red Peterhead granite. There will be a considerable amount of sculptural decoration, for which Mr. Edwin Stirling is employed. The contractors are Messrs. Jones & Jump, of Liverpool, for Mr. Brown's portion; and Mr. George Rome, of Liverpool, for the Phoenix Fire-office.



STREET ARCHITECTURE OF LIVERPOOL: BROWN'S BUILDINGS.—MR. J. A. BROWN, ARCHITECT.

THE LATE MR. JOHN CROSS, ARTIST.

In consequence of the lamented death of Mr. John Cross, and his position as a historical painter, a number of his friends have resolved upon raising a fund, by subscription, for the purpose of purchasing one or more of his unsold works for presentation to some public institution as a tribute to his memory as an artist, and as a means of providing some assistance for his widow and family, otherwise totally unprovided for.

An influential meeting was held at the house of Mr. Foley, R.A., a few days ago, and the sum of £100 was subscribed on the spot. A committee is being formed; and, meanwhile, Mr. Edward B. Stephens, of 27, Upper Belgrave-street, Belgrave, will receive subscriptions.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of members was held on Friday evening, the 1st instant, at the house in Endell-street.

The president, Mr. T. Roger Smith, occupied the chair.

Mr. B. Backhouse and Mr. J. D. Wyatt were, ballot, elected members of the Association. The particulars and conditions agreed upon by the general committee with regard to the prize offered by Mr. Tite, M.P., for the class of design, were submitted and approved. These are substance,—that a prize of £1 be given for the best design for a club-house, all members of the Association to be eligible to compete; and that a prize of £2 be given for the best set of sketches, at or before the 12th April inclusive.

In the absence of a member who was to have read a paper on "Brickwork,"

Mr. J. H. Christian consented, at short notice, make some observations on "Masonry." After few preliminary remarks on the definition of masonry, Mr. Christian proceeded to observe that the oldest specimen of masonry he had ever seen was in Malta, and appeared to be of Phœnician origin. It consisted of a series of cells, with a covered way, somewhat similar to those at the Temple of Isis at Pompeii; and he apprehended that the object was the same; namely, dens for beasts of sacrifice, as the bones were scattered about in all directions. This was the oldest specimen of constructive masonry that had ever come under his notice. It came the masonry of Egypt, which opened a wide field for consideration. It appeared very evident, that the Egyptians must have been masons for many centuries before the erection of the great buildings that still remain to test their skill. Strange, however, it was, that remains existed of their earlier buildings, which would have shown the stages by which they arrived at that excellence which characterizes the styles that still remain. Some of their works were to this day as perfect as when the masons were living. In Italy, on the contrary, it was able to trace every successive stage of masonry. The first walls were, no doubt, built of stones, with cement composed of mud or lime to fill up the interstices. Then, as art and progress grew, the manner of construction improved, and they raised the cyclopean buildings which endure. The Greeks followed the Egyptians, with far greater taste, delicacy, and harmony; their walls were not perfect masonry. They did not use much about constructive union, by getting the greatest possible strength with the minimum of material; neither were their buildings on so large a scale. The Romans, like the Greeks, followed the size of their buildings; but they were more scientific than the Greeks, and could construct great spaces without recourse to lintels. If a student of architecture wanted to see really masonry, let him go to Rome and view the ruins of the aqueducts, the arcades, the colonnades of the Forum, &c., which were magnificent masonry, well constructed and well bedded. The Romans had one great advantage in their building—namely, they had fine stone, and it was well bedded. The Roman buildings raised during the imperial dynasties were finer than those of any other period. The stones were worked die square, and set in mortar, and cramped with bronze. Bronze was the best possible material for cramping, but a costly substance; and the real Goths, in order to get at it, drilled holes in the walls to get it, and thus brought premature decay upon the noble pile. At the theatre of Marcellus, it is seen that the beds of the stone were not bedded, and it was impossible to drag them out of the beds without pulling down the whole structure. No mortar was required, as sinking the stone had the same effect as dovelling. The

Romans were believed to have quarried their stone two years before they used it; but it was also said that they did what no architect of the present day would think of doing—namely, put the bad stones in the foundations. Another feature of Early Roman masonry was that the masons began to work in curved lines, which made their work and construction more scientific. Coming down to the Norman period, he was of opinion that although the Normans had left some fine specimens, still that they were not good masons. They built their piers too loose, and in many instances their walls were filled up with rubbish and bad mortar. The Transitionists fell into a similar error, and the late fall of the spire at Chichester Cathedral was to be traced to their vicious system of building, which after a time failed to support the superincumbent weight—the core being rotten and the ashlar small and not well bonded. The Normans also false-jointed their work, and made what could not be called fair masonry. Another fault of the Norman system was, that it dispensed with foundations. He had seen cases in which cathedral work had been laid flat on the ground. Much better masonry was, he thought, to be found in the Early English period. The subsequent styles improved, down to the Perpendicular, when the architects appeared to have gone out of their way to show construction. Mr. Christian next referred to the Venetian marble masonry exhibited at Venice, and which had in that climate a very beautiful appearance. The buildings in which it was used were, for the most part, of brick veneered with marble. Though striking and beautiful in the clear warm atmosphere of Venice, he could not recommend it for England. Such work would never have stood the severe frost of last winter.

Mr. Ruskin had praised it very much; but, in a constructive sense, it would not do for northern latitudes. Gothic masonry was, to his thinking, perfection. The churches in that style were planned for constructive masonry, and the builders must have possessed scientific skill to design them. After the Reformation the building of churches ceased almost entirely, and few large masonry works were carried on. With regard to the masons themselves, he was of opinion that the young masons of the present day, educated in Gothic masonry, made better workmen than those who had begun on Classic and then turned to Gothic. As an illustration of the skill of modern Gothic masons he might refer to the pulpits of late German work, which were marvels in their way; containing intersections of mouldings, or double curves, worked in and out in the most extraordinary manner. For his own part, he was puzzled to imagine how they were first set out—unless, indeed, they were carved. Referring to the masonry of our times and our own country, Mr. Christian called attention to the admirable work observable in Edinburgh and Glasgow. The former city he regarded as the finest capital in the world. The stone, than which nothing could be finer, was used with an unsparing hand: it was beautifully worked and well set; and the public buildings, and in many instances private dwellings, attested the skill of modern Scotch masons. A great deal had been said lately about the importance of selecting stone. In the observations made on the subject he entirely agreed, for nothing could be more important for the success of a building than that the stone should be well chosen, and taken out of the best beds. Whenever it was possible, he would recommend that the stone should be seasoned for two years (at all events for one summer and one winter), and that every bad stone should be unceremoniously rejected. The stone ought to be got out of the quarry early in the summer, when the frost was well out of it and the sap had disappeared. With regard to roofs of masonry, he had seen some excellent ones in France. There was also a fine specimen in the South Chapel of Scarborough Church, but not so good as those to be found in France. It might of course be said that stone roofs were too costly for general use: but still when circumstances permitted he saw no reason why they should not be used; as, when the masonry was good, they were almost indestructible. Glancing from masonry to masons, he regretted that men so intelligent and well-conducted as were the body generally, should give themselves up so completely to their trade unions. They were the proudest men connected with the building trade, and yet they allowed themselves to be slaves to their societies. It was, in fact, miserable bondage; and the men in work were fleeced to an enormous extent. It seemed to him that masons had more class faults, and were more wedded, as it were, to their society, than any other class of skilled workmen; and he regretted it; for he was persuaded

that it injured them, because its effect was to discourage masonry and to take work out of their hands.

The President, having complimented Mr. Christian on the practical nature of his remarks, referred to the importance of selecting good stone. He recommended the Darley Dale stone, which he believed was the best in England. It was to be had in endless quantity, and possessed the advantages of great durability and good colour. It could also be had in blocks as large as any which the railway could convey. He regretted that it had not been employed in the new Houses of Parliament, because he believed it was in every way suited for such a building. He also recommended that as far as possible the local stone should be used, and that when practicable the natural face of the stone should be left without artificial dressing. The result, especially when it was intended to make a contrast to fine work, would be found extremely pleasing to the eye. With regard to the masons he was bound to say that he had always found them a most superior order of workmen; intelligent, well informed, possessing more scientific skill than others, and usually well conducted.

Mr. Christian said he wished to be distinctly understood as having referred to masons as a class, not as individuals; for he entirely agreed with the president as to the intelligence, skill, and good conduct of the men: all he regretted was that they had committed themselves so unreservedly into the hands of their trade unions and societies.

Some short discussion ensued, and a vote of thanks was unanimously accorded to Mr. Christian.

ARCHITECTURAL PHOTOGRAPHIC SOCIETY.

On the 5th inst. Mr. J. P. Seddon read a paper on "The Grotesque in Art," the sequel of a recent correspondence on the subject in our pages. Mr. Street presided. On the 12th, Mr. Burges lectured on the Photographs Generally, Mr. Raphael Braidon presiding. We shall print his discourse hereafter.

ARCHÆOLOGICAL INSTITUTE.

At the last meeting of the Institute, Mr. G. Poulett Scrope, M.P., gave an account of the discovery of an extensive Roman dwelling, with baths, hypocausts, and extensive appliances of luxury, on Lord Methuen's estates in Wiltshire. The excavations, which were under Mr. Scrope's direction, brought to light some ancient relics of unusual occurrence, which he brought for examination; especially a crescent-shaped pendant, formed of two very large tusks of a boar, mounted in metal, with rings, for suspension probably on the breast of a horse, as still in use in the East. He produced a precisely similar ornament obtained at Beyrout, in Syria, such as are usually appended to the trappings of the Arab steeds. No example, however, of this precise description had been found among Roman remains: crescent pendants are seen upon war-horses represented on Trajan's column, and Mr. Scrope cited passages in the "Eclogues" of Calpurnius Siculus, and in Statius, in which mention occurs of crescent pendants formed of boars' tusks. These curious objects were probably talismanic. Mr. Scrope announced his intention of presenting the antiquities he had disinterred to the British Museum. Professor Westwood, keeper of the Hope collection at Oxford, then read a detailed narrative of an archæological tour in the Netherlands, and Western Germany, and some parts of France, during the last summer. He described numerous manuscript treasures and works of Mediaeval art which had attracted his special notice at Brussels, Liege, Aix-la-Chapelle, &c., and exhibited a large series of drawings of illuminations, sculptures in ivory, with other interesting objects of art preserved in museums in Belgium, and the rich relics of Charlemagne at Aix-la-Chapelle. Mr. Albert Way gave a sketch of the history and characteristics of the bronze antiquities of the period termed Celtic, found in Great Britain and throughout the northern countries of Europe.

INSTITUTION OF CIVIL ENGINEERS.

On March 5th, Mr. G. P. Bidder, President, in the chair, the first paper read was "Description of a Pier erected at Southport, Lancashire," by Mr. H. Hooper.

This pier was constructed at right angles to the line of promenade facing the sea, on an extensive tract of sands reaching to low water, a distance of nearly one mile. Its length was 1,200 yards, and the breadth of the footway was 15 feet. At the sea-end there was an oblong platform, 100

kins are the contractors.
Newbury.—St. Giles's Church has been opened. The edifice has recently been enlarged by an erection on the north side of the nave, placing a small dilapidated part of the old church. The addition, according to the local *Chronicle*, is only part of a new intended plan intended to be carried out, in which the wants of the district require, in which the present structure is inadequate to the proposed future extension of the choir and chancel, the old nave, a side aisle, the present chancel, and a side aisle, or aisle to the new chancel. On the north side it is hoped to build a tower. The new building is erected in red and white Grimsill freestone.

the colour contrasted and blended. The style is Geometric. The western gable has a five-light traceried window. The north wall has a deeply-recessed masonry doorway and three two-light traceried windows. At the eastern end a masonry arch is built to suit the proposed extension, and filled in with rubble and an old two-light window. The old arcade has been simply rebuilt, and the other parts cleaned and repaired. The sittings gained are 120. The work has been done by Mr. Treasure, of Newport, from designs and under the superintendence of Mr. S. Pountney Smith, of this town, the total cost, exclusive of the porch, being 800l.

Chorlton-upon-Medlock.—The foundation stone of the new church of St. Paul, Chorlton, has been laid. The site selected for the building is at the junction of Higher Temple-street and Brunswick-street, in a locality already populous, and where the remaining land is being rapidly built over. In the proposed church, which is to be built according to designs furnished by Messrs. Clegg & Knowles, architects, sittings will be provided for 1,100 persons, of which about two-fifths will be free. Nearly four-fifths of the amount necessary for the building and endowment have been already subscribed.

Sheffield.—Mr. James Brown, of Occupation-road, has been repairing the spire and lightning conductor of the parish church. Mr. Brown reached the height by tying a number of ladders to the steeple, one above another, and his ascent of them attracted some attention. He is the son of Mr. Samuel Brown, who some time ago repaired the lightning conductor of a chimney at Stoke Priory, Worcestershire, 312 feet in height, reaching that altitude by fixing twenty-four ladders one above another. The repairs at the parish church are being made under the direction of Messrs. Flockton & Sons, architects.

PROVINCIAL NEWS.

Croydon.—The tender of Messrs. Marsland & Son for improvements to the Assize Courts has been accepted. Some alterations and reductions in the terms having been effected, the reduced estimate for these improvements amounts in all to 2,013l. 7s. 3d. There is talk in the Local Board of Health of building new Assize Courts, marking accommodation, &c.

Brighton.—The Local Works Committee reported to the Town Council at last meeting that for the erection of a groyne near the Old Steine Groyne, and the repair of the Albion Groyne, agreeably to drawings and specification prepared by the surveyor, the following tenders were received, viz.—G. Cheesman & Co., 1,860l.; W. Dethick, 2,579l.; John Fabian, 1,919l. The resolution of the Committee, that the tender of Messrs. Cheesman & Co. be accepted, subject to the approval of their surveyors, was confirmed by the Council. Attention was called in the Council to the wide difference between the amount of the tenders.

Portsmouth.—The new hall, Landport, which has been erected under the superintendence of Messrs. Houghton, of Portsea, architects, is approaching completion, and will be opened for use of the Board in the course of a month.

Worcester.—At their last monthly meeting the Local Committee inspected plans submitted by Mr. Rowe, the architect, for a new block of buildings to accommodate 100 additional female patients, and his estimate of the cost of the proposed building was 2,500l. Plans were also submitted for a new recreation-hall, at the estimated cost of 1,800l. The necessity for erecting these additional buildings appearing urgent, the Committee determined unanimously to recommend their erection to the magistrates at county sessions and the Town Council of the city.

SCHOOL-BUILDING NEWS.

Leppington.—Large schools have been erected here by Mr. G. E. Pritchett, at a cost of about 3,000l. Dwelling-houses of a later style (at the request of the committee) than that of the schools have also been erected.

Redhill.—A new school-room for boys, in place of the one now used for that purpose at St. John's National Schools, has just been opened. The new school-room, together with a schoolmaster's house, have been built at the cost of Mrs. Price, of bothbath. The architect was Mr. Hesket, and the buildings have been erected by Mr. Carchers, of Reigate. The master's house is not yet ready for occupation. The new school and residence are built within the main frontage, and so that now there is a considerable

range of building along both the south and east front, grouping with the rising ground behind. The new school is 45 feet long by 18 feet wide, with high opened timber roof, and a large window at each end. The walls are faced internally with white bricks and red and black in patterns: at the south-east angle is a porch with a turret over it containing a clock with two dials and bell. The residence is connected by an arcade with the school. The school-room is heated by two open fireplaces, with warm-air chambers at the back and under iron hearths, through which chambers a supply of fresh air passes into the room, and ventilation is provided for by separate air flues, which are divided from the smoke flues by iron plates, and thus have their action secured through the heat derived from the smoke flues. The hat and cloak lockers are also warmed by gratings from the same fireplace. The style of the building is a modification of Early English. They are built of Fuller's earth stone, from the neighbourhood, with Bath stone dressings, and are covered with plain tiles with ornamental crestings.

Stourbridge.—It has been finally resolved to purchase the premises adjoining the grammar school property; to erect the new grammar school on the site thus obtained; to improve the interior of the masters' houses; and to alter the frontage of the same, so as to make it correspond in architectural character with the school building itself. The Charity Commissioners have approved of this plan and the proposed alterations, and it only remains to obtain the necessary funds for carrying out the project. The cost of the new site and erection of school, together with improvements in the masters' houses, and incidental expenses, is estimated at 3,000l. of this sum, 2,600l. have been subscribed. The architect is Mr. T. Smith; and the builder, Mr. Nelson, of Dudley.

Manchester.—Christ Church Schools, Moss Side, have been opened. The building is in the Decorated style, and is divided into three bays, with gables. In the south gable is a ventilating turret, and there are also fues and air chambers. The building is two stories high, and for both day and Sunday-schools. On the ground-floor are rooms for boys and infants, for classes, storage, and other purposes. Above is an apartment intended for the girls' school. It has an open-timbered roof, and is calculated for public meetings and similar purposes. At the end of the room is a stained-glass window, by Messrs. Edmundson & Son, of this city. This feature in schools opens a useful system of illustrating Scripture truths to the young. The windows are inscribed with numerous texts. The architects were Messrs. Goldsmith & Son. The cost of the building has been 2,114l., and the furnishing and gas-fittings have cost 140l. more.

THE CITY OF MEMPHIS.

THE interesting account of Professor Donaldson's "Observations in Egypt," in the *Builder* for February 23, induces me to request permission to mention a fact which, to my surprise, seems to be still nearly unknown; viz., that the colossal statue at Mithraheny is not now the sole representative relic of the ancient city of Memphis. M. Mariette, in the year 1850 or 1851, discovered the real city itself lying under the sand; although, on account of the vandalism of the Arabs, he was obliged to cover up all he found, after making his drawings and measurements. Mr. Bayard Taylor, in his delightful book, "Life and Landscapes in Egypt" (S. Low & Co.), gives a brief account of this discovery. He visited the excavations in November, 1851, and heard many interesting details from M. Mariette's own lips. Perhaps the following fragment of his narrative may send some of your readers to his books:—

"Granite pavements, fresh as when first laid, basement-walls of white marble, steps, doorways, pedestals, and fragments of pillars glittered in the sun, which, after the lapse of 2,000 years, beheld them again. I slid down the side of the pit, and walked in the streets of Memphis. The pavement of bitumen, which once covered the granite, apparently to protect it and deaden the noise of horses and chariots, was entire in many places. Here a marble sphinx sat at the base of a temple, and stared abstractedly before her: there a sculptured cornice, with heavy moldings, leaned against the walls of the chamber into which it had fallen; and over all were scattered fragments of glazed and painted tiles and sculptured alabaster. The principal street was narrow, and was apparently occupied by private dwellings; but at its extremity were the basement walls of a spacious edifice. All the pits opened on pavements and walls, so fresh and cleanly cut, that they seemed

rather the foundations of a new city, laid yesterday, than the remains of one of the oldest capitals of the world."

STOMA.

P.S.—At the end of Miss Martineau's "Eastern Life," in the Appendix, there is an elaborate argument (whether by herself or not, I forget) to prove that "Pompey's Pillar" is really the sole relic left standing of the celebrated Alexandrian Library. Does this bear in any way on the curious remark made by Professor Donaldson as to the condition of the foundation?

MARKET RASEN SCHOOL COMPETITION.

SIR.—Will you call attention to the recent competition for school, &c., at Market Rasen?

The trustees, I hear, received upwards of fifty designs, which were hung in the Lincoln Assembly Rooms on Thursday, the 21st of February. On Friday, at 12 a.m., the trustees met; and the following morning, all the designs, save four, were packed and sent back to their respective authors, without a word of thanks or the slightest appearance of having been examined at all.

Of the four designs retained, the two which rank first and second, respectively, are No. 1, Mr. Fowler, of Louth, singularly enough in the immediate district of the clerical gentlemen who are principally the trustees; and No. 2, Mr. Pope, of London, who, likewise, singularly enough, "ought to have had the job" some time ago, and "was sure to get it," a country architect told me months ago.

I say nothing of this selection; but I do say that to "examine" or "carefully consider" fifty sets of designs, at something less than five minutes per set, is *too ridiculous*. The whole affair reflects infinite discredit upon gentlemen who ought to know better. The plans were, in a building of the kind, of more importance than the external character of the design, and should have been examined with great care; whereas, they must have been utterly ignored.

ONE OF THE FIFTY.

MEDALS AND PREMIUMS.—ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE statement just now published sets forth that the Royal Medal for the year 1862 will be "conferred on such distinguished architect or man of science, of any country, as may have designed or executed any building of high merit, or produced a work tending to promote or facilitate the knowledge of architecture, or the various branches of science connected therewith."

The Silver Medal of the Institute will be awarded to the author of the best essay on either of the following subjects:—

- 1st. The proper application of wrought and cast iron, constructively and artistically.
- 2nd. The application of timber work in England, constructively and artistically, from the year 1400 to the present time.
- 3rd. The introduction of Italian architecture into England.

4th. The principles of the application of iron work in the construction of floors and roofs, illustrated by examples.

[These medals are open to all members of the profession, without limitation as to age.]

The Soane Medallion will be awarded for the best design, well illustrated by a sufficient number of drawings, for

A museum of sculpture and pictures, ancient and modern, with lecture-room to hold 500 persons, and library to hold 5,000 volumes.

The successful competitor, if he go abroad within three years after receiving the medallion, will be entitled to the sum of 500l. at the end of one year's absence, on sending satisfactory evidence of his progress and his studies.

[The competition for the Soane Medallion is open to all members of the profession under the age of thirty years.]

A prize of ten guineas, offered by the president, will be awarded to the author of the most approved set of architectural drawings, consisting of plan, elevation, and section, executed in the best manner, in colour, and shaded, and occupying not less than a sheet of imperial paper.

The scale to be one-fifth of an inch to the foot. The subject to be a building of an admired example, or of original design, such as a chapel, a pleasure-house for a garden, a park-gate entrance-lodge, a moderate-sized villa, or a small market-house and room above.

The whole to be a fair set of drawings in the best manner.

The above prize to be open to all students, whether of the Institute or not.]

That a prize of books be given by the Institute to the author of the design that may be considered the second in merit.

A prize of ten guineas, offered by Mr. Tito, M.P., F.R.S., Fellow, will be awarded to the author of the best set of sketches or suggestions in the Italian style of architecture, for public buildings, adapted to modern wants, e.g., churches, town-halls, railway stations, public offices, &c., in England.

[The competition is open to all associates and students of the Institute. Each competitor is to send in not less than two, and not more than three, sets of sketches.]

A prize of ten guineas, offered by G. Alexander, Fellow, will be given for the best essay on the four ancient camps near Swindon, Wiltshire, viz., Blonsdon, Uffington, Liddington, and Barbury, showing how, without injury to the ancient remains, works of a temporary character might be added, to render them available for the use of Rifle Volunteers and others; taking advantage of the resources of modern science, the railway, telegraphs, &c., and of the large engineering works at Swindon.

[This competition is open to all members of the profession.]

The subject of the design for the students' prize in books for the year 1861 is—"A Dispensary suited for a Manufacturing Town."

The conditions and instructions may be obtained at the Institute.

BAD DWELLINGS: HOW TO IMPROVE THEM, AND MAKE USE OF THE EXHIBITION FOR 1862.

Sir,—I omitted to explain in what manner penny subscriptions should be applied to improve our dwellings; thinking my remarks would then be too lengthy for your valuable space. My plan is for the subscribers to form a committee, offer small premiums for designs, and then get more subscribers, and hire a room where they may experiment and meet for mutual improvement, and finally, if successful, place in the Exhibition for 1862 a model dwelling by and for the working classes in particular, where every trade may show its well-directed effort to complete a home worthy our advanced intelligence. The present time is most favourable for an effort by all trades united for some object worthy of themselves and the age in which they live. The great social good arising from such a work cannot be disputed.

Now, sir, I think the first nail for the job is forged, and I call upon the Trowel, the Mallet, the Plane, and the Brush, and say, come forward, to fix and finish it. It is inclined, address a letter to Forge Hammer, at the office of the *Builder*, and then we may soon get to work, and strive to profit by the good advice of our true friend the *Builder*, who constantly keeps our best interest at heart.

FORGE HAMMER.

CO-OPERATION FOR THE WORKING CLASSES.

Sir,—Seeing you give prominence to any object having for its tendency the intellectual improvement of humanity, I am emboldened to make a few remarks.

Men are apt to talk of tyranny among employers, and give vent to language both harsh and contradictory, without attempting to fix the first stone of their accusation.

Co-operation is adaptable to the exigencies of the times, and gives facility to cultivate the mind, and raise man up from the grovelling state of physical dependence to a higher position.

You may enter some plausible trades' union, and fret your time away in attempting to adjust some imaginary grievance, and find your efforts fruitless. Now, here is an organization that is pre-eminently calculated to meet your wants, and will do more towards ameliorating your social position than any trades' unions ever did.

Political science, social science, and moral philosophy, now occupy the minds of a considerable portion of working men, and I say good speed; for we know well ignorance leads to poverty, and poverty to crime.

Curtailing the hours of labour may seem very plausible, but does it not trench on individual action? Be that as it may, I am not advocating long hours, but I do say, co-operation, if properly carried out, will eventually place man in the most advantageous position, and brighten his social existence.

THE SECRETARY TO NAMMARKET CO-OPERATIVE SOCIETY.

ARCHITECTS' ACTIONS.

FEES FOR CERTIFICATES FOR BUILDING LEASES.

In the action Brown v. Stone, tried in the Southwark County Court on the 28th ult., the plaintiff was an architect and surveyor of Robert-street, Adelphi, and the defendant was a builder in the Westminster-road. The defendant, in July last, entered into a contract to build a villa at Avery, Surrey, and which he should have covered in by the 17th of September, but, failing to do this, notice was served upon him to rescind the contract, and that the work which he carried out should be completed by some other builder, and that he would be answerable for any loss thereby sustained. In this dilemma defendant applied to plaintiff to effect if possible some arrangement on his behalf, and offered to take the ground and erect a house on which he had commenced building the house on building lease for a term of 99 years at a ground-rent, and to complete the house, at his own expense, according to the specification and drawings prepared by the plaintiff, and requested plaintiff to endeavour to procure for him a lease accordingly. Plaintiff acceded to this request, and, after some negotiation, obtained from the freeholder a consent to grant defendant a lease upon the house being covered in. Defendant agreed to accept the lease, and to pay plaintiff his fees and charges in reference thereto. These were two sums of five guineas each,—one for the drawings and specification of the house (and which defendant was to follow in completing the works), and the other sum was to be paid for the certificate of the lease when defendant should be entitled thereto. An agreement embodying these various conditions was drawn up, and a copy sent to defendant, who shortly afterwards informed plaintiff that an agreement for a lease would not be so beneficial to him as an immediate lease, and requested plaintiff to endeavour to procure a lease to be granted to him, although the house was not then covered in. After some further negotiation plaintiff obtained the consent of the freeholder to this altered arrangement, and intimated same to defendant, and agreed to him for payment of his fees. Shortly afterwards, on the 14th of November, defendant paid one sum of five guineas, being for the drawings and specification, and received from plaintiff a receipt accordingly, and requested to be allowed to pay the second sum at a future period; and plaintiff agreed to let this sum stand over until the lease was ready for execution. On the 29th of November, plaintiff having received information from the solicitor to the freeholder that an appointment would be shortly made for defendant to receive the lease, wrote to defendant for payment of the fees due for the certificate; and defendant, in reply, called upon plaintiff and requested to be allowed the convenience to be allowed to pay them when he received the lease; and plaintiff instructed the solicitor to the freeholder to receive the fees accordingly. The lease having been executed and delivered to the defendant on the 30th of December, plaintiff on the following day wrote to the solicitor for his fees, and was informed that defendant

had stated that he had paid them to plaintiff, whose receipt for 5*l.* 5*s.* he had produced on the occasion.

The defendant upon his oath stated that he had never heard of any such fees being due until he was asked for them by the plaintiff, after the lease had been executed and delivered to him. But upon the plaintiff producing to the court his letter-book, in which were duly entered copies of letters addressed to the defendant, demanding payment of these fees prior to the execution of the lease, the originals of which letters, however, the plaintiff swore that he had never received, although duly served with notice to produce them, and it being found, upon reference to the agreement for the lease which had been furnished to the defendant, that he was to pay the fees in question,—

His Honour said that it was useless on the part of the defendant to attempt to induce the court to believe that he had not received these letters, and that he was not aware from the first of his liability to pay the sum in dispute,—and, indeed, that if the agreement and letters most certainly had, the proved usage of requiring a builder to pay the costs and charges of a surveyor, for such services as the plaintiff had rendered the defendant, was sufficient to entitle the former to a verdict. An order would be made upon the defendant for the immediate payment of the sum claimed; and in addition thereto, he must pay the plaintiff's full costs.

DECISIONS UNDER THE METROPOLITAN BUILDING ACT.

SHOP FRONTS.

An old shop-front, projecting about 5 feet 6 inches, had been entirely removed at No. 114, New Bond street. The district surveyor (Mr. E. C. Hawke) required that the new one should be built in accordance with the 26th section of the Act.

This not being acceded to on the part of the owner, the builder, Mr. Wicks, was named to the Marlborough-street Police-court, and the case heard before Mr. Tyrwhitt. Mr. Frederick Taylor appeared for the builder.

Mr. Hawke stated the case, and contended that, though the right of projection might have been maintained if a portion of the old shop-front had been retained; yet, as it had been entirely removed, and was, in his opinion, an "alteration" amenable to the rules of the Act, it must be set back to 18 inches from the front wall.

Mr. Taylor relied on the 8th and 16th sections, and contended that, as the building to which it belonged was not a new building, the rules of the 26th section did not apply.

Mr. Hawke relied on the 9th section, admitting that it was not a "new building," but an "alteration."

The magistrate was of opinion, that as the projection of the new shop-front was not greater than that of the former, the work was not such a "alteration" as was contemplated by the 9th section, but might be considered as a "necessary repair."

Counsel's opinion has since been taken on this case, and is to the effect, that, though the magistrate's decision is erroneous, it does not contain matter of law upon which an appeal could be founded; there being so much difficulty in showing that the works are not "necessary repair," &c.

A statement of the case has been sent to the Metropolitan Board.

PATENTS CONNECTED WITH BUILDING.*

Roofs.—*T. Martin*, Withybus, Haverford-west. Dated 11th April, 1860.—The patentee forms the roof covering of two layers of slate, laid evenly like flag-pavement, and between these layers he interposes a layer of good non-conducting material, and causes the same to adhere to the slates. By this means he is enabled to form a sheet of slate of any required dimensions, and of uniform thickness throughout.

IRON ROOFS AND BRIDGES. *W. Buckwell*, East Greenwich. Dated 26th April, 1860.—The patentee avoids the use of punched bolt-holes in the tie-beam rods to secure the rods in position, and employs, in lieu of bolts or such-like fastenings, a tie or coupling of peculiar construction, which may be made compensating where great variations of temperature render the same desirable. The tie-beam rods he forms with rounded shoulders at their coupling ends, and he causes the rods to be coupled to overlap sufficiently to allow of the improved fastening being inserted between them.

APPARATUS FOR MAKING BRICKS, TILES, AND DRAIN-PIPES.—*H. W. Inball*, Aldermaston, Berkshire. Dated 20th June, 1860.—This invention relates, first, to a peculiar construction and arrangement of machinery or apparatus for making bricks and other similar articles, in a continuous manner, direct from the pug-mill or otherwise, and consists in the employment of an endless chain of moulds, each mould being considerably deeper than the thickness of the brick, and provided with a pressing piston, operated upon by rollers working up inclines as the chain moves along. As each mould is filled it is conveyed beneath a stationary plate or grating, against which the clay in the mould is pressed by the gradual rising of the internal piston; and, in the case of a grating being used, the superfluous clay will pass through the grating, and may be made to re-enter the pug-mill whilst the moulds continue their course below a fixed plate, against which the clay is pressed by the continued rising of the piston. The pressed bricks so formed are forced out of the

moulds by the continued outward motion of the pistons after leaving the fixed plate, and are deposited on to an endless travelling band, which conveys them away to any convenient locality. Another part of the invention consists in the application of a roller to the lower end of each of the pugging shafts of an improved pug-mill, whereby drain-pipes are more easily made, as the clay is forced or squeezed more effectively through the die. He also proposes to place the pugging shafts and pug-mills so near to each other that their respective knives will cross or intersect each other during their rotation. The stones which may be in the clay are removed by a screening grating, and are carried round by the lower blades to the two opposite sides of the pug-mill, and may be removed through doors made therein for that purpose.

MAKING BRICKS, TILES, AND OTHER ARTICLES FROM PLASTIC MATERIALS.—*T. H. Morrell*, Leyland, and *H. Charley*, Preston, Lancashire. Dated 11th May, 1860.—In carrying out this invention, the patentees arrange a pug-mill so that the clay or other plastic material shall pass through it, and thence through one or more pairs of revolving rollers placed at suitable distances apart. The clay or other plastic material then passes into a chamber in which works a piston or push-plate (or pistons or push-plates), moving alternately from end to end of the same, being actuated by a crank or other convenient means. At each end of the chamber is a die (or dies) of the required form, and also any ordinary arrangement of apparatus for cutting off and removing the bricks or other articles as they are made.

Miscellaneous.

ROYAL HORTICULTURAL SOCIETY.—The new gardens, South Kensington, were opened to Fellows and their friends on Thursday, and will remain so this Friday, 15th, and Saturday, the 16th. Very considerable progress has been made, of which we will speak another time.

ARTISTS' AND AMATEURS' SOCIETY.—The second conversation was held at Willis's Rooms, St. James's, on Thursday, March 7th; the committee for the night being Mr. H. J. Johnson, Mr. E. Richardson, and Mr. J. H. Mole. The attendance was good, and the provision of works of art affluent.

BUCKINGHAM PALACE.—Considerable alterations and improvements are about being made, under the direction of Mr. Pennethorne, in the chapel, at Buckingham Palace, heretofore an ugly, awkward building. The roof is to be raised, maintaining certain old levels and iron columns, and a lantern formed in the centre.

THE GREAT INDIAN PENINSULA RAILWAY AND BHOIR GHAT INCLINE.—There are now from 40,000 to 43,000 coolies in constant employment on this line of railway, and nearly 50,000 were expended in the course of the month of December last on the works, which it is expected will be completed and the Ghat opened before the end of 1862. The engineer is Mr. Berkley, one of the Stephensons' pupils; and Messrs. Tate & West are the assistant engineers. Messrs. Adamson & Clowser are the contracting managers, who act for Mrs. Tredwell, the widow of Mr. Solomon Tredwell, the former contractor, who died while the works were in progress.

PRICE OF MODERN PICTURES.—Judging from the prices realized by the recent sale of a collection of modern pictures, buyers do not seem inclined to pay such large sums for their acquisitions as have hitherto been given. We have, for some time past, felt that there must come a reaction, that the price paid by dealers, in their desire to outbid each other, could not be maintained, and, indeed, ought not to be; for the system was unsound, insecure, and operated to the injury both of artists and the public, by putting a fictitious value upon art. The market, to speak commercially, has been forced up into an unhealthy condition, almost universally acknowledged, but against which none seemed to have the courage to make a stand. As in all similar cases, the disease appears to be at length curing itself, and every one interested in art must rejoice to see a prospect of its flourishing upon sound and just principles as between the painter and the public, the former receiving due remuneration for his labours, and the latter not compelled to pay more than the true value for what is purchased. We cannot recognize in these matters the Hindu-barbaric commercial axiom that

"The value of a thing is just as much as it will bring."

—Art Journal.

* From the *Engineer's* lists.

CHIMNEY-BUILDING.—I beg to submit to you a plan for building chimneys and walls which is much stronger than the common plan, hoping the favour of its insertion. By the common plan all the bricks are laid lengthwise, with a seam of mortar horizontally to cement them together. Now, it is evident that this seam is weaker than the other parts; therefore my plan is to make this seam in a zigzag, by laying the bricks upright instead of lengthwise, alternately, in short and long joinings; the bricks, however, being all of the common size and shape, excepting the lower ones; and thus the chimney cannot break without breaking a zig-zag of mortar, or breaking the bricks themselves. In domes, this plan has, I believe, been adopted.—*L. GOMPERTZ.*

CELLAR DWELLINGS IN MANCHESTER.—From a report presented to the Town Council from the Building and Sanitary Committee we learn that the number of habitable cellar dwellings in 1854 was 4,643, and the cellars then inhabited contained a population of 16,400, whilst the number on the 30th of September, 1860, was only reduced to 4,467, and contained a population at that time of not less than 17,478, showing a reduction of only 176 cells, and an increase of not less than 1,078 in population. The committee rightly say,—“Such a result of six years’ operation of the clauses introduced in the Act of 1853, with the avowed object of doing away as early as practicable with the occupation of cellars as separate dwellings, can hardly be deemed to be satisfactory.”

HEALTH OF SCOTTISH TOWNS.—The Registrar-General reports that the deaths in the eight principal towns of Scotland in January last—2,779—greatly exceeded those of any January since the Registration Act came into operation in 1855. This is partly to be attributed to the prevalence of small-pox, scarlatina, and diphtheria, and partly to the severity of the weather. The deaths in the eight towns in 1860 (26,028) were in the high proportion of 286 in every 10,000. For every three deaths in London, there were four in the Scottish towns. In Glasgow, one half of the deaths in the year were of children under five years of age. The mortality was heaviest in Glasgow and Greenock. In Edinburgh it was 29 in the 10,000, and the Registrar-General notices the advantages that city possesses in its exposed site on sloping hills, and the consequent thorough ventilation of even its most densely-peopled low streets and closes: were its drainage, surface as well as underground, and its sanitary arrangements in the lowest class of dwellings, somewhat improved, and overcrowding prevented, he has no doubt that it would prove one of the very healthiest towns of the kingdom.

THE STATE OF OUR RAILWAY TUNNELS.—A case has been tried in the Court of Exchequer which sheds a strange light on the probable cause of the occasional fall of tunnels. The action was brought at the instance of the South Eastern Railway Company against a contractor for scampering their tunnels at Strawberry-hill and the Grove, and the line of railway between Tunbridge Wells and Robert’s-bridge. Mr. Barlow was the chief engineer, and Mr. Richardson, now in Portugal, as the resident engineer. The general merits of the question may be most briefly gathered from remarks by the judge in summing up. His lordship said that it appeared to him a very extraordinary and monstrous thing that a tunnel 16 yards in length should have been constructed on one course of cemented bricks instead of four, the loose bricks being put as a superimposed weight upon the cement. If all the tunnels were built in the same way he should not be surprised to find that some active member of Parliament had moved to inquire into the state of the tunnels all over England. It had been said at Mr. Warden (the contractor and defendant) is no party to the fraud. It was a juggle between the underlings on both sides. It was a matter of surprise to him that the principal engineer should have visited the works but once a fortnight, and then he said that they knew of his going, and prevented him seeing what the work really was. Knowing all this, Mr. Barlow ought to have gone to his works, as the late Duke of Wellington did to his hospitals during the Peninsular campaign,—when he was the least expected, the engineer appeared to have had a gleam of suspicion once; but, having so much to do elsewhere, did not seem to have given himself the least trouble about the matter. The jury returned a verdict for the plaintiffs—damages 3,500*l.*, the remainder adding that the litigation might have been avoided if the company’s engineer had attended to his duty.

DRAIN-PIPE SLEEPER.—Mr. Pym, of Laurence Pountney-hill, has just patented an improved railway sleeper, which he denominates the drain-pipe sleeper. It is described in the *Mechanics’ Magazine* as a sleeper with a perforated metal trough under it as laid down. There is great need of some such mode of draining the permanent way.

SUPERINTENDENT ARCHITECT OF THE BOARD OF WORKS.—On Wednesday the various candidates for the vacant appointment attended before a committee of the Board to be seen. Fourteen or fifteen gentlemen presented themselves, including Mr. Kerr, Mr. Sancton Wood, Mr. G. Vulliamy, Mr. F. R. Wilson, Mr. C. Fowler, Mr. John Billing, Mr. Young, and others. The election will take place this day, Friday.

THE LOUVRE.—The gallery of Apollo, at the Louvre, which has not been devoted to any particular purpose, is receiving a collection worthy of the richness of its decorations. In glass cases, placed in three rows, are to be preserved the most beautiful objects of art selected from the private collections of the Louvre; such as antique bronzes, Nola and Etruscan vases; Egyptian, Greek, and Roman *bijoux*; also those of the Renaissance, Limoges enamels, Italian and Palissy porcelains. The Apollo gallery will thus become what the Salon Carré is for the collection of paintings—a repository of the finest specimens of art. The Museum of the Louvre has also increased its collection by two works of artistic importance. The director of the Museum has purchased a cartoon of Leonardo da Vinci, representing a female, in profile to the waist, of full size; and a *tryplich*, attributed to Menclung.

LYNN REGIS WATER WORKS.—The corporation have erected new water works near their present old works, to give the town a constant supply of water. The new machinery consists of a powerful pumping-engine, of fifty-horse power, and duplicate boilers, fitted with every requisite: the machinery is so arranged that the old engines are to work from the new boilers in addition to the new engine. The buildings consist of engine-house, boiler-house, lofty chimney shaft, with a 5-foot flue; engineer’s residence, boundary fencing, stand-pipe, and culverts from filter beds. The engines and boilers have been at work for the past three months, and were manufactured by the Kirkstall Forge (near Leeds) Company: the other portions of the works were carried out by Mr. Richard Freeman, of Ely. The engineer to the corporation was Mr. Stephenson.

LABOURERS’ COTTAGES.—Sir L. Palk has before the House of Commons a Bill for facilitating the building of improved cottages for labourers. It proposes to enable a landowner or his trustee, guardian, &c., building or improving cottages on the estate, to charge the land with the repayment of the outlay and interest thereon, the repayment to be made in periodical sums within a period of from 10 to 30 years. The chairman of Quarter Sessions is to make a charging order to this effect; but the lands charged must be situate in the same parish as the cottages, or within a mile of them; and there is not to be in respect of any one cottage a greater charge than 140*l.*, with 4 per cent. interest. The charge is to have priority over all other charges except tithe rent-charge, quit-rents, and existing drainage or other improvement charges under Act of Parliament. The tenant for life is to pay the instalments as they become due, and the remainder-man is not to be liable for life is to keep the cottages in repair and insured.

BUILDING PROGRESS IN BOSTON, U.S., IN 1860. The Bostonians appear to be erecting buildings at the rate of something like a small city every year. In 1860 they erected and remodelled

New Buildings.		Cost.
In the City Proper.....	477	dols. 4,412,900
“ South Boston.....	431	1,235,000
“ East Boston.....	69	128,500
By the City.....	7	184,170
Remodeling others.....		21,166
Dover Street Improvement..		46,125
Total.....	984	dols. 5,978,161

Compared with the operations of 1859, the investments in new buildings last year had been less by about 4,000,000 dollars. A large proportion of the investment of 1859 was in expensive stores in Franklin-street, and numerous high-cost houses at the South-end. The stores erected last year, though fewer in number, are equal in point of character, while enterprises already commenced promise to outshine them all. The statistics given above do not include many buildings which were commenced in 1860, and which form the basis of very extensive operations for the present year.

THE SOCIETY FOR PROMOTING AMENDMENT IN THE LAW.—We are glad to observe that this much-needed association is still actively progressing with its useful suggestions and papers. At the meeting on 25th February, two papers on the Bankruptcy and Insolvency Bill, one by Mr. Edgar, and the other by Mr. W. Hawes, were read, and both papers have been printed in the Transactions of the Society, which is now holding its eighteenth session.

HEREFORD OLD TOWN-HALL.—The Vandals have triumphed: the old Town-hall has been swept away, and the remains cleared off to various parts of the country. A correspondent says,—“Had you seen the fine remains, in a state of half demolition, when the plaster was off, and all the old woodwork remaining, I am sure the regret you expressed some time back would have been increased, more especially as there was not the slightest cause for its removal.”

THE LABOUR QUESTION.—The bricklayers’ strike at Warrington has begun to assume a rather serious aspect. A turn-out has just been fined 50*l.*, and costs, or two months’ imprisonment, for intimidation and assault; and others have been summoned to answer for the same misconduct.—The operative masons at Bath are still out on strike. Both masters and men have held meetings. The masters resolved to give the extra 4*d.* per day, but to shorten the time of labour only half an hour. The few employers who acceded to all the demands of their men have, in consequence, withdrawn their concessions, and their men have joined the turn-outs. The desire to better their condition on the part of the carpenters and joiners, and the masons—the former have gained an advance of 3*s.* per week—has spread to the plasterers and painters.—The nine-hours day’s work has been insisted on (with reduced payment) by all operative masons in Leith, near Edinburgh, and several masters have yielded: others have discharged most of their men; and building contracts for the opening season are being seriously checked.—At a recent public *soirée* of the Organised Trades’ Association of Sheffield and the neighbourhood, a report was read, from which we take the following:—“In almost every case of dispute brought to the notice of the society, the peaceful efforts of the executive have been crowned with success. The association consists of twenty-six trades, embracing an aggregate of 4,000 members, an increase since last year of 600 members. In connection with the joiners’ tool trade, a dispute of a threatening character arose. The trade itself failed to negotiate, but a deputation from the associated trades was successful. A threatened lock-out of the tailors was also averted by the executive’s timely interference.

JAPANESE IMITATIVE SKILL.—Some recent instances which we gave of the alleged skill of the Japanese have excited no little attention; but surprising as they were, they are far excelled by an account, which we extract from the *New York Times*, of what those United States officials who accompanied the Japanese ambassadors in the *Niagara*, U.S. Government ship, to Yedo, happened to be uninvited and undesired witnesses, while delivering a series of presents into a Government store near Yedo. The presents had been rather scurvily housed, and the Yankees were guessing whether some of the other store-houses, which were so much superior, would not be more proper receptacles for the American presents to the Tycoon; and one of them began to move in that direction, when immediately the ambassadors, officers, and soldiers trooped around him in a body; and, in the politest and most imploring manner, beseeched him not to wet his feet unavailingly, as the keys were at Yedo, and there was nothing to be seen. Nevertheless, the officer persisted; and, after reaching a doorway, a gentle push disclosed the entrance; and lo! on either side of the shed lay seventeen of Dahlgren’s 12-pounder boat howitzers, with boat carriages, and all had the appliances complete as could be,—all evidently copied from one presented by Commodore Perry,—and only differing in some minor improvements from those just landed outside! The looks of sheepish dismay which the Japanese assumed when this discovery was made (adds the narrator) baffles all description; but at last one of them recovered his speech; and, in reply to an inquiry, assured the officers that they had upwards of 1,000 more of the same guns in the forts and arsenals at Yedo,—that is, about ten times the number of all the American navy,—and were still employed in making more!! If this extraordinary story be true, it indicates something else than surprising imitative skill in the Japanese: they are evidently bent on astonishing the barbarians shortly, in quite another way.

PUBLIC PARK FOR BARNSELEY.—At the sale of the Duke of Leeds's estates at Barnsley, on Thursday week, the widow of the late Joseph Locke, esq., M.P., purchased the 17 acres called the High Style Field, for the purpose of presenting it to the town of Barnsley for a people's park. The cost of purchase was 1,890*l*.

DISTRICT TELEGRAPH CHARGES.—It is not generally known that the London District Telegraph Company now forward messages to all parts of London and the suburbs,—fifteen words for 6*d*., and twenty words for 9*d*.. Addresses free, and postage free within certain limits. Seventy stations are now open.

EXTENSION OF GAS-WORKS, DONCASTER.—The Gas Committee of this borough are about making a considerable enlargement of their works by the addition of a new tank and gasholder, capable of storing 200,000 cubic feet of gas. The works are the property of the company; and Mr. Josiah F. Fairbank, C.E., of Scarborough, is the engineer for the additions above referred to.

ACCIDENTS TO BUILDINGS.—The large building recently erected at Portsmouth, for Cooke's circus, has been destroyed by fire, and eight valuable horses burnt to death in the stables, where the fire originated. Seven houses adjacent were also burnt through, and eight partially destroyed. The total loss is estimated at upwards of 4,000*l*.

—The large warehouse of Messrs. Bamford & Co., Chapel-lane Staith, High-street, Hull, has fallen to the ground. The warehouse was built of brick and wood. The upper portion contained many hundred quarters of wheat, some considerable portion of which fell into the river and was lost. The damage will amount to several thousand pounds.

TESTIMONIAL TO THE EX-TOWNS-SURVEYOR OF TYNEMOUTH.—The workmen of the corporation of Tynemouth waited upon Mr. Fenwick at his residence on Saturday, and presented him with a beautiful silver-mounted dressing-case, and an address, in which they say:—"Your official career is an example, fortunately one among many in modern times, of the exercise of authority with a practical regard to the proper feelings of the men over whom it is exercised. It shows that tyranny is not necessary to secure from workmen a proper discharge of their duties, but it has been such as to make duty a pleasure." Mr. Wilson made the presentation on behalf of the workmen, to which Mr. Fenwick replied in suitable terms.

PAPER LINEN.—The London Lace Paper Company, in the Strand, are bringing out a new invention, called paper cloth, for ladies' collars, cuffs, and similar articles. The *Critic*, in noticing it, says:—"It is extremely beautiful, and so very cheap (say 3*d*., a collar) as to threaten to drive crochet-work entirely out of fashion." The material, if it be like some we have seen, consists of a very slight fabric of woven stuff, felted, as it were, with linen or other fibrous shreds, such as paper is made of: it is a sort of shoddy-linen, in fact, if we may so describe it; and has all the appearance of starched linen at a very little distance: looked at closely, however, no texture like that of woven linen appears. Men's collars are sold at 6*d*., a dozen by a stationer in High Holborn! Each, it is said, will last a day or two, and be "reversible" even then! The washerwomen and laundresses may look out for squalls. We should not wonder to see Japanese paper handkerchiefs next in hand!

BRICKMAKING BY STEAM.—At Dunston, near Newcastle, Messrs. Dixon & Corbett are manufacturing bricks by steam. The machine is the invention of Messrs. Clayton & Co., of the Atlas Works, London. It consists of an upright cast-iron cylinder, into which the rough clay is filled from the top. Inside the cylinder are revolving angular screw blades; which, after "pugging" the clay, force it down to the bottom. Here, by a plunger or piston, it is further forced through the moulding orifices. From these it finally exudes in a continuous stream of the requisite dimensions, and is supported upon small rollers covered with moleskin until cut into slices in the form of bricks. This process is going on simultaneously at opposite sides of the cylinder, where two boys fork them on to palette boards, and convey them to the drying-house, without having touched them or flattened the edges. The principal advantages of this patent are said to consist in the revolving dies, or perpendicular rollers, between which the clay exudes from the moulding orifices; and in the clay being stationary while it is sliced; together, giving sharpness to the edges of the bricks. The machine is capable of manufacturing upwards of 1,500 bricks per hour, while 400 is the usual number formed by hand.

ELY.—The Local Board of Health have put down an additional engine to their present engine, and new boilers of twenty-horse power. They have also erected a new chimney shaft 100 feet in height, and other improvements at their pumping station. The engine and boilers were manufactured by the Kirkstall Forge Company, and the other works were carried out by Mr. Richard Freeman, of Ely. The engineer was Mr. Baldwin Latham.

NEW GAS-METER.—A new gas-meter has been constructed by Messrs. Law & Co., of Langham Works, George-street, Great Portland-street. It is constructed upon a new principle, invented by the late Samuel Clegg, C.E., with the view of facilitating the work of the Government and gas companies' inspectors. The drum, from its peculiar construction, it is asserted, requires much less pressure than any meter now in use. It is supported at the end of a lever, which allows it to rise and fall with the water; and the same motion of the drum shuts off the gas when the water in the meter-case is too low, obviating the necessity of a separate float for that purpose.

LIGHT IN THE MUSEUM OF PRACTICAL GEOLOGY.—Sir: The lectures at the Museum of Practical Geology in Jernyn-street are for the working men, and they commence at eight o'clock in the evening, and in general terminate about nine o'clock. If there were a gas pendant placed so as to give a light over the audience, the lecture might become of practical value, as we should be able to see to write and take such notes as are useful; also, if, after the lecture, the Museum were lit up till ten o'clock, or on Tuesday, Wednesday, and Friday evenings from seven till ten, it would cease to be a theoretical museum, and become, as its title imports, a practical museum.—A *CRIP*.

A ST. JAMES'S HALL FOR BRISTOL.—A joint-stock limited company, with 12,000 shares of 1*l*. each as its capital, has been projected for the erection of a new Public Hall, on a central site already obtained. The mayor the high sheriff of the city, and members of Parliament, are said to have given the project their entire approval. A design has been made by Mr. H. Masters, who is the architect and surveyor to the company. The prospectus states that the main feature of the building will be a large hall, to seat 2,400 persons, or give standing room for 5,500. For smaller meetings, a smaller hall will be provided, seating about 400 persons. There will also be other rooms of still smaller dimensions, for the meetings of societies, clubs, or committees. On the basement-floor, kitchens and other rooms will be provided for public dinners or tea meetings. The great hall, it is said, has been designed with a special regard to sound, and ease and safety in ingress and egress.

SPECTRES OF SOLAR METALS: THE SUN ANALYZED!—When metals are consumed by fire, it has been discovered that each, in its vapour, manifests the presence of a special spectrum (spirit or ghost, as it were, of the departed metal), whereby the nature of the metal may with certainty be recognized: not only so, but that, although mixed with the vapours of other metals, each spectrum remains perfectly distinguishable from every other. The variously-coloured lights produced by the combustion of the metals are passed through a glass prism, and the images are received on a white screen, on which "magical mirror" appear the separate spectra, which never vary for each metal. In this way it is said to have been ascertained, by two associated German chemists at Heidelberg, not only that metallic vapours exist in the solar atmosphere, but what these actually are,—namely, iron, nickel, sodium, magnesium, and others of the earthy bases common to the globe on which we live! Should there be no unperceived source of error or illusion in this, here is the way to a wonderful revelation of mysteries! The purity or impurity of many substances, it is said, has thus been ascertained under circumstances where no other method would have been of any avail. The presence of poisons, too, may thus be tested. A new metal, or metal with a new spectrum, has already been discovered in a spring of water, and the metal has been obtained, although it took several tons of water to produce a few grains!

ABINGTON CHURCH, NORTHAMPTON.—A stained glass memorial has been placed in the east window of Abington Church. The window consists of three divisions. In the centre is the figure of our Lord, as the good Shepherd; and on the sides are Peter and Paul, with angels holding scrolls, and the Lamb, in tracery. On a brass plate underneath are the words "Glory to God," and the inscription. Messrs. Heaton & Butler, of London, were the artists.

TENDERS

For the erection of a public hall, for the Reigate Public Hall Company, Limited. Mr. John Lee, Reigate, architect. Quantities not supplied.—

Holdsforth	£3,911 10 0
Fisher & McLean	3,650 0 0
Carruthers (accepted)	3,127 0 0

For works, No. 35, Wimpole-street. Mr. Eales, architect.—

Batterbury	£919 0 0
Clark & Mannoche	810 0 0
Cleunens	799 0 0
Alroy & Bellingham	795 0 0
Longmire & Burge	794 0 0
Simpson	780 0 0
Morris	751 10 0
Phillips	748 0 0

For alterations and repairs at Messrs. Smith & Son's, 1, High-street, Islington. Mr. James Wagstaff, architect.—

Williams	£274 0 0
Brice	258 0 0
Hill & Son (accepted)	258 0 0

For additions to Grove-hall Lunatic Asylum, Bow, including credit for 20,000 new stock bricks and the materials of the buildings to be taken down; for Mr. E. Byas. Mr. James Tolley, architect:—

Hill	£1,313 0 0
Little	1,308 0 0
Perry	1,267 0 0
Ashby & Horner	1,238 0 0
Helges	1,194 0 0
Ennot	1,193 0 0

For an engine-house for the parish of Christ Church, Middlesex. Mr. James Tolley, architect:—

Langmead	£310 0 0
Norman & Son	285 13 7
Pritchard & Son	264 0 0
Parg	253 0 0
Tolley	247 0 0

For a new mill, engine and boiler houses, chimney, &c., to be built at Hailu, for the Hailux Cotton Manufacturing Company (Limited). Mr. John Dearden, architect. Quantities not supplied.—

For Mason's Work.

Gleghin & Turner	£1,165 0 0
Pratt	3,587 0 0

For Carpenters and Joiners Work.

Scott	£2,909 0 0
Kershaw & Gill	2,250 0 0
Dyson & Son	2,200 0 0
Pulman	2,200 0 0
Tuley	2,199 10 0
Lister	2,183 5 0
Naylor	2,140 0 0

For Iron founder's Work.

	Pillars, per cwt.	Troughs, per cwt.
Pearson	£20 6 0	£20 6 0
Baird & Brothers	0 6 3	0 6 3
Union Foundry Company	0 5 10 $\frac{1}{2}$	0 5 10 $\frac{1}{2}$
Berry	0 5 9	0 5 9

For Sluic's and Plasterer's Work.

Webb	£211 8 5
Pickard & Lister	320 0 0
J. Taylor	318 6 1
S. Taylor	288 0 0
J. Amulet	279 0 0

For Plumber's Work.

Walsh	£148 0 0
Stafford & Co.	140 0 0
Holdsforth	140 0 0
Daniel	139 0 0
Lees	129 0 0
Horsfall	118 10 0
Pirth & Son	117 0 0

For a new Church at Stapleford Abbots, near Romford, Essex. Mr. T. Jeckell, architect:—

	Church.	And if oak seating, Apparatus.
Spaul	£1,061	£20
Savill	1,561	95
Beevis	1,486	170
Dove, Brothers	1,494	105
Hammond (accepted)	1,444	83

For house, St. John's, Woking. Mr. T. Goodchild, of Guildford, architect. Quantities supplied.—

Wood	£1,724 0 0
Moon & Son	1,480 0 0
Garnett (accepted)	1,407 0 0

For completing a villa at Wimbledon. Mr. W. H. Bonnois, architect:—

Holland & Co.	£2,354 0 0
Longmire & Burge	2,285 0 0
Trotter & Sons	2,273 0 0
Macey (accepted)	2,125 0 0

For five almshouses at Brighton, for Miss Wagner, Mr. T. Simpson, architect:—

Busby	£1,798 0 0
Cheesman & Co.	798 0 0
Winder	675 0 0
Fabian	672 0 0



The Builder.

VOL. XIX.—No. 946.

Researches in Greece.



IN continuation of previous remarks,* we proceed to consider some of the most striking features brought to light by Mr. Cockerell and his friends in the architectural and sculptural details of the Temple at Ægina.

The first point that occurs to us is the marked similarity in plan between such a temple as that of Panhellenian Jove and a Christian Church in the Middle Ages. As the ceremonies of the Hellenic religion consisted primarily of sacrifice, the cella of a Greek temple was not intended to accommodate a congregation, or to serve "any other purpose but that of a receptacle or habitation for the god."

Accordingly every resource of costly material and of elaborate art was expended upon the idol and its immediate residence: in Mr. Cockerell's words, "the architecture with which the interior was decorated was calculated to enhance the impression of the image of the god, and made wholly subservient to that purpose. . . . The interior was generally adorned with a double order of small but proportionate columns, much after the manner of our own Gothic cathedrals, dividing the cella into a nave and two side aisles: the whole of the nave was occupied as a niche by the colossal figure of the god, the aisles by statues of deities more or less closely associated in his worship."

Such being the case, the artist's design was, of course, to impress the mind, or rather the feelings, of the spectators, by the contrast of proportions, and by other artifices. One of the chief means on which the artist relied was the well-known Hypæthral roof,† which, in that clear and brilliant climate, was not required to be very large in dimensions, and was so arranged as to throw down the flood of light full upon the statue below. This is not the least interesting of the numerous details on which our author dwells, and one which has received an additional illustration of the utmost importance from Mr. Cockerell's researches, in the course of which he discovered the coping or top stone against which the tiling finished towards the opening, as may be seen by referring to Plate V., flank and section. It is unfortunate that the two fragments were broken at the ends, so that the mode of finishing this member towards the Hypæthral is still a matter of conjecture, although it is clear that these stones were nicely cut to receive the upper ends of the tiles and covering the tiles.

The acroteria of the temple are also among the unhappiest novelties of the details discovered by Mr. Cockerell and his friends. No doubt, in all such buildings as the Grecian temples, some finish was needed at the ends of the roof, in order to please the eye, and gratify the taste; and, though very scanty remains of any such ornaments have come down to us, we know that they were always among the most carefully elaborated portions of

these edifices.* Being elegant in form, fragile in substance, and easily transported, we can be at no loss for a reason why no perfect specimens of this particular decoration have come down to us. And accordingly our obligation is increased by the very beautiful vignettes of the eastern and western acroteria from Ægina, to which the student will do well to refer. He will find there the mode by which the acroterion, in its entire composition, was fitted on to the cymatium, and also the manner in which the figures were separately inserted in a small plinth, run with lead; and how each acroterion, as a whole, was sustained at the back by a support, at right angles to itself, in the form of a lion. It may be of interest to learn that the specimens of acroteria here given by Mr. Cockerell accord very closely with the Vitruvian rule,† which lays it down that those at the angles should be equal in height to half the tympanum of the pediment, and that the central one should be higher than the others by an eighth.

There are several other architectural details of more than ordinary interest, which the student will learn from Mr. Cockerell's book. Such, for instance, is the fact that a departure is made at Ægina from the rule of Vitruvius, and also from the usual practice in Greece, in the arrangement of the columns, which here are six in front, and twelve only (instead of thirteen and fourteen) in the flank. Such, too, is the very great depth of the tympanum beyond the plane of the entablature for the reception of the sculpture, and such the structure of the entablature itself, the cymatium and tiles. It is also not a little remarkable that the angular columns are somewhat larger in diameter than the rest, in accordance with the rule laid down by Vitruvius. Mr. Cockerell, too, dwells much on "the inclination of the axis of the columns both in the fronts and in the flanks," giving the whole pile, as he remarks, that "pyramidal effect which is universal in Greek architecture, but which we have never practised in our modern imitations."

Another matter of some importance, established by Mr. Cockerell in the course of his Æginetan investigations, is the material of which the tiling of the Grecian temples was composed. It is well known that the commissioners sent out to Ægina by the Dilettanti Society placed upon record their opinion that this material was marble; but the excavations made by Mr. Cockerell and his friends brought to light some portions of the actual tiling made of a kind of terra-cotta, which he describes in detail. "The cave tiles," he adds, "with the joint tiles, however, attached to the antifixæ, together with those surmounting the pediment, were of Parian marble: those within this border were wrought in a fine tile of light yellow earth, together with the saddle or ridge tiles, and the painted antifixæ, corresponding with those of the eaves, and surmounting the roof." Mr. Cockerell and his friends, as we learn from a casual note, had already found instances of this arrangement in the course of their researches among the ruins of the Parthenon, and in the temples at Rhamnus and Eleusis.

The plates which accompany the work will serve to show the student to what an extent colour was adopted by the architects of ancient Greece in the external decorations of their temples. Referring to this subject, our author remarks:—

"In considering a subject which appears to us so extraordinary as the external painting and gilding of architecture, it must be recollected that though the Grecian buildings were grand in their conception and ideas, their scale was small; and that hence they required a greater nicety and delicacy in their execution: the colours served as a means of distinguishing and heightening the effect of the several parts otherwise inanimate. To paint white marble or other stone exposed to the open air is discordant with our northern prejudices; but if we take into account the fact that in Greece all Nature is full of vivid colour and variety, the constant white which might be in unison with our northern grey would have seemed spectral and monotonous in Ægina. It may also be observed that the mildness of the climate, and the purity of the atmosphere, rendered works of finished execution much more secure from decay, and admitted refinements

in sculpture and painting that would be thrown away here in England. The inhabitants of those more settled climates, passing much of their time in the open air or under the shade of porticoes, would contemplate the highly-wrought detail of ornament on the exterior with the same convenience as we do those of our interiors. Indeed, it will be found that the chief temple of the Grecian architect lay chiefly in the exterior effect, while all within was secondary, except the provision of a receptacle sufficient for the image of the god."

To these observations Mr. Cockerell appends a remark in which we concur, to the effect that the taste for colour on their exteriors was probably much increased by the intercourse of the Greeks with Egypt, where colour was universally applied in that manner.

The other architectural details most worthy of note to the student are the curious slanting ascent at one end of the Temple, up which were driven the beasts intended for the sacrificial altar (which will be seen in Plate VI.), and a small square block of stone near this ascent, as to which Mr. Cockerell speaks a little doubtfully, though he appears to consider that it was a lesser altar, for sacrifices offered to lesser deities or heroes. It is possible that this supposition may be borne out by the well-known distinction between *ara* and *altare*, as in the lines of Virgil:—

"En, quatuor aras;
Ecce duas tibi, Daphni, duas altaria Phœbo."

Mr. Cockerell, however, has not confined himself to an account of the architecture of the Temple, but has devoted some space to an elaborate examination in detail of the method by which it was put together, and of the mechanical appliances adopted; which, though somewhat primitive, exhibit great constructive skill. He has shown that the columns were in part monolithic, and partly composed of frusta, and that the stones of which such columns as were not monolithic were composed were mostly raised to their places by means of ropes twisted into loops, though the block, the lewis, the lever, &c. were also called into use. From the peculiar feature of this edifice, namely, the fact of the columns being partly monolithic and partly not, Mr. Cockerell draws a very obvious confirmation of the date* which he assigns to the erection of the Temple, as arguing a transition state from the early monolithic period to the more advanced, but far less durable, plan of joining several blocks into a single shaft. It is remarkable, though easily to be accounted for, that all the columns which have reached the nineteenth century entire are of the former kind; so true is Mr. Cockerell's remark that the less artificial method is often the best, "since the simple monolithic stones have descended to our own days, whilst time has swept away the lofty edifices which subsequent ages have erected."

The great prize, however, which was gained by Mr. Cockerell and his friends, (though we cannot add that it was secured for England, as our readers are already aware), was the splendid series of sculptures which once adorned the eastern and the western pediments of the Temple at Ægina. Many of our readers, no doubt, will remember to have seen them in the Glyptothek at Munich; and those who have not will find them carefully described in Murray's "Handbook of Southern Germany;" so we will not attempt to describe them at length, or indeed do more than give a brief *resumé* of the chief points touched upon by our author in the chapter which he devotes to their enumeration and description.

Ægina, as every classical scholar knows, was the home and nursery of art a century before Athens began to assume that character. Her school of sculptors was celebrated as far back as the seventh century, and was declining when Athens was rising into artistic fame under Phidias. It is probable that the Æginetan school owed its origin to the commercial intercourse maintained in early times between that island and the colonies in Ionia; and that it was at its zenith from about the middle of the sixth to the beginning of the fifth century B.C. Be this, however, as it may,

* See pp. 133 and 163, ante.

† The nature of this Hypæthral has been much discussed among learned writers, and the errors of some previous commentators on the subject have been exposed by Q. M. De Quincy, *Jupiter Olymp.*, paragraph xii., p. 292-3.

* See plates to "The Erechtheum of Athens, by H. W. Inwood." Folio. London, 1827.

† Vitruv. iii. 3.

* See p. 153, ante.

we know from Pausanias that Egina enjoyed a monopoly of the manufacture of the lesser accessories of sculpture, such as idols, small household statues, and decorations for temples. Still, until the excavations made in 1811 by our author and his friends, there were no authentic specimens extant of Eginetan sculptures, properly so called; and Mr. Cockerell strongly urges, as one result of his labours, that it is now an established fact that Etruria was far more indebted to Egina than the learned had imagined, for much of the chief merit of the school of art which is generally known as Etruscan.

The sculptures dug up in Egina were restored at Munich; but, Mr. Cockerell considers, not in a very satisfactory manner. In his opinion, each of the pediments of the temple contained not eleven only but thirteen statues; and we must own that in our judgment his reasons for this opinion seem conclusive. He gives the reader his own restoration of the entire series, in some elaborate drawings, which deserve a careful and patient study. According to his reading, the sculptures on the eastern pediment—the finer of the two in point of design, though in a less perfect state of preservation—represent a scene from the early siege of Troy by Hercules, in which Minerva forms the central figure, though it is impossible to assign names to the rest of the characters introduced into the piece. The subject of the western pediment is evidently the combat of Patroclus and Hector, as related in the Iliad of Homer. The Telamonian Ajax defends his friend, assisted by Teucer and Ajax Oileus. To the left stands Hector, who has felled him to the ground; and Hippolytus is about to strike the fatal blow. Paris, also, is clearly distinguished in the rear ground. The figures in both pediments are full of life and spirit, and, indeed, of all those characteristics which are noted by writers on early works of art—such as the energetic squareness of the attitudes, the largeness of the heads, the robust limbs, the trim hair, the hollow cheek, the long and square chin, the angular profile, the short neck, and last, not least, the gallant smile* about the mouth which is so often attributed to his heroes by Homer. Mr. Cockerell remarks that “the extreme stiffness and regularity of the drapery may have been considered as proper to the sanctity of the demigods represented, and as suited to the squareness and mechanical regularity of architecture; but doubtless it was also in a great measure conventional, and was generally employed in sculptures which bore reference to the deities.” We may add that in either pediment the figures, as restored by Mr. Cockerell, are arranged on both sides in perfect accordance with the architecture, and with a gradual and harmonious succession of objects, so as to produce an admirable harmony. As to the elaborate nature of the details, Mr. Cockerell remarks:—

“In the execution we cannot but admire the enthusiasm with which the artist has laboured, completing even those parts which the eye could never reach in isolated and individual statues, and balancing them on their own limbs on pinths, by their natural equilibrium, and without any of those props and helps which, however permitted by the convention, are, nevertheless, unsightly and destructive of the true effects of statuary. Attached to a pinth, which was let into the upper surface of the cornice and run with lead, the statues were mostly cut out of one entire block, with a surprising power of execution. The shields, not more than three-quarters of an inch in the thickest part, are wrought in the solid, together with the whole figure. Not a single evidence of artificial support was discovered in the western pediment; and, in the eastern, only one foot had a solid part from the pinth, carried up a little above the ankle for this purpose. The boldness of such execution is surprising, and so is its delicacy. The curls of hair were wrought in lead (specimens of which were found in the course of our excavations): the Gorgon's head, the serpents of the Aegis, the bows and arrows, the quivers, the lophos, and the check-pieces, were for the most part separate, and attached subsequently.”

If any one of our readers desire to make himself master of these details, we must content ourselves with referring him to Plates XIV., XV., and XVI., which, together, form a study for the statuary and the scholar alike.

We shall devote one more article to this subject.

ON THE PHOTOGRAPHS IN THE ARCHITECTURAL PHOTOGRAPHIC EXHIBITION OF 1861.

THE committee of the Architectural Photographic Association, not content with supplying a very large and fine collection of photographs to their subscribers to choose from, have moreover had the good fortune to secure the services of several gentlemen, very eminent for their attainments in the various styles of architecture. These gentlemen have successively addressed you upon various subjects, taking the photographs themselves as their text. It now falls to my lot to attempt the completion of the work, by pointing out photographs which may not have come within the scope of these individual lectures, at the same time taking a general *résumé* of the collection.

You will not of course expect me to attempt to reconcile the various opinions of the different lecturers, for it is no part of the scheme of the committee to possess the luxury of having opinions or convictions.* Indeed, committees generally very seldom are troubled with either. We do, indeed, profess to have a conscience, but our funds, although by no means in a bad state, are not yet sufficiently overflowing to allow us to have opinions and convictions. The consequence is, that every gentleman who is kind enough to offer us his services is quite free to express his own individual opinion; and you must not, therefore, be surprised when you hear two different dicta on two different evenings, and those even upon the chief object of our Association, viz., the use of photography architecturally considered. Thus my friend Mr. Pullan suggested that an architect should travel about with a pistolgraph (whatever that may be), and bag his sixty pieces of detail per day. Mr. Lamb, on the other hand, tells us,—“If the student acquires the art of the manipulation (of photography), that a more important branch of the art (of architecture) will be neglected.”—and that photography is but too often substituted for sketching.” Now my own conviction differs from that of both these gentlemen; and if I may be allowed to add a third opinion to the other two, I should suggest that both photography and sketching are but too often substituted for drawings measured on a ladder, and plotted at the foot of it. Of course it is very fatiguing, first to hunt up a ladder, then to help raise it, and afterwards to be jumping up and down it all day long; besides, one gets very dirty, and there is very little work to show at the end of the day; whereas, you might bag (to use Mr. Pullan's expression) your three sketches at the very least (I have heard of a dozen having been done before breakfast). Again, how much more satisfactory it is to be able to show your twenty or thirty negatives as the result of your day's labour, although it be but a negative result. However, there is this consolation,—that the measurer will know all the ins and outs of the building,—why this detail is treated in a particular manner, and why that method of construction was employed; while the sketcher will simply have an idea that such and such elements form a picturesque group, although he will probably be quite ignorant of the construction which determines the form of such elements and the necessity for their peculiar grouping. As to the photographer, poor fellow! the extent of his knowledge will probably be, that under certain circumstances the honey process is the best, and that under others the collodion answers better.

Indeed, the sum of my advice to my fellow students would be,—Measure much, sketch little, and, above all, keep your fingers out of chemicals. If you want photographs, and very useful things they are by the way, go and buy them where you can get them best and cheapest,—at the present

Association, for instance, which is established for this very purpose. But all the photographs in the world won't make you an architect, and I am only too glad of it; for if it were otherwise, it is evident that the wealthiest man, who already enjoys too many advantages in the opportunities of leisure, of travelling, &c., which are denied to his less favoured confrère, would be the best architect. If at any day, and I hope that day may come, we have a national architecture, and all practice in one style, as in the days of old, the grammar of the art will be taught in the architect's office (where, by the way, not much is taught now), in the stone-yard, and the carpenter's shop. Hence, I say, we shall all, rich or poor, start fair, and men will be able to direct their attention to composition, and expressing their thoughts in stone, instead of passing their lives in trying to master the details and principles of half a dozen different styles,—all of which, being intended for different climates and conditions of society, are at variance with each other.

The latter condition, however, being our lot at present, the committee have endeavoured to afford a choice of photographs which may be useful to those practising in almost every style under the sun. Thus, if any gentleman has a penchant for Hindoo architecture, he will find some most excellent studies by Dr. Murray and Captain Dixon. Should he, however, think the Egyptian a particularly neat style, and especially fitted to the exigencies of our climate and of our building materials, he can choose from thirty-one capital photographs by Mr. Frith, which have, moreover, the advantage of having been illustrated by a lecture by Mr. Bonomi, who has pointed out in the clearest manner the ages of the different capitals, so that our architect may be saved the anachronism of putting, in the same shop-front, a column of the time of Sesostris supporting an entablature of the date of the Ptolemies.

Again, he may range through the Roman edifices illustrated by Macpherson, the Venetian Gothic by Ponti; the wonderful French work of the thirteenth century by Baldus; and, lastly, a very large collection of the buildings erected in our own country by Fenton, Bedford, Dolomieu, Bullock, Thompson, and others. To the amateur the collection is particularly valuable, as it enables him to grasp the various characteristics of the different styles without wading through an immense mass of books and plates, the latter being but too often incorrect and worthless. As to the architect, I am not quite sure whether much knowledge of this kind is very desirable. His business is to act, not to talk; and I very much question whether he will gain much good by studying other styles than the one he practises in. I am, however, certain of one thing, viz., that the time would be much better spent in making himself acquainted with the figure, and that until he has mastered it, and undergone a long course of measuring from the buildings of his own style, he had much better lay aside the intricacies of the Indian, Egyptian, and Arabic styles, as well as the various theories of what Sir Edward Lytton Bulwer calls the Ideal and the Beautiful. In fine, let us adhere to one style, and perfectly master it by dissection; for measurement is to the architect what dissection is to the medical man. You may possibly manage to rub on without it, but in that case I do not see that you can ever claim to take the higher ranks.

I will now go very shortly through the photographs, making a very few observations upon each batch. I shall have, however, to jump from one number to another, as the arrangement has been dictated by the exigencies of the room, and not by the chronological order.

The first I shall notice are the Egyptian photographs, which, as I said before, have been admirably illustrated by Mr. Bonomi. It is true that, both from its style and its material, this architecture is utterly unsuited to our climate, yet we may obtain hints as to the treatment of low reliefs from it, while the colour (of course not shown on the photographs) is particularly deserving of our study. The Egyptian stone being, for the most part, very hard, the artist therefore sank the figures from the surface, and thereby saved an immense deal of labour, while the contour of the column was not injured by the figures projecting, as it is in the Renaissance work. Again in that luminous climate where there would always be some shadow either thrown directly by the sun or by reflection, the figures being thus sunk in by a sharp edge would always be well defined, or, as it were, black-lined at all periods of the day. Again the relief sculpture, however low, was always kept flat and square, and we shall see this obtain in nearly all the best archi-

* The classical reader will thank us for appending here, from Mr. Cockerell's book, a note as interesting as it is valuable:—“These peculiarities,” he writes, “are simply a reproduction in marble of the established traditions of Dorian soldiery. It was customary for the Dorians to dress their hair elaborately before entering on the fight, as we learn from the story of Leonidas at Thermopylae. The Homeric expression for the battle is *χαίρειν*, a derivative of the verb *χαίρειν*, which signifies to rejoice, and implies that the smile, if not a part of the established military demeanour in action, was the result of a spontaneous feeling, which renders it even more natural and appropriate, reminding us of the “merry men” who drew English bows against desperate odds at Agincourt. It is worthy of remark,” he adds, “that on one occasion (Iliad vii. 241), Homer expresses the act of fighting on foot by the bold metaphor of *μυλῶντες ἄρπυιαι*—to dance a war-dance before Ares or Mars—and that one and the same word, *κόρυς*, not only is applied to decking the hair, but denotes the Dorian dance, the Dorian constitution, and the Dorian battle array.”

* It is as well to mention that Mr. Burgess himself forms one of the committee. Ed.

tectural sculpture in all ages of the world. The difference between us and the Egyptians in this respect is just this, that we are obliged to bring the figures more forward in order to get the proper effect, our climate being so much more obscure. As there was little variation in Egyptian art, and as the son was obliged to follow his father's profession, the figures were drawn according to certain recognised proportions, and with certain peculiarities. Thus M. Durand, of Chartres, showed me tracings of Egyptian heads in profile where the section of the upper lip was drawn like a cyma recta or a reversed S. This it is true is a manifest exaggeration, but doubtless it gave great clearness and distinctness to the mouth when viewed from a distance.

Altogether the Egyptian was a wonderful man, whether we regard him in the light of an architect, an engineer, an astronomer, or a lawyer. He evidently reached a high state of civilization quite as high as our own, considering the difference of climate, for the warm sun of Egypt would render many of our discoveries perfectly useless. On the other hand, we have no less an authority than the Right Hon. Benjamin Disraeli, who tells us that we mistake comfort for civilization. In the present case we may very well abstract the comfort, but we shall find that every Egyptian shaved his head, and wore a wig, exactly as we did in the last century; while the discoveries in the tombs show us that he was quite up in the abominable art of graining one wood to make it look like another. After this, who can deny his civilization?

The next batch of photographs comes from India. As Mr. Fergusson's lecture upon them has not been published, and as I had not the pleasure of hearing it, I must plead guilty to knowing very little about the subject. They are, of course, very interesting in showing a particular phase of the architectural mind, but beyond that I can scarcely imagine that we should be able to derive many hints from the study of, at least, the Pagan portion of them, and the sculptures, like those of our own St. Paul's, to which I shall presently allude, would appear to be examples rather of what we should avoid than of what we should follow. At the same time a great deal is to be learnt from the work of the Mohammedan period, where the exquisite traceries of the windows and balconies, as in 165 and 170, put to shame our western efforts in the same direction. See the traceried window, *i.e.* a window all traceried, from the Church of Santiago, at Bilbao, 114.

We should not, however, pass over the Pagan sculpture of the Horse-court at Seringham, 454, where rearing horses and their riders, together with wild beasts, trampled under foot, are used as caryatides. There is here a very valuable suggestion for a similar court, say to a palace, only we must use better art.

I must pass over Greek art, for I am very sorry to say that it is very inadequately represented this year: in fact, beyond one or two very small views in the Carthage collection, we have literally nothing of it at all. Our secretary can probably tell you, although I cannot, why there are photographs of the finest sculptures in the world (*viz.* the Elgin marbles), at the exhibition in Pall-mall, and why there are none here, where they would be so useful, and are so much wanted. For the principles of Grecian and Mediæval sculpture are the same, and one illustrates and teaches the other. This is remarkably the case in the prediaphan.

In the Acropolis at Athens there is preserved a bas-relief of a female figure in a chariot, which, but for the costume, might easily have been taken for the work of the twelfth century; while there are, I believe, some French antiquaries who have been bold enough to assert that the lions over the gate at Mycenæ are really Mediæval beasts, and not Classical.

The photographs from Carthage, as they consist simply of cisterns and aqueducts, do not throw very great light upon the architecture, and simply prove that the Carthaginians must have been very thrifty souls.

Among the subjects which have been left from former years will be found several of Roman sculpture and Roman architecture, by my friend Mr. Macpherson—I had almost said our friend, for almost every one who visits Rome experiences his courtesy and kindness. The architecture consists of the usual stock subjects which persecute the student all the while he is in Rome, and, I may add, for years afterwards: for instance, the temple at Tivoli, which is always turning up, either in the shape of an inkstand, or on a mosaic, or painted on a table-top.

However, no Christian can look without in-

terest upon the Arch of Titus (515), with its sculptures, showing the golden candlestick and other instruments of Jewish worship; while the house of Rienzi (517), the man with a strong cause and a weak head, will be equally welcome to the historical student, even if it be only to bind up with his Gibbon, who, by the way, was the reverse of Rienzi, having a strong head and a weak cause.

The two subjects, 509, St. Maria at Toscanella, and 511, Cloister of St. Paul without the Walls at Rome, belong to Mediæval art; but are due to the same photographer, and display most charming examples of Mediæval Italian. The Roman, or rather Greco-Roman sculptures, of course will not do after the Elgin Marbles; still they are reminiscences of the pleasant hours one has passed years ago in the Vatican or in the Studiù, to say nothing of the weary days one may have plodded over them at the drawing-school. Let us take them, therefore, as remembrances, but carefully avoid studying them.

Mr. Macpherson also presents us with a photograph of a fresco by Perugino, which, if it be from the fresco itself, has come out remarkably well. It is greatly indeed to be regretted that there are not more photographs of frescoes and stained glass. I am perfectly aware that they are both very difficult to do, more especially the latter, where every thing depends upon the colour; still, although the photographs might come out badly, yet we might obtain some valuable information as to the size of the pieces of glass, the thickness of the enamelled lines, the direction of the lead, and the distance of the saddle bars, which at present we can only secure by drawing and measurement. As to frescoes, they are much easier, and most people will remember those of Orcagna's "Last Judgment," in the Campo Santo at Pisa, published a year or two ago. No drawings can possibly equal the photographs for fidelity, the only objection being their well-known property to fade after the lapse of some years. Whether this will ever be got over is a question for science, not for art.

We now come to the great school of Mediæval architecture, which may, for the present object, be divided into two parts, *viz.*—the French school, and that of our own country. The other schools are either not represented at all in the present collection, or are very imperfectly so, as in the case of Italy. To begin with the French, which has been the subject of a late lecture by Mr. Pullan. If I were asked which I considered the most imposing piece of architecture in this collection, I should certainly (putting aside, for the moment, the west front of Rheims) say that it was the west front of the cathedral of Angoulême; and after that the west front of Notre Dame de Poitiers. In them we see the great desideratum in the simultaneous employment of sculpture and architecture, and not mere foliage, which, by the way, it is very easy to pour over a building; but as to figures, histories, or, in other words, *thoughts*, you cannot insert them by the dozen in the contract, or describe them in the specification.

Now, the west front of Rheims is all sculpture, and very little architecture; but at Angoulême there is as much of the one as of the other, everything being balanced and in its proper place.

The Greek temple was the same; for although the sculpture was confined to the frieze and pediment, yet the histories and figures were carried down to the ground by means of the paintings on the walls of the cella.

In the present day, owing to the prejudices of the public, and to our own faulty education, we make buildings all architecture, and with no figure sculpture. It strikes me, however,—and I have every reason to believe that my opinions are fully shared by the rising generation of architects,—that we shall never have good art until the mouldings and foliage in a building are reduced to a minimum, and the figure sculpture and mass of constructional material advanced to a maximum. But, to return to Angoulême, one very curious feature is the presence of those long high arches which run up to the eaves of the building, and which, when they are badly treated, take off so terribly from its scale, more especially when they are filled up with ugly perpendicular windows, as at Tewkesbury and Lincoln. At Florence and at Pisa, where they equally occur, the field is occupied by panelling or stripes of different coloured marble; and thus the requisite amount of decoration and scale is obtained. In England they were perhaps pierced with windows, or they may even have been treated as at Angoulême, where they are occupied by a succession of groups of figures. In this edifice the central arch, which is much wider than the others, goes right up into the pediment; but then it projects but very little

and the sculpture stands nearly as forward and thus prevents the arch catching the eye as a feature by itself. In Eastern work, however,—and you can see it in some of the Indian photographs—this arch is deeply recessed, and, to my idea, destroys the scale, and consequently the good effect of the whole building.

Again, at Poitiers, see how all the figures are contained in strong, massive, although very richly decorated, arcades; how the figures in the spandrels stand out, until they are on the same level as the edge of the label, and are not sunk into and taken out of the spandril stone. Again, look at No. 23, the cloisters of St. Trophime, at Arles: how richly sculptured it is, and with what a variety of subjects, and how suitable it would be for a palace or nobleman's mansion, if it were glazed. See how the deeds of worthies long ago dead, but whose remembrance liveth ever, might be carved here. Fancy a cloister thus sculptured with the deeds of good kings (*i.e.*, as many as could be found), while the lesser parts, such as the corbels, the bases, &c., might contain subjects, say the Fables of Æsop, bearing upon the great figures carved above. Such a gallery or passage would certainly be worth a dozen of those comfortable-looking thoroughfares, papered with flock paper, furnished with buhl cabinets and tables, and ornamented with doubtful full-length portraits, which are lighted by a sickly skylight of ground-glass. But I must confess that I do not think the public are altogether to blame for this latter state of things: the architect should, I think, take his share of the odium: it is so much easier to draw the regular passage, and then to hand it over to our friend the upholsterer, to work his will upon as regards the furnishing, than it is to think out subjects, to read up histories, and, lastly, to make designs for the sculptor.

The worst is, that one does not get paid more if one does so; but that is an evil which will right itself. Let only the movement be begun, and after a time it will become fashionable, and the architect will of course be properly paid, as his services become more in demand. The only difference will be, that he will have to be paid the same sum for doing one work well, as he now is for doing a dozen indifferently.

Mr. Pullan and Mr. Seddon have so well described the doorway at Moissac, that there is no need for me to say anything about it, beyond that I confess I do not admire the very thin columns, and the equally thin archivolt, which are in fact a continuation of the column. A column ought certainly to support something heavier than itself, and where it does not, it always appears deficient in energy, and as if it had no work to do.

One of the most beautiful photographs is that of the doorway of St. John the Baptist at Rouen. Every detail is most exquisite, and when it was coloured, as it certainly was, for the gold background remains, it must have been most wonderful; and we can certainly not thank the Cardinal d'Amboise for replacing the centre doorway (which was in all probability of similar workmanship) by his own late work, rich though it be like the finest point lace.

The sculpture of this St. John Baptist door is what we should try to work up to: it has all the vigour of the Romanesque without any of its stiffness. To do this we should study the Romanesque first of all, and then add the superior knowledge of the figure as known in our days. How successfully old work may be imitated we may see in No. 68, representing the lower part of the tympanum of the central door of Notre Dame at Paris, which was ruthlessly destroyed by one Suffiot, a pagan of the last century. So well imitated, or rather composed, in imitation of thirteenth century work is this, that it is very difficult, if you are not acquainted with the circumstance, to distinguish it from the ancient work. This, however, is not what I conceive to be wanted. We must take the old work of the best period, learn from it, and then use it in our own way. It is very possible that we may have to copy for some years, but, when once we have settled down to take one particular style as our *point de départ*, we shall not copy much longer. At present we all seem agreed that the thirteenth century is the best to start from, but we shall never get on until we work solely in this one style, and introduce sculpture wherever we possibly can. But I do not very clearly see how this is to be attained when one man builds an Egyptian villa, and another something in the Arabian style, while another has a predilection for Late German Gothic and its stump tracery, and a fourth goes in for Sir Christopher Wren and what is called the City style.

There are very many other charming French photographs; for instance, the portals of Char-

tres and Rheims; but as they are well known and have often been described, it is hardly worth taking up your time by saying more about them. I would point out simply No. 61, the pavilion above the staircase of Louis XII. at Blois, which is historically interesting as having been the room where the bodies of the Duke of Guise and his brother the Cardinal of Lorraine were burnt after their assassinations. Of course, the roof did not come over the parapet in former times. The other staircase at Blois which Francis I. built is equally worthy of notice; and although it has been in a great measure restored, it has been well restored, which is saying a good deal in these days.

The last part of my subject relates to the photographs illustrating the architecture of our own country. Of these there is a very large show; although, as a general rule, the sizes are not so large as those of the French. As I before said, the English photographs are very numerous, and I will therefore go through them as they are numbered, and not chronologically.

Mr. Barnes and Mr. Nichols lead off with photographs of that wonderfully over-praised building King's College, Cambridge, which can hardly be placed before the architect as an example to be studied: the glass is good of its kind, so are the Renaissance west walls and screen, while the roof is a pretty puzzle in stone-cutting: all the rest of the building is, however, positively bad, as far as I can judge. Mr. Delamotte illustrates the charming chapel of St. Joseph, at Glastonbury; Tewkesbury Abbey; Shifnal Church, Shropshire; and Winchester Cathedral; while Mr. Annan gives the antiquities of Iona, including the very beautiful crosses. These latter one would certainly like to have seen photographed to a much larger scale.

Mr. Fenton contributes no less than seventeen views of Furness Abbey, but even these are open to the objection of not being to a sufficiently large scale for architectural purposes. He also presents us with five views of Southwell Minster. No. 224, is Harewood House, another illustration, if it were wanted, of how very unfitted Italian architecture is for our climate. Here you ascend to the front door by a long, double flight of steps, so that if a shower of rain came on, you must either get wetted in going up the said steps, or sneak in through the kitchen office on the ground-floor.

Mr. Bedford next presents us with a choice of forty-one subjects of the most varied description. He begins with the west end of Salisbury Cathedral, which still retains some few of its figures. The next subject is part of the excavations of Wroxeter, showing the hypocaust which the country people were allowed to remove, and which has since been put together as best may be. Bristol Cathedral follows, and is principally noticeable for 232, 233. 232 is a photograph of sundry tracery panel-heads; and 233 shows sundry miseries, with carved subjects of the most curious description. No. 1 is a man fighting two animals, who are armed with shields. He is evidently the Van Amburgh of his day. No. 2 is a mock tournament between a man seated on a hog and a woman on a cock. These mock tournaments would have appeared to have taken place occasionally: witness the Tottenham tournament in the Percy ballads. Another represents Sampson and the lion,—a very common subject. Sampson wears the jaw-bone of the ass in his girdle, as he would a dagger. Adam and Eve occur in the last.

Now these two photographs just show the relative interest of mason's work and sculpture. The tracery panels we pass over at a glance; the carved miseries arrest our attention until we have mastered the subjects.

231 is the tower of Mary Redcliffe. It certainly looks in a very decayed state, and yet one is half unwilling to see it restored. Could not one of the indurating processes be tried here with advantage? The tower could then be restored if the process should fail. 235 is the beautiful north porch, lately restored by my talented and amiable *confère*, Mr. Godwin. I would only venture to suggest to that gentleman that he should not allow the citizens of Bristol to stop short in their work, but that he should insist upon their allowing him to put up the statues which are so necessary for the due effect of this piece of architecture. At all events, he might perhaps persuade them to put one or two up to try, and then the rest would follow.

The committee of the Architectural Photographic Association have not only supplied their subscribers with photographs of examples of what to study, but have also kindly furnished them with what to avoid. Thus, fourteen subjects are taken from the details of St. Paul's Cathedral, London, and present us with the usual

Rococo ornament and sprawling Cupids of the period. In one will be seen two acrobatic individuals of this genus, who have no place to rest their legs on; two other Cupids have therefore kindly glued their heads to the background for this purpose. Where their bodies are it is impossible to say, but it is evident that they have left them behind: let us hope that they may find them again, and that neither may take the wrong one. No. 240 is principally remarkable for a most eccentric mitre, which forms a sort of finial. The ironwork is, however, very good of its kind, and one door is almost Medieval in treatment. The restoration, or rather decoration, of St. Paul's, is now occupying rather a prominent place in ecclesiastical circles; but I think it will puzzle even the very clever architect who has charge of it to make a good job of his work. Some of the architecture, such as the side arches under the dome, is very bad, and the dropping of the apse windows below those of the clerestory is another fatal mistake. As it is, I am not quite sure but that the best thing would be to chisel off all the projections, mouldings, foliage, &c., everything, in fact, from the interior, and then to cover it all over with painting, or, better still, mosaic on a gold ground, like St. Mark's, at Venice; the piers and walls below the windows being plated with precious marbles.

The exterior might be refaced with new ashlar, and the upper story taken down, so as to show the flowing buttresses; while the sham lead dome being destroyed, the brick cone would be decorated like the dome at Chiaravalle, near Milan, which Mr. Fergusson, with great reason, I think, supposes to have been the type of the original design for the dome at Florence. I am afraid, however, that both these suggestions are rather too sweeping ever to be carried out, at all events in the present age, and that Mr. Penrose will have a much more difficult task, having to deal with the present architecture, and still worse, with very slender means of carrying out his ideas. However, for a wonder, the right man, in this case, is in the right place, and I for one wish him God speed and every success.

I should not omit to mention that the committee very mercifully tell us in the catalogue that the St. Paul's series will not be offered again to the subscribers.

But to continue, Mr. Bedford in No. 251, gives us the best west front we have in England, viz., that of Wells; the doorway is certainly too small, but putting that aside I really do not know anything more glorious than this facade, at all events that part of it which is original; but what would it be without the sculpture? No. 253 the north porch is a most beautiful piece of pure architecture, being different columns variously grouped and supporting arcades. If we look at No. 262, the west doorways of Exeter, we shall see how much less architectural the sculpture had become. The architecture, by the way, is not much better, as it is a mere screen tacked on to the building, where, as at Wells, all is homogeneous. No. 266 shows the Minstrels' Gallery, where the figures are very bad and the crockets, pinnacles, and tracery very rampant and overpowering.

I must very slightly allude to the views of Ely Cathedral, and the new Museum at Oxford, by Messrs. Dolamore & Bullock. The latter edifice is particularly interesting from the details of the foliage where natural types have been most successfully introduced. These are excellent for a museum, where the originals are kept dried and are the subjects of lectures, but I confess I should like to see something more conventional in a church.

Captain Austin gives us a very valuable series of views from the best of all our cathedrals, viz., Canterbury. In fact, there is hardly any part of this cathedral which might not be studied with advantage, always, of course, excepting the Perpendicular parts. Mr. Thompson, likewise, has several photographs of the same cathedral, so that Canterbury would appear to be well illustrated.

Time will not allow me to do more than simply name the views of Glasgow Cathedral, Lincoln Minster, Beaulieu Abbey, Exeter, Carlisle, and Holyrood. I would, however, suggest to the illustrators of English architecture and sculpture the expediency of doing their works very much larger, so that they may be more useful to study from. As it is, they form capital illustrations of the buildings for the amateur, but they are not large enough for the architect. I hope next year we may see some of our English sculpture from Wells, Salisbury, and Lincoln, as largely illustrated as the French examples are. It will all help on the good time; and although that good time will not be in our day, we ought and must do our best forward it.

WILLIAM BURGESS.

THEATRE PLANNING.

THE JURY'S REPORT ON THE DESIGNS FOR THE PARIS OPERA-HOUSE.

THE formal report of the jury on the designs submitted has been published. It does not afford much information tending to modify views which we have expressed. Mr. Hittorff was the reporter,—the jury being composed of members of the *Académie des Beaux Arts*, and members of the *Conseil Général des Bâtiments Civils*, with the Minister of State, Count Walewski, as president. The report, after preliminary observations, and specifying in each case particular merits of the designs selected, sets forth what were, in the opinion of the jury, some deficiencies in the designs generally. In the course of these latter remarks, it says that the sections of the premiated designs allow favourable results in the future more developed studies to be anticipated, and that "nearly all the competitors adopted, for the *salle*, the form, so fine and monumental, of the ancient opera." This form is very different to that of either of the London opera-houses, being (omitting the *balcon*) as nearly as possible three parts of a circle, with the addition of the splayed lines of the proscenium boxes,—the stage advancing hardly at all into the body of the house. This choice, the jury say, has appeared to them judicious, from the suitability of the model; and, "at the same time, a just homage rendered to the man of genius who created it. It is, in effect, a fine type of our architecture: it merited to be preserved in a monument destined for a kind of *spectacle*—which is itself a national creation to which are attached so many names glorious for France." Could we think that French architects had reached no further in the aptitude for answering progressing demands, at least of convenience and structure, than the position at which were the architects of the last century, or beginning of this; or could we appreciate the possibility of preserving associations whilst the question is of a new building, and one in connection with which there are other and more forcible considerations, we might be less inclined than we are to wonder at words which are so little in character with all that is at present exhibited in architectural progress, or through discussion in Paris on the subject of the projected building. We do not inquire whether the *salle* of the buildings in the Rue Lepelletier, completed in the year 1821 by the architect Debret, is, indeed, a reproduction of that of the opera-house, by the architect Victor Louis, in the Rue de Richelieu, which was inaugurated in 1791, and whether even that building was one which the jury can associate specially with names of dramatists which they give, starting with those of the seventeenth century. But we are not surprised after the error at the outset, to find that the jury, in looking at the designs, have not, as they confess in concluding the report, stopped to consider the questions of lighting, heating, ventilation, and acoustics, and improvements to be introduced in the disposition of decorations and machinery. They name all these, and "comprehend the interest" of such researches indeed; whilst they state that "the designs in which those questions were particularly treated, did not respond sufficiently to the just exigencies of the art." They ought, however, to have recognized prominently that the result of the effort to solve the question of theatre-planning as by the architect Louis in 1780 in the theatre at Bordeaux, or the Théâtre Français in 1790, is far beneath that demanded at this juncture; or that the real question and difficulty is one, of plan and section, in regard to which the best theatre or opera-house in Europe, to serve as a model, may be justly regarded as insufficient. There is one reputed merit in the present house to which they do not allude, namely, the sonority. This has been attributed to the construction adopted in a building intended to be only temporary.

It would have been impossible, however, for the distinguished men whose names we gave in a former notice as having composed the jury, to be quite unimpaired of defects and merits in the designs. They direct attention to a want of provision of entrances under cover, of adequate staircases to the upper tiers of boxes, and of required space for the stage, and the offices of the administration; and they incline to the opinion that the ground was insufficient. In the point of external decorative character, they recognize amongst the designs, works which evidence abundant imagination and talent, but not generally the grandeur and expression involved in the idea of an opera-house. The advanced porticoes forming terraces, in many of the designs, they think ought to be avoided as concealing a considerable portion of the

façades. The absence of unity in designs where the divisions, the *salle*, the stage, and the offices of the administration, appear like three buildings, they characterize as a great defect.

In the work of adjudication, the jury first had brought before them the designs in the order of their numbers: they set aside forty-three by majorities of votes; they then reduced the number to sixteen; after considerable discussion they made a further reduction to seven; and they then came to the conclusion that the first reward offered, the execution of a design, should not be given, and that the money premiums should be allotted in the amounts we have already mentioned. The minister at the last meeting expressed the hope that one of the designs might be found to merit the first reward as originally offered: a new examination was therefore made; and ultimately the vote taken by ballot brought the question to the result stated. According to the report, the design by Mr. Gninain has a very ingenious and novel disposition of the plans, particularly the plan of the first story or tier, large and facile communications, and a general ordonnance allowing of monumental façades on all sides. In the design by Messrs. Crépinet and Botrel, the plans are well studied, and the external character answers best to the idea of an opera-house. This design had a front semicircular on plan, with a slight central projection. The design by Mr. Garnaud is named for the grandeur of the distributions of the vestibules, staircases, and saloons, and as regards the upper part of the façades expressing well the character of a theatre; the design by Mr. Duc for the arrangement of the staircases and vestibules, and the study of the requirements of the stage; and that by Mr. Garnier for analogous qualities. The report terminates with the recommendation that a new competition should take place between the authors of the five designs, the reward being the execution of the work.

It is difficult to see that the question has been much advanced. If second competitions be necessary, as deemed to be so frequently on this side the Channel, the step betokens that there has been some mismanagement of the first: whilst alterations made in designs are not necessarily improvements. What is required for this particular case, and for that improvement in theatre-planning towards the necessity of which,—whether in regard to the exits and entrances, and staircases, or the comfort of the audience and a good view of the stage from all parts of the house,—this journal has been so long calling attention, is, besides the study of the points which the jury so lightly treated, the study by architects, of all that relates to the *stage*, and its scenery and contrivances. We said lately that persons acquainted with the management of theatres should be consulted; but it is still possible these persons may be prejudiced in favour of an arrangement of the scenery which leads to forms of plan,—one involving many bad side-places, as in this country,—and the other, bad places, or none at all, in what corresponds to our gallery. In the English theatres, though the gallery is far from the stage, the chandelier is not always an obstruction to the view: in the French theatres, the dimension which is given in height rather than in distance from the stage on plan, makes the chandelier (which descends low) a complete impediment; whilst the atmosphere in all upper regions is still more pernicious than with us. We leave this question of some approach to the arrangement in plan and section of the ancient theatres quite open: there is too much involved, of acoustics, and of the difficult matter of income from places, to do more than say that the form on plan and the *balcon* of the French theatres constitute an approach to it. The managers of theatres in France would perhaps say they could not afford to dispense with seats at the top of the house. The policy of such provision, however, may be questioned, seeing that the seats are not sufficiently occupied; the cost of the additional height might be otherwise applied with advantage for the income, and a reduced height in proportion to area would be better for effect; and whilst the gallery opening into the *salle* might be more skillfully contrived than generally it is in our theatres, space above the "foyer" or saloon of the boxes may be utilized as it is in the arrangement of which Covent Garden Theatre presents perhaps the best example. The Théâtre Lyrique, shortly to be removed, presents some approach to this disposition.

We say, that whilst the managers of theatres should be consulted by architects, it is possible that better means of attaining the objects could be devised than those which are now in use. It is clear that, by the disposition of the stage and scenery, and the large proportion of places in the

house which have not a front view, much of the interest of the spectacle is lost. Would it be possible to substitute for such a form as that of the *salle* of the Opera-house in the Haymarket, the nearer approach to that of the ancient theatre which is to be observed in the theatres of Paris, and at the same time to advance the centre portion of the stage to occupy nearly the position of the ancient orchestra, the opening of the scene being at the same time largely increased? The scenery would then be arranged in all cases, as it is now exceptionally in what are called *set-scenes*, with the sides played or oblique; whilst the increased breadth would give space for the same number of actors. Such an arrangement could be made with the greatest facility in the French theatre, where scenes are not changed in the same act. There are many points indeed to be considered to complete the study of the question, such as the slope of the stage, and the place for the musicians. But we are disposed to think they could be solved. It is to the interest of managers to give all the information they can, and to overcome some prejudices.

Since our observations on the points of ventilation and lighting were written, Mr. Trélat has addressed an audience, at the institution in the Rue de la Paix,—newly formed on what is called the English model, for lectures and analogous objects,—on the general subject of the architecture of theatres and the proposed new Opera-house. Whilst strongly advocating the importance of re-opening the whole question of plan, in place of leaving it as it is on the model of the Italian theatres, or the authority of the architect Louis, he urged the futility of any attempt to find a model in the Greek or Roman theatre, which was planned for a drama and spectacle essentially different from our own. Nevertheless, attaching every importance to that which is so obvious, we do not see the necessity of coming to his entire conclusions. The model of the ancient theatre was badly used by some of the competitors in the recent case: but the form being admirably well adapted to the objects, as *spectacle* then was, whilst the present form is not in corresponding manner adapted, the question is whether any useful hint has been left unutilized. The object is to provide as much as possible, places with a front view of the stage; and this would prevent a copy of the concentric rows of benches, or so far as depth at all in the stage be necessary, as of course it is. But regarding the preliminary assertion of principle of so utilizing a given area of ground, as by diminishing the number of side-boxes or seats, and increasing the opening of the proscenium or curtain, conclusions would be the same; and the problem is to plan the *salle* and the stage, thus starting, with reference to one another, and so to light and construct the house that everything shall be seen and heard at the most distant benches, and those possibly more distant than those of the French theatres. The question of acoustics is perhaps the greatest difficulty: most existing theatres are very defective in that respect; but that the object might be attained even in larger buildings than there are in Paris or London, seems to be shown by what is known of the ancient theatre, as also by what is experienced in the theatres of Italy of the largest dimensions.

THE SARACENIC STYLE DISTINCT FROM THE BYZANTINE.*

The various styles of architecture have their history, and their rise and progress are as necessary an inquiry, in studying their development, as are their peculiarities of character when arrived at full maturity. They are sometimes treated as if each were a distinct creation of its inventors, independent of any elements derived from an earlier source; and we hear of the origin of the several styles as if they had been autochthonous in their respective countries, and the offspring of the native mind, unaided by any foreign or adventitious influences. But few—I might perhaps say none—of the various styles of architecture so originated; for I do not include under that head the primitive efforts of man when in an untutored and barbarous state; and, though man at first supplies his wants by the humble dwelling required as a shelter, and erects some religious emblem or sacred enclosure to his God, no sooner is he sufficiently advanced to give to his building an architectural character, than he is open to receive impressions from more civilized people with whom he comes in contact. No architecture,

therefore, reaches its full development without being indebted to one or more older styles. It is true each has its distinguishing types, which give to it a particular character; but much is always superadded to its original elements; and even the Egyptian, though apparently so very distinct and peculiar, is not an exception to this general rule.

It is sometimes difficult, in tracing the progress of Egyptian architecture, to ascertain how much was added to it from other styles, since no monuments older than or even as old as those of Egypt remain; but it is evident that foreign elements were admitted into it, and many details introduced at various periods are found not to bear the stamp of native origin. In the sacred edifices, however, the character of the architecture was essentially Egyptian, though it varied much at different periods, particularly between the fourth and nineteenth dynasties; and it is in the highly-decorated tombs that a new style of architecture and of ornament is most discernible. These tombs admitted of great variety, and thus the semicircular or round arch, unknown in the temple,* was there introduced, constructed of brick or of stone, or represented in the hewn rock. Indeed, we even find the form of the pointed arch there used in this imitative and conventional manner.

Both these arches were invented in a country where the problem of covering large spaces with bricks had to be solved; and the two brick-making districts where they were first employed were unquestionably Egypt and Assyria. And though, from our knowledge that the round arch was commonly used in Egypt as early as 1500 B.C., and probably more than 500 years before that period in the brick pyramids of Memphis, we may conclude that it was an Egyptian invention; still, I believe the pointed arch to have been invented in Assyria, and to have been imitated from that country in a hypogeum at Thebes, which dates about 1460 B.C.; for there is no evidence of the existence of a *constructed* pointed arch in the valley of the Nile until long after its round, or semicircular, companion had been commonly used; and the oldest pointed arch now known there forms the roof of one of the chapels, or sanctuaries, attached to a pyramid at Gebel Berkel, the site of Napata, the old capital of Ethiopia; which, though built by a native architect, appears to date during the early part of the Roman empire. It is constructed with the keystone, and the blocks are arranged lengthways, as were the bricks in the oldest round arches.†

I must not, however, allow myself to deviate from my principal object; and I only mention these facts connected with the architecture of that most conservative people, the Egyptians, to show how even they borrowed from a predecessor, or from a contemporary; as did the Greeks, in their architecture, their vases, and many of their decorative designs; and as the Etruscans and Romans borrowed from the Greeks. It is in the later periods, when the Romanesque, the Byzantine, the Lombard, the Saracenic, and others, formed themselves out of the elements of those which preceded them, that I wish more particularly to notice the gradual production of new styles of architecture; and of these I shall content myself with the Saracenic, which I am induced to do by having (not indeed without surprise) heard it stated that there is no Saracenic style, and that it is merely Byzantine.

That the Saracenic borrowed from the Byzantine is perfectly true; and this, as I have already observed, is quite in accordance with the history of other styles; but, though any one of them may be originally derived from a predecessor, it is not on that account precluded from assuming a new and independent character, when it has remodelled and adapted those elements it found suitable to its requirements, and has made them its own; and in all cases it may be safely predicated that each new style is derived from more than one parent. The architecture and artistic ornament of ancient Greece are sufficiently decided

* Except one or two solitary instances of Roman time, in out-of-the-way places, as at the Oases.

† It is common in the brick tombs at Thebes. The oldest stone arches yet discovered are of the time of Psammetichus, about 650 B.C.

‡ It had been unfortunately pulled down before I visited Gebel Berkel in 1849; but a drawing of it was made by the Duke of Northumberland and General Felix, of which I am happy to be able to give a copy. Mr. Hoskins gives it without a keystone, as does Cailland, but all agree that it was pointed, and not round, like the other arches there and at Merôé. If the stones were not cut to a considerable angle at the joints, they could not be placed together as they are lengthways, to form a pointed arch, unless the arch had a keystone; and the necessity for this member is clearly shown in the Early Pointed arches of Christian time in Egypt, which are constructed on the same principle, with the bricks placed lengthways.

* By Sir Gardner Wilkinson, F.R.S., as elsewhere mentioned.

in their character; and yet, if we were to claim them from them all they derived from others, we should deprive them of many most essential features, and should prove that we had not observed how this very habit of adoption and adaptation was one of the merits of the Greeks. They perceived the beautiful wherever it presented itself, and they scrupled not to borrow even from the so-called "barbarian," who in early times was as much more advanced in taste than the Greeks, as the Saracens were than the Crusaders who affected to despise them; and it is this very habit of adoption and adaptation which we should do well to practise at the present day, in preference to the too frequent effort to introduce some novelty, from a love of variety or notoriety, or the mistaken notion of invention in art.

To deny the existence of a style or architecture because it borrowed from another, is to ignore the very history of architecture. As well might we deny the existence of the Italian school of painting because it owed its first ideas to the Byzantine Greeks, and because the earliest masters of the Florentine, Sienese, and Pisan schools, as Cimabue, Guido, and Giotto, with many others, derived their earliest lessons from those of Constantinople.

Any one who knows how Saracenic architecture commenced, how it advanced, and how it became a distinct style, will admit that it only went through the usual phases of transformation common to others, which have been derived from one or more predecessors, and that it advanced by a very reasonable transition from its first condition of pupillage to a new and independent state. But though the Saracenic was beholden for its origin to a number of progenitors, perhaps in a greater degree than any other style; yet, in some countries, it was actually not indebted to Byzantine influences, in the *usual ratio*, at the time when its first forms were developed. It sometimes merely borrowed certain ornamental details.

At the peak of their earliest conquest, when the Arabs advanced into Syria, and captured Damascus, in the summer of 634 A.D., neither their wants nor their taste had aspired to the erection of buildings dignified by beauty of design; and the practice of architecture was still unknown to them. They were only acquainted with a very primitive form of building in their own country; and for some time after they had established themselves in Syria and in Egypt they employed Christian architects, and were not themselves sufficiently acquainted with the arts of construction to erect any large building. As the early Christians adopted the basilica, or in some cases the Pagan temple, the Moslems sometimes adopted the Christian church, or borrowed ideas from their Pagan predecessors; and in many instances the churches of a conquered people, having been relieved of the distinguishing emblems of Christianity, were readily appropriated to the unadorned services of Islam. Indeed, they were sometimes satisfied in obtaining from the Christians half of a church as a place of worship; and the great church of St. John the Baptist, at Damascus, continued to be the joint property of the two religions from the capture of that city, in 634 A.D., to the reign of the Omniade Caliph Waleed, A.D. 706; and, though said to have been pulled down and replaced by the present mosque, and to have received the name of *Giama-Beni-Ommeib*, or *El Ammowe*, from its supposed Omniade founder, it evidently was merely altered by him; and the decay of the whitewashed stucco on the exterior of the walls supporting the great dome, with which the scruples of the "Faithful" then covered and concealed the coloured mosaics and their golden ground, reveals here and there the original ornamentation of a Christian time. Moreover, from the appearance of this rectangular building, it is evident that the roof above the pediment was heightened at the time when the dome was superimposed upon it; and that the side and end walls, including the pediments, are of Christian date; so that we at once perceive how much has been introduced by the Moslem architects upon the once continuous line of the roof between the two pediments. Mr. Porter also states that on its inner walls and piers this part was coated with the finest marble, in beautiful patterns; while, on portions of the wall above, and on the interior of the dome, may be seen fragments of fine mosaic, representing palm trees and palaces. There is also a Greek inscription, of Christian time, of which he gives a copy, and which, with the mosaics and its general plan, sufficiently establishes the date of the building. The dome, according to Mr. Porter, is nearly 50 feet in diameter, and above 120 feet in height.

The few mosques erected about that time by

the Arabs in Syria were marked by many characteristics of the Christian style, and certain Byzantine features continued to be attached to them in that country; but these were chiefly confined to the cupola and ornamental accessories; and, even then, every new building acquired that variety of feature which, through their extended conquests, was speedily introduced into the architecture of the Arabs. In Egypt, Barbary, and other countries, the same number of Byzantine elements did not find a place, even in the earliest mosques; and this is only consistent with what might be expected, since their style was at first that of each country where they happened to be erected; and we are not, therefore, surprised to find that, in those of the oldest time, the dome is wanting in Egypt and in Barbary, and the principal characteristics of Byzantine architecture are rarely, if ever, to be traced there. Indeed, it was not till a much later period that the dome held an important position in the mosques and tombs of Cairo; and the oldest raised there were those whose builders the least affinity to the Byzantine style, as I shall presently have occasion to show. Nor do Saracenic mosques present the most distinguishing features of that architecture. We look in vain for that arrangement so peculiar to it,—of the upright wall, with its row of arches standing over those springing immediately from columns, so well known in Santa Sophia, at Constantinople; in San Vitale, at Ravenna (built also in the time of Justinian, A.D. 534); and in other churches; nor are the bridge-like galleries or columnar screens, so remarkable at St. Mark's, in Venice, met with in any Arab mosque.

These, and other Byzantine features, are as much at variance with the character of a Saracenic building, as would be the triforium of one of our cathedrals; and, while Byzantine churches differ in their character from an Egyptian mosque, what can be more unlike the former than the earliest mosques of Cairo? As, for instance, those of Amr, of Ahmed-En-Tooloon, of El Hâkem, built, the first about 642 A.D.; the second, in 879, and the third, in 1003, A.D.; in none of which did the founders introduce the dome, or any of the most marked peculiarities of Constantinople. If we compare their hypæthral regular court, and the absence of any real surrounding wall, to the flat roof, to a Byzantine church, we will venture to say, that no plan or elevation could be found more at variance with them; and the very feature which claims the most-marked relationship to the Byzantine style,—the dome,—was not introduced into the open court till centuries afterwards, or about the end of the year 1200.

interwalls, the lateral courts, with their surrounding colonnades, bear a much nearer resemblance to those before ancient Egyptian temples; and the area and portico of the porch, or any other of those marked monuments, might be thought, at first sight, to have a claim to be the prototype of these Moslem courts. Even the colonnades of a Roman forum, and some Roman temples, like that at Zaghar, near Tunis, or, like those round the courts at Basleik, with a similar peristyle arrangement,* bear a greater resemblance to those of the mosques than any Byzantine building. In the Arab edifices above mentioned, we see no domical structure, nor any of the peculiarities of Byzantine architecture; and the cupola, or *Kobbah*,[†] in the area of the mosque of Ahmed-Ebn-Touloun, was not put up till the reign of the Melek Mustoosor-Hessin-ed-deen-Lazgen, A.H. 696, in the month of Safer (answering to A.D. 1297-98), as recorded in the Arabic inscription it bears

One style may borrow many features from another, without being indebted to it for its origin. Thus, the first idea of the pointed arch may have come to us from the Saracens, while its use was in common use at least as early as 879 A.D. and numerous other peculiarities of their architecture may be observed in our so-called Gothic. Various Arab characteristics, found in early buildings of France and other parts of Europe, being common to those of Cairo and every Arab city and the church built by the Crusaders at Beirout (now converted into a mosque) has the pointed arch decorated with the Norman chevron.

* It was found in Herod's temple at Jerusalem, and other buildings; and something of the kind occurs in our cloisters.

+ *Kubbeh*, or *Cubbeh*, "a dome," is the origin of the Spanish, Italian, and English words for cupola (*cubola*), implying a hollow form, like the Arabic *kubai*, a "cup," *kuf*, the "palm of the hand," and the Greek *κυβη*, *κυφος*, *κυφη*, *κυπελλον*, *κυψελη*, as well as *cupula*, and our own *cup* and *cap*; the Celtic *copan* (*cupan*) . &c.

‡ The chevron is the common moulding throughout the Palace of Diocletian, at Spalato. It is also found slightly modified in the mosque of Ahmed Ebu-Tooloon, derived, of course, from a similar Roman source.

But neither these nor St. Anthony's church at Padua, with its minaret-like steeples and its borrowed character, come under the category of the Saracenic style; nor does the introduction of certain peculiarities into architecture suffice to confine it to that particular style from which they were derived. The long sojourn of the Crusaders in the East, and their wars and occasional alliances with the Moslems of Syria and Egypt, will readily account for the introduction of a new feature into European architecture, and the pointed arch,—a very dominant one in our Gothic buildings,—came to us from the Arabs; but the mere introduction of certain forms or peculiarities does not affect the style of any architecture, and the manner in which the pointed arch was adapted by the Gothic builders, its bar tracery, so different from the pierced or plate tracery of the Saracens, and its constructive purposes to which it was made subservient in vaulting and in covering large spaces with small materials, gave them a claim to originality in its use, and made it a new element in European architecture. And here we have another of those very remarkable instances of the adoption and adaptation of a feature under new conditions, which prove the genius exhibited in its application, and mark the practical talents of those who develop an idea obtained from a foreign source.

And development has been a more recent one. I cannot here enter into the lengthy question of the pointed arch, and shall only notice its use incidentally as it bears on the present subject; but I may observe that the Early English arch is so distinct in form and treatment from the Norman, that it could not possibly have arisen from it; and no modification would lead from the former to the latter. The two are totally distinct from each other, and the notion of the intersection of two Norman arches having originated it is opposed to reason as well as to fact. For the pointed part accidentally lying between them is *not an arch*; it is the mere intersection of lines; the only arches there are the two round ones; and no one would construct an arch on that principle, *i. e.* with the arrangement of the stones as they there stand in relation to each other. This supposed pointed arch is no arch at all; and he who would build one in imitation of it would have a strange notion of the principle of a pointed arch. It has no more claim to that name than any round arch seen in perspective, or any accidental intersection of ornamental devices, or the meeting of the boughs of trees, which have indeed been gravely put forward as the origin of this arch. Besides, pointed arches had been used long before the Normans had any interesting arches, or had even settled in France; and it would indeed be an anachronism to derive them from what was not yet known, especially as they were already common elsewhere at the same period.

The marked change from the Norman, Lombard, and other round, to the pointed arch could only have been owing to the sudden adoption of the latter from an *established style*; and, as we know where it was in general use, and that it was found by the Crusaders in the East, and adopted by them in the churches they built there, before it came to Europe, we have no difficulty in determining the source whence it was derived; but though the original idea was borrowed from the Saracens, the *Pointed style* in Europe became a distinct architecture, and claims this merit as the Saracenic claims to be independent of the Byzantine. In examining this point it is well to bear in mind that it is not Syria, but rather Egypt and some other countries, where the Byzantine element was far from dominant, which lay claim to the earliest development of this new style; and the oldest works in Egypt, of known date, are totally at variance with the form, as well as the constructive and other main features, of Byzantine buildings.

The conquest of Egypt began in A.D. 638. Babylon, afterwards called *Postât*, and now Old Cairo, was taken by Amr in 639, and Alexandria at the end of 640; and soon afterwards the whole of Egypt fell into the hands of the Arabs. It was at this period, A.D. 642, that the two mosques were first *founded*, which still bear the name of *Giâma't-Amr*; one near Old Cairo, the other at Assoûn; and the tent of Amr, like those commonly used by the Arabs, of goats' hair, being called *Postât*, gave its name to the new city which took the place of Egyptian Babylon. The mosque of Amr, therefore, being the first erected by the Arabs in Egypt, or, indeed, in any of the conquered provinces, is of the highest interest in the history of Saracenic architecture. Nothing, however, appears to exist of the original structure; and the only part which dates during the first century of the Hégira is probably a portion of the

exterior wall on the south-eastern side,* which bears the impress of a mode of building common at that period. Indeed, the whole edifice was altered, and apparently rebuilt between the years 642 and 712 A.D., and as at first it measured only about 75 feet in length by 45 in breadth, its plan must have undergone considerable changes ere it reached its present dimensions.

In the reign of Abd-el-Melek (the son of Merawān I.) great alterations were made by his brother Abd-el-Azēs, about A.D. 699; and by Weled in 712-713; as well as by the Abbasside caliphs; and under Māmūn, the son of Haroun-e-Rasheed, its dimensions had increased to about 435 feet in length by 225 feet in breadth.† It was also repaired by Ahmed-ebn-Tooloon, and by his son; by El Hakem-be-Omr-Ilāh; by Yossef-Salah-ed-deen (Saladin); and by others: extensive additions appear also to have been made at the beginning of the year 1400 A.D.; and other repairs date as late as the time of Murad Bey, at the close of the last century.

It has been supposed by some that the arches of the interior, which spring from columns, and form the hypostyle of the Mekkeh end, are a portion of the early building; but this is an error, as they are built against an older wall, and actually cover part of the old windows (since blocked up).

They are not even of the date of the Abbasside caliphs; and their style at once proclaims them to be about the time of Soltān Mōūdūd, A.D. 1412-1421,—an opinion confirmed by the fact of the mosque having been repaired at the beginning of that century. The windows in the wall itself are of much earlier time; and others, also of early character, form above them an upper tier; but the latter are not visible from the inside, as the roof intervenes between them; and it is only from the outside that they can be seen, together with the whole elevation of the wall, which rises considerably above the present roof.

This upper tier consists of windows having alternately round (inclining to oval) and pent-roof heads; and in some are the remains of the stucco which once held the painted glass with which they were filled, probably by some early restorer of the building, who raised the roof. This upper tier of windows was then added to the lower wall, in which, ranged at intervals, are the clusters of one large central and two small lateral round arches, seen in the interior.

The portion of this south-eastern wall which is at its eastern extremity bears, as I have before stated, strong evidence of being the oldest remaining part of the mosque;‡ and you at once perceive where later repairs have been introduced towards the north, after some dilapidations had occurred on this side; half of an arch being there filled up by the more recent brickwork.§ There, too, an imitation of the older part is sufficiently obvious; and the difference in the construction of the arches in the two portions at once pronounces the later one to be a copy of its older neighbour. They imitate but they do not perfectly resemble the older arches, having their jambs higher, and their heads (especially those of the pent-roof form) less lofty, or of a more obtuse angle; and a difference of construction may also be observed in the wall below. These facts appear to confirm the account given by Macrizi of the manner in which the mosque was enlarged. They also accord with mo-

* I call it the south-eastern, though these mosques do not face exactly to the south-east; and the direction of this end in the mosques of Cairo is more to the south than south-east. That of Ebn Tooloon stands about twenty degrees east of south, or seventy degrees south of east.

† The court of the mosque itself is now about 380 feet by 555 feet; and the length of the whole building is about 550 feet by 555 feet. Macrizi, according to Mr. Stanley Poole, states that about 211 A.H. (A.D. 827), the mosque, without the two additions, measured 190 (architect's) cubits in length, and 150 in width.

‡ Through the kindness of my friend Mr. Stanley Poole, who has sent me the detailed account of this mosque by Macrizi and Abou Saad-el-Himyree, I have been enabled here to introduce a correction of the statement I had made that this south-eastern portion belonged to the original structure raised in the time of Amr. I am still inclined to think that the lower part of it dates as early as 69 A.H. (712 A.D.); 1st, because Macrizi speaks of the niche existing in his day, which had been built by Kureish, in the reign of Weled; and 2nd, because it is evidently the oldest part of the mosque. Unfortunately, Macrizi's account is not sufficiently detailed to enable us to ascertain the dates of the several parts added and repaired. I particularly recommend the valuable remarks of Mr. Stanley Poole to all who are interested in "Arabian Architecture," on which he writes so ably; and his authority is of the greatest weight in all matters connected with the history and literature of the Arabs. They are in the appendix to the last (35th) edition of Mr. Lane's *Modern Egyptians*.

§ The oldest appears to be, first, the lower part of this wall; second, the portion above, with the small windows; and third, the restoration, which may be coeval with the south-west side.

dern tradition; and if the latter* asserts that it was built in imitation of the temple of Mekkeh, this could only have arisen from the notion that its open court was copied from the enclosure of that holy place, as neither the internal arrangement, nor the cubical-shaped sanctuary of the Kābeh, was here adopted. But in fact, the sacred enclosure of Mekkeh and the open court of the mosque of Amr were both later additions; and the former was, in Omar's time, merely surrounded by a low wall of separation, afterwards replaced by the arcades with cupolas then added round its hypostyle court—a form of peristyle said to have been first introduced from Persia,—instead of the simple architrave and flat roof of an earlier time, which last was supported on columns made of the trunks of palm-trees.†

INSTITUTION OF FINE ARTS, PORTLAND GALLERY.

THE fourteenth exhibition of this Association consists of 602 paintings and drawings; and, as a whole, is a more satisfactory collection than that of last year. Their ranks need strengthening. No. 4,—*"Woman's Work, a Medley,"* Florence Claxton,—is a Hogarthian composition, displaying thought, and so deserving it, though it trenches on the region of caricature. No. 28,—*"Rydal Water,"* by George Pettitt; 29,—*"Holy Island, Isle of Arran,"* E. Hayes; 42,—*"The Harvest Field,"* Sidney R. Percy (though too vehement); 66,—*"Fishing Boats off Hastings,"* Alfred W. Williams; 300,—*"A Quiet Retreat,"* by F. W. Hulme, who sends other agreeable contributions; and 420,—*"Cadgwith Cove, Cornwall,"* by J. G. Naish, are some of the best landscapes in the galleries. From amongst the figure pictures we may note 38,—*"The Gossip,"* by T. F. Dicksee, who also sends an excellent repeat of *"Launce's Lecture,"* 100; 78,—*"Elbow, a Simple Constable,"* H. J. Marks; 94,—*"Rosalind,"* Mrs. F. Yeames; 273,—a *"Spectator"* picture, by Arthur H. Weigall (who is making good progress); and W. Gale's *"Arab Child,"* 394 (a repeat). Mr. Underhill gets more spectral in his colour than ever, yet *"Musidora"* (142) has claims. Mr. Lauder, Mr. Bell Smith, Mr. Duker, Mr. Provis, Mr. Peel, Mr. Rossiter, Mr. Webbe, Mr. L. J. Wood, Mr. Horsley, Mr. Parrott, Mr. T. F. Marshall, Mr. C. J. Lewis, and Mr. Herring have pictures of more or less importance. Mr. Calderon's (49) *"The Morning of the Resurrection"* will scarcely satisfy his admirers.

EXHIBITION OF FRENCH AND FLEMISH PICTURES.

THE eighth exhibition of works, by artists of the French and Flemish schools, collected by Mr. Gambart, is now open in the Gallery, 120, Pall-mall. It consists of 137 pictures, and includes three works by Miss Rosa Bonheur, not calculated to increase her reputation; a picture of very high merit, by Meissonier, entitled *"In Confidence"* (92); four works by J. L. Gérôme (of *"The Snow Duel"*); and four scenes in humble life, by Edouard Frère, two of which, 49, *"Infant School at Dieppe"*, and 50, *"Asylum for Old People at Ecouen,"* are the most covetable pictures in the room. In the Asylum the old people, sunk in apathy or sleep, are gathered about the stove, a touching group. The School is full of character and story.

The *"Comic Story,"* by Knaus, 69; 87, *"Artfulness itself,"* by P. Levin; Potter's *Flowers*, 102 and 103; Ruiperez's *"Soldiers Playing at Cards,"* 106; and Trayer's *"Embroidery Lesson,"* 119, deserve attention.

SCULPTURE FOR THE MANSION HOUSE, LONDON.

IN completion of the arrangement for filling up all the fitting spaces in the Egyptian Hall of the Mansion House with sculpture, an admirable determination for which Mr. Bunning has greatly to be thanked, studios were visited some time ago, and fifteen sculptors selected, who were invited to submit statuettes. Five statues were needed, three male, two female, for which about 700*l.* apiece are to be paid, and it was settled that the ten sculptors not employed should receive twelve guineas each towards expenses. In reply to the invitation, the committee received from Mr.

* It is not an idea of Europeans, but of some of the Cairenes themselves; and, though erroneous, it is only right to attribute it to its real authors. Indeed, it is obvious that the Moslems, rather than Europeans, would be desirous of supposing one of these mosques to resemble that of Mekkeh.

† To be continued.

Joseph Durham, *"Alastor,"* Mr. W. B. Stephens, *"Alfred the Great,"* Mr. Hancock, *"Penserosa,"* Mr. J. S. Westmacott, *"Dryden's Alexander's Feast,"* Miss Durant, *"Faithful Shepherdess,"* Mr. P. McDowell, *"Guidirus returning from the Chase,"* Mr. Calder Marshall, *"Leonidas,"* Mr. Lough, *"Milton's Comus,"* Mr. Theod., *"Lavinia,"* Mr. Earle, *"Harold,"* Mr. Weekes, *"Cleopatra,"* Mr. Noble, *"Arthur,"* and others by Mr. Thornycroft, Mr. Doherty, and Mr. Crittenden.

From these the first five have been selected by the committee, namely, those of Messrs. Durham, W. B. Stephens, Hancock, J. S. Westmacott, and Miss Durant. Two of these, the lady's especially, are manifestly very inferior to some of those not selected, as, for example, Mr. McDowell's fine figure, and will need great alteration in the marble to render them in any degree satisfactory works.

A MORAL OF RIFLE PRACTICE.

"RIGHT" is the target's centre: that's the aim! Yet few there are with mental grasp and eye, Can let their wit at once unerring fly, Straight to that mark and gain immortal fame.

"It looks so easy"—so the many say: "What need of art to guide the senses right, The inborn genius in its rapid flight?" They take no pains; but, reckless, blaze away.

Others there are, with lazy self content, Who ne'er shoot wide, but hover round the true: 'Tis this side, that, with undeviating view; Their small ambition on "an outer" bent.

The marksman's badge whoever wills to wear, Heedless of pleasure and of fortune's frown, With well-trained mind and nerve, scores up renown,

A feat that all may, self-denying, dare.

W. CAVE THOMAS.

ELECTION OF SUPERINTENDENT ARCHITECT, METROPOLITAN BOARD OF WORKS.

ON Friday, the 15th instant, the Board proceeded to the election of an architect under their Act of Parliament, when twenty-three candidates presented themselves. The list was first reduced to six, by the following voting:—

G. Vulliamy	32	H. B. Richardson	5
Sancton Wood	29	Liddard	4
R. Kerr	27	T. Goodchild	3
Isaacs	26	T. Morris	2
J. Billing	26	Blore	2
C. Fowler	23	Dixon	1
Saunders	20	T. B. Barry	0
J. Young	20	Cooper	0
F. R. Wilson	15	J. Hansom	0
Hart	12	Kirkland	0
C. Eales	11	Salmon	0
Salter	7		

This, it will be seen, left Messrs. Vulliamy, S. Wood, R. Kerr, J. Billing, Isaacs, and C. Fowler for choice. After various votings, the list being reduced to the names of G. Vulliamy and S. Wood, Mr. Vulliamy was elected, and took his seat.

THE CHAPEL OF ST. MICHEL, PUY DE DOME, FRANCE.

IN Mr. Street's recent papers on the churches of Le Puy and Auvergne, an account was given of the chapel of St. Michel de l'Aiguille, at Le Puy.* To illustrate this we have engraved from that gentleman's sketches an exterior view, showing the entrance; a view of the interior of the nave, looking towards the chancel; and the ground-plan of the curious edifice. It is one of the most remarkably situated of the chapels dedicated to the airiest of saints, being on the peak of an acutely-pointed rock, which rises abruptly to a height of near 300 feet, out of the valley just below the cathedral and city of Le Puy. The steps up to the chapel wind round the rock, in whose side they are cut. The whole building was so fully described in the paper referred to, that it is unnecessary to say much more than this about it.

The oldest portion of the building is the square choir, covered with a dome; under which stands the principal altar. To the (ritual) east and north of this are apsidal projections, and to the south an archway, which opened, no doubt, into a third apsidal chapel; whilst the entrance was at the west. The archway now leads into a chapel of irregular form, part of which extends over the porch of entrance. The whole interior appears to have been richly painted. The dimensions are very small.

The mosaic in the entrance front is formed with black tufa, and red and white tiles, the stone being a light yellow sandstone.

* See page 36, ante.

CHAPEL OF ST. MICHEL DE L'AIGUILLE, AT LE PUY.
Interior of Nave looking towards the Chancel.



Ground-plan.



CHAPEL OF ST. MICHEL DE L'AIGUILLE, AT LE PUY, FRANCE. -- Exterior View of Entrance.

REMARKS ON STABLES.*

PLENTY of breathing-room is of the first consequence, whether we are providing entertainment for man or beast. Mr. Miles has wisely a very strong conviction as to this necessity, for the beast at any rate; and in this handsomely-printed volume sets forth, with illustrations, the manner in which he proceeded to give the required space in his own stable. All cannot afford to lodge their horses so well as others, or even to give themselves as much breathing space as science and common sense say is desirable; but many, even in stables where cost has not been considered, restrict their horses most unwisely, simply for want of thought and knowledge. It is well known, as pointed out by Mr. Miles, that a horse whose stable is well lighted, drained, and ventilated, and in which he has room to move, will do considerably more work, and require less corn, than the same horse would do, if kept tied up in a badly-contrived stable, although his allowance of corn may be greatly increased: the vitiated atmosphere he is doomed to live in, the want of pure air to breathe, and the absence of the cheerful influence of light, combine to make him dull, listless, and dispirited; and no amount of corn can counterbalance their depressing effects. In order to direct attention to this fact, and to show how improvements may be effected, Mr. Miles gives a detailed account of some alterations he made four years ago, when he converted a five-stalled stable and small coach-house into a stable to receive four of his own horses, and which has proved to be very successful.

On the ground that, although a large supply of air be desirable, a genial temperature must be maintained, he would not have the stable more than 10 feet 6 inches high, from the floor to the ceiling. We cannot agree with his reasoning to prove that the air in a lofty stable will be more impure than a low one.

His scheme is to give each horse a loose box, instead of a stall.

"The stable I had to deal with," he says, "was, like many others, made to contain as many horses in a row as could be crammed into it with any prospect of their being able to lie down. It was 30 feet long by 10 feet 6 inches wide, and contained five stalls: each stall was 5 feet 3 inches wide by 6 feet 3 inches deep, measured from the front of the manger, which occupied 10 inches, to the heel-post: this left a space of 9 feet 5 inches from the heel-post to the front wall, which space was useless, excepting in so far as it gave the horses ingress and egress to their stalls, and contained a gutter, that extended from end to end of the stable, affording very questionable drainage; so that the distribution of space amounted to this—459 square feet were divided between five horses, giving 91 7/8 square feet for the accommodation of each horse, while 292 1/2 square feet were appropriated to the gutter and gangway, which by no means accorded with my notions of a just apportionment of the space."

Having called in Mr. Hayward, architect, of Exeter, to carry out his views, he proceeded—

"The removal of the wall between the stable and coach-house gave me an area of 394 feet by 164 feet. I should have liked some 2 or 3 feet more of width, if I could have had it, but as that was impossible, I was obliged to make the best of the space I could get, and my first care was to ascertain how I could apportion it, so as to give the largest possible amount to the horses, and retain the smallest convenient amount for a passage to their boxes; and for a series of measurements of the various stable-doors and gangways, I determined that 4 feet 4 inches gave ample room for a horse with his harness on to pass freely through, provided there were no projections, that he could by any accident hitch in; and the experience of four years has fully confirmed my conclusion, for I have never yet met with a single mishap; nevertheless, I should always prefer a wider passage, when it can be obtained without contracting the boxes."

Having settled the width of the passage, the remaining space was easily disposed of—

"I found, after allowing for partitions and lining, that I could make four loose boxes, each measuring 11 feet 6 inches by 9 feet 8 inches in the clear, which is very nearly as large as I should ever desire to have them in my own stable. I think that 12 feet by 10 feet for moderate-sized horses, and 12 feet square for horses with hands high, is quite as large as any box ought to be in a stable where horses are permitted to see each other; for, when the boxes exceed these dimensions, the horses are very apt to jump and play in them, and may chance to slip up and injure themselves: they should have perfect freedom of motion, but not so much room as would tempt them to play."

The result of the new arrangement was, to give each horse rather more than 111 square feet to move about in, instead of 95, which is all the space that was allotted to him in the stable before the alteration.

The next point demanding consideration was, how to contrive a convenient entrance to the stable itself; and here, again, I was somewhat cramped for room; but, by projecting a building from the front, 6 feet long and 1 foot wide, opposite the door of the first box, I was enabled, by placing the door of the adjoining box close to it, to obtain a ready access to both these boxes, while at the same time I improved the entrance to the stable; and, on the whole, the 6 feet now added to the 4 feet 3 inches already existing in the stable has made a very fairly commodious entrance, although I should have preferred a larger projection, if there had been room for it."

* General Remarks on Stables, and Examples of Stable Fitting; with Illustrations. By W. Miles, esq. London: Longman, Green, & Co. 1860.

In forming the Boxes, it must be remembered that while the horse should have a quiet corner to feed in, he likes to see his neighbour. A ramp in the partition, falling away from the rack, filled up with 1/2-inch round iron bars, placed 1 inch apart, admits of these conditions.

Even those who cannot afford to give their horses quite so much room as Mr. Miles proposes, will find useful matter in the book. He very properly denounces the use of bell-traps in stables. In many situations they are invaluable, but in a stable they are out of place. They form evaporating pans filled with liquid refuse, to afford a constant supply of noxious gases.

The flooring of stables is a matter of very considerable consequence. Nothing can be worse than the pebble pitching which is often used. It is inconvenient for the horse to stand or lie upon; soon falls into pits; enables the earth to absorb any amount of moisture, and frequently retains it in puddles to evaporate and poison the air. We agree with the author that good clinkers, set in a herring-bone fashion, on a bed of concrete, form the best stable floor that has ever been suggested. Where the expense of clinkers is an objection to their use, hard and unabsorbent common bricks, placed on edge in a herring-bone pattern (which improves the foothold), may be substituted. No brightness of colour or smartness of appearance should lead to the choice of bricks which are more absorbent than some that might be had, if more ugly in appearance. If concrete cannot be obtained, some other material must be found to form a firm foundation, without which the floor will soon become a great evil.

By the way, our author's prescription for concrete is not quite the thing. He says:—

"Mix well-washed gravel and broken brick together, in the proportion of three parts of the former to one part of the latter, and to six measures of this mixture add one measure of fresh lime, recently ground. The gravel should neither be too small, nor too large, but varying from the size of a hazel-nut to that of a chestnut."

Without sand, concrete is worthless. If the gravel or ballast used do not include sand, it must be added.

Iron for mangers, Mr. Miles thinks a cold and uncomfortable material for a horse to feed out of, particularly in winter, when its surface is wetted with the condensed breath of the horse. He prefers, too, a wooden rack, on a level with the horse's head (he illustrates a very good arrangement of one, with a drawer under for the hay seeds), to the low iron one now getting into use,—

"For, besides the chance there is of a horse getting his feet into a low rack, when he is either frolicsome or alarmed, it is open to the objection that he is constantly hanging his head over his food, and breathing on it while he is feeding, which renders the undermost portion of it moist and warm; and makes him reluctant to consume the whole of it. No doubt a horse does sometimes pull out and waste some of his food from a raised rack, but I question whether he wastes as much from a high rack as he spoils in a low one; and the portion he does eat is fresh, and free from the moisture, caused by his having breathed on it."

The difficulty of repair or alteration to make it fit the special circumstances has also to be considered in deciding on the use of iron in the country.

We have said enough to show that Mr. Miles's book deserves the attention of those who are interested in the construction and use of stables.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The ordinary meeting of members was held on Monday evening last, at the House in Conduit-street.

The chair was taken by Mr. Godwin, V.P.

Routine business over, it was announced that Herr Lepsius, of Berlin, and M. Mariette were proposed as honorary members.

Professor Donaldson said he wished to offer a few observations upon the nominations just read, although he was aware that it was somewhat unusual; but his excuse was to be found in the eminence and high character of the gentlemen referred to. Herr Lepsius, of Berlin, was the Chief Commissioner sent by the late king of Prussia to explore and report upon the ancient monuments of Egypt. His late Majesty had forwarded to the Institute a copy of the illustrations made for the costly and valuable work which Herr Lepsius had produced; and the gift would be the more enhanced when the text which the learned author was now preparing had been sent. He (Professor Donaldson) therefore felt that he was entirely justified in recommending that Herr Lepsius should, on account of the position which he held in connection with Egyptian architecture and remains, be elected an honorary fellow. With respect to M. Mariette, he had a double motive in recommending him for the honour which was proposed

to confer upon him. He, too, had done much on behalf of Egyptian monuments, and he had, in addition, the entire control of the explorations and researches now making by order of the present viceroy. On this account it was desirable that he should consider himself as belonging to the brotherhood of architects in Europe; so that when the English architect visited Egypt to examine her monuments, M. Mariette might feel that he had a claim upon him, which his generous nature could not resist. At present there was great difficulty in making memoranda, measurements, or even sketches; and he believed the best possible way of warming the ice about the heart of M. Mariette, would be to elect him a member of the Institute, which would show him that his brethren in England felt a deep interest in the excavations which he was now carrying on. He had therefore great pleasure in recommending the name of M. Mariette as an honorary fellow.

Mr. Bell (hon. secretary) read a list of donations, including two works by Mr. Roberts, on the dwellings of the poor.

Mr. Penrose (hon. sec. for foreign correspondence) referred to a donation of the recent number of the *Bauzeitung*, containing an account of the Basilican churches in France (including many of the beautiful towers of Picardy and other places), taken from standard works and put together in a very interesting manner. Among the other foreign donations was a description of the great railway from Vienna to Trieste. Mr. Penrose said he had also received a letter from M. Lesueur, acknowledging the communication from the council, informing him that the gold medal of the Institute had been awarded to him. M. Lesueur, having returned thanks for the honour done him, said he intended to visit England on purpose to receive the medal in person.

Professor Donaldson said he wished to call attention to a communication signed "Wat Tyler," which had appeared in the *Builder* of March 2nd, to the effect that certain architects were in the habit of receiving a per-centage from manufacturers upon the goods supplied by them. He (Professor Donaldson) felt it would be unnecessary to describe further the contents of the letter to which he referred, as no doubt all who heard him had already seen it, but he thought the Institute might take the matter up, and request "Wat Tyler," or any other tradesman who had a similar complaint to make, to furnish them with evidence, so that they might take steps to vindicate themselves from all such contamination. The council now invited "Wat Tyler," or any other tradesman, to state whether any member of the Institute had received any such gratuity, so that the council might be able to carry out the rules and regulations of the Institute.

The Chairman, in moving that a vote of thanks be given to the donors to the library, observed, that with regard to the letter signed "Wat Tyler," he happened to be able to state that it came from a most respectable firm, who, he had no doubt, would be prepared to prove the truth of what they had advanced. In thanking Mr. Roberts for his works, he thought it just to say, that the necessity of improving the dwellings of the poor had not been lost sight of by architects. It had been alleged that the movement in this respect did not come from the architects; but there was no difficulty in finding evidence of the untruthfulness of the statement. He was informed that Mr. Roberts intended to prepare a paper on the subject, to be read at a future meeting. He had two or three unconnected statements to make. First, he had to announce the death of one of their honorary fellows, the late Duke of Sutherland. He had also to communicate the fact, that a memorial had been received by the council, signed by eight members, requesting that a special general meeting might be held to consider whether, in the recent appointment of Mr. Joseph Bonomi to the office of curator of Sir John Soane's Museum, in Lincoln's-inn-fields, the Royal Academy had distinguished an English architect who had distinguished himself or gained any academic prize, as bound by the terms of the Act of Parliament;—or that the council would themselves take steps upon it. The council, to whom this memorial was addressed, did not consider themselves in a position to take any steps in the matter, and preferred that whatever action might be taken should proceed from the members at large. They had therefore arranged that a special meeting should be held on Monday next, to take into consideration any proposal which might be brought forward by the gentlemen who had signed the memorial. He also wished to inform the meeting that, so long ago as December last, the council had come to a resolution that it was desirable archi-

structure and construction should be adequately represented in the Great Exhibition of 1862. He mentioned this circumstance with the view of intimating that the council would be happy to receive any hints or suggestions which might be forwarded to them by members of the Institute. As a pendant to these various items which it was his duty to bring under the notice of the meeting, he had to add that certain leading firms had come to a determination on the subject of wages, and laid the particulars before the council. They proposed that, inasmuch as the present rate of wages to skilled workmen was 33s. per week for 58½ hours' labour, and 20s. per week to labourers, the skilled workman should be paid 7d. per hour, and the labourer 4½d. per hour. The firms to which he referred stated that, under this arrangement the men employed by them would be enabled to work as many, or as few, hours per day as they pleased. It was to be hoped that this arrangement would secure that hearty co-operation and good feeling which it was so desirable to promote. He was sure the architects, as a body, would be happy to assist, by all means in their power, in any amicable arrangement that might be made between masters and men, so that nothing so disastrous might again be witnessed as that which occurred in 1859 and 1860.

Mr. Boulnois thought it would be well that publicity should be given to the fact that all architects now introduced a "strike clause" into their contracts (the large firms having insisted upon it), so that if the men were to take a step which they fancied would coerce the masters, they would find themselves in a very serious position.

Mr. Ferrey thought the suggestion was a very good one, and had his entire approval. He inserted the "strike clause" in all his specifications.

Mr. Bell (hon. secretary) called attention to a report which he stated was prevalent in the neighbourhood of Croydon, to the effect that the magnificent mansion belonging to Beddington-park was about to be taken down, and the materials sold.

Mr. Ferrey said that Beddington-park was one of the most magnificent halls in the country, equal to Eltham or Hampton-court. He did not know whether the subject was one which could legitimately be brought under the notice of the Institute, or whether it was one for the Archaeological Societies; but the matter was one which called for the serious consideration of some body or other. While upon this subject, he might mention that there was another most interesting monument threatened, at South Petherton, in Somersetshire, called, "King Ina's Palace" (a romantic name merely), but which was a building of extraordinary beauty. The plan was excellent, and the elevation beautiful. He was not aware that any representation of it was to be found in illustrated books, and it seemed to have escaped the attention of both Mr. Pugin and Mr. Nash. He was in the neighbourhood a month or six weeks ago, and the house was in such a state that any tempest might destroy it. He understood that the honourable member for Somersetshire had offered to purchase it, but he was informed that a good title could not be shown, and the negotiation fell to the ground. He hoped that some steps would be taken before it was too late to secure some faithful representation, by photograph or otherwise, of so interesting a building.

Professor Donaldson referred to the clearances effected in Paris by the Imperial Government, and observed that, if we were in Paris and not in London, a deputation would wait upon the Chief Commissioner of Public Works, and ask him to place his influence to save such monuments as those of which Mr. Bell and Mr. Ferrey had referred. He were not blessed with a paternal Government, or one which took the slightest interest in architecture, or the embellishment of the metropolis, otherwise a deputation might wait upon Mr. Cowper, the Chief Commissioner of Public Works, and ask him to take some means to preserve interesting records of antiquity as the Somersetshire building. Under present circumstances, no deputation would attend such an application; for the Government took no interest in such matters. He would like to know what sum it was proposed to pay out in the embellishment of London in the next twelve months.

Professor Donaldson having stated that Sir Gardner Wilkinson, who was in Devonshire for the benefit of his health, had requested him to express his regret that it was not in his power to represent that evening, then proceeded to read Sir Gardner's paper, entitled "Saracenic Style distinguished from the Byzantine." (This will be partly printed in our pages elsewhere.) At the conclusion,

Mr. Fergusson inquired who it was who said that Saracenic architecture was merely the development of the Byzantine, in reply to which the paper had been written?

Professor Donaldson said he did not know. Sir Gardner Wilkinson had started with it as an admitted theory.

Mr. Fergusson said he did not think Sir Gardner Wilkinson had quite described what was the origin of the mosque. The only precept of the Koran with regard to public or private worship was, that every true believer should, when offering up his prayers, turn towards Mecca. Mecca was the only sacred place in the Moslem world; and the main object of the mosque was to show the direction of the sacred shrine. The mosque was, in fact, a wall; and, in the poorer villages of India, the people dug a ditch, whitewashed it, ornamented it with flowers, and converted it into a mosque. The next thing they did, for the convenience of the worshippers, was to make a platform or stone pavement, against the wall. In cities and populous places, it became convenient to inclose the space, which was done by building a wall so as to form a courtyard. This done, it became a complete mosque. The next stage was to cover it over so as to form a shelter from the rain, or the heat of the sun. The main and essential part, however, was the wall, and all the rest was considered as merely accessory. Having made the mosque, the next thing to be provided was a place for the faithful to make their ablutions. This consisted of a fountain placed in the centre. Then there was the place from which the priests called the people to prayer, and sometimes the roof of the mosque and sometimes a minaret was used for that purpose. The Moslems, however, had no ceremonial or particular forms of public worship; although, in the great mosque at Cairo, there was a pulpit from which the priest read the Koran on a Friday. The form of the mosques was not in all places the same. In Spain, for instance, there were the remains of Saracenic buildings in the basilica shape. All that Sir Gardner Wilkinson had said confirmed the general belief with regard to mosques, although he had not gone to their origin. It was, he (Mr. Fergusson) thought, a mistake to suppose that a dome was an essential part of a mosque. On the contrary, it was essentially a portion of a tomb; but the Moslems gradually introduced it, and formed it bulb shape because they considered it had a graceful architectural effect, which no doubt it had, when associated with the minaret. With regard to the pointed arch, he thought it was clear that it was used in the East before it was introduced into the West. It was used by the Greeks and Egyptians as a horizontal arch, and it was found among Etruscan tombs. He did not think it was used in the west as a definite feature until the eleventh or twelfth century; but it was used in France at an earlier period, probably in the eighth or ninth century; but, when they attained greater efficiency in the art of construction, they abandoned the pointed arch, and took to the circular. This was a point, however, on which it was difficult to arrive at any correct theory; but he thought it most probable that the Saracens adopted it for lightness, and the Goths for its constructive features. The Hassan mosque, the oldest in Egypt, and by far the finest, contained the decorated pointed arch, and it was built about the year 650. The columns were Corinthian, and evidently copied from Roman buildings. In some cases he observed that the capitals had been eked out with wood.

Mr. Papworth inquired whether Mr. Fergusson could assign any reason for the existence in some mosques of more than one minaret?

Mr. Fergusson replied that he thought the second was added for ornament.

Professor Donaldson said it should be borne in mind that some of the mosques were very large buildings, sometimes 400 feet in length; and it was just possible that two minarets were built in order that the voice of the priest calling the people to prayer might be heard a greater distance. With respect to the shafts of columns called antique, he had examined them very carefully, and he found them so very rough, and the proportions of the head and fillet so crude and out of shape, that he had arrived at the conclusion that they were of the same date as the mosques themselves. There was an abundance of marble about Cairo, and he was of opinion that the columns were rough copies, and not adaptations.

Mr. Kerr moved that a vote of thanks be accorded to Sir Gardner Wilkinson for his interesting and erudite paper, and to Professor Donaldson for reading it. He observed that he had listened

with great interest to the discussion that *venata questio*, the origin of the arch; and that he could not help thinking that sufficient attention had not been directed to the theory of that assigned to the vault the origin of the arch.

Mr. Papworth, in seconding the vote of thanks, asked whether Mr. Fergusson could explain how it was that the Saracenic appeared to be applied to styles of architecture all over the world.

The Chairman said that the profession in general had reason to be much indebted to Sir Gardner Wilkinson, and the Institute particularly so, for that and previous papers; and he had no doubt they would feel it a privilege to join in the vote of thanks to him.

The motion having been carried *nem. con.*, The Chairman said he had great pleasure in announcing that on Monday, the 8th of April, Professor Willis would read a paper on the architectural history of Chichester Cathedral, and on the recent fall of the tower. He had also to state that on the 22nd of April the gold and other medals would be delivered, when M. Lesueur would probably attend to receive that voted to him.

Mr. Anthony Salvin, associate, of 4, Adam-street, Adelphi, was, on ballot, elected a fellow of the Institute.

The following gentlemen were elected associates:—Mr. William George Jackson, of Freemantle, Southampton; Mr. Cesar A. Long, of 29, Union-street, Hackney-road; Mr. Robert James Johnson, of 10, Belgrave-street South, Pimlico; and Mr. Alfred P. Strong, of 49, Stanhope-street, Gloucester-gate, N.W.

THE ARRANGEMENT OF A GENTLEMAN'S HOUSE.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening, the 15th inst., at the House in Conduit-street; the President, Mr. T. Roger Smith, in the chair.

Messrs. Isaacs and Simpson were, on ballot, elected members of the Association.

The President observed that, before proceeding to the other business of the meeting, he wished to draw their attention to a subject of some importance to the architectural profession, and in connection with which it might be advisable for them, as architects, to take action. He referred to the Great Exhibition of 1862, which was not to be confined to art manufactures only, but which would include the fine arts—painting, sculpture, and architecture. He believed that those whom he addressed would be of opinion that architecture ought to be worthily represented. Those who had visited the Paris Exhibition in 1855 would no doubt remember the fine drawings displayed there, many of which, he was happy to say, were contributed by Great Britain. He believed, if the members of the various architectural societies would exert themselves to cause an adequate representation of their art to be made at the forthcoming exhibition, a great number of drawings, models, and photographs might be collected. The members of the London clubs might, for instance, be induced to contribute models or photographs of their buildings; and, if ancient works were admissible, representations might be furnished of some of our fine old cathedral piers. With the view of bringing the subject under notice, the committee had prepared a resolution, which he begged to submit, in the following terms:—

"That, in the opinion of this Association, it is highly desirable that, in the forthcoming Exhibition of 1862, the art of architecture should be worthily represented, and that measures should be early taken to secure this object. That this Association offers its co-operation towards any general measure for promoting the completeness of the architectural department of the forthcoming Exhibition; and hereby invites the other architectural societies of Great Britain to do the same."

Mr. Blomfield (V.P.) seconded the motion, and it was then put from the chair, and carried unanimously.

The President said that the reading of the paper appointed for that evening was unavoidably postponed, but that Mr. Kerr had kindly offered to supply the place with some remarks upon the arrangements of a gentleman's house.

Mr. Kerr (preparatory to reading his paper) observed that it had not been prepared for the present occasion, but that he had great pleasure in making it subsidiary to the filling up of an hour. In venturing to make some observations upon the plan of a gentleman's house, he felt that he was directing attention to a subject of great practical importance to the student of architecture, both as a matter of design and as a matter of business. There was, in fact, no subject more likely to ad-

ing his regret that time prevented him from going further into the detail principles of plan, as relating to the sleeping-rooms, for instance, and the domestic offices; but earnestly recommending to the younger members of the profession the study of this subject as a whole, in all its intricacy and minuteness; such study constituting one of the shortest roads to professional usefulness, and even eminence.

At the conclusion, Mr. Blomfield, in moving that the thanks of the meeting be awarded to Mr. Kerr, said that he could add nothing to the admirable and practical observations which that gentleman had made; save that he could not entirely agree with him in what he had stated as to doors of intercommunication. It was, he knew, a frequent complaint among ladies that, in consequence of rooms generally having but one door, they had no mode of escape before visitors were announced.

Mr. T. Blashill seconded the motion; and, after some pertinent observations from the Chairman, it was carried.

OXFORD ARCHITECTURAL SOCIETY.

WALTER DE MERTON AS ARCHITECT.

At the third meeting of the Oxford Society, March 3rd, Mr. James Parker read a paper "On Walter de Merton, as Chancellor, Founder, and Architect." Merton was one of the four chancellors to whom Oxford may be said to owe its chief glories; the others being Wykeham, Waynflete, and Wolsley. Considered as architects and with reference to the colleges they founded, the speaker said:—

"If Walter de Merton's plan was not so perfect as that adopted by Wykeham, Waynflete, or Wolsley, we must remember that he was the first in the field. And if (Wolsley) was the more glorious of the four, we must not regret that he had Magdalen before him as a model, which had copied to some extent from New College. And we owe probably the earliest introduction of the Decorated style of architecture to Walter de Merton, we are, according to the theory of many antiquaries, equally indebted to William of Wykeham for the Perpendicular style, a style which Waynflete may be said to have developed to perfection in Magdalen tower (and its design is generally attributed to him), and which, in its glancing years, would still have had a monument to boast worthy of its pristine vigour had Wolsley been able to carry out the design which he had conceived. It is thus in the history of each of the four chancellors it is the same. To whatever they turned their mind, in that they seemed to excel."

He then proceeded to trace the various incidents (Walter de Merton's life, which touched upon his high fame in the three characters of chancellor, founder, and architect. With reference to the latter he showed how Merton Chapel was in advance of its age. He said:—

"I do not mean to say that it is any very decided advance upon the usual character of the architecture at that time, because a sudden step occurs in no single instance in the history of architecture. But what I do say is, that you cannot find any instance, either in England or abroad, of this character ascertained to be previous date."

He amounts then to this, that at a very critical point in the history of architecture, Merton Chapel is an instance of advance, it is a noble did much to direct the way in the course which it afterwards followed."

He compared it to Cologne Cathedral, which he building at this time. He showed that the designs did not copy from the other: the designs were quite different. Those of Merton College were thoroughly English: those of Cologne were essentially German. But there was this connection: they were both one step in advance of the prevalent art at that age in their respective countries. He adverted briefly to Walter's friendship with Richard, King of the Romans, which enabled him to keep *au courant* with the developments of architecture, as naturally the attention of European architects was then bestowed upon the great cathedral of Cologne. To continue the narrative, he said:—

"Walter had by this time, as we have seen, i.e., 1274, built his students to Oxford. Though resident in the latter, to which he had been preferred, his heart had been in Oxford, planning and rearing his charge, watching no doubt anxiously the workmen, looking forward no doubt with fear, probably with hope, to the future. It was no slight task he had undertaken. It seemed easy to us, with so many examples around us, to design a college; but then it was not so. The experience of six centuries which we have was wanting to guide and yet how little, if we take into account, have the six centuries improved upon the conception of that mind."

It was permitted then, by the providence of God, to the great work being accomplished: the technical and legal difficulties had all been surmounted, the ground was cleared, the buildings rising, and, above all, his chapel sufficiently forward state to have its high altar dedicated."

Whether the life of the great man was drawing to a close, whether he felt it himself, whether for this reason he had already executed his will, or whether the accident had met with in crossing a river, when he was in from his horse, cut him off in the vigour of his life, it is that his days were now numbered.

On October 26, 1277, he added a short codicil to his

will, leaving the residue of his property to his college. The day, or the day but one following, he expired—we know not in what year of his age.

The place, too, of his death is not exactly known. He was buried, according to his will, in the cathedral of Rochester."

His tomb, executed at Limoges, was briefly adverted to; but the buildings of the college, as they now stood, the lecturer said, he would leave for some other time.

ARCHITECTURAL INSTITUTE OF SCOTLAND.

A MEETING of this Institute was held last week in their rooms, George-street; when an exhibition of photographs from the London Architectural Photographic Association was opened, with some remarks by Mr. David M'Gibbon, architect, honorary local secretary to the Association.

In the last report of the council, just now published, they say, with reference to their transactions, "they think, in the present state of their funds, it would be more desirable, and would be more conducive to the prosperity and healthy vigour of the Institute, were the recommendation of the professional members, given three years ago, now adopted and carried into practical effect, by the publication, in lieu of Transactions, of a series of lithographed engravings of select examples of buildings, ancient and modern."

THE LABOUR QUESTION.

A WORD TO WORKMEN.

SEVERAL of the largest building firms in London, including Messrs. Lucas Brothers, Kelk, George Smith (of Pimlico), and Peto & Co., propose to pay their men *by the hour*, on and after the 23rd instant; in order, as they hope, to take away any excuse for another strike on the nine-hours question. The trade generally will, it is expected, adopt the arrangement in a short time. The rate of wages will be 7d. per hour for skilled mechanics, and 4½d. per hour for labourers; being an advance of about 1s. 2d. per week to the former, and 8½d. per week to the latter; assuming that they work 58½ hours per week, as at present.

A meeting of carpenters and joiners took place on Friday in last week, in the Great Hall of the Freemasons' Tavern, Great Queen-street, Lincoln's-inn-fields, to consider what steps should be taken to obtain the reduction of working hours in the building trade from ten to nine daily; Mr. Hamlin in the chair. The chairman having briefly opened the proceedings, the meeting was addressed in support of resolutions condemning the present number of hours as destructive of the physical well-being of the working carpenter and joiner, and incapacitating him for all mental culture. It was resolved that the present working hours should be reduced from ten to nine, and that the masters should be requested to receive a deputation of the working men to discuss the question. The meeting also pledged themselves to persevere in their demand.

The secretary, Mr. Potter, in the course of his remarks, said he was informed, but he did not announce it officially, that the masters wanted to compromise the matter, and had offered them 7d. per hour. They would not discuss that question that evening, as it would be considered at a future time. He also stated that he had just received an application from the men of Edinburgh for assistance to carry on the strike.

Although the meeting would not then discuss the masters' proposition, we may be allowed to say a word or two upon it. The proposed "arrangement of payment by the hour," say the masters, "will enable every man employed by us to work any number of hours he may think proper, being paid for the time he actually works, in accordance with the above increased rates." Those who work the ten hours, it will be seen, may thus, if they please, leave off at two o'clock on Saturdays, without lessening their wages, or may restrict their labours to nine hours each day at a loss of 1s. 6d. per week, or may work as they do now, with a gain of 1s. 1½d. per week. The masters' machinery and their horses may thus be kept at work for ten hours each day (points of some importance in the inquiry), even though a certain number of the men elect to cease work at half-past four.

It can scarcely be denied that the masters who offer this arrangement are making a very considerable concession. Take, for example, the first-mentioned firm, Messrs. Lucas. These gentlemen, we believe, are employing at this moment about 3,000 men. Counting the mean increase at 1s. per week per man, it is seen to amount to 150l. per week, and 7,800l. per annum. In future

contracts this may be provided for, and the public made to pay it; but on their present contracts, of course, the sacrifice is their own. It is most sincerely to be hoped, that the men may view the offer as a reasonable proposition.

Knowing as we do that some of the leading masters are pledged against the demand that they should give ten hours' pay for nine hours' work, even to the extent of closing their shops altogether, and retiring from the business; a persistence in that demand would lead, we feel certain, to a repetition of the last prolonged and most disastrous struggle,—a struggle which pauperized, demoralized, and killed,—and for which recurrence the masters have, to a certain extent, prepared, by obtaining, in all their contracts, a protective clause, in the event of a strike.* This, it will be seen in our present number, was admitted by the architects at the last meeting of the Institute, where the proposition to pay by the hour was apparently regarded as one that ought to settle the difficulty and get rid of the present state of uncertainty, which is most injurious to every one. At any rate, the present proposal on the part of the masters will bring the discussion from its false footing on to the real one. The only question, as it seems to us, that can now be raised is, the rate of pay, in the determination of which these two questions, amongst others, will call for consideration; namely, does the demand for workmen exceed the supply; or is it a fact that at this moment hundreds, nay thousands, are out of employ? and secondly, is not the cost of building so great, even now, as to prevent it from being considered a wise mode of investing money?

Most earnestly we implore those workmen of the United Kingdom who honour us with their confidence, and believe that we would gladly aid in endeavouring to obtain for them any advantages that could be wisely asked for, to consider this proposal coolly and frankly, and to lend their aid vigorously and at once, in their several circles, with a view to terminate the present uncertainty that prevails, and to prevent the possibility of another desolating, demoralizing, and destructive strike.

We add a few items of news on the subject from various parts of the country.

The Bath master builders and masons have unanimously resolved, at a numerous meeting, that it is their bounden duty to resist the demand of the operatives to leave work at four o'clock on Saturdays, but that they will allow them to leave work at half-past four, and give them 2s. a week extra wages.

The strike still continues in Edinburgh among the masons. Many of them have left Edinburgh. It is said that one contractor has given in, and taken on as many of his men as remained in the city. A meeting of the operative trades of Edinburgh is to be held on an early day to consider the nine-hours movement.

The joiners of Hawick having intimated to their employers that they required one shilling extra per week, and the Saturday half-holiday, and the employers not having complied with the request, the men struck work, but resumed it, a compromise having been come to. The masters acceded to the half-holiday, and the men renounced the advance demanded. The hours of work will now be fifty-seven, in place of sixty.

The blacksmiths of St. Helier have struck for shorter hours of work. They work daily, according to the *Jersey Times*, from 6 a.m. to 7 p.m.; and they ask that that time be shortened one hour. Three masters, it is said, have yielded.

Mr. Mackinnon has again introduced a bill for establishing equitable councils of conciliation to settle differences between masters and operatives. It proposes that the councils shall consist of an equal number of masters and workmen, elected annually by their own order, in any place where persons choose to put the Act in force; besides a chairman (a person unconnected with trade) chosen by the council. The councils, obtaining a licence from the Crown, are to have power to hear and determine disputes between masters and workmen, submitted to them by both parties; and their award is to be final and conclusive, and not subject to review or challenge by any court or authority whatsoever. But the Act is not to authorise the councils to establish a future rate of wages; nor is it to extend to domestic servants, or servants in husbandry. No lawyers are to be allowed to attend on any hearing before the councils.

* This is the case, we are told, even in the contract for the intended Exhibition Building, great as the desire is to have the structure completed within a certain time.

ON WARMING DWELLING HOUSES AND HOSPITALS.

I BELIEVE it is now generally admitted, that when artificial heat, beyond that obtained from open grates and common stoves, is required, a hot-water apparatus is the best; but unfortunately it is so often put up by inexperienced tradesmen, under the direction of unscientific employers, especially in the country, that perhaps no other practical application of a scientific principle, though intrinsically sound and safe, causes more frequent disappointment and loss.

The country squire for house or greenhouse, the parson for church or school, orders of the nearest ironmonger a hot-water apparatus. They buy their experience. Accidents ensue to boiler or pipes, heat is deficient, and the consumption of fuel improprietly wasteful. A short-sighted economy is, for the most part, at the bottom of all this. It would be prudent in the end to make a more liberal outlay; but there are times when this difficulty cannot be overcome, and risks are run. Thus in small works, when a professional engineer can rarely be called in, blunders are frequent. I speak feelingly; but, still, I believe, even in these a little ordinary precaution may secure success.

It lately happened that the committee of a new asylum at Barrow, near Gloucester, for ladies and gentlemen, were anxious to adopt the best improvements in warming and ventilation, and they entrusted me, as one of their body, who, like others, had bought my experience, to superintend the preparation of a plan which would tend to prevent the errors of which I was cognizant. Referred, for the first time, to the valuable treatise of Mr. Hood, "On Warming Buildings," I at once perceived the source of most of these defects. The various proportions of the apparatus had not been properly calculated.

To assist the tradesmen we were employing, the following table was drawn up from the data so clearly given in the work mentioned. From this table, and adopting the furnace and boiler recommended by Mr. Hood at p. 88, their various parts

were computed by analogy from the cubic feet of air required to be heated in the building in question. Two of these apparatuses are now at work, one in each wing. During the last twelve days of December, 1860, when the cold was so severe, the radiating pipes which circulate in the floors of the galleries raised the average temperature within, above that without, by 31° of Fahrenheit (registered in both cases between 6 and 7 a.m.), the furnace fires not having been made up in the night. For the purposes of ventilation, the air to be heated is drawn over the pipes directly from without, through an opening in the outer wall at the end of each gallery, and then passing through the rooms, is carried off by extraction-flues, communicating with fires in turrets above; so that the degree of heat obtained under such circumstances must be considered as satisfactory, while the ventilation was equally so. It is true the proportion of fuel calculated for a maximum duty was then slightly exceeded, but since the frosts of winter have ceased, and under a more experienced stoker, the fuel consumed does not now much exceed one-third of that calculated for its greatest consumption.

In noticing these circumstances, I am aware there is nothing very remarkable in the results beyond the fact that blunders seem to have been escaped, immediately by the simple expedient of having had the proportions as calculated from the enclosed table strictly observed.

What helped us may help others. With this view I have obtained permission to beg you to insert the table in question in your journal. It gives, in a concise and intelligible form, all the proportions requisite to success, and enables any one, of moderate experience, to calculate the proportional dimensions, and check the apparatus he is about to use. I am quite aware that to the professional and experienced engineer these figures will appear elementary, but it must be remembered that I am only now striving to save those who have not always the means of consulting engineers from falling into mistakes which are serious to themselves, and tend to bring a most useful invention into undeserved disrepute.

W. H. HYETT.

Relative Dimensions of a Hot-water Apparatus for Warming Dwelling-houses or Hospitals, in which from 50,000 to 100,000 cubic feet of air may be kept at a steady, constant heat of about 30 degrees, of Fahrenheit above the external temperature, by 4-inch radiating pipes circulating through the building, computed from data given in Hood's treatise "On Warming Buildings," &c., third edition, 1855; from which the corresponding parts of any similar apparatus, within the above limits and for this class of buildings, may be readily calculated by analogy:—

Air in the Building to be Heated.	1	2	3	4	5	6	7	8	9
Cubic Feet. [say 100,000]	4-inch Pipe.	Direct Fire Surface of Boiler.	Area of Furnace Bars.	Opening between Bars.	Area of Chimney.	Contents of Pipes.	Contents of Boiler.	Con tents of Supply Cistern.	Coal burnt per hour when Worked at a Maximum
1,000	Foot run.	Sq. Feet.	Sq. In.	Sq. In.	Sq. In.	Gallons.	Gallons.	Gallons.	Ibs.
	22	500	145	56	541	65	29	35	

References to "Hood"—Column 1. See art. 2. Col. 2. See arts. 71 and 72. N.B. 3 feet of the surface equal to 1 direct. Col. 3. See Table III., art. 79. Col. 4. See art. 79. Col. 5. See art. 81. Col. 6. See art. 39. Col. 9. See arts. 79 and 114. N.B. Power and economy of fuel, with a careful stoker who understands his apparatus, may be gained by increasing the dimensions at 2, 3, 4, and 5, and trusting more for draught to damper and ash-pit door.

* The above proportions apply only to ordinary inhabited houses; and even in these, there are often conditions which call for modifications. For other buildings, the discrepancies would be great. Churches and factories only require 5 or 6 feet of 4 inch pipe, instead of 10, as in dwelling-houses, for every 1,000 feet of air to be warmed; while greenhouses, where the whole glazed surface diminishes the temperature so fast, will require 35, and hot-houses, where 65 degrees of Fahrenheit are necessary at the least in the coldest weather, 45, and where 70 degrees, 50 feet of pipe for every 1,000 feet of air to be heated. See "Hood," article 111, pp. 113, 115, 116, and 117. Where large anomalous buildings are to be treated, it is almost needless to say that engineers of known character and ability should always be called in.

THE ROYAL EXCHANGE.

It is lamentable to find that the elegant interior quadrangle of this structure is about to become the sport of experimentalists.

So few are the finished works of architecture in London, that really there are none to spare, either for professional tampering or spoliation. Violence enough has been already done to the exterior, by deforming the original design with the most incongruous if not unsightly shops: are we now to have the interior converted into a railway shed, and half of it cut off by a *velum* of dust and smoke blacks?

Last week you said it was to be only in part covered in, by way of experiment! Possibly it is so; and if so, it is only in accordance with recent practices,—as the Wellington spectral statue was first placed in effigy over the Piccadilly arch; the symbols and mottoes of the Guards' Memorial were sketched out to test the public endurance; and the equestrian Don Giovanni, opposite the Westminster Palace, was in like manner put on trial, only to prove how little can be learned from the effects of indecision.

Are the subscribers of Lloyd's, or the captains' rooms, to be the arbiters in a matter of professional skill? or is the architect who designed the Royal Exchange to have no voice in an alteration

which must either improve or destroy his performance?

Neither Dr. Reid nor any other Roman professor is needed to explain how the whole internal area, as well as the chambers looking into it, should be best ventilated by a glazed roof resting on the highest sustaining points, or parapets; for gateways on every side would be the feeders, and ample louvres all round the roof the ventilators; amply sufficient to maintain a healthy vital current; and, at the same time, light enough to occasion no perceptible shadow. Such a roof was recommended in the *Builder*, very soon after the opening of the Exchange.

QUONDAM.

FAMINE IN INDIA.

News comes of a terrible famine which is raging in a large district of India. Men, women, and children are perishing. The animals, both domestic and wild, drop down dead for the want of subsistence. Even birds fall in consequence of the want of seeds or other food. So great has been the distress, that women have sold their children for sevenpenny-worth of rice. Prostrate with hunger, as we learn from good authority, the people have not strength to cultivate the next crops, and there is every reason to fear that pesti-

lence will follow. The most influential portion of the Indian press call earnestly for the aid and consideration of this country, and implore the English press to bring the circumstances before the notice of a generous public. It appears that a sum of about 200,000*l.*, a portion of the mutiny fund, remains unused; and it is suggested that it would be a noble act to devote it to the purpose of staying some of the evils of the famine, and endeavouring to prevent a pestilence, the extent of the spread of which no one can foresee. Steps to prevent its recurrence are needed, as well as temporary palliatives.

CHESTERFIELD.

This old town, which is remarkable for its church and crooked spire, was, on Monday morning, the 11th inst., visited by a violent storm of hail and snow, accompanied by fearful peals of thunder and lightning, which was nearly occasioning the destruction of the old church and spire. One of the windows in the ringers' chamber was left open, inside of which was an iron wire communicating with the transept of the church, for the purpose of a signal to the ringers when to stop the bells. The lightning struck this wire, and, in its course, ran across a gas-pipe, completely severing the pipe, and igniting the gas, which was not turned off from the mains at the meter. The fire came in contact with the board ceiling and roof of the nave, and would soon have had good play upon the timbers. Had not the sexton had occasion to go to the bell-chamber and make the discovery in time to check its progress, the result might have been the destruction of the old church altogether, with the spire, which is wholly constructed of timber, and which must have fallen a prey but for the timely assistance at hand, as there are no fire-engines in the town or neighbourhood of any service in such an emergency.

Last year architects were invited to furnish designs in competition for national schools here. There were twenty-six designs sent in. The one selected by the committee was by Mr. Rollinson, of Chesterfield, architect, as being the most suitable to their requirements. On application to the Committee of Council for Education, the site was considered inadequate for schools of the capacity required to be built, which involved the necessity of a new site being obtained. His Grace the Duke of Devonshire having supplied the deficiency by furnishing a site, the committee are taking early steps towards carrying out their object.

STAINED GLASS.

Little Cawthorpe Church.—A memorial window and mural monument have just been placed at the west end of this new church, in remembrance of the late L. Parker, Esq., a liberal donor to, and chief promoter in, building the present church, which he lived just long enough to see completed. The window contains the subjects of "Noah entering the Ark," the "Passage of the Israelites through the Red Sea," and the "Baptism of our Lord;" and was designed and executed by Messrs. Lavers & Barrand. The monument, which is placed under the window, is in Ancaster stone, with serpentine columns, richly carved by Mr. T. Earp and contains a brass by Skidmore. Mr. Withers was the architect employed.

Sheriff-Hutton Church.—The eastern window has been filled with a stained glass memorial window by Mr. David Rowley, of Thirsk, in memory of the Rowley family, who are interred in the chancel of this church. The subject chosen, as most suitable for the situation, are the Four Evangelists, with a figure of our Saviour in the centre light. The figures are represented on standing in canopied niches, at the back of which is diaper work. The tracery has been filled with stained glass some few years. This window is the work of Mr. J. W. Knowles, glass stained York.

LONDON MARKET COMPETITION.

The commissioners of the town of Longton, in the Staffordshire Potteries, invited nine architects to send in designs for a new covered market, enclosing an area of about 4,000 square yards, the cost not to exceed 9,000*l.*, and on the 1st February last designs were received under vote from Messrs. Ward & Son, of Hanley; Mr. W. Higginson, London; Mr. G. L. Robinson, Leamington; Mr. Yeoville Thomason, Birmingham; Mr. Henry Lloyd, Bristol; Mr. John Burrows, Longton; Mr. Frederick Bakewell, and Messrs. Sutton & Paul, of Nottingham.

In consequence of several of the mottoes becoming privately known, it was resolved to open all the sealed envelopes enclosing the authors' names, and commence proceedings *de novo*.

On Tuesday last the committee, by a large majority, decided to recommend the general body of commissioners to award the first premium to Mr. Burrell, and the second to Mr. Yeoville Thomas.

COMPETITION: HEREFORD.

We are informed that the design of Mr. J. H. Evans, architect, of Hereford, has been selected for a new chapel and entrance to the new cemetery, for the parish of All Saints, Hereford. Tenders will be advertised for immediately.

NOTES ON COMPETITIONS.

Sunday School, Preston.—A chance of obtaining 10l. 10s. is the magnificent remuneration offered to such members of the profession as are willing to furnish designs and specifications. Area of site, 93 feet by 47 feet average. Outlay, 1,200l. "The party whose plan is approved will not have the superintendence of building." I suggest that the party who is to be entrusted with the superintendence is (or ought to be) competent to produce the design. Architects surely will not respond to such an invitation as this.

Salisbury-by-the-Sea.—The committee charge 5s. for plans of site. Intending competitors should wait till they are less expensive.

INVESTIGATOR.

BRADFORD CHURCH COMPETITION.

Sir,—We perceive in the *Builder* a paragraph alluding to a competition for a church at Bradford, Manchester. I think it right to state that we were applied to by the committee for the above church for plans for the same time before Christmas, and without any solicitation on our part. One of these plans was selected, and was evidently intended to be carried out. To our surprise they were obtained without remark, and on inquiry we found that three or four architects, including ourselves, were invited to send in designs for the building.

We have thus made two sets of drawings without remuneration, unless we resort to possible litigation, and so lose the future support of our friends. We wonder that respectable architects should have competed under such circumstances, but can only suppose they were not cognizant of our appointment. The stipulated cost was 3,000l., including lighting, heating, cornices, &c., and not 3,000l.

SHELLEARD & BROWN.

COMPETITIONS: NORTHAMPTON TOWN-HALL.

Sir,—Your announcement concerning the Northampton Town-hall competition was rather startling. Up to the time there had been nothing to lead competitors to expect any underhand proceedings; but that a committee of thirteen should resolve to choose six designs from the forty sent in; and then only five of them do anything, and those five each quietly pick one or two he might best; or, what is more probable, knew to be the production of some friend, is a strange way of arriving at a conclusion.

There is a good deal of this kind of work in competitions lately. The strategy that local men so continually succeed, cannot be accounted for by fair play. At Leeds, for instance, the premeditated designs for the Mechanics' Institute were all by Leeds men; and there can be little doubt that the majority of the committee had made up their minds that the building should be given to one of these, before the advertisements were inserted.

At Lincoln, too, not long ago, I remember, the committee for selection found, on opening the letters, that prizes were all to be given to men connected with the town. I need not bring further instances: they are so numerous that your readers will remember many.

To ensure fair play on the part of those advertising for prizes, and confidence on that of the competitors, is the chief thing that requires correction.

There have been various plans from time to time suggested, and I think that the best plan is that the competition should take the thing up in earnest. Of course, at competitions as I see advertised in your last (viz., premium for designs for a school to cost 1,200l.), cannot be the case, at least the hope of doing anything for the first prize.

The men who consent to work for the chance of a third the remuneration they would expect if they did the work given them, certainly must take their place and blame themselves if they get cheated. It is the better class of competitors, where there is no such *ad facie* intention of either meanness or bad faith, that is required; and I think that lies with the Institute of Architects. It is recognised as the leading body in the profession, and it is its members resolved that they would send in for no competition for which they had not a guarantee that its merits would be decided by a committee of its own fellows; then, if the talent in the profession is to be brought into competition, this guarantee must be given, and competitors should then have confidence that they would receive fair play and the character of competitions be greatly raised.

I feel without hope, in the present case, that the Town Hall of Northampton, when they appropriate the part of their present proceedings are looked upon as somewhat very like swindling, will be led to retrace their steps. A respectable member of the profession will send his name to such a proceeding by choosing the six alone, and I should like to remind the public that there will always remain a strong feeling of suspicion and suspicion, unless all the designs are sent for people to draw their own conclusion upon.

W. M. F.

PREVENTION OF COLD WITH OPEN ROOFS.

In your issue of the 19th January last, "*Devon*" inquires "how the inconvenience of an open roof in the very coldest of all parish churches can be rectified?" May I be allowed to suggest the following as a means to remedy the evil complained of? namely,—Strip off the slating (or outside covering of roof): stop nail-holes, cracks, or other defects, if any; cover the old boarding with roofing felt, on which lay, longitudinally, timbers 3 inches wide by 2 inches in depth, securely fixed to the roof, not more than 2 feet apart, with one at eaves and ridge; also, from eaves to ridge, at valleys, hips or gables, as may be required: cover the same transversely with 1½-inch grooved and tongued boarding, or counter roof boarding, on which relay slating, or other covering, as the case may be; by which means "*Devon*" might probably obtain the much-desired object without any interference with the interior arrangements of the church. The foregoing might probably be found to answer with advantage, over close-boarded roofs, to many private dwellings, as a means of keeping attic rooms much warmer in winter, and cooler in summer.

H. Quebec.

BRAY'S TRACTION ENGINE COMPANY.

Sir,—In the review of Mr. Young's work, entitled, "*Steam Carriages on Common Roads*," in your last number, you quote, in speaking of *Boydell's* engine and its endless railway, the following extract from the text:—"The endless railway attached to locomotives is the only means, hitherto invented, by which steam can be used advantageously on common roads under all circumstances." As, I believe, Mr. Young was for some time the engineer to *Boydell's* company, it is not, perhaps, to be wondered at that he should be prejudiced so strongly in favour of that system, as his interests were identified with it; but as such a statement is calculated to mislead the public, I have enclosed two letters received within the last few days, in which two very eminent firms quote their experience of this company's engines; and I may add, with reference to Messrs. John Penn and Son's, that on Monday last, a condenser for the engines of the "*Black Prince*," armour-clad vessel, weighing about 30 tons, was successfully removed from their factory to Deptford, and also that our engines are working there today.

S. H. LOTTITT, Secretary.

THE REGENT STREET ROADWAY.

THE Vestry of St. James's, Westminster, at their meeting on Thursday, the 21st inst., decided on accepting a tender for the entire maintenance of the roadway of Regent-street in Macadam, for a period of seven years, at 3,500l. per annum.

Three years ago, the determination of the Vestry to carry out, against the earnest entreaty and remonstrance of the inhabitants, a resolution to pave the streets with granite blocks, led to such a change in the constitution of that vestry as not only stayed the proceeding, but resulted in the removal of the management of the parish out of the hands of the party who had uninterruptedly carried the sway ever since the first adoption by the parish of *Hobhouse's Vestries Act*, 27 years ago;—which Act—now, however, merged into the *Metropolis Local Management Act*—this parish was mainly instrumental in calling into existence.

The vote of Thursday, carried by eighteen to twelve, it will be seen, fixes the continuance of the roadway of this fashionable thoroughfare in Macadam for some time at least to come, and at the same time sets the parish at peace.

Books Received.

Notes of Family Excursions in North Wales. By J. O. HALLIWELL, Esq., F.R.S. London: printed for the Author, 1860.

MR. HALLIWELL appears to have chosen a healthful and entertaining exercise both for body and brain, when he resolved on making a few excursions in the picturesque principality of North Wales as a relief and diversion (it would seem) from his graver and more absorbing Shakspearian and other labours. And he evidently regards the production of this pleasant volume, which he has had privately printed for the amusement of his friends, as a specific ingredient in the medical prescription which it was his duty faithfully to follow out, at least for his own amusement, and hence benefit. To use his own free and easy figure of speech in explaining his object, the brain-fagged author, such as he, "takes up the first subject that comes uppermost; pegs away at it any how; and after amusing himself with correcting the proof sheets, turns out a little volume, much such a one as this is. It is not the least odds to him if any one reads it or no. The object is attained: the brain is relieved: the headaches are gone."

The excursions were taken chiefly from Rhyl, Abergele, Llandudno, and Bangor; and whatever the author may please to say of it, by way of disarming criticism and accounting for any little traces of haste or carelessness in its composition; the volume will henceforth, we should think, form one of the best and most pleasant guidebooks to that part of Wales. Nay, something more than that; for even here Mr. Halliwell has not always managed to give his powers of research the benefit of a complete holiday; and hence his volume is studded here and there with apt or curious quotations from old and little-known or almost forgotten authors, such as Gerard, the botanist, of Elizabeth's time; Thomas Johnson, the naturalist, Sir John Branstons, and Sir John Wynn, all of the seventeenth century; Taylor, the water-poet, and others. Of such authors as Leland, Dr. Johnson, and Pennant, Mr. Halliwell also, of course, makes fair use; so that, over and above the descriptive matter, a good deal of research has been brought to bear upon this very pleasantly-written volume.

Miscellaneous.

ARCHITECTURAL MUSEUM.—On Wednesday evening last, Mr. E. A. Freeman, M.A., lectured in the theatre of the museum, taking for his subject "*An Architectural Journey in Aquitaine*."

DESIGN FOR FILTER CASE.—The premium of 5l. offered by the Silicated Carbon Filter Company (Dahlke's Patent), for a design for filter case, has been awarded to Mr. J. Gouldsmith Rolis, C.E., of Church-court, Clement's-lane.

HAMFESTAD CHAPEL COMPETITION.—Another architect is now named to us as having been selected for this work; but, as the committee appear not to know their own mind, we must wait till they do.

DUNDEE CORN-EXCHANGE COMPETITION.—We understand, says the *Dundee Warrier*, that the Corn-Exchange Committee has approved of the plan of Mr. Campbell Douglas, architect, Glasgow, for the Corn-Exchange here: the other competitors were Mr. John Milne, architect, St. Andrew's; and Messrs. Hay, of Liverpool; and at the Lanacy Board, which met on Tuesday, it was decided to get new plans for the Lunatic Asylum for the counties of Fife and Kinross.

ROYAL SOCIETY CONVERSATION.—The president's first conversation was held on the 16th instant. Mr. De la Rue's photographs of the late eclipse, as seen in Spain, and Professor Tyndall's exhibition of the spectra of metals (in illustration of a paragraph in our last number), were amongst the principal features of interest.

"GAS LEAKAGE FROM STREET MAINS."—With reference to this subject, Miss Martin reminds us that her late father, Mr. John Martin, took out a patent some years since for a pipe junction, which, from a printed description forwarded to us, appears to have consisted of a coupling of metal in two pieces, and forming a band suitable for embracing the ends of the pipes when laid close together; there being dovetailed projections on the band for enclosure by dovetailed slips for securing the pieces of the band: both clips and dovetailed projections are wider at one end than at the other, so that, when forced on, the whole is wedged tightly together, after a coating of cement, such as white lead or pitch combined with tar, or thin felt saturated with pitch, has been laid on. Mr. Martin intended his coupling either for cast-iron pipes or for those of fire-clay; but he was desirous of having gas-pipes of glass, connected by the metal bands; thus giving effect to Sir Robert Peel's suggestion of glass pipes.

THE NATURE AND OBJECTS OF THE SOCIETY FOR PROMOTING LAW-AMENDMENT.—The society was founded in 1844, under the presidency of Lord Brougham, for the promotion, by discussion and otherwise, of the careful and cautious improvement of the law of England in all its branches, and suggestions to the Legislature and the public of defects and remedies. The society is composed of members of the Legislature, landed proprietors, merchants, and professional and independent gentlemen. Papers are read and discussed, and committees appointed to consider and report on proposed amendments: these papers and reports are published. The society has an excellent Law and Parliamentary Library. The subscription is 2l. 2s. per annum. It is needless to observe how much the community at large owes to this society. It is with a view to enlist support on its behalf that we recur to the subject; and, in a country where law-amendment is still so much needed, the mere statement of the objects of such a society must suffice to recommend it to notice.

ST. SERVIN, TOULOUSE.—Oblige me by correcting an error made in "Notes on Romanesque Art in the South of France." I described St. Servin, at Toulouse, as a three aisled Latin cross basilica: it should have been five aisled.

J. B. WABING.

HOSPITAL AT LISBON.—It is stated that Mr. J. M. Rogers, architect, has been engaged to make the drawings, under the superintendence of Mr. A. J. Humbert, Dr. Sutherland, and Miss Nightingale, for the hospital for children to be erected at Lisbon.

THE BATH SURVEYORSHIP.—The City Act Committee, at a special meeting on Friday, unanimously agreed to elect Mr. A. Mitchell, the city engineer, to the surveyorship of the City, vacant in June next by the resignation of Mr. Parfitt.

YORKSHIRE COTTAGE COMPETITION.—Mr. James T. Lea says his name should have been coupled with that of Mr. Bowden, as the joint winners of the first prize under "Class 3." Our list was official.

TRADE-MARKS: PROTECTION TO ARTISTS.—Lord Campbell has introduced into his bill on fraudulent trade-marks a clause making the forging of an artist's name, sign, or monogram, on any picture, engraving, or work of sculpture, a misdemeanour, punishable by fine and imprisonment. The thriving trade in counterfeit modern masters will thus receive a wholesome check.

CHICHESTER.—The Dean of Chichester has recently presented to each of the workmen engaged in the restoration of the cathedral, a mourning card, containing two resolutions passed at the meeting held in Chichester, February 26th. The one acknowledges the goodness of the Almighty in sparing life; and the other returns thanks to those entrusted with the work for their exertions to avert the calamity.

GLASGOW CATHEDRAL WINDOWS.—Other three painted glass windows have arrived at the cathedral this week, from Munich. The donors are the Duke of Buccleuch, Sir John Maxwell, and Mr. Stirling, of Keir. The Hon. W. Cowper, First Commissioner of Her Majesty's Works, has decided that the windows of the chapter-house and crypts, not filled or to be filled with painted glass from Munich, are to be executed by British artists.

A CHECK TO THE CHARING CROSS RAILWAY Vice-Chancellor Puge Wood has granted an injunction to restrain the Charing-cross Railway Company from taking proceedings compulsorily to acquire a portion merely of the premises of St. Thomas's Hospital, without taking the whole, the hospital trustees being able and willing to sell the whole. It is argued that the purchase of the whole will annihilate the undertaking, as the purchase-money of the hospital would be 750,000. An impression prevails that the trustees have not behaved very well in the matter.

A NEW BRIDGE TO CROSS THE THAMES AT BRENTFORD.—At a recent public meeting of the inhabitants of Brentford a discussion took place as to the construction of a bridge proposed by the Great Western and Brentford Railway Company to be thrown across the Thames from the present terminus at Brentford to Kew Gardens. A bill is now before Parliament for carrying it into effect. It is anticipated that the railway will bring an immense accession of visitors to Kew Gardens from the West, and that it cannot fail to be of great advantage to Brentford to have the ready means of communication with the opposite shore which this bridge would afford. The total cost will not exceed 8,000, and it is not proposed to ask the inhabitants of Brentford for a shilling of the money. The maximum toll to be permitted by the Act is one penny each person.

THE LENDAL BRIDGE AND BLAKE-STREET IMPROVEMENT, AT YORK.—These works are progressing, and the bridge will probably be thrown open to the public during the autumn of the present year. Mr. Dredge is the engineer. The removal of the houses in Little Blake-street, and the opening already made in Lendal and Museum-street, the construction of the land arches, &c., enable the citizens to form an opinion of the improvement contemplated. The *York Herald* states, however, that "a portion of the house now occupied by the Rev. Thomas Richardson is in the direct line of view; and that, unless it be removed, the new street, instead of being straight, will be curved at the very point where it will interfere with the view of the Minster from the bridge;" and that "a portion of the house occupied by Mr. James Allen presents a similar obstacle; and the rounding off of the corner ought to be a much more sweeping affair than is at present contemplated."

LARGE CASTING.—An enormous casting has been made in the foundry of Messrs. R. and G. Harris, of Rotherham. The total weight of the casting is 33 tons 10 cwt., and it is to form a bed for an immense hammer at the new works of Messrs. John Brown & Co., Sheffield. The metal was run from the cupolas in four minutes and a half.

THE RAILWAY BRIDGE OVER THE RHINE AT COLOGNE.—The great railway bridge over the Rhine at Kehl and Cologne, of which we gave an engraving view on 2nd June, 1860, is now nearly completed, and experiments to test its strength were lately made on it. First of all the two turning parts of the bridge were uncurved, and were found to work well. That of the French side, which weighs 350 tons, was moved with facility by eight men, then by four, and then only by two. After several other preliminary experiments, two trains, each consisting of five locomotives, were driven over the bridge side by side, and were made to remain together some time on the turning bridges, and on other portions of the structure: lastly, these two trains crossed each other at full speed. During the experiments the different parts of the bridge, it is said, scarcely yielded at all.

THE NEWCASTLE-UNDER-LYNE SCHOOL OF ART.—The annual meeting of this school has just been held; Mr. Jackson, M.P., in the chair. The attendance was numerous. The committee's report stated that the number of persons who had been taught drawing through the instrumentality of the school was 430, being an increase of eighteen on the previous year. Eleven medals for twenty-three drawings had been awarded. Fifty per cent. of the works examined were found deserving of medals, and six drawings were forwarded to London for national competition. The income of the school, including 25*l.* given by Mr. Jackson, had been 62*l.* 9*s.* 6*d.*; and the expenditure, including a balance of 22*l.* 1*s.* 10*d.*, brought from 1859, 58*l.* 2*s.* 6*d.*. The committee acknowledged the presentation to the school, by Mr. Ruskin, of a water-colour drawing of fruit by William Hunt. On comparing the works of 1859 with those of 1854, there was, it was said, a very marked advance in all the grades of drawing.

BURSTING OF THE BRIDGWATER CANAL.—An accident has happened a few miles from Warrington, involving a considerable amount of damage to the Bridgewater canal, and the entire stoppage of the traffic. At Lumb Brook, Appleton, the canal embankment is 25 feet above the adjoining land, and the road to Grappenhall Heys passes under it. This embankment gave way on the south-west side, causing an immense breach. The wing wall of the bridge on that side was completely swept away. Some cottages in the immediate neighbourhood were several feet deep in water; and about 7,000 cubic yards of earth, &c., which formed the bed of the canal, have been carried into the lower ground by the force of the current. Nothing is known as to the cause of the accident. It is, however, attributed to the late severe frost, and to the strong winds causing flats to bump against the side of the canal. About a hundred navvies and other workmen were set to the work of restoration. The damage has been estimated to amount to some thousands of pounds.

TENDERS

For additions to Breckham Home, for Workhouse Girls, for the Hon. Mrs. Way; Mr. J. Norton, honorary architect:—

Carrothers	£700 0 0
Batchelor	193 0 0
Barnes	175 0 0
Thornton (accepted)	172 0 0

For the Norwich Corn Exchange; Messrs. T. D. Barry, Norwich, and Messrs. Goodwin & Butcher, London, architects. Quantities supplied by Mr. J. S. Benest, Norwich.

	No. 13 Contract.	No. 14 Contract.	Total.
Cushing	£8,160	£800	
Spinks & Young	6,218	600	
Stanley	5,950	600	
Lacey	5,565	500	
Long & Bails	5,398	700	

For Cottages, Orpington, Kent; Mr. J. G. Stapleton, jun., architect:—

Townsend	£225 0 0
Sales	215 0 0

For the erection of Three Shops and Dwelling-house, for E. Moses & Son, Aldgate, corner of Jewry-street; Mr. D. A. Cobbett, architect. Quantities by Mr. McKim.

	No. 13 Contract.	No. 14 Contract.	Total.
Mansfield & Son	£10,973 0 0		
Dove, Brothers	10,875 0 0		
Conder	10,180 0 0		
Myers	10,083 0 0		
Wilson	9,889 0 0		
Hedges	9,880 0 0		
King	9,490 0 0		
Hill	9,485 0 0		
Perry	9,383 0 0		
Ashby & Horner	9,310 0 0		

For Two Houses, Forest-hill, Sydenham, Kent; Mr. J. G. Stapleton, jun., architect:—

Fowler	£1,340 0 0
Dover	1,393 0 0
Winder	1,320 0 0
Cannon	1,195 0 0
Thompson	1,140 0 0
Amer	1,125 0 0
Hemming	1,100 0 0
Amos	970 0 0

For the erection of Duncraf House, and Offices, Perthshire, for the Right Hon. Lord Rolls; Mr. W. G. Habershon, architect:—

Nelson	£21,500 0 0
Craig	20,490 0 0
Stephen & Cair	20,445 0 0
Adam	20,097 0 0
Murray	19,972 0 0
Scott	19,835 0 0
Reddie	18,324 0 0
Brownlie	17,659 0 0
Moore	16,800 0 0
Parker & Sons	16,582 0 0
Griffiths	16,260 0 0
Weatherly	15,830 0 0

For the erection of United Presbyterian Church, Westbourne Grove-terrace; Mr. W. G. Habershon, architect:—

Matthews	£5,638 0 0
Adamson	5,597 0 0
Simpson	5,536 0 0
Patman & Fotheringham	5,523 0 0
Todd	5,490 0 0
Tarbutt	5,090 0 0
Myers	4,985 0 0
Rudkin	4,980 0 0
Moore	4,791 0 0

For new Buildings and Alterations, at Half Moon and Seven Stars, 119, St. George-street East; Mr. Benjamin White, architect:—

Wood, Brothers	£563 0 0
Hedder	553 0 0
Rivett, jun.	473 0 0
Blackburn	460 0 0
Howlett & Brown	455 0 0
Wilson	446 0 0
Dudley	395 0 0

For the new Roman Catholic Church of St. Joseph, at Stockport; Mr. M. E. Hatfield, Sheffield, architect. Quantities not supplied:—

	First Estimates.	Second Estimates (uniting Towers).
Davenport & Swindells	£8,500 0 0	
Thackray & Pearce	5,990 0 0	
Farrell & Ledger	5,488 0 0	
Gilmore	5,396 0 0	
Robinson & Son	5,300 0 0	
Forrester	5,040 0 0	
Gilmore	4,950 0 0	
Forrester	4,510 0 0	
Robinson & Son (accepted)	4,230 0 0	

For building School-master's Residence, in connection with St. John's National Schools, Bethnal-green; Mr. W. Mundy, jun., architect. Quantities supplied by the architect:—

Read & Son	£452 0 0
Perry	426 0 0
Livermore	423 0 0
Norris	417 0 0
Forrest	385 0 0

For St. Bartholomew's Hospital, Chatham; Mr. R. P. Pope, architect. Quantities supplied by Messrs. Poland & Dobson:—

Edwards	£14,700 0 0
Wilkins	13,707 12 0
Myers	18,500 0 0
Rummins	12,960 0 0
Jennings	15,125 0 0
Naylor	11,857 0 0
Watts	11,267 0 0
Stamp (accepted)	11,311 8 0
Parkhurst	11,000 0 0

Soldiers' Institute, Chatham; Mr. A. Gough, architect. Quantities supplied by Welch & Atkinson:—

Forr	£4,198 0 0
Wilkins	4,083 0 0
Carter	3,775 0 0
Dove, Brothers	3,775 0 0
Stamp (accepted)	3,498 0 0
Naylor	3,493 0 0

For Hackney district Sewers Works, Mr. James Lovegrove, C.E., surveyor:—

	No. 13 Contract.	No. 14 Contract.	Total.
Yeoman	£4,543 0	£1,217 0	£5,860 0
Wood	4,270 19	959 0	5,229 19
Cole	4,153 3	294 0	5,447 3
Cattell & Hills	3,825 0	937 0	4,762 0
Tottle	3,730 0	805 0	4,535 0
Stacey		1,165 0	
Abbott & Hopwood (accepted)	3,711 0	802 0	4,513 0

For restoration of Chelwood Church, Somerset; Mr. J. Norton, architect:—

	Nave, Porch, and Chancel.	Tower.	Total.
Hughes	£566 0	£168 0	£734 0
Spiller	622 0	195 0	817 0
Diment	678 0	137 0	815 0
Baker	599 16	123 4	723 0
Chumock	497 10	165 12	662 12
York	495 0	139 0	634 0
Wall & Hook	490 0	159 0	649 0
Streeter*	429 0	115 0	544 0

* Accepted.

The Builder.

VOL. XIX.—No. 947.

The Question of Residences, Paris.—Theatres.



LONDON is discussing what measures shall be adopted preparatory to any further destruction of a large number of residences, Paris is quarrelling about the evil or good results which have followed wholesale clearances of a similar kind: the dearth of places of residence; the prevalence of speculation in land, which is supposed to assist in producing the evil; and the financial and other administration of the municipality, continuing to form the subjects of much discussion. Since our detailed notice of the intended streets and other improvements was published, an important pamphlet has appeared, entitled "La Liberté et les Affaires: La Cherté des Loyers et les Travaux de Paris," from the pen of Mr. A. Guérault,

wherein the city is plainly accused of the authorship of the evil, the argument is advanced that the municipality should charge itself with the work of reconstruction, and the wisdom of destroying houses of a costly character, lately built, for the sake of uniformity or the *alignement* is pointedly questioned. We have not at present opportunity to enter into all the bearings of the controversy; but we may add, on the one side, that costly operations such as the author of the pamphlet refers to, are not always favourable to the desired effect of street architecture in Paris, more than they are considered consistent with sound economy; and question on the other, if the *liberty of affairs*, as the true policy for the municipality, would be promoted by the course which Mr. Guérault shadows forth. Indeed, we believe this contrary view has been maintained in the *Journal des Débats*. The pamphlet, however, is an important one; and we hear that the Emperor was written thanking the writer for having introduced it.

Last week the Corps Législatif were occupied several hours on the same question, which, it appears, has its counterpart in other populous cities in France; as it has in London, or so nearly so, present or for the future, that everything contributed to the solution of it should be regarded there with the closest attention. The report of the debate occupies twelve columns in the *Moniteur* of Wednesday, the 20th. The amendment proposed went to declare that the "towns of Paris and Lyons assisted with inquietude at the unmoderate enterprises of municipal administrations unattended with check and control;" and that "the absence of elected municipal councils, and the forgetfulness of the elementary principle of public right which assures to the individual contributor the right of naming those who vote be imposed and dispose of it," had never "been more sensibly regretted" than at the present time. Mr. E. Picard, who moved the amendment, which was signed also by Messrs. Jules Favre, L. Darimon, Hénon, and Emile Olivier, was rejected by Mr. Devinck, author of a report on the financial situation of the city, presented to the municipal council on the occasion of the budget for 1861, and by Mr. Billault, one of the ministers. Although ultimately the reasons with which our readers are familiar led to the non-

adoption of the amendment, many features of the discussion can be usefully thought over in Paris, as in those other capitals where a tendency to the same condition of over-population in proportion to houses, exists; for, exist it does, we apprehend, in capitals generally, though most of all in Paris.

The minister, in the course of the discussion, stated that a large number of new houses would have to be built; and announced as amongst the good results which had followed from opening new streets that the mortality had diminished ten per cent.

As we are writing of Paris, we may continue our observations on the discussion now going on there in respect of the best form and arrangement of theatres.

On the 16th, at the Conservatoire des Arts et Métiers, Mr. Trélat delivered the first of three lectures on the same subject. The lecture more especially related to the Greek theatre and drama. For this branch of the subject, it seems necessary to bring to the knowledge of the French architects the existence of the contribution by Professor Donaldson, on the ancient theatre, to the supplementary volume of Stuart's Athens, second edition, where, besides much other matter, there is a plan giving an ideal restoration, which will be found of value by those who have felt the difficulties left by Vitruvius and others. Mr. Falkener's paper of more recent date, on the Theatres of Crete, would also deserve the notice of Mr. Trélat; indeed, it is essential for the subject.

A *résumé* of some of the chief points in the question of the proposed new building, and a general review of the designs, was given by Mr. César Daly on the 14th ult., at the meeting of the *Presses Scientifique*, and will be found reported in the following number of the publication of that Society.* Mr. Daly, from the French point of view, instances the church, the opera-house, and the railway terminus, as the chief monuments of contemporary architecture; churches now required being buildings of a different character and scale to the churches of the Middle Ages. In the case of the Paris Opera-house the problem was novel and complex: the month's preparation was insufficient; and, if sketches would have served had the subject been an arch of triumph or a tomb, there could not, in the present case, be the saving of time expected in calling for sketches only; elaborate work of representation being identified with the necessary study.

The effect of the collective blunder was to strike with impotency the competition opened. The author, however, discovers many merits in the works, and puts forth some useful conclusions from his survey, regretting, however, with us, the absence of the written particulars. In the course of some remarks on stage arrangement, he instances a new theatre, not in France, where only twenty-five men are required for working machinery, to produce the same kind of effects as require 100 men on the stage in Paris; and concerning the position of the front of the stage relatively to the *salle*, he quotes some words addressed to him by Nourrit, the singer, the tendency of which is to show that, irrespective of other considerations, it is favourable to the efforts of the actor that he should feel himself, as it were, "enveloped by the audience, and touched by their sympathetic regards from all parts." Mr. Daly, we believe, has ready for publication a more minute account of the results of the competition, with illustrations of some of the principal designs. The French journals announce that the drawings of the new theatre, to be called after the Prince Impérial, are at present under consideration by the Conseil des Batiments Civils. The site named is between the Rue Réaumur and the Square St. Martin.

* "Presse Scientifique des Deux Mondes: Revue Universelle du Mouvement des Sciences pures et Appliquées," No. 4. Année, 1861. Tome Premier. Livraisons 16 Février; Paris, au Bureau de la Presse Scientifique. Londres: H. Baillière; Barthes et Lowell.

THE SARACENIC STYLE DISTINCT FROM THE BYZANTINE.*

THE occurrence of round arches, alternating with those of the pent-roof, or angular head, will readily call to mind the niches in the theatre of Taormina, in Sicily, which have a similar appearance and arrangement: they are also of brick, and of the same character, with a hood over the arch, or layer of bricks intervening between those of the archivolts and the superincumbent wall. Of this alternation of the round and angular-headed arch many instances occur, in Roman times, of a more ornamented character in the form of peditments over windows or niches, in stone, as at Nîmes, of the time of Augustus; at Baalbek, in the smaller temple; at Diocletian's baths at Rome; and other buildings: it is also seen in the wall of Constantinople, and in the baptistry of Ravenna, built A.D. 451; and it has long been fashionable over the windows of modern European houses. And as it was employed at so early a period, we are not surprised to find it in a building evidently erected by the Coptic Christians of Egypt. The style of construction in the old portions of the *Jamât-Amr* is the same as that in the neighbouring convent, which still remains within the old Roman station at Babylon; and as its brick windows, added by the Christians in the upper part of the stone wall above its southern gateway, have the same character as those of the mosque; they at once proclaim the source whence the latter were derived, and the very usual and even necessary assistance obtained by the Arab conquerors from native builders.† One of its peculiarities consists in the hood placed over the arch, already alluded to; and as it is found in several early Christian buildings of the time of the Arab invasion of Egypt, we know it to have been commonly adopted there even before this mosque was erected; and the same style of construction appears in the small pointed arches built by the Christians in the same century. It also occurs (somewhat stilted) over the windows of the Red Convent near Soohg, in Upper Egypt,—a building supposed to be of early Christian time, though completed much after its pretended date, the reign of Constantine. This hooded pointed arch continued in use a long time afterwards; and it not only appears in the south-west front of this mosque, which is probably of a rather later date than the above-mentioned portion at the south-eastern side, but is found in Arab buildings (as at Assuan), over stilted arches, of about 1070 A.D., and at other later periods.

The south-western front of this mosque is remarkable for another feature, which soon became so marked in Saracenic architecture,—the pointed arch. It here alternates with the round one in the lower, as that with the pent, or angular, head does with the round arch in the upper tier; and though the pointed arch had been occasionally used of very limited dimensions, as already stated, before the Arab conquest (A.D. 638), this was probably one of the earliest instances of its regular employment in the walls of any large building. It may have been introduced on some few occasions, as in Assyria and at the Pyramids of Napat, and in subordinate positions to cover passages, and spaces of limited span, at a much more remote period; but its first development was unquestionably due to the Arabs; and in little more than 200 years after their first conquests it became an established feature of Saracenic architecture.‡

In the earliest periods of their history the Arabs were satisfied with imitations or modifications of the buildings of each district where they settled; and this explains the diversity that exists in the character of those raised by them, and by the native architects they employed in different countries; while it accounts for the subsequent combination of various elements in their architecture when they became sufficiently advanced to form a new and independent style; for we must recollect that the Moslems, from the time they conquered Syria, Egypt, Western Africa, Persia, India, and other countries, about eighty years after the death of Mohammed, had added whole populations to their ranks; they had long ceased to be merely rude invaders from Arabia; and

* See p. 193, ante.

† It is in the convent over this gateway that the curious inscription on wood, of the time of Diocletian, occurs, over a doorway once leading into the church.

‡ I cannot subscribe to the opinion that the pointed arches of the mosque of El Akshah, at Jerusalem, are of the 6th year of the Hégira, A.D. 699; or that that building is in the condition in which it was when built by Abd-el-Melek. The stalls and the columns, with their capitals, are probably of Christian time, but the arches of the church (I do not speak of the vaults) are neither of Christian nor of the earliest Moslem time.

their converts, long practised in the arts and architecture of their respective provinces, brought with them the knowledge possessed by the Byzantine Greeks, the Copts, the Persians, the Indians, and others who had joined their ranks. No wonder, then, that with such varied contributions to the common stock the new architecture was marked by the remodelled types of so many different styles. The Byzantine Greeks gave it many of its earliest ornamental devices and other features. The Copts, more in favour in Egypt than the Greeks, their religious and political rivals, were constantly employed in that country by the Moslems as builders. Persia, as history and the infallible evidence of style proclaim,* had the greatest influence on the character of its oldest buildings; and we know that architects from that country had long before been employed by Justinian at Constantinople. India, too, furnished numerous marked features; among which may be noticed the minaret, the *mehrab*, or niche of prayer, the bracket, and other peculiarities of its monuments; and many instances might be adduced of the spread of the prevailing characteristics of different styles throughout the most distant countries conquered by the Arabs. Some were less readily adopted in certain districts, owing to previous predilections, or to the nature of the climate: in one place covered buildings were a necessity; in another, they were not required; and thus, while previous habit suggested the adoption of the dome in Syria and some northern countries, the Egyptian Moslems did not admit it till a later time, and then only as an adventitious feature gradually welcomed by them, through the influence of the Kurd, Turkman, and Cressian Sultans,† who succeeded to the throne of Egypt after the dissolution of the Fatemite Caliphate, in 1171 A.D. For the oldest mosques in Cairo, of 879 and 1003, as we have already seen, have no dome, or other distinguishing feature of Byzantine architecture; and the small one in the court, covering the font for ablutions, is of later time. They consist, as I have before stated, of the hypæthral Court, surrounded by colonnades, with a minaret on one side, or at two or more of the corners; and the hypostylar portion, at the upper or prayer end, was covered by the same kind of flat roof as the corridors of the court.

Of the architecture of the Abbaside Caliphs we know little, though the distinguished leaders of that dynasty were great encouragers of architecture, as of all the sciences and arts; and the only building now remaining of that period in Egypt is the Mokcma, or Nilometer, in the Isle of Roda, which, founded by the Caliph Mamoon, was rebuilt by El Motawukkel-al-Ailah-Gifir, the tenth prince of that dynasty, A.D. 862; and the peculiar character of its Cufic inscriptions proves it to be of that age. M. Coste thinks they are of 199 A.H. (814 A.D.), and of 233 A.H. (848 A.D.); but they are, at all events, not later than the time of El Motawukkel, or 862 A.D.‡ Its arches rest on engaged columns, in a manner which recalls those of our Norman time; and the capitals have a simple character approaching to the Romanesque, without any abacus or impost, but with a heavy unornamented base. In the summer of 1832, I obtained permission, from Mohammed Ali, to remove the upper steps of the staircase, which covered the end of the Cufic inscription, in the hope of finding the date; but though my search was fruitless, I have no doubt, from the simple style of the Cufic, that it is of the Caliph Motawukkel; and the fact of the pointed arch having been in general use at that period, is fully confirmed by the mosque of Ahmed-Ebn-Tooloon (afterwards enclosed within the walls of Cairo), which has that feature throughout, and was erected in 879 A.D.; as recorded by history and by the inscription still remaining there, which contains the date 265 of the Hégira. § There is another

mosque in Cairo, of great antiquity—the Azbâr, founded by Góher-el-Káed, the general of El Mo'iz, the first Fatemite Caliph of Egypt, A.D. 972; but of the original building, which was very small, no part remains except the niche, which stands in the middle of the great colonnade. The western part, with the minaret, is of E' Naser Mohammed, A.H. 736 (A.D. 1336); Káedbay added to it about 1470 A.D.; and it was completed by Abd-E' Rahmán K'chia, in 1762 A.D.; who at the same time enlarged the small but highly venerated mosque of El Hassanin. But another remarkable edifice of the Fatemite Caliphs, founded by its original state; and this mosque of Soltan El Hákem-be-omr-Allah presents, throughout, the same kind of pointed arches, on solid piers with engaged columns, as that of Ebn-Tooloon; and like it is built of brick.* The span of the arches is 16 feet 6 inches; those of Ebn-Tooloon, 14 feet 6 inches; and they have both a slight spur, so well known in the round horse-shoe arch; which last form of arch, though used at Cairo, occurs at the Tooloonneh, in a little used at a somewhat later time between the mosque and its whimsical spiral minaret.

The pointed arch being the one in ordinary use at this period, it is found, as might be expected, in the palace of the well-known Eiyoubite Caliph Yossef-Sakih-E'deen (Saladin), adjoining the modern Cadi's court at Cairo, springing from solid piers. It dates about 1180 A.D.; for though this was a portion of one of the Kasrâyn, or "two palaces," erected by Góher, the founder of Cairo (A.D. 970), it was probably an addition of the Eiyoubite Caliph, who lived there at the time he added to Cairo its citadel, and replaced with stone the brick walls of its former circuit. The site of one of the two palaces is now occupied, in part, by the Cadi's court; and the spot where they stood is still recorded by the name Bayn El Kasrâyn, ("between the two palaces") applied to the space which intervened between them. The same kind of arch continued to be used in the public buildings of Cairo, throughout the reigns of the Eiyoubite and the Memlook Sultans, to the conquest of the country by the Turks in 1517. But while this was so marked a characteristic in the mosques of Egypt, together with the hypæthral court, the dome did not become a prevailing feature there till after the accession of the Eiyoubite or Kurd, the Bahárite or Turk, and other dynasties; and it was then made subservient to the style already established, being derived from a cognate branch which had developed itself in Syria and other countries. It was thus, too, that the minaret had been adopted by the Moslems from India; and though the bracket may have been introduced from the same country, there is sufficient evidence of its having been also copied, as by the Moors, from Roman buildings; and arches bracketed, or resting on projecting impost, may be seen in a Roman ruin at Udine, near Tunis.

Indeed, the custom of using ancones, or consoles, is of very early date, and of Greek time; and columns as well as other members are supported upon them in many Roman buildings, as in Diocletian's palace at Spalato and elsewhere. They answer the purpose of our corbels, derived also from Roman architecture. At Diocletian's palace, too, the arches spring from single columns, without any intervening member between them and the capitals.

If the minaret came from India, it was speedily improved by the Arabs, and nowhere does it possess the same beauty of proportion and elegance of form as in the mosques of Cairo, particularly those built in the time of the Cressian Memlook kings, as of El Berkook, 1302—1399 A.D.; of El Káedbay (or Kaitbey), 1468—1496; and many of the preceding dynasty, as of Saleh Eyyob, 1249 A.D.; of Baybars, 1270 A.D.; of Kalasoun, 1285 A.D.; of Naser Mohammed, 1299 A.D.; of El Ashraf-E'ensâ, 1453; and of the Emer Kéber. They offer a pleasing contrast to those of the neighbouring Syria; and at Damascus every one admires the minarets introduced there during the rule of the Egyptian Sultans.

The difference of type displayed by the minaret in several countries is, perhaps, more striking than that of any other member of an Arab edifice, and nothing can be more dissimilar than those of Cairo, and of India, and the tower-like Ghiralds at Seville, whose type is so common throughout the Barbary states, and which differs so widely from another minaret common at Tunis, as well as in Syria and some other countries.

I would gladly enter into the merits of these also, but I should extend my paper beyond its

proper limits. If, however, I omit all mention of the extinguisher form of the Turkish minaret, or the grand mosques of Constantinople, limited so decidedly from Sta. Sophia, I feel less regret as their architecture does not properly come under the head of Saracenic, and is foreign to my inquiry.

I have noticed the general use of the pointed arch in Egypt at the latter end of the year 800 and beginning of the following century. It is said to have been employed at the same periods in other countries of Islam; and in India an instance is stated to have been found of the time of Mahmood of Gházni, who reigned from 997 to 1030 A.D.

At Kairawán, in the modern regency of Tunis, the old capital of the Fowátem, or Fatemites, the founders of Mus-el-Káhirah, or Cairo, the pointed arch is thought to date at a very early period, and one which I was shown at Kairawán, in a building covering a well, is *reputed* to be coeval with the Sabába, or companions of the Prophet. I need scarcely say that this is more than probable. We cannot believe it to be of the age of Moháwiah, in whose reign the city and the great mosque were founded by Ogbá (Okba), A.D. 670, according to Leo Africanus; and, though the simple corbelling of the dome, in the upper part of the building, gives it an early appearance, it does not seem to date as early as Ibrahim Ebn-Agble (Akbleb), who established the new dynasty of the Aglebites, in Africa, A.D. 800, and who added so much to the city that he was considered its second founder. He was the same who built the suburb called Rasheed; and the port of Mahdéh was founded by El Máhdéh, the first of the Fatemite kings of Africa, about A.D. 910; and if I mention these two places, it is because future travellers in that part of the country may have opportunities of making inquiries there, which I was unable to do, being obliged to return to Tunis in time for the departure of her Majesty's ship *Benbow*, in which my lamented friend, Captain Graves, had kindly given me a passage from Malta. Unfortunately, the difficulty of examining any building at Kairawán and the neighbourhood has, till lately, been very great, owing to the prejudices of the Moslems, who look upon it as a holy city, and are everywhere in Barbary averse to European intrusion; and when I went there in 1845, only two other Christian travellers had been permitted to lodge within its precincts. I was, however, enabled to make many more observations than I had expected, owing to my speaking Arabic, to my travelling in the Eastern dress, and to the opportunity I had of meeting and overcoming the objections of the people, which last happened in this manner:—On leaving the governor's house, I was warned to be very prudent, and not to excite attention by attempting to draw or write while any one was in sight, particularly while going near the mosques. I took care, therefore, whenever I ventured to make any memoranda, to do so under the cover of my capacious *bermoo*; and I had succeeded in avoiding all suspicion till, on coming opposite the eastern gateway of the great mosque, I stopped to examine its pointed arch. Thinking that no one was within sight, I proceeded to make a hasty sketch of it, when some of the faithful, whom I had not perceived within the gateway, came forth in great anger to inquire into my most suspicious proceedings. It was too late to stop and affect innocence: my offence was too evident; therefore, without waiting for the outburst of their indignation, I advanced to meet them, and, after the usual salutations, told them I had come from Cairo, where the learned declared that the Egyptians had invented the pointed arch, but that, as the Fowátem princes went from Kairawán to Mus-el-Káhirah (Cairo), and used the pointed arch at that time in their buildings, there was a possibility of its having been employed long before at Kairawán; and I was therefore anxious to know if they could produce any proofs of a prior claim. This so disarmed their prejudices that, with a view of maintaining the claims of their city, they took me to every pointed arch in the place, except, of course, in the interior of the mosques; and, though disappointed in my hopes of meeting with some of great or well-defined antiquity, I was enabled to see the one already mentioned, and to copy the Cufic inscription at the city gate, as well as to make other observations, and even hasty sketches of the buildings themselves.

The great mosque is rectangular, surrounded by a high wall, with numerous projecting buttresses and towers, at intervals, 17½ paces north and east,* by 101 east and west, having had originally eight entrances, four on the east, and four on the west

* For proofs of this I refer to Mr. Fergusson's admirable work, "The Handbook of Architecture."

† The mosque of Soltan Berkook has, by some oversight, been attributed by M. Coste, to the year 1149 A.D., or to 527 A.H., answering to 1133 A.D. It should have been 1392—1399 A.D.; which 249 or 250 years, in the history of architecture, make a material difference. Soltan Berkook was the first of the Borgite, or Cressian Memlook kings, who reigned from 1182 A.D., to the Conquest of Egypt by the Turks, under Soltan Selém, in 1517; and by these kings the tombs were built outside the walls of Cairo, which have erroneously been styled the tombs of the Caliphs. The Caliphs were buried where the Khan Khaleel now stands, in the city.

‡ I am glad to find from Mr. Stanley Poole, that this opinion is confirmed by the valuable authority of Mr. Lane.

§ The position of this mosque may be seen from my map of Cairo; which, though unfinished, may serve to show the locality of the principal mosques, and the original as well as present extent of the city, after the Kálá-t-el-Kebsh, or Kuttacea, in which the Tooloonneh stands, was enclosed with its precincts.

* Mr. Stanley Poole says that the Mosque of Ebn-Tooloon was built by a Coptic Christian.

* About 410 feet by 255.

side, some of which are now closed; and over each gateway is a cupola. The interior I believe to consist of the usual hypæthral court, surrounded by colonnades, with a deep hypostylar hall at the south, or Mekkeh, end. There is nothing on the outside which has an appearance of great age; and from what I could learn, it has been often repaired, and probably remodelled at various times; though they pretend that it was always restored in exact imitation of the earlier work. The principal minaret, which is called *Sómá*, stands on the north side, towards the north-east corner. It is a square tower, consisting of three tiers, or stories, capped by a small dome, or cupola, and is said to be the oldest part. It has round-headed arches; but one, over the door on its western side, has a slight inclination to the pointed form. Over the eastern and western doors of the mosque the arches are pointed; but these are probably of no very early time, though the corbelling of the cupolas is very simple. They are not very unlike, in this respect, to the *Cubolletta*, at Palermo; and St. Giovanni degli Eremiti, built about 1132; and in one place, under the side arches, before the eastern gate, is an Arabic inscription. The round horse-shoe arch generally prevails throughout the exterior of the mosque; and though some are of an oval form, nearly resembling the pointed, few are decidedly of that character except those before mentioned. In the centre of the court is a lofty dome, visible above the walls, similar to, though higher than, those in the mosques of Cairo, where ablutions are performed before prayers.

I afterwards visited another mosque with three arches in front, which are round, inclining slightly to the pointed form, and with a certain appearance of age, but which is contradicted by the date of the Cufic inscription above them, showing that they were erected A.H. 846 (A.D. 1443).

Two Cufic inscriptions on a shekh's tomb are of late date, and of a very florid style; but contain no date, and the oldest in that character which I met with at Kairawin is at the gate called of Tunis, bearing the date of 437 A.H., or 1046 A.D.

The walls of the city have been rebuilt, and bear the record of their last restoration, in A.H. 1185 (A.D. 1772), which was made by the uncle of the Bey who governed the Regency in 1845. They are surmounted by an ordinary round-headed parapet, and strengthened at intervals with semicircular towers or buttresses.

In point of antiquity, Kairawin does not appear to possess any monuments of that importance which we might expect to find in so ancient and so sacred a city; nor does it offer any satisfactory proof of the early use of the pointed arch. All that can be learnt on this point from the people is vague and uncertain; and as permission cannot be obtained by a Christian to enter the great mosque, it is not possible to ascertain whether any vestiges are there to be found of the earlier portions of that building. Sufficient, however, may be determined, from its external aspect, to show that the general character of Arab architecture prevailed here as elsewhere, and that it was not of a style to be mistaken for the Byzantine.

The facts already stated are, I trust, sufficient to disprove the opinion that the Saracens had no style of architecture, and that it was merely Byzantine. They also explain why, in the remotest parts of Islam, one edifice was found to resemble, in many of its characteristics, another founded in Barbary, or in Egypt; at the same time that they show why others were different, and why certain countries had their own peculiarities. Indeed, it is easy to perceive how it happens that, though the Saracenic borrowed from the Byzantine, its character was so distinct. Nor is it a singular instance of a career quite independent of the predecessor to which it was indebted for its earliest features. It has been thought, because the Greeks were sometimes employed by the sultans of Egypt to erect or embellish their mosques, that these must necessarily be Byzantine; but so far from this being the case, they fail to be a counterpart of that style, either in their plan or their elevation. Moreover, Copts were, at one time, as much or probably more employed in Egypt as builders; and certain characteristics prove how greatly the Arabs were indebted to the Persians for their assistance and example. I may also observe that many domes of their mosques have more of a Sassanian than of a Byzantine character, as may be seen from the palace of Serbistan, and the great mosque of the *Ták-kesra* (given by Mr. Fergusson, in his "Handbook of Architecture"), which last, built by Nushirvan, or Chosroes (Khosrou), the contemporary of Justinian, calls

to mind the large vaulted recesses of the Arabs of later times, such as we see in the mosque of Soltan Hassan, at Cairo; and it is not improbable that Persian taste, welcomed by Justinian while raising the numerous edifices with which he beautified Constantinople, may have also had its influence on Byzantine architecture.

If the Saracens, on their first issuing from Arabia, adopted the churches of the Christians as places of worship, or availed themselves of the assistance of Greek, Copt, Persian, and other architects, in erecting their mosques, they did not object, at much later periods, to profit by similar assistance, nor disdain to borrow from the architecture and even the materials of the churches of the conquered provinces; and a mosque at Cairo, which, by the inscription it bears, proclaims that it was built by Nâser Mohammed, in 698 A.H. (1299 A.D.), has a doorway brought from one of the churches at Akka (Acre), in Syria.* In other parts it displays, throughout, the characteristics of the Saracenic style; but the doorway is singular among those of Egyptian buildings, being of Christian (so-called Gothic) style, with clustered columns supporting a cusped trefoiled head, such as might be met with in one of our churches. It is probably of the early part of the year 1200, or the close of the preceding century.† This work is also remarkable for the character of its cupola, ornamented with the fretwork, which afterwards became so elaborate and florid in the Alhambra and Alcazar in Spain, and which is rarely seen in the mosques of Cairo.

If the golden and coloured mosaics were used at Alexandria, and obtained the name of *opus Alexandrinum*, they were simply derived from the same source as those of Constantinople, and were merely decorative features of Arab architecture, on which I do not pretend here to enter. They adorned a niche of prayer and a few isolated members of a wall, as they adorned a pulpit, or some portion of an early Italian church; but neither these nor any other solitary features are fundamental principles in architecture, or proofs of two styles being identical, however characteristic as a mode of ornamentation. The most remarkable of them in later times are in the houses of Damascus and Aleppo. But I abstain from noticing them, as well as the slab-work, *intersiatura* and other inlaid work, the coloured glass, and elaborate fret-work in stucco, and various decorative features, as they would extend this paper to an unreasonable length.

The fact is, the term "Byzantine" has been often used in a vague and inconsiderate manner; and it has been too hastily supposed that every building in which the dome is a dominant feature was indebted for it to Constantinople. But not only was the dome not confined to that style, but it was not even first used by the Byzantine Greeks. In Italy, and in some other countries, it descended directly from its first originators, the Romans, without being derived through an intermediate Byzantine channel; and if it passed, through the Greeks of Constantinople, to the eastern provinces of the empire, it was transmitted to them, with certain modifications, merely by the followers of those by whom it had been originally invented; and the credit of its first application on a grand scale belongs very evidently to the Romans.

The Byzantine style has certainly its claims on the gratitude of the Saracenic architects, for having transmitted to them certain architectural features of which they availed themselves during the formation of their own; but it must also be admitted that they soon learnt how to develop and improve upon it; and that they were as much, or more, indebted to the Persians and others for the early formation of their style. The changes, too, which the Arabs introduced into the dome were such as to give it a new character. At the same time all will allow that Byzantine architecture was less removed from that of Rome, than was the Saracenic from the Byzantine; yet no one thinks of questioning the existence of a Byzantine style, nor should we doubt the propriety of giving a new name to any one of those styles, which has partly grown out of a predecessor. If we refused to admit this, we should deny the well-known progress and development of art, and should view architecture as if it had no history; and it would

be as reasonable to disbelieve the existence of various languages, because they had proceeded from one common origin.

GARDNER WILKINSON.

AN ARCHITECTURAL JOURNEY IN AQUITAINE.*

THERE are two ways of studying ancient buildings, both of which must be diligently practised by every one who wishes to reach to a thorough historical knowledge of architecture. A man may sit down to study some one or more particular buildings: he may get up every measurement and every detail: he may make himself acquainted with every fact in its history, whether as written in contemporary chronicles or in the very stones of the building itself. Or, again, he may pass lightly and rapidly through many lands and many cities: he may see such buildings as come in his way, and may note down whatever strikes him as beautiful, as singular, or as bearing on the general history of the art: he may thus fill his sketch-book with those details and general views which please his eye; and thus fill his mind with many new facts and new ideas, without entering into a minute historical examination of any one building whatever. Each of these two ways of studying architecture is alike necessary. If, indeed, human life were long enough to allow a man to get up in detail every building whose intrinsic merit would repay the labour of so doing, it would doubtless be the part of a wise architectural student boldly to enter even upon so gigantic a task. But as such an undertaking is clearly hopeless, the next best thing to be done is for the student to go through as many countries as he can, to see as many buildings as he can, and here and there to examine in special detail some particular examples to which choice or circumstances direct him. Neither mode of study will do by itself. The buildings which a man selects for special and minute study will be almost certainly in his own country, and most probably in his own neighbourhood. Now, if a man never carries his studies beyond his own neighbourhood or even beyond his own country, a certain narrowness of local or national feeling is almost sure to be the result: nay more, from want of the power of comparison with a large stock of other buildings, he will not thoroughly understand even those with which he is most familiar, and will continually make mistakes about them, which will be at once corrected, sometimes a little to his annoyance, by any stranger whose inquiries have been more extended. On the other hand, he who looks at many things superficially, and at nothing thoroughly, will never gain a real knowledge of architecture or anything else. But he who has examined some things in minute detail will gain by the process habits of observation which will enable him to extract a great deal of real knowledge from an examination which, to another man, would be a superficial one. It is exactly the same with reading history. No man whose life is limited at the outside to fourscore years can read through all history in the original authorities. Every one must take a large part of his knowledge second-hand. But he who takes all his knowledge at secondhand, who never studies any period in original authorities will never get beyond a very slight and superficial knowledge of history. If, on the other hand, a man really gets up some two or three periods by conscientious study of the chronicles and documents of the time, he will thereby acquire a historic sense, a sort of critical tact, which will enable him to use and to judge of secondhand histories of other periods in a way which is quite beyond the power of one whose whole knowledge is secondhand. Our architectural student, then, must see many buildings hastily, and study a few attentively: he must know something of every building, and everything of some buildings. The one process enlarges his views, the other strengthens and condenses his powers. The great masters of our subject have all practised both methods of this alike; though, of course, each has its own votaries, who follow it, not in exclusion of, but still in preference to the other. As the great master of minute knowledge of particular buildings, every one who hears me will at once supply the illustrious name of Professor Willis; while Mr. Petit may no less undoubtingly claim the first place among those who have gone rapidly through many lands, with a keen eye alike to the artistic beauty of particular buildings and to the essential characteristics of successive styles of art.

I mention all this, because, while I have at dif-

* I am indebted to Mr. Stanley Poole for this fact, derived from Macrizi's account of its erection. I had supposed it to have been built for Nâser Mohammed by Greek architects.

† It is of course unconnected with the history or progress of the Saracenic style, as a similar removal and reconstruction of a doorway might be made at the present day.

* A paper read by Mr. E. A. Freeman, M.A., at the Architectural Museum, on Wednesday, March 20th.

ferent times and places endeavoured to carry out both these methods of inquiry, in what I have to say this evening I shall give you the results of one method only. What I have seen in France and Aquitaine I have seen, I hope, not carelessly, but still, in a certain sense, cursorily. In a foreign country, especially in one whose architecture differs so widely from our own as that of Aquitaine, we shall commonly learn more by seeing as many buildings as we can consistently with anything like a careful inspection of each, than by stopping to get up any one in very minute detail. The latter task belongs rather to the antiquaries of the country, who have time and opportunity for it, while the business of the passing traveller is rather, by observing as many buildings as possible, to find out the leading peculiarities of the local style, and to compare it with that of his own and of other lands.

But, of course, as I have before said, one who is already accustomed to examine buildings in detail will, even in this comparatively hasty sort of examination, find out a good deal about the history of particular buildings. For my own part I have seen and drawn as many Aquitanian churches as I could,—enough, I hope, to give me some fair notion of the peculiarities of Aquitanian architecture. But there is no one Aquitanian church which I have studied in the same minute way in which I have studied many churches in England. There is no building in Aquitaine about which I could undertake to talk and dispute in the same way that I would undertake to talk and dispute about St. David's, Llandaff, Wells, Malmesbury, Leominster, or Waltham. I mention this that my hearers may know what they have to expect,—a general account, historical and artistic, of what I have seen of the architecture of the duchy, but not any minute historical description of any one particular building.

I have another remark to make by way of preface. The study of architecture ought always to go hand in hand with the study of general history. He who studies the history of any particular country, really leaves out a very important part of his subject if he does not obtain some knowledge of its successive forms of architecture. What sort of churches and houses people built at any particular time and place is as much an integral part of history as what language they spoke, what weapons they used, what was the nature of their law-courts, or of their political assemblies. But, still more is the student of architecture bound to be also a student of history. He cannot learn the first rudiments of his subject, without attending to geography and chronology: he must know where such-and-such buildings are; when and by whom they are built. And this ought not to be a mere dead knowledge of names and dates: he should know something of the real condition of the country at the time when the buildings were built; what language they spoke; what religion they believed; of what government they were subjects. A chronological table of styles, and a modern map, will not do for this: really to understand architecture historically, a man must go through a good deal of general historical reading, and must, above all things, thoroughly master the fluctuating boundaries of various states at various times. Without this a man may be able to admire a building as a beautiful object: he may even be able to reproduce its likeness or its development, in stone or mortar; but he had better not talk or write about buildings, or styles of building, historically; because he is sure to make blunders if he does. Writers of general history very often make blunders when they touch incidentally on architectural matters: writers of architectural history constantly make still greater blunders, from not knowing the first rudiments of general history. And about no possible subject have more such blunders been made than about the architectural history of Gaul.

I say Gaul advisedly, not France. I use the old geographical expression, not the modern political expression. Gaul is a certain territory bounded by certain seas, rivers, and mountains. France is whatever Frenchmen can annex or conquer, whether within the limits of Gaul or not. The boundaries of France have changed from century to century: how flexible they are we have all seen with our own eyes within the last twelve months. France, Francia, in history, has two great meanings. It means first a German kingdom of the Early Middle Age, of which Karl the Great, whom Frenchmen call Charlemagne, was the most famous king. Karl was a Frank, a German: he spoke German, and had his capital at Aachen, which Frenchmen call Aix-la-Chapelle. His hereditary kingdom included Central Germany and

Northern Gaul. This was the Francia of those days. Aquitaine, Saxony, Italy, were conquered countries. When his great empire was divided, Central Germany and Northern Gaul fell to different rulers. But each kept the old name. We read of Eastern Francia and Western Francia, Teutonic Francia, and Latin Francia. Nor are all traces of the name quite gone: if we call the kingdom of Paris France, we also still call a district of Germany Franconia. The modern kingdom of France began in the ninth century, under Charles the Bald; it was fully established as a kingdom, with Paris as its capital, and Old French as its language, by Hugh Capet, in the tenth.

France, then,—that is, Western or Latin France,—may be roughly described as Gaul north of the Loire, and west of the Mass and the Saone. Within that limit, from at least the tenth century onward, the prevailing tongue was that which has grown into modern French; and the country was held partly by the king of the French, at Paris, partly by princes who owed him at least a nominal homage. From the Loire to the Pyrenees, also, the king of the French claimed the like nominal homage; but the position of things was wholly different. The language was different: the language of Aquitaine and Provence, the tongue of the old troubadours, and which is still the language of the people, is not French at all: it is of course closely akin to French, just as Spanish and Italian are; all being derived from the Latin; but it is as much a distinct language as Spanish and Italian are; and it is quite a mistake to talk of people in those countries speaking "bad French," simply because they still speak their own tongue, which was a written and a polished language before French was. The blood was different: the Franks settled to a certain extent in Gaul north of the Loire, though they settled in such small numbers that the Franks in Gaul, instead of Teutonizing Gaul, became themselves Romanized. South of the Loire the Franks did not settle: whatever Teutonic blood is there is not Frankish, but Gothic. In the extreme south, too, the aboriginal blood is different. The Frenchman is a Celt with a slight Frankish infusion: the Gascon is a Basque with a slight Gothic infusion. And if the king of the French did claim a superiority over Aquitaine, it was yet more nominal than his superiority over Normandy, Flanders, or the Duchy of Burgundy. With the sovereigns of Normandy and Flanders, his nominal vassals, he had at least relations of some kind, warlike or peaceful; but with the Duke of Aquitaine and the Count of Toulouse he had no practical relation at all: he had no authority within their dominions, and they did not even think him worth making war upon. East of the Rhone is the south: east of the Mass is the north. The Parisian kings, down to the thirteenth century, had not even a nominal superiority: east of the Rhone lay the kingdom of Burgundy (carefully to be distinguished from the duchy), at first independent, afterwards united with Germany. In the north, Lorraine and Alsace were not French, but German. Alsace is still German in speech, and Lorraine was only joined to France in the last century.

All this historical sketch is really necessary, if we wish thoroughly to understand our architectural subject. You must try and realize that, during the whole Romanesque period and a great part of the Gothic period, Aquitaine was no part of France; therefore we must not look for French architecture in it till the later days of the Gothic period. The Romanesque and Early Gothic architecture of Aquitaine is utterly unlike French architecture: there was, in truth, no more reason why it should be like it, than why it should be like German, Italian, or Spanish architecture. The Aquitanian buildings were not built by Frenchmen: they were built by men of another race and another language, and living under another Government. France and Aquitaine have these points in common,—both were subject to the old Roman empire,—both were subject to Karl the Great,—both have been subject to the Parisian kings since the fifteenth century; but the two former facts are too early to have any effect on Aquitanian architecture: the last is too late to have much. In talking of Mediæval architecture, we commonly mean the architecture of the period from the middle of the eleventh century to the middle of the sixteenth. Of these six centuries, during the first five the greater part of Aquitaine was French in no possible sense.

The name of Aquitaine, like so many other geographical names, is used in history in various senses at various times. Like the words France and Burgundy, the word Aquitaine is far from always expressing exactly the same extent of territory. It will be most convenient for me to use

the word in the widest sense in which I find it ever to have been employed; namely, as denoting the whole of Gaul south of the Loire and west of the Rhone. It will thus include the two great principalities of Southern Gaul, the duchy of Aquitaine, so long one of the fairest possessions of our own kings, and also the great county of Toulouse. During the whole of the Romanesque period both of these two countries had no sort of practical connection with the crown of France, and it was only towards the close of the Romanesque period that the duchy of Aquitaine came, by the marriage of Henry II. and the Duchess Eleanor, into the hands of the same sovereign as England and Normandy. Eleanor had indeed already been the temporary wife of King Louis of France; but so short a connection, the time of which, too, was largely occupied by Louis's crusade, could have had little effect upon the province. Up to that time the duchy had been ruled by its own independent princes. From that time, that is, from the middle of the twelfth century, till the middle of the fifteenth century, the duchy of Aquitaine remained annexed to the crown of England; and, after the peace of Bretigny, in 1360, it was held in absolute sovereignty without even a nominal subjection to France. The boundaries of the duchy were, however, gradually reduced; and, in the great war of Henry VI.'s reign, its last relics were finally lost. In 1452, Bourdeaux and Bayonne became, for the first time, French cities. The county of Toulouse, or Languedoc, was annexed to France in the thirteenth century; but it long retained much more of local independence than most parts of the kingdom.

We see, then, that, during the Romanesque period, Aquitaine was perfectly independent; while, during the Gothic period, it became gradually more and more exposed to foreign influence, English and French. I do not scruple to say English influence. Nothing, indeed, is more inaccurate than the common way of talking as if England, as England, had, say in Henry II.'s time, held nearly half of France. The truth is that a great French prince, Duke of Normandy and Count of Anjou, was also King of England, and ruled England pretty much as a dependency of his French possessions. But when John lost all his French fiefs north of the Loire, matters were quite altered. England had before been a dependency of Anjou: Aquitaine was now a dependency of England. The English influence is less than one might have expected, but it does exist. Now the result of this brief sketch of Aquitanian history,—perfect independence during the days of Romanesque architecture, close connection with England and France during the Gothic age,—is visibly written on the stones of the Aquitanian churches. The Romanesque of Aquitaine is something utterly different from the Romanesque of England or of Northern France. The true native Gothic of Aquitaine is also something no less different from the Gothic of England or of Northern France. But, while the native Romanesque stands by itself, and is the only form of Romanesque known in the country, the native Gothic is found side by side with examples not widely differing from the Gothic of Northern France, and with a few in which a distinct English influence can be discerned.

It has often struck me that, during the Romanesque period, the buildings of different countries differ more in the shape, plan, and outline of the buildings themselves than in their strictly architectural details; while, during the Gothic period, there is also a considerable difference in shape, plan, and outline between the buildings of different countries; yet the most important differences are to be seen in the details. This is certainly true as regards the Gothic architecture of England and of Northern France. The outlines of a great English and a great French church differ a good deal; but the difference of outline is far less striking than the difference in detail. The difference in outline resolves itself chiefly into this: the French architect gave his building an enormous height, which forbade any predominant central tower: the English architect preferred a moderate height, which allowed that greatest of all ornaments to be the chief feature of the building. Also, the French architect preferred an apse, and the English architect a square end; and on this difference followed a different arrangement of Eastern chapels. But the really important features of the building, within and without, in elevation and in ground-plan, are pretty nearly the same. Each has nave, choir, and transepts, with aisles at least to the nave and choir: each has arcade, triforium, and clerestory. The only really striking difference is the greater comparative height of the French building. I say comparative

height, for it must not be supposed that the common sort of French cathedrals and abbeys at all attain to the enormous height of Amiens or Beauvais. There are a good many very fine French churches, whose height ranges from 70 to 80 feet, the common height of our own cathedrals. But then these churches are, in other respects, what we should call second-class churches; while the English churches, of a height from 70 to 80 feet, cover as much ground as any churches in Christendom. The detail of a French and of an English church is far more widely different. In the Early form of Gothic, the development took an utterly different course in the two countries. England outstripped France in some things, and France outstripped England in others. Salisbury and Amiens cannot be said to be in the same style: Salisbury has as far outstripped Amiens in its mouldings, and in the sections of its pillars, as Amiens has outstripped Salisbury in its windows. In the later Gothic again, though Perpendicular and Flamboyant have much affinity in principle and resemblance in general effect, they have hardly a minute detail in common. In Romanesque, on the contrary, an English, an Aquitanian, a Lombard, a German, and a Byzantine church, differ far more widely from each other in outline and in general effect than they do in architectural detail. And such differences of detail as exist admit of a very easy explanation: the difference consists in the imitation of those classical models which are common to all, being more or less exact. This probably explains the distinction. The Romanesque architects in each country followed Roman models with more or less success. For the plans of their buildings they had to consult the objects of these buildings; and they hit upon different plans in different countries. For their details they imitated such Roman models as they had access to, and their imitation was of course more or less exact as such Roman models were more or less familiar to them. If we go from England to Italy, we find the Romanesque of each country becoming more and more Classical at every step. The Romanesque of Aquitaine is more classical than the Romanesque of France, as that again is more classical than the Romanesque of England; but it is less classical than the Romanesque of Italy, or even than the Romanesque of Provence. Still, though the details of an Aquitanian church come decidedly nearer to the Roman model than those of our own familiar Norman, these are not the peculiarities which at once strike the eye of an Englishman. What does strike him at first sight is the utter difference in outline, ground plan, and proportion, from the churches of his own country. So, too, it is with the native Gothic: the general idea of the building is so different from anything English or French, that one hardly stops to compare the details. The windows of the wonderful Cathedral at Alby are nothing very wonderful: their tracery is much the same as common French tracery of the same date; but certainly no one north of the Loire ever saw anything so liken to the ground plan and elevation of the building.

The Romanesque churches of Aquitaine may be divided into two great classes, those with and without the dome. Such a division as this at once shows how utterly different they must be from anything in England or Normandy. With us the cupola is a modern invention: our only domical cathedral is that built by Sir Christopher Wren. In a large part of Aquitaine, especially in the country of Perigord, the dome was used as freely as ever it was at Byzantium. The abbey of St. Front, the present cathedral of Périgueux, is thoroughly Byzantine in its conception: it is a Greek cross with a central dome, and one over each limb, just like St. Mark's at Venice. I leave to M. de Verneilh and to Mr. Parker to describe in detail the history and the peculiarities of this wonderful and venerable church, and the fragment of yet more venerable antiquity which is attached to it. The church itself is of the eleventh century; but relics of a far earlier basilica are worked into its western portions. St. Front may be taken as the fullest development of the domical principle in Aquitaine: there we have the Byzantine forms of structure and arrangement fully carried out. I do not remember to have seen another church with the principle consistently carried out in the five cupolas of the Greek cross; but there are many others with a single central dome, or with a series of domes down the nave, the vaulting of each bay taking a domical form. The dome seldom stands out boldly, as it seems to have originally done at St. Front: it is commonly covered by the roof, or a central dome is externally veiled

by a central tower. The dome reaches, in isolated examples, through the whole extent of Aquitaine in the widest sense; indeed, it actually crosses the Loire and appears in the noble church of St. Nicholas, at Blois, which has no other Aquitanian features. But the dome here is of comparatively little account. A church with three towers, much such a one as many in England and Normandy, has its central tower vaulted in a domical shape instead of any other; that is all;—something very different from the—internally, at least,—predominant domes of the south. Every one will readily understand that between two countries so architecturally distinct as France and Aquitaine a border region must necessarily lie. This region is the valley of the Loire,—the more so, as, though we speak roughly of that river as the boundary of style and language, the actual political frontier ran a little to the south of it. Poitou, Anjou, Touraine, Berry, are border lands, in which the Aquitanian peculiarities begin to show themselves, but are not so confirmed as in Gascony and Languedoc. For instance, the common vaulting of the Angevin and Poitevin churches is not domical, but it is an approach to the domical idea. Bourges, for instance, is a French city south of the Loire: it stands on what, in earlier times, had been Aquitanian ground, but it had become French at least as early as the twelfth century. Now the Metropolitan Church at Bourges is quite French, except that the omission of transepts in so vast a church seems to bespeak an Aquitanian influence. The church of St. Peter, in the same city, is also French: Pleinpié Abbey, just on the border—the border, I mean, when Pleinpié Abbey was built,—is still essentially French, but I thought I could discern a few Aquitanian touches. It is well to remember that, if architecture has its chronological transitions, it has its geographical transitions as well.

The Romanesque churches, which are without domes, though of course they differ less from Northern forms than the domical buildings, are still very unlike what we are used to in England or even in northern France. With us a large Romanesque church has the triple internal division strongly marked: there is an arcade, a clerestory, and between them a triforium, which is not uncommonly almost as large as the arcade below it. A small church omits the triforium and sometimes the clerestory also. In a small church the piers are most frequently columns,—columns doubtless by no means of classical proportions, but still actual columns, with distinctly marked bases, shafts, and capitals. In larger buildings nothing is so common in England as the vast cylindrical pier, not a column, but a round mass of wall. This, as far as I know, is peculiar to England; but both in England and Normandy we find the rectangular pier, with shafts set in the angles, the parent of the clustered piers of Gothic times. Vaulting scarcely ever occurs, except in the aisles of large churches and in the chancels of small ones. To throw a vault over one of the four arms of a great minster seems to have come into the heads of no English architect till late in the twelfth century, when the style was transitional rather than pure Romanesque. The barrel-vault of the chapel in the White Tower is not a real exception, the size of the building is so small. In Aquitaine all is utterly different: piers are strictly and sternly rectangular, commonly without even attached columns; and these piers very commonly run up the whole height without triforium or clerestory: a perfectly plain barrel vault over the whole is almost universal. The Abbey of St. Saturninus or St. Sernin at Toulouse, the great glory of the style and one of the main objects of my pilgrimage, follows a type utterly strange to English eyes. We have many, even Romanesque churches, which have a clerestory without a triforium: at St. Sernin we find the two strange portent of a clerestory without a triforium. The arches are of two orders, plain, rectangular, without shafts or mouldings; but a tall shaft with a capital runs up to support the barrel-vault. The triforium is the most English-looking thing in the church, but the Tolosan architect has not fully grasped the Northern idea of several orders with nook-shafts. This magnificent church, one of the noblest in Christendom, was consecrated by Pope Urban II., in 1096, but the work had been begun as much as forty years earlier. In smaller churches we find the rectangular principle carried out still more fully: the vault rests, not on shafts, but on plain flat pilasters. In the great churches we sometimes find double aisles, as at St. Sernin and in a fine church at Bagnères de Luchon, which was being destroyed when I was there. Among churches of moderate size, none struck me more than St. Aventin, near Bagnères de Luchon, a church with a

central and a western tower, though without transepts. The piers and vaulting pilasters are sternly rectangular, but there is a clerestory, and the vault is cellular. I had great doubts of its genuineness. Serge, near Arreau in Gascony, is a perfect example of a small church in the local Romanesque; a nave and aisles terminating in apses, no tower or transepts, plain square piers, and pilasters of two orders supporting the barrel-vault. The church claims a Carolingian antiquity, which, without some historical evidence, I can neither assert nor deny. The west doorway cannot be earlier than the eleventh century, and looks more like the twelfth, but it may quite possibly be an insertion in an earlier building; another very fine doorway at St. Aventin certainly is.

As I have already said, the details of these churches, when they have any, differ far less from Northern types than do the outline and ground-plans of the buildings. There is many a shaft and capital, many a small window, many a corbel-table, which would not seem the least strange in any of our familiar Norman churches. But there is with all this a tendency to a more classical character. The most Italian-looking thing I saw was the façade of the cathedral at Angoulême, which is something utterly different from the body of the church, which, though domical, differs in its detail from Norman work. But it is of the doorways mentioned just above that I wish specially to speak. The grand Norman doorway, with its many orders and many small shafts, is, in its fulness, an idea essentially English. Foreign examples, even in Normandy, seldom approach its full boldness and richness. They generally retain some vestiges of the days when the real doorway was square-headed, with an arch over it. In England, the tympanum either vanishes altogether or becomes a mere semicircular stone in the top of a round-headed opening. Now, I saw in Aquitaine two types of Romanesque doorways. One is far more classical than the other, and I conceive it to be the genuine native type. Instead of the many receding orders, a single column, on each side, of a much nearer approach to classical proportions than we are used to, supports the archway. Mr. Petit has drawn several examples in Provence, which I have not seen: there is also a fine one at Alby. Of this I only know one example in England, the very remarkable west doorway of St. Woolos, at Newport, Monmouthshire, where I have always fancied that the two pillars must really be Roman columns from Caerleon, used up again, and fitted with Norman capitals. There is quite another, and indeed more common type, which, though not exactly like our English examples, comes very much nearer to them. This type has, like the English doorways, many receding orders, but they are not so regularly marked by a single small shaft set in each order. Thus it is that at Serge, already mentioned, most of the orders are left rectangular. In that at St. Aventin, some of the orders have coupled shafts. This last is an Aquitanian characteristic, of which I shall have to speak again. The coupled shaft is common enough in England in some positions; but it is far more extensively used in Aquitaine; and I should doubt whether any English architect would have applied it to one of the orders of a doorway. Still, these doorways at once strike us as having an English look as compared with the other things about them. Is it possible that they can be memorials of the connection between England and Aquitaine under Henry II.? the more so as some of them—that of St. Aventin, most certainly—are additions to earlier buildings. I merely throw this out as a hint for consideration, without at all asserting that it is so, still more without deciding whether, if it be so, English ideas were imported into Aquitaine, or Aquitanian ideas into England. On the whole, it looks more like the former; but I ought to mention that one of the finest and most English-looking doorways, that of Lescure Church, near Alby, is in a district which was never permanently held by any English king.

Now, going inside this same church of Lescure we may remark another slightly classical tendency. The church, though I suspect it was designed to be domed, has, in its central tower, and in the absence of anything worthy to be called transepts, a good deal of affinity to our own churches of the Illy type; but we miss the splendid receding arches under the tower of Illy. At Lescure the western tower arch has a single arch of far more Roman proportions: the eastern arch has coupled shafts of the same sort. The arch into the apse is left square. In short, the tendency to a single shaft of something like classical form, where, in England, we should find two or more slenderer ones, meets us in every-

thing. The capitals are of all sorts: as might be expected, the mere sculpture is commonly better than in England.

The pointed arch was introduced early, and is by no means necessarily a sign of transition or of any Gothic tendency. Everything that I saw in Aquitaine confirmed me more and more in my old belief, that the use of the pointed arch was introduced from the east; that it was employed first in occasional positions where it was found more convenient, and afterwards as the usual form of the main arches, but in both cases at first without any change in Romanesque detail; that, finally and gradually, a system of detail more suited to the form of the arch was developed, and thus Gothic architecture. Now, the first of these stages, where the pointed arch is not systematically used, is not transitional, nor does it show any Gothic tendency. It was first introduced in barrel-vaults, and in the arches under domes. Mr. Petit has well pointed out the manifest advantages of the pointed arch in the former case. So in the latter, you gain a great advantage of height in a position where it is much wanted; and consequently the pointed arch is used invariably, or nearly so, under the cupolas. I say nearly so, to be safe. I have myself never seen an Aquitanian dome resting on any but pointed arches; but it is quite possible that there may be some, the more so as at Lesneux, which looks so much as if it were designed to be domed, the arches are round. M. Felix de Vernailh, the great expounder of Aquitanian domical architecture, has lately discovered a class of domical churches in Westphalia, in which the arches under the domes are round. But the pointed arches under the cupolas of Périgueux and Angoulême in no way give them any Gothic feeling; they rather make the Oriental cupola still more Oriental; they point to the influence of the Saracen far more than to the influence of the Teuton. The cloister of Moissac Abbey may, perhaps, be set down as a later stage. Taken in itself, it is, like the pointed churches of Sicily, not Gothic, but Saracenic; but all buildings of this sort must have given a great impulse to that systematic use of the pointed arch which in the end produced Gothic. The Moissac cloister dates from the year 1100: happily it has the date inscribed on one of its stones. Detached covered shafts, grouped under one abacus, support pointed arches. The effect is quite Arabian. There is a plainer cloister of the same kind attached to the great church at St. Emilion; another very fine one, but with round arches, at St. Bertrand de Comminges.*

BOILER EXPLOSIONS.

In France, where fuel is expensive, every effort is made to reduce the consumption by the perfection of steam-boilers. MM. Hédard & Joly, of Argenteuil, have constructed a boiler, supposed to give advantages of economy of fuel and perfect safety in the getting up of the steam. This boiler, occupying only a small space, can be cleaned out with facility. It is composed of four distinct parts, viz., the generators, the desiccators, a regulator of the supply, and the reservoir or steam-chest. The generators consist of three small boilers placed longwise over the furnace, and inclined at a rate of 0m. 25c. per metre: they communicate at the bottom by a feed-tube, and the steam is generated in a transverse pipe at the top, to be distributed into the drying apparatus, which is separated from the generators by an arched return-flue. The drying-box, if we may so call it, consists of two series of horizontal tubes hermetically sealed at both ends, and so disposed that the steam is forced to pass through all the sinuosities before arriving at the regulator. This latter is formed of two discs superposed, one receiving the water from the steam, the other (uppermost) leading to the pistons and carrying dry steam. As these pipes are all exposed to the direct action of radiated heat the steam is dried and superheated. The *Journal des Mines* says that a boiler of this system, of twenty-five or thirty-horse power, can transform into dry steam from nine to ten litres of water per kilogramme of coal, even when supplied by chilled water.

We do not see how the risk of explosion is avoided. Superheated dry steam is economical in its working, as there is less wear and tear of pipes and bends, also of the piston, there being no possibility of priming. Explosions have frequently taken place in hot-water apparatus by the decomposition of the steam into its constituent gases. Superheated dry steam cannot be trusted with the machinery we have at present, neither can steam

in a spheroidal state. Our repeated boiler explosions testify that steam requires further study, and that to make use of and humour the giant with safety we must not wait for experience by accidents. Let our heads of factories (noble some of them are) have a series of experiments on steam, made under a committee of their own body. There is a society established, but its experiments have never been published to the world. A boiler explosion is a melancholy spectacle. The ruin of bricks, pieces of iron, balk, around which the forlorn and wailing friends of the workmen are grouped, and the "other" end of the boiler, stand in full relief against our want of the study of steam: especially when a lad, who had providentially escaped, tells us that "she was all right five minutes ago." Armstrong says that most accidents occur at an early hour in the morning, when, at about seven o'clock, the boiler is left in charge of a boy. Locomotives very seldom explode, except when left standing with no one to mind them; the driver being inside the shed, perhaps, taking a smoke.

THE PROPOSED NEW FOREIGN OFFICE.

MR. SCOTT'S new design has been submitted to Lord Palmerston, and the Premier, as we understand, has expressed his approval of it.

Whatever is to be built, involving an outlay of say, 200,000*l.*,—it is of the utmost importance that the position should first be thoroughly considered. If we understand rightly, according to the original arrangement, the principal façade of the intended building will be in Downing-street, not in a line with the end of the Privy Council Office forming the other side of the street, to which at one point it will approach more closely than is desirable, and involving, we suppose, the removal of the Colonial Office.

NEW SYNAGOGUE, UPPER BRYANSTONE STREET, LONDON.

THIS building has been erected for the convenience and use of those members of the Jews of the Spanish and Portuguese congregations who, residing at the west end of London, are distant from the principal place of worship in Bevis Marks, which is the oldest devotional edifice of the Jews in England. In 1859 the building committee invited a limited competition for the new building; and, to aid them in their selection of a design, called in the assistance of Mr. Lett, architect, by whose advice the drawings of Mr. Collins, of Torrington-square, were selected, and that gentleman was appointed to carry the design into execution.

The general character of the building is Saracenic freely treated. The elevation to Bryanstone-street is 75 feet in length, and is composed of a centre and two wings, the west wing being gabled, with cornice supported by cut trusses, and the east rising as a tower and spire. Beyond the east wing is a minister's house. The façade is built of parti-coloured bricks, with stone dressings. The entrance is by a porch of three arches supported on coupled columns, with carved caps. The windows are formed into separate lights divided by stone columns with carved caps, and finished with parti-coloured brick arches with pointed heads.

The porch leads to a loggia or vestibule, 23 feet by 12 feet, from which branch off on either side Portland stone stairs leading to the ladies' galleries (as by the requirements of the Jewish ritual the sexes are separated during divine worship). The "Synagogue" itself is entered from this loggia, and is 50 feet in length by 31 feet in breadth, and affords accommodation on the ground floor for 240 males, who have also attached on the same level the requisite accommodations for lavatory and other necessary purposes. Between the staircases over the vestibule and adjoining the synagogue itself, into which it opens by windows, is the committee room, 23 feet by 12 feet 6 inches.

The interior of the synagogue is divided into nave and side aisles, by light ornamental columns in two stages, the first supporting ladies' gallery and the upper arches, of a slight horseshoe form, above which is a clerestory with semicircular windows filled in with stained glass. Between the windows and over each column, are ornamental brackets, from which spring arched ribs, dividing the ceiling into coffers, the centre of each of which is occupied by a flower communicating with ventilating apparatus.

At the east end of the synagogue an elliptical recess or apse forms the sanctuary, which is approached by a flight of marble steps. The lower portion of the sanctuary is formed into closets, in which are deposited the sacred scrolls of the law, the upper part being formed with windows filled

with painted glass having inscribed thereon, in Hebrew characters, the ten commandments, &c. The ceiling of sanctuary is formed in a domical shape, pierced with small star-shaped apertures, filled in with different coloured glass, which throw light on the scrolls of the law when the doors of the closet containing the same are thrown open. The height of the nave interiorly is 30 feet, and of the aisles 24 feet.

The building is warmed by hot water apparatus, and ventilated in summer by means of a hot water coil in roof, all supplied by Messrs. Weeks & Co., of Chelsea.

The cost of the building, including fittings, but exclusive of site, and of decoration, which is postponed for a time, is about 3,500*l.*

Messrs. Pickard, of the Caledonian-road, were the contractors.

RESTORATION OF CHICHESTER CATHEDRAL.

THE provisional committee for rebuilding the spire of Chichester Cathedral have received a report from Mr. Scott "as to the extent to which the fall of the tower has endangered or damaged the existing portions of the building; the best course to be taken in the reconstruction of the fallen parts and in providing for the present and permanent security of the fabric generally; and as to the probable cost of effecting these objects."

He urges the necessity of a thorough and substantial reparation,—

"As it is clear that an ancient and defective structure, though it may remain long without showing symptoms of danger while suffering from no special cause of disturbance, can by no means be viewed as being in the same position after the fall and rebuilding of its great central feature."

As to the fall, the writer says,—

"This ancient injury [the fall] was, no doubt, one cause of the weakness which seems to pervade the older portions of the building; and even now the effects of the fire may be seen in the triforium galleries, in the ragged, discoloured, and half-ruinous condition of the stone work. It is an opinion that this state of dilapidation, increased, as it had become, by the lapse of time, would have soon demanded general reparation, had no accident occurred to shake the building; but under circumstances so extraordinary as those from which it is now suffering, I feel sure that its permanent safety imperatively demands that every structural defect shall now be made good."

As to the rebuilding,—

"The work must be done in a much more massive way, and with better materials, than is necessary in an ordinary work. The foundations must be carried down, at whatever cost, to a stratum of undoubted firmness. They must be spread unusually wide, and be constructed of large and massive materials, laid in the hardest cement block stone, and that of great hardness and strength; and the whole carried out with an excess of strength beyond what, in an ordinary structure, would be deemed necessary. No soft stone or rubble-work should be admitted in any part of the work."

Aiming at strength and security rather than architectural restoration, and in no case reckoning on work where needed for beauty only when unnecessary for strength and safety, Mr. Scott calculates the probable cost as follows:—

"The rebuilding of the tower and spire . . .	£25,000
"The rebuilding of the four adjoining bays . . .	12,000
The necessary repairs of other portions . . .	7,000
The cost of shoring up, and of providing temporarily for the services	2,000
	£46,000

When to this is added the cost of superintendence, and of other incidental expenses, I fear that it would be unsafe to reckon upon an outlay of less than £50,000.*

NEW MUSIC HALL, OXFORD STREET.

BEHIND the houses at the end of Oxford-street, on the north side, where it adjoins Tottenham Court-road, a vast hall, called "The Oxford," has risen "like an exhalation," at the cost of Messrs. Morton & Stanley. The growth of huge and costly halls for music and refreshment, not merely throughout the metropolis, but in the provinces, is one of the peculiarities of the day. In the present case the hall is 94 feet in length, 44 feet in width between Corinthian columns which support the roof, with a promenade beyond on each side, 6 feet wide, and 41 feet in height. The ceiling is coved on to the walls, and springs from the top of an ornamental entablature. The columns are arranged in pairs, leaving a large opening between each pair. The lines of the columns are carried across the ceiling by ribs, the centre portion of which is enriched by projecting ornaments: these ribs are further connected together by large centre flowers fixed in a deep recess. The ceiling ornaments are generally perforated to allow of an escape for the heated air. Windows in the outer walls are expected to supply the necessary fresh air.

The entrance from Oxford-street and the stair-

* To be continued.

case to galleries are cleverly treated. A large glass chandelier here has a very pretty effect from below,—a tree of light. The hall is (over) lighted with star burners. This part of the work was done by Messrs. Weston & Cured. Messrs. White & Parbury have well executed the ornaments *in relief*, especially the gallery front, the ornamental panels between ribs, and the enriched panels in entrance. These are of their own peculiar cement. The columns in the entrance-hall are enriched with composition ornaments. The caps, enrichments on lantern lights, trusses, and other matters are in *carton pierre* and *papier mâché*, also by White & Parbury. The interior is rendered with Martin's cement, from Mr. J. C. Part. Messrs. Holland and Haumen were the general contractors, and Messrs. Finch Hill & Paraire the architects.

A little positive colour is needed, especially at the stage end (the west), which has at present a somewhat hazy and indefinite aspect. When the large looking-glass which is to fill the centre panel here is in its place, the appearance may be improved, though looking-glass is often a treacherous adjunct.

LEEDS GENERAL INFIRMARY COMPETITION.

The board of management of the Leeds General Infirmary have awarded the first premium to Messrs. Lockwood, Mawson, & Mawson, of Leeds. They were assisted in their selection by Mr. Dobson, architect, of Newcastle, and by the report of the medical committee. The plan is avowedly made with reference to the views we have advocated.

LIVERPOOL ARCHITECTURAL SOCIETY.

At the thirteenth meeting of the Liverpool Architectural Society, held on the 20th inst., Mr. J. M. Hay presided.

After some conversation on various topics, Mr. Lewis Hornblower read a paper, entitled, "A Peep into Futurity; or, The Future Building Sites of Liverpool." Mr. Hornblower, in the course of his remarks, after sketching the progress of the town, said,—Attempts have been made to erect blocks of dwellings for the artisan similar to those in Scotland, but there appears to be an insuperable objection in the English mind to occupy a house in common with another. An Englishman's home is his castle, and each and all feel the independence consequent upon a separate and distinct dwelling. In the future of Liverpool care must be taken for the position of the dwellings of our working classes. Many sneers have been levelled at that industrious and hard-working race, the *Welsh builders*. If it had not been for their foresight and industry I do not know where the working population of Liverpool would have been housed. Great and marvellous improvements have been made in the sanitary condition of the town, under the direction and superintendence of the worthy and talented borough engineer and his able assistants; but still greater improvements must be made. Urge, Mr. President, all your influence, and urge, too, gentlemen, your individual influence, to improve the thoroughfares of the town. Easy access must be obtained from north to south, from east to west: trade must not be curbed by selfish or niggard views: the old cry of what has posterity done for us should be stilled. We must seek our own and also another's good—look prospectively. It is a fact that this town of Liverpool has not one good approach. The best is that by Scotland-road, and what is it when you get past the wider portion? You arrive at a long, narrow, dull, insipid street, leading to the centre of the first commercial city of the world. Approaches must be made: the different sections of the suburbs must be connected. We are now, gentlemen, only on the threshold of prosperity. I see before me the germ and embodiment of future talent. The architects of Liverpool will have a scope hitherto unparalleled. The influences of a correct taste are abroad: people will not be content with second-rate work, their appreciation of which is improved: everything shows this. The style of the furniture, the designs of the different fabrics, the decorations of the dwellings, the taste that is displayed in the commonest articles of use or ornament,—one and all speak unmistakably to the progress of the appreciation of art. And shall architecture slumber? No. It has been too long the custom of our townsmen to seek foreign aid in the preparation of designs for any building of importance, instead of fostering local talent. I trust, from the acknowledged skill of the rising members of the profession, our opulent

townsmen may follow Mr. Brown's example, and find it to be their interest to employ the talent which is at their doors.

THE STAGE.

Princess's Theatre.—Mr. Fechter is unquestionably a great artist. All that he has done since his appearance in England has been marked, not merely by high intelligence and knowledge of his art, but by original views and creative power. His appearance in *Hamlet* has not disappointed his warmest admirers. A finer picture than that he presents when, at the rising of the curtain, he walks in behind the king and Gertrude and takes his seat at the side, the incarnation of dreamy sorrow, has been seldom seen; and, from that moment until he falls dead on the stage at the close, he holds the audience in his hands. The extreme of naturalness marks the performance. He has given up, perhaps never knew, many of the usual points, and is not to be tried by the accustomed standard. He depends for the effect on the complete conception of the character, intense feeling, and complete absorption. The result is admirable.

MESSRS. THOMPSON'S SERIES OF ARCHITECTURAL PHOTOGRAPHS.

SINCE our first notice of this series of architectural photographs, by Mr. F. Bedford, issued by Messrs. Thompson & Co., a dozen have been added. These include the wonderfully rich Western Screen of Exeter Cathedral, a very fine photograph; a view of the North-west Tower (Norman, with Decorated window inserted), and one of Bishop Stafford's tomb, in the Lady Chapel, of the same cathedral (very charming in colour); the Interior of Wells Cathedral (the nave looking west); a general Exterior View of the same Cathedral, from the south-east; the recently restored South Porch of St. Mary's Redcliff, Bristol; and a general View of Salisbury Cathedral, from the north-east, including the central tower, in anticipation of the fall threatened by Professor Willis. We may mention, as showing the willingness of the publishers to listen to advice, that an additional photograph is presented to the subscribers to displace or accompany one to which we took an objection in our previous notice.

IRISH BUILDING NEWS.

Dublin.—A new Asylum is about to be erected at Kimmage, near Dublin, for Roman Catholic blind females. The entire range of the buildings, presenting a frontage to the south of 274 feet by 70 feet in depth, comprises, on the ground floor, which is 16 feet in height, a spacious entrance-hall, having reception-room and porter's apartments on each side; class-room for adults and children; ample space for trades, music, recreation, refectory, baths, kitchen offices, schools, and ambulatories. The dormitories, lavatories, infirmary, &c., are situate on the first and second floors, each story being 15 feet in height. The central portion of the composition affords accommodation for 300 inmates. The convent, which is connected with the main building by means of the chapel and central corridors on each floor, contains cells for twelve nuns, with community-room, refectory, reception-room, oratory, and sacristy adjoining the chapel, the choir of which has been arranged to form a private chapel to the convent, which can be shut off from the central building at pleasure. The tower and steeple form a feature at the external angle of the chancel. Ample provision for heating and ventilation has been made by means of heated chambers for the admission of warm air, and flues for conducting the same into all the apartments and passages, with numerous shafts for the extraction of foul air therefrom. The building has been designed in the Gothic style, and is of the plainest and most economical character. The walls are built of rubble masonry, coated with pebble white dashing; blue limestone dressings to all windows and door openings, quoins, strings, bases, &c.; contrasting with the colourless tone of the main body of the structure. The roofs are to be covered with iron slating, having alternate plain and scalloped courses, surmounted by an ornamental crested ridge of fire-clay against the sky line. The architect is Mr. Charles Geoghegan.

The new gallery in the Agricultural Hall of the Dublin Society is in course of erection. Messrs. Courtney & Stephens are contractors for the wrought-iron girders, &c. Mr. Walter Doolin is contractor for the timber work.

Belfast.—The Ulster Hall, now being erected here, is intended to meet the wants of the town, whose music-hall has become too small to accommodate the numbers who would be found willing to hear a musical entertainment. It will contain a large hall, 138 feet by 63 feet; which, with a gallery, will be capable of seating about 2,000, and an orchestra accommodated 300 performers. The corners of this hall are cut off with a radius of 10 feet. The principal entrance will be in Bedford-street, having a vestibule 30 feet by 28 feet, with waiting-rooms on each side, 25 feet by 17 feet, with a retiring-room to each. From this vestibule three doors lead to a lobby, 12 feet wide, extending across the whole building, giving admittance to the large hall, and containing staircases leading to all the galleries and the minor hall, which is 63 feet by 22 feet, and capable of seating 400 persons. There will be a back entrance in Linen-hall-street. The material employed is red brick ornamented with white, and cut stone for principal entrance. The whole building will cover a space, externally, of 235 feet by 90 feet. The architect is Mr. Barre; the contractors are Messrs. Fulton.

THE CURATORSHIP OF THE SOANE MUSEUM.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

ON Monday evening last a special meeting of the Institute was held at the house in Conduit-street (in compliance with a memorial signed by eight Fellows).—

"To consider whether, in the recent appointment made by the Council of the Royal Academy to the curatorship of Sir John Soane's Museum, selection appears to have been made of 'an English architect who may have distinguished himself or gained any academical prize,' in conformity with the terms of the Act of Parliament, or otherwise; and to take such steps as may seem desirable for the interest of the profession."

The President, Mr. C. R. Cookerell, took the chair.

A letter was read from Mr. Bonomi, the gentleman elected by the Council of the Royal Academy, accompanying copies of his testimonials and a portfolio of his architectural studies made in Egypt. Also a letter from Mr. Tidd Pratt, as senior Trustee of the Soane Museum, stating that seeing the intention of the Institute, he thought it right to inform the members that the trustees had refused to receive Mr. Bonomi as the curator until he gave further evidence that the election had been made in accordance with the terms of the Act of Parliament.

A motion for an adjournment moved by Mr. Shout having been lost, the following motion was proposed by Mr. Aspitel, and seconded by Mr. Horace Jones:—

"That this meeting has every respect for the private character of Mr. Bonomi, and for his high talents as an artist and archaeologist, but does not consider there is sufficient evidence that he is qualified for the appointment of curator to Sir John Soane's Museum, under the terms of the Act of Parliament, as 'an English architect, who may have distinguished himself, or gained any academical prize.'"

An amendment on this, for an adjournment, was lost.

An amendment to the following effect, proposed with much feeling by Mr. Owen Jones, who gave evidence of Mr. Bonomi's studies as an architect in Egypt, and of his work, practically, at the Crystal Palace, and Dr. Lee's,—seconded by Mr. T. H. Wyatt, in a very good speech,—was lost by 9 to 25:—

"That this meeting has no hesitation in recognizing Mr. Joseph Bonomi as an English architect;—that it acknowledges the high degree in which he has distinguished himself during a long and honourable life, and congratulates the Royal Academy upon the selection they have made to fill the office of curator to the Soane Museum."

It was then moved by Mr. Godwin, and seconded by Mr. Digby Wyatt, as a further amendment on the original motion:—

"That this meeting does not feel itself called upon at this moment to pronounce an opinion in respect of the appointment of a curator of the Soane Museum."

This was lost by 11 to 25.

The original motion was then put and carried by 26 to 10.

Motions to send a copy of the resolution to the Royal Academy and to the trustees of the Soane Museum, and of thanks to the hon. secretaries and to the Chairman, were carried, and closed the proceedings at a late hour.

Professor Donaldson, Mr. Kerr, Mr. H. Newton, Mr. Burges, Mr. Edmeston, Mr. Boulnois, Mr. O. Hansard, Mr. Brandon, and others, also took part in the proceedings.

Notwithstanding the resolution ultimately come to, the trustees will probably find quite sufficient justification of the election made by the Royal Academy, in the difference of opinion that pre-



PROPOSED GERMAN EVANGELICAL CHAPEL, ISLINGTON.—MR. T. W. CONSTANTINE, ARCHITECT.

valled during the discussion, and the fact that Mr. Bonomi's testimonial was signed by twenty-three Fellows of the Institute, including the President.

PROPOSED GERMAN EVANGELICAL CHURCH, HALTON-STREET, ISLINGTON.

Most persons are, doubtless, aware that with the extension of the metropolis, a large increase of the German inhabitants has taken place, and that the number is constantly augmenting. To meet the religious wants of these foreigners, churches, in which the services are conducted in their native language, have been erected in the eastern, western, and southern localities of London. No provision, however, has hitherto been made for the northern portion; although, in Islington and its more immediate vicinity, there are upwards of 4,000 German residents.

The want of accommodation for religious worship in the neighbourhood has been seriously felt by them for some time past; and several influential persons amongst them having found, by services conducted in the school-room underneath Islington Chapel, that a congregation would be readily assembled, determined on the erection of a suitable building exclusively for the purpose.

The committee to whom the matter was entrusted requested and received designs from seven architects in respect to the proposed structure.

The drawings were sent in under mottoes, and the one selected, was found, on opening the envelope which was annexed, to have been prepared by Mr. T. W. Constantine, of London. The committee subsequently thought it advisable to have some modification made in the arrangements, which had been adopted in compliance with the original instructions, and thus the building is to be as above delineated. The site is somewhat retired, but it was selected on account of its being central.

The style adopted is the Early Decorated, with lancet windows at the sides; but the amount of cost being strictly limited to a comparatively small sum, ornamentation could be only sparingly employed. The principal material will be brick, with dressings of Box-hill stone. The whole

length inside the building is 51 feet; the width, 38 feet 8 inches. About 325 persons can be seated. The roof shows curved-rib principals, supported by moulded corbels, with a ceiling plastered to the rake of rafters and level of collar beam.

There will be one large and one small vestry at the back; the latter being for the use of the minister. Over the vestries a semi-hexagonal apse will be formed, containing a gallery for organ and small choir. The cost is estimated at 1,400*l.*, including warming apparatus and gas-fittings.

PROPOSED INTERNATIONAL EXHIBITION OF 1862.

We have engraved an interior view of the proposed Exhibition building as at present designed, looking down the nave. As already stated, the height of this nave, which runs parallel with the permanent picture-gallery in the Cromwell-road, is 100 feet, the height of the great transept of the 1851 building. The width is about 75 feet. It will be lighted by a clerestory, 25 feet in height, on each side; the top, unlike previous exhibition buildings, being covered with boarding and felt. The length between the dome-covered hall at each end of it will be about 800 feet. Iron columns support semicircular girders, which carry the roof: other iron framing and columns support galleries on each side. Below the galleries, extensive lower buildings are seen. Much of the effect of the interior will obviously depend on the coloured decoration that may be adopted.

The view of the permanent brick front, next Cromwell-road, has given little satisfaction. To use the mildest terms, it has nothing to recommend it.

The committee who were appointed to advise her Majesty's Commissioners for the Exhibition of 1862, as to the period of art to be represented at the forthcoming Exhibition, came to the following resolutions:—

"1. That the Exhibition ought not to be confined to the works of living artists.

2. That the object of the proposed Exhibition being to illustrate the progress and present condition of Modern Art, it is left to each country to decide under what arrangements, and within what limits, that object can, in

its own case, be attained; regard being had to the amount of space that can be devoted to its productions.

3. That, as regards British Art, the above object will be fully attained by confining the Exhibition to the works of artists living at any period within the century preceding the Exhibition, i.e. subsequent to the year 1763."

The following is, we understand, the classification likely to be adopted by the commissioners:—

Section 1: Raw Materials.—Mining, quarrying, metallurgy, and mineral products; chemical substances and products, and pharmaceutical processes; substances used for food, including wines; animal and vegetable substances used in manufactures.

Section 2: Machinery and Engineering.—Railway plant, including locomotive engines and carriages; carriages not connected with rail or tram roads; manufacturing machines and tools; machinery in general as applied to industry; agricultural and horticultural machines and implements; civil engineering, architectural, and building contrivances; military engineering, armour and accoutrements, ordnance, and small arms; naval architecture, ships' tackle; philosophical instruments and processes depending upon their use; photography, and photographic apparatus; horological instruments; musical instruments; surgical instruments and appliances.

Section 3: Manufactures.—Cotton, flax, and hemp; silk and velvet; woollen and worsted, including mixed fabrics generally; carpets; woven, spun, felted, and laid fabrics, when shown as specimens of printing or dyeing; tapestry, lace, and embroidery; skins, fur, feathers, and hair; leather, including saddlery and harness; articles of clothing; paper, stationery, printing, and bookbinding; educational works and appliances; furniture and upholstery, including paperhangings and papier-mâché; iron, and general hardware; steel, and cutlery; works in precious metals, and their imitations, and jewellery; glass; pottery; manufactures not included in previous classes.

Section 4: Fine Arts (Modern).—Architecture; paintings in oil and water colours, and drawings; sculpture, models, die-sinking, and intaglios; etchings, and engravings.

The Commissioners have, with the sanction of her Majesty's Government, appointed as their secretary Mr. F. R. Sandford, assistant secretary to the Committee of Council on Education.



INTERIOR VIEW OF BUILDING FOR THE PROPOSED INTERNATIONAL EXHIBITION OF 1862.
LOOKING DOWN THE NAVE.
DESIGNED BY CAPTAIN FOWKE, R.E.

THE LABOUR QUESTION.

London.—A meeting of workmen in the building trades, numerously attended, was held in advocacy of the nine-hours movement, on Wednesday evening last, in St. James's Hall, Piccadilly. Mr. Howell, a bricklayer, was called to the chair, and the following resolutions were passed:—

"That in the opinion of this meeting long hours of toil, and the physical exhaustion which they produce, are incompatible with the proper cultivation of the intellectual capabilities of the workman; and that ten hours' labour is no longer necessary on account of the introduction and prevalence of machinery."

"That this meeting is of opinion that a reduction of the hours of labour would greatly benefit the working men, and at the same time would not be injurious to the interests of any other class of the community; and this meeting pledges itself to use all legal means to obtain a maximum day of nine hours at the present rate of wages."

It did not occur to us that any valid arguments were used against the proposition made by some of the masters to pay by the hour. The chairman is reported to have said that this would deprive them of the privilege they now possessed of leaving early on Saturday, and prevent them from having a "recognized day." In reply to this, however, the masters say, under the offered rate of payment the men may leave off at one o'clock on Saturdays, and yet earn the same wages as now; and that as to a recognized day's work, they bind themselves to keep open their works for the ten hours, if only a man and boy remain, while any who wish it may work only nine hours.

Our readers will have heard that rather than adopt the proposal, Mr. Kelk's men, and the men of Messrs. Lucas, Brothers, left work on Saturday last, and it has been supposed that a general strike or lock-out is close at hand. We trust, however, that this is not the case. As the offer is becoming better understood, the men are returning, and we are informed that at this moment (Thursday), not a fourth of Mr. Kelk's men are out, and that the exact number out at Messrs. Lucas's is 233. A notice is posted at South Kensington, that "Skilled masons and bricklayers are wanted: wages, 3s. 1½d. per week of 58½ hours."

The operative house painters of London have addressed a memorial to the members of the Central Association of Master Builders, urging them to agree to the nine-hours movement. In this memorial they say, of the object of this movement,—"It is but an effort to advance the price of our labour ten per cent. Our right to seek to obtain a higher rate of remuneration for that labour is conceded on all hands—even to obtain seven or twelve hours' pay for the present ten hours' work. Such being the case, we submit we have an equal and just right to obtain the advance now sought for, taking out the equivalent in reduced time. More time we require for our minds as well as for our bodies. Spread over the metropolis, with long and toilsome journeys to perform before we even reach the scene of our day's toil, returning thence at evening to our homes jaded and worn out, we feel we do not ask you to concede too much."

Manchester and Salford.—The painters here have been urging the masters to pay them at the rate of 6s. an hour, and are rejoicing in the success of their endeavour to realize this object. The previous rates were 5½d. per hour, if engaged by the hour; or if by the week (fifty-eight hours), 3s. The demand made was for 6d. per hour, or 3s. per week. The masters, on unanimously resolving to give the advance, informed the public that from the 1st of April a corresponding advance in the charge for painting would be made. At a meeting of the painters to return thanks to the masters, Mr. William Todd, who occupied the chair, said they had a happy and agreeable task before them, and he hoped that their example would prove that the word "strike" might, by a prudent and temperate course of conduct, become an obsolete word in the vocabulary of the working man. Mr. McDonald regarded the success with which they had met as unparalleled in the history of any agitation for advanced wages, and showed his propriety of resorting to persuasion rather than relying upon strikes and paid agitators.—The strike of the Manchester bricklayers was terminated. They demanded to cease work a quarter before five o'clock during the two months of mid-winter, December and January, 1861, at a quarter-past five in November and February. A conference having recently taken place, the men have resumed work, with the understanding that the masters shall make no reduction in wages without giving the men three months' notice, nor the men demand any increase of wages without giving similar notice. The building trade is now expected to

become brisk in Manchester, as empty dwellings are scarce, and capital is in less demand for manufacturing purposes.

Newcastle and Gateshead.—The joiners and carpenters have held a meeting with the view of co-operating with their trade in London, for the shortening of the hours of labour from ten and a-half to nine hours per diem. As it was anticipated that so large a concession would not be made by the masters, the men contented themselves for the present with asking for the reduction of half an hour from their daily labour, entering into combination for the purpose of obtaining the greater privilege at a future time.

Edinburgh.—The joiners have agreed, without a dissenting voice, to accede to the wishes of the employers, and resume work on the old terms. They had resolved to send a letter to Mr. Watherstone, chairman of the Association of Employers, intimating their willingness to resume work on the ten-hours system; so that the strike, so far as the joiners are concerned, is now at an end. The masons do not at present seem disposed to follow the example of the joiners, and the strike among them is more general, owing to the strength of their union.

Jersey.—The blacksmiths' strike for a reduction of time of work from eleven hours to ten, as in Guernsey, still continues: two more masters, or five in all, according to the *Jersey Times*, have acceded to the terms of the men, but the majority resist the demand.

Sir.—It is earnestly to be hoped that both employers and men will gravely consider the very serious consequences arising from the interruption of business caused by a strike, and remember that such disputes cause loss to all,—loss to the masters, loss and distress to the workmen and their families, and loss to the nation at large. Hundreds of the families of honest and industrious men are still suffering from the disastrous consequences of the last strike; and the Registrar-General's books will show to what an extent the wives and children of those engaged in the building trades have suffered from the hardship of the last strike. The past winter has been a severe one; and many men, stonemasons, bricklayers, plasterers, &c., have been for a long period out of employment. Numbers of these men, particularly those with families, are in a sad condition to commence a strike. From the chief manufacturing districts, particularly those connected with the supply and manufacture of iron and other metals, the accounts are gloomy. In many departments the new American tariff will stop the exportation to that country of British goods. The uncertainty of the supply of raw materials, which affects some millions in the midland counties, is causing uneasiness. News of famine has come from India, which may be the cause of increased national expenditure, and prevent the commencement or completion of Government works. Bricks are at present at a high price, and there are other matters looming which cause thinking men to inquire if this be a favourable time for labour to ask for increased privileges. The chief point of the matter of dispute is, that the men consider it desirable the hours of labour should be reduced from ten to nine hours each day; nine hours to be paid for at the same rate as ten at the present time. By the power of association, men anxious to do so are to be prevented from working overtime; and the most skilled workmen are to be put on exactly the same level with the most slow and useless. This arrangement would be the means of preventing the right development of the highest qualities of the workmen, and curb the laudable ambition which prompts men to better their condition. On the 7th of March, of the present year, the five branches of the building trade addressed memorials to the Master Builders' Association, respectfully urging upon that body the necessity of reducing the hours of labour, and asking for an answer on or before the 5th of April.

On the 16th of March, some leading builders posted a notice on their various works and jobs, as you have remarked, stating that, on and after March 23rd, they should pay their workmen by the hour instead of, as at present, by the day. The change intended by the said master builders was to pay 7d. per hour to skilled artisans, an increase on the present rate. "This announcement," says Mr. Potter, "caused great excitement to their workmen, who met together and appointed deputations to wait on and respectfully request their employers to withdraw their proposed change."

With the exception of Mr. Kelk the employers proposed not to press the change. Mr. Kelk, on the contrary, expressed his determination to adhere to his new conditions. The consequence was that, on Friday last, nearly 400 men were

discharged or locked out from that time for refusing to accept the terms. Afterwards Messrs. Lucas expressed their determination to enforce payment by the hour. To this also their men objected, and on Saturday they were paid off.

It is urged that, if the building operatives had the power to restrict every one of their order to nine or ten hours' daily labour, the change would be more acceptable than at present; "but," says the secretary, "as they possess no power of the kind; and knowing, from bitter experience, that there are always and everywhere to be found men in whom self entirely predominates, to the utter exclusion of every noble feeling or aspiration; and as the few often reduce—through necessity or selfishness—the wages of the entire body of operatives; so, under the proposed alterations of the master builders, would the few unprincipled men ultimately injure the whole of their order by extending their hours of labour."

Although these sentences at first sound well, they will not bear that matter-of-fact and business-like scrutiny by which the subject must be examined: much as many wish to the contrary, the matter will be worked by those laws of supply and demand which regulate the prices of labour and materials, and will be made to assume a pound, shillings, and pence view. Take, for instance, the bricklayers. In consequence of the proposed extensive works for the Great Exhibition, the vast amount of labour which is likely to be required in connection with City underground railways, and the sewers for the main drainage; such is likely to be the demand for bricklayers that they will probably be justified in asking for an advance of wages; and doubtless the competition amongst the employers would cause this to be acceded to, if put in a fair and just way. In consequence of the demand, the price of bricks has risen. Brickmakers' wages have increased; and, by the same process, the wages of bricklayers will rise with the demand for labour.

A strike can only do harm to all.

A WORKER.

PAYMENT BY THE HOUR.

Sir.—The suicidal policy adopted by the men out on strike in London so astonishes me, that I cannot refrain from troubling you with a few remarks touching the proposed system of paying by the hour.

This measure is one I have often wondered at the London masters not adopting before, and during the last strike. My answer to all my friends who mentioned the subject was, "Pay by the hour: there can be no dispute about what period of time constitutes an hour; but so long as you pay by the day, disputes will arise as to how many hours and minutes shall constitute a day. Pay by the hour, and you will then reduce all differences between employer and employed to a mere wages question, to which the simple and only legitimate rule of supply and demand will more readily apply than any arbitrary enactment, and these differences be capable of more speedy settlement, than when shackled by other questions and other purposes."

As an employer, although comparatively a small one, I can give testimony to the working of the hour system, having for some years past adopted it, and except a little striking and suspicious regard at the commencement, it has worked exceedingly well, and I believe there is not a man in my employ who would rather be paid by the day. In fact, the little difficulties at the commencement arose not from the idea of any injustice that could be found lurking under the surface, but from the simple fact that it was an alteration of old customs, an innovation upon tradition, or a something their fathers did not tell them of; but when the objections raised by the men and the tendencies of the measure were examined by the light of reason, there were few dissensions, it being evident that no advantage could be derived by either, save giving to the master a straightforward and easy method of assessing the labour of his men, and to both, that most satisfactory and devoutly to be wished assurance, that all differences and quarrels and heartburnings arising out of time question were for ever at an end.

As to the objections raised by Mr. Potter and his colleagues, against one only do I think it worth while to speak, and that is the likelihood of trade being injured by "selfish individuals habitually making long days." My experience on this point is this, that I have never had a single man who wished to work longer than the others, and that is the old time which was observed before the hour measure, and which has always seemed to be tacitly regarded as the daily limit.

I could go on at much greater length with arguments, but your space is valuable, and your correspondents willing, and more able: I will, therefore, conclude by saying that I believe, if the men, as a body, do turn out against the baur, it will be at the instigation of the demagogues, whose vocation, please observe, would be in a great measure departed by its adoption.

Warrick.

CONTRACTOR.

CHURCH-BUILDING NEWS.

Stowmarket.—The preparations for erecting a new Independent Chapel in this town have been begun. Three houses in Ipswich-street have been pulled down: these and the site of the old chapel will give ground for the new building, which is to be in the Gothic style of the fourteenth century, and carried up with Kentish rag and faced with Caen stone: when completed it is to seat 1,200 persons. The architect is Mr. F. Barnes, Ipswich. Mr. Smith, Ipswich, has the contract for the erection, at 3,333*l.*; but the cost of the whole, when completed, is estimated to be nearly 5,000*l.*

Queendon.—Queendon church has been re-opened for divine service, after being restored, with the addition of a south aisle. In the restoration the plain sloping roof, without clerestory, has been adopted. The bell-cot is plain. A feature in the church is the Norman pillars. On those in the south side, which were built in with the wall, were discovered many dates and carvings of names in old English. The new west window, in stained glass, is a memorial by Messrs. Lavers & Barrand. There are others by the same artists. The nave is laid with Peasche's red terro-metallic tiles, with blue and white borders. The chancel has been restored by the rector, who has also been at the cost of building a small vestry-room to the north of the chancel. The chancel is laid with Minton's encaustic tiling. The contract for this restoration was taken by Mr. O. Crane, of Newport. Mr. George Perry, of Bishop Stortford, was the architect employed.

Cleydon.—The parish church here, which has been to a considerable extent rebuilt, has been re-opened for Divine service. Mr. Wilson, of Waddington, was the builder employed; and Mr. Kimberley, of Banbury, erected the pulpit and reredos; whilst the tracery of the windows and gables, and the crosses and sedilia, were the work of Mr. A. Claridge, of Banbury. Mr. White, of London, was the architect.

Bramcote (Notts).—The chief stone of a new parish church has been laid in this village. The stone forms a part of one of the tower pillars, and on it so as to be read will be cut an inscription commemorative of the ceremonial. The church is in the Decorated style of Gothic architecture, and consists of nave, aisle chancel, and vestry, having a tower, and spire, about 130 feet high, open to the church inside, and porch on the south side. The stone used is Chevin for the window-tracing and principal dressings, Stanton stone for inside ashlar columns, &c., with Caen stone for pulpit, font, and inside carvings. The roof is an open-timbered one. The chancel stalls and seating generally are in deal, stained and varnished. Mr. J. Johnson, of London, is the architect. The whole of the works have been placed, without competition, in the hands of Mr. J. Firn and Mr. W. Clifton.

Stroud.—The parish church having long been out of repair, and in an unwholesome condition, it has been resolved to re-build it, on plans by Mr. Bland, of Birmingham, architect. The new church, retaining the old tower and spire, is estimated to cost 5,000*l.*; and of this 4,000*l.* have been promised in subscriptions. A vestry meeting has (almost unanimously) adopted the designs, empowered the churchwardens to apply to the Consistory Court for a faculty to rebuild, and appointed a committee to carry out the new arrangements. The selected design was the result of a competition (advertised in the *Builder*), in which upwards of thirty designs were sent in. Of these, three,—those of Mr. Bland, Mr. Wilson of Bath, and Messrs. Medland & Maberley, of Gloucester, were first selected, and finally the premium of 20*l.* was awarded to the first of these. Mr. Scott was consulted; but, as he advised the removal of the tower and spire, his design was not adopted; it being thought desirable to retain these. A modification of Mr. Bland's design was therefore finally adopted. The edifice, according to this design, will accommodate 1,150 persons.

Plympton.—A Dissenting Chapel is about to be erected in this pretty little village, which is situated a few miles out of Plymouth. The style is Romanesque, and was selected in competition. Tenders were advertised for, and that sent in by

Mr. G. Stevens, of Newton, was the lowest. The architect is Mr. Edward Appleton, of Torquay. The materials will be local limestone, with dressings of white brick from Lord Morley's fire-brick works at Lee Moor, in the neighbourhood. The colour is a warm buff. At these works, our local correspondent adds, various forms and moulded bricks are produced, the price for the plain shape being 3*l.* per 1,000 at the works.

Danish (South Devon).—A new Wesleyan chapel is in course of erection in this place, from the design of Mr. Edward Appleton, of Torquay, architect. The style is Early English. The form of the ground necessitated the chapel being in the shape of the letter L reversed (—). The pulpit is placed in the angle at the junction of the arms. The roof will be open, and stained. Light is for the most part obtained at the ends, to relieve the blankness of the side walls consequent upon the absence of windows. Arcades are introduced. Mr. T. Richardson, of Totnes, is the builder.

Totnes.—The Wesleyans of this town are about to erect a new chapel, adjoining the river Dart, near the bridge. The side wall of the chapel will abut on the creek of the river. The foundation will be constructed with blue lias concrete, and masonry in blue lias mortar. Mr. W. A. Goss, of Torquay, is the builder. The style is Lancelot, and the roof will be in one span. To break it up the front of the chapel is made apsidal, with gables over each bay. The sides are also proposed to be similarly treated. The materials are local limestone, with dressings of brickwork, in colours. The roof will be half open, and trussed with iron tension rods and struts. The architect is Mr. E. Appleton, of Torquay.

Chester.—The Marquis of Westminster having contributed 3,000*l.* towards a fund (amounting to upwards of 5,000*l.*) raised by subscriptions for restoring St. John's Church, the interior renovation has commenced, and some ancient paintings have been discovered. One of these shows traces of a fine painting, representing a large figure holding in his hand a book, on which rests a fawn carrying a flag; while in the background is a forest in which stags are roaming about, and in one corner is the representation of a massive building with towers.

Stockport.—The foundation stone of a new Roman Catholic church has been laid at Stockport. The dimensions are as follow:—Extreme length, 105 feet; width of nave and aisles, 70 feet; height from floor to ridge, 72 feet; from floor to pannelled ceiling, in the centre, 60 feet. The church will consist of a nave with an apsidal termination at the chancel or altar end. The aisles will be separated from the nave by an arcade of circular stone piers and chamfered arches. There will be a sacristy with separate entrance and chamber over, and an inner vestry for the clergy. There is an organ gallery at the west end of the nave; and a tower with a spire surmounted by a gilt orb and cross, rising to the height of 200 feet, complete the design. The style chosen is of English type, and the leading idea which the architect (Mr. M. E. Hadfield, of Sheffield) has kept in view is so to arrange the church that the greatest possible amount of space shall be given up for the use of the congregation, with facility for seeing and hearing, and abundance of light. The contractors are Messrs. Robinson & Son, of Hyde.

Bradford (Yorkshire).—The Church of St. Mary, Laister Dyke, one of the ten it is proposed to build in five years, has been consecrated by the Bishop of Ripon. The church is situated at a short distance from the Laister Dyke toll-bar. It is built from the designs of Messrs. Mallinson & Healey, architects. The style is Decorated Gothic. The church consists of nave and north and south aisles. The chancel and vestry are at the north, and there is a tower at the south-west corner of the nave. There are about 400 sittings. The cost is 2,600*l.* The contractors were;—Masons, Messrs. Birkby & Holdsworth; joiner, Mr. A. Neill; plumber, Mr. Reece; slaters, Messrs. J. Hill & Sons; painter, Mr. Edward Haley; and plasterers, Messrs. Drayshaw & Muff. The foundation stone of a new Methodist Connection Chapel has been laid at Bradford. The new building will cost about 2,000*l.*, and will give 500 sittings, and afford accommodation for 300 children. Mr. S. Jackson, of Bradford, is the architect, and the contractors are Messrs. J. H. W. Beauland, of Bradford.

Stockton.—The foundation stone of St. Andrew's United Presbyterian Church has been laid on a site chosen in Castle Field. The style of the building will be Gothic. The edifice will contain 400 sittings. The architect is Mr. D. McAndrew, of Aberdeen; and the contractors are

Messrs. Wade, bricklayers, and S. Butterwick, joiner, of South Stockton; and Mr. William Bulmer, mason, of Stockton. The building is to cost nearly 800*l.*, towards which sum about one-half has been raised.

Sheffield.—The new cemetery for the township of Brightside Bierlow has been consecrated by the Archbishop of York, attended by many of the clergy of the town. There are two chapels—one for the Church, and the other for Dissenters—separated by an archway, over which is erected a tower and spire, rising to a height of 120 feet. There are also a superintendent's house and sexton's lodge. The style of the chapels is Geometrical Gothic. The architects were Messrs. Flockton & Son. The chapels are each 70 feet by 26 feet, and have on one side of the entrance a vestry for the clergyman, and on the other a waiting or private room, with other conveniences. The double entrance-doors of each chapel lead into an open space, available as standing room for those not immediately interested in the funeral that may be going on. The total area of ground enclosed is about 27 acres, and of this nearly 17 acres, including roads—have been consecrated. The main feature of the ground is a central road, passing under the tower to the top of the cemetery, a distance of 960 feet. It is 21 feet wide, and there are smaller parallel roads on each side, connected by two cross footpaths; the land being thus divided, as far as possible, into regular parallelograms. Under each of the roads is a drain 11 feet below the surface.

STAINED GLASS.

Rochester Cathedral.—Threestained glass memorial windows, completing the set of six in the north transept of this cathedral, to the memory of the late Ven. Archdeacon King, have been fixed in their places. These memorial windows have all been designed and executed by Messrs. Clayton & Bell, of London. The centre window of the upper trio represents St. Michael subduing the dragon. The left-hand window contains the full-length figure of St. Raphael, holding in his left hand the crozier, and in the right the fish. The subject of the remaining window is the archangel Gabriel.

The Priory Church, Bridlington.—A large east window of coloured glass for the Priory Church of St. Mary, Bridlington, has just been completed and presented by T. C. Clayton, esq., of Wetherby Grange. The design of this window was by Mr. Scott; the stonework by Messrs. Beaulands, Bradford; and the glass by Mr. Wallis, of Newcastle-upon-Tyne. The window belongs to the Decorated style, and consists of seven lights distributed into two groups of three each (with their appropriate Gothic heading, and tracery containing three trefoils in as many circles), separated from one another by the seventh or central light. The height of the window, from sill to apex, is 39 feet 6 inches, and the width of the opening between the jambs is 19 feet 6 inches. At the base, a narrow band of old English lettering, in amber, sets forth the name and style of the donor, with a Latin inscription commemorative of those to whose memory the window was erected. The centre panel of the window commences with Jesse, the father of David, at its base, and terminates with the infant Jesus sitting in the lap of His virgin mother. In all there are thirty figures.

St. Lawrence's, Ramsgate.—The new west window of this church has been finished. It is the gift of T. N. Harris, esq., of Pegwell, whose kindness and liberality towards the poor are said to have gained for him the affectionate regard of all. A table has been erected in the church to the memory of this gentleman's father, the late General Sir Noel Harris.

SCHOOL-BUILDING NEWS.

Bridport.—The school-rooms attached to the Bridport Chapel having been found very small and inconvenient, a new school has been erected in proximity to the chapel, on the east side. To make room it was necessary to pull down four cottages. The new school is a long room, built of brick, with a high-pitched open-timbered roof, the principals resting on moulded stone corbels. Light is obtained from a window at each end, and a skylight. Each of the windows is divided into three lights by mullions of stone with carved heads. A border of blue glass runs round each light. The room will accommodate about 200 children, and is intended for use also for week-night services.

Belgrave (Leicester).—The foundation stone of the New National Schools at Belgrave has been

laid. The building, which will include a master's house, is in the Gothic style. Mr. W. J. Gillett, of Leicester, is the architect, and Messrs. Osborn, Brothers, Leicester, are the builders.

Liverpool.—Of the sum of 9,000l. for the purpose of erecting Wesleyan Methodist schools, to accommodate 1,300 children, in connection with the Brunswick and Great Homer-street Chapel, 4,500l. have been collected, and 2,600l. more are expected by Government grants. The fund is also being increased by fancy bazaars.

PROVINCIAL NEWS.

Reigate.—The erection of the public hall building is to be immediately commenced, and the removal of the buildings on the site has been already begun. The site is in a central position. Mr. Carruthers, the contractor, recently built the new Church at Reigate, near the Railway station. About 6,000l. are required to complete the capital of 4,000l. for the public hall.

Brighton.—It has been determined to carry out some extensive alterations at the Pavilion, such as the conversion of the South Lobby and small rooms over the Ladies' Waiting-room into galleries suitable for the exhibition of pictures, or for similar purposes. The cost is estimated at 5,000l.

Guernsey.—A new clock-turret has been erected at St. Sampson's, Guernsey. It stands on a weigh-bridge, and is on the south side of the harbour. It has two dials, and a bell that strikes the hours. This erection is of great use to the district. A part of the road leading to the Vale Castle (on the north side of the harbour) is being levelled. A new weigh-bridge is being built on the north side of the harbour.

Worcester.—The architect of the additions at Worcester Asylum says that the amount of estimate is 5,200l., instead of 2,500l., as stated.

Halifax.—The ceremony of laying the cornerstone of the Victoria Tower of the Halifax New Townhall is fixed to take place on Easter Tuesday by the mayor.

CORN EXCHANGES.

Norwich.—The shareholders of the new Corn Exchange Company, after opening the tenders, given in the *Builder* of the 23rd instant, determined for the purpose of seeing what alterations could be made to reduce the cost. The estimate for an entirely new building, to which they had agreed, is said by the *Norfolk Chronicle* to have been about 6,185l.

Oxford.—Those interested in the corn trade are also dissatisfied with their present exchange accommodation, and a meeting has been held for the purpose of selecting a suitable site for new Corn Exchange and considering certain proposals submitted on the occasion. Resolutions were passed to the effect that steps be taken to obtain a more suitable exchange than the present one, and that the whole question be referred to a committee, to receive proposals and terms, and report thereon to another public meeting. A committee was accordingly appointed, who forthwith resolved to advertise for sites. One of the proposals made to the meeting was on the part of the Corporation, who are willing to erect a building suitable for various purposes, and for a Corn Exchange inclusive, for the use of which as such, a rental would be charged. The rental, it was incidentally stated, might amount to about 150l., and the accommodation would be for 500 persons. Reference to this proposal it was also incidentally stated that the Didcot Corn Exchange was 75 ft. by 45 feet, superficial feet 3,375; Banbury, 84 ft. by 54, superficial 4,536, accommodating 350 persons; Birmingham, 200 by 37, superficial 7,400, accommodating 900 persons; Wallingford, 100 by 37, superficial 3,000, accommodating 400 persons; Banbury 160 by 50, superficial 8,000, accommodating 1,000 persons.

Wolverhampton.—The directors of the local Corn Exchange Company advertise for contracts for the following alterations in the present building:—To fix skylights in that portion of the roof now occupied by the dome, to remove the pillars which it is supported, to erect an orchestra in the ironmasters' room, and galleries on the upper floors of the hall, to introduce a large glass window in the archway over the front entrance, and to replace the steps with a porch. These improvements are designed by Mr. E. E. Lake, of this town, architect.

Worcester.—A meeting of the new corn exchange committee was recently held, to consider the objections to the proposed site in Cricklade-street; and it was agreed to suspend proceedings until the advocates of the Market-place site to

mature their plans. The latter immediately formed a new company, and have brought out a scheme which will probably be speedily carried out. It is to be hoped the result will not be those "two stools" between which other projects of a similar kind have fallen through. The site selected in the present instance is that usually called the Booth Hall, with additional space behind. The requisite buildings are estimated to cost 1,500l., the expense of purchasing the site being avoided, as Earl Bathurst is willing to grant a lease for 500 years, at a rent of 58l. a year. The capital of the new company is fixed at 3,000l., in 10l. shares.

Ross.—The chief stone of the Corn Exchange for Ross has been laid with freemasonic ceremonial. The company is limited, with a capital of 2,500l., in 25l. 10s. shares. As soon as a sufficient number of shares had been taken to warrant the step, designs were advertised for, and premiums of 50l. and 20l. offered for the best and second best. About twenty designs were sent in, and the 50l. was awarded to Mr. J. Nicholson, of Hereford, and 20l. to Mr. Edward Purchas, of Ross. The ground plan of the building comprises a reading-room, hall, and vestibule, poultry market, and waiting-room. On the upper floor is a library, class-room, auctioneer's room, and corn exchange and assembly-room, 70 feet by 38 feet. Each floor is provided with suitable conveniences. The exchange-keeper's rooms are arranged in the mezzanine story. The principal facade will be executed in Box-hill stone, Italian in design, with a Doric order surmounted by an Ionic. The whole frontage is about 65 feet, of which 50 feet is given to the order, and the remaining 15 feet to a recessed driving way, with room over; and it is hoped that this recessed portion will eventually be crowned with a belvedere or campanile. The tender of Messrs. Pearson & Son, of Ross, to execute the work for 2,800l. was accepted by the committee, and they have already completed a considerable portion of the underground work.

MONUMENTAL.

Messrs. Mowlem & Co., of Pimlico, have set to work a number of masons and labourers, at the south-east corner of Trafalgar-square, and immediately facing Northumberland House, for the purpose of erecting a statue to the late lamented General Havelock. The statue is to be of full-length (in bronze), similar to that of General Napier at the west end of the square, and executed by Mr. Behnes, of Regent's-park, who designed that of Sir Robert Peel, in Cheapside. The pedestal will be of blocks of Dartmoor granite, and the whole weight of the structure, when completed, will be between 40 and 50 tons. The workmen have had much trouble in getting at solid ground for the purpose of laying the foundation for so heavy a mass. Messrs. Mowlem are also engaged in fixing a statue to the same general, and by the same artist, in Sunderland. It is expected that leave will soon be obtained for the erection of a statue to General Outram, close by the side of the one to Havelock.

Mr. William Brodie, R.S.A., says the *Scotsman*, has completed a mural monument for the parish church of Rosneath, intended to commemorate the services of the late pastor, the Rev. Robert Story. It is to be placed inside the church, near the pulpit, and will be relieved from the wall by means of corbels. The monument consists of a pointed Gothic arch, with an arcaded base, and in form resembles a cathedral stall. Marble and stone (the latter from Craigsland Quarry, Ayrshire) are the materials used.—The same paper states that in the Dean Cemetery, which now shows a large preponderance of artistic monuments, a memorial in granite has recently been erected. This structure, which has been nearly two years in execution, has been erected to the late Mr. John Aitkin, of Australia, by his widow. It is a mural monument, and is about 14 feet high and 10 feet broad—projecting from the wall about 3 feet. It is principally in red Peterhead granite, polished, and consists of a base, columns, panels, and entablature. The capitals of the pillars and the tops of the panels are carved in the red granite, which is greatly more difficult to cut than the grey. The artist, however, adds the *Scotsman*, has been very successful: the carvings are spirited without apparent elaboration. A border of black whinstone, from Carlingnose Quarry, Queensferry, runs round the monument, and gives it an appropriate finish. This monument was designed and erected by Mr. Thomas McEwen, of Edinburgh, sculptor, and the granite was executed from his models, at the works of Mr. William Keith, Aberdeen.

The Legislature of Tasmania have voted 1,000l.

for a monument to Sir John Franklin, in connection, says the *Australian Gazette*, with the improvements now being carried out on the fine site, in Hobart Town, on which stood the viceregal residence at the time the distinguished Arctic navigator was lieutenant-governor of the colony.

GOVERNMENT COMMITTEE: STONE OF THE HOUSES OF PARLIAMENT.

The list that has been everywhere published, of the Committee appointed by the Chief Commissioner of her Majesty's Works, is incorrect. The Committee consists of the following gentlemen:—Architects and Engineers.—Mr. Tito, M.P.; Mr. Sydney Smirke, R.A.; Mr. Scott, R.A.; Mr. G. R. Burnell, Mr. Digby Wyatt, Mr. Hawksley, Mr. E. M. Barry, and Mr. Godwin. Chemists.—Mr. Hofmann, Mr. Ansted, Mr. Frankland, and Mr. Abel. Geologists.—Sir R. Murchison, Mr. Tennant, and Mr. C. H. Smith.

The Committee met for the first time on Saturday, the 23rd inst., in Richmond-terrace, when Mr. Tito was appointed chairman, and the mode of proceeding was arranged. A day was fixed to meet at the Houses of Parliament, to make a thorough examination of the building for themselves. The points referred to the Committee include the recommendation of a building-stone to be used in future public buildings in London.

Mr. Alfred Bonham Carter acts as secretary of the Committee.

ST. IVES, HUNTINGDONSHIRE.

THE attention we drew to this place a short time since, relative to its wretched sanitary condition, has been productive of a good result.

The inhabitants, feeling the force of our remarks, and that they were not fairly treated by the powers that be, have memorialized the Home Secretary to interfere in their behalf, as he is authorized to do so by the Local Improvement Act. After setting forth their grievances and the apathy of the commissioners in carrying out any measures tending to improve the public health, they state that a retired butcher and lighterman, and now a poor-rate collector, has been appointed surveyor at an annual salary of 15l. They ask the Home Secretary not to confirm such an improper appointment, and not to approve of any such miserable remuneration, which has been purposely fixed so low as to prevent any qualified person from applying for the post.

They also ask for a Government inspector to be sent down to inquire and report upon the premises. This is a proper course of action, and we should think that the Home Secretary will readily accede to such a respectful and reasonable request.

THE DESCENDANTS OF EMINENT BRITISH WORTHIES.

GLANCING, the other day, over the lives of our most distinguished English celebrities, we were struck with the suddenness with which the race of such men has come to an end. The subject is one which is worthy of more careful inquiry than it has yet met with, although the circumstance has before been adverted to. Let us, however, in the meantime, merely touch this curious subject, in the hope that it may lead others a little further into a most interesting course of inquiry.

We may put Shakespeare at the head of the list. His eldest daughter, Susanna, was married at Stratford, June 5th, 1607, to John Hall. There was only one child by this marriage. The youngest daughter was married to Thomas Quiney. At Shakespeare's death, in 1616, the family consisted of his wife, his daughter Susanna, and her husband, Dr. Hall; Judith and Thomas Quiney; and Elizabeth Hall, a granddaughter. Judith Quiney had several children, who were all dead in 1639. The poet's granddaughter, Elizabeth Hall, was married in 1626, to Thomas Nash, who died in 1637 without issue; and, secondly, in 1649, to John Barnard, of Abington, county of Northampton, by whom she had no family, and died in 1670. Thus, in fifty-four years Shakespeare's descendants, both male and female, came to an end.*

Milton, the poet, left female descendants only, whose family are believed long since to have ceased to exist. A poor woman, named Clarke, some years since claimed to be the last descendant from John Milton.

* The persons who now claim to be the poet's descendants belong to the Hart family, into which Joan, Shakespeare's sister, married.

The male line of Sir Christopher Wren was speedily extinguished, and we some time since stated the belief that the female line had also ceased: a correspondent, however, mentioned that, at the time he wrote (a few years ago), an old lady, descended from the great architect, was still living.

Sir Joshua Reynolds, Cowper the poet, Pope, Locke, Seldon, Thomas Campbell, Oliver Goldsmith, Wilkie, Dean Swift, Sir Isaac Newton, Hogarth, Turner the landscape painter, Sir Humphrey Davy, Edmund Burke, Pitt,—have left no descendants.

Robert Stephenson ended the line of his father, George.

Notwithstanding all the anxiety of Sir Walter Scott to establish a family inheritance, his direct race has perished, and those of but slight relationship inherit his land and title.

We believe that with the sons of Robert Burns the family of the national poet of Scotland will expire.

Lord Byron is only represented on the female side.

It would be easy to prolong this list to a great extent. We have not omitted to look at the reasons and circumstances which may be supposed to argue against the facts to which we allude; but we believe that a more careful and extensive research would show that, in nine cases out of ten, the race of those mighty intellect has, with remarkable suddenness, come to an end.

A. B.

FREDERICKSBURG PALACE, DENMARK.

WE understand that Mr. E. Falkner, whose work, "Dendalus," is fresh in the recollection of our readers, has just been honoured by the presentation of the patent and decoration of a Knight Commander of the Dannebrog, by the King of Denmark. This order is one of the most ancient in Europe, having been founded by Waldemar, in 1219. Our readers will remember that the Fredericksberg Palace was destroyed by fire in 1859.* After endeavouring to collect plans and records of the building, the Danish Government fortunately called to mind that eighteen years ago an English gentleman of the name of Falkener had, during a stay of several days, made a series of drawings, comprising the four façades, the interior of the Ritter Saal, the chapel, and other portions. On application being made for permission to copy these drawings, Mr. Falkener immediately offered the originals for the acceptance of his Majesty, in grateful acknowledgment of which the above-mentioned honour has been conferred upon our countryman. The fact that the Danish Government were dependent upon this accidental source for the architectural records of so important a national edifice as the Fredericksberg Slot, shows the desirability of collecting and preserving authentic drawings and records of our public buildings and monuments.

THE DATE OF AVIGNON CATHEDRAL.

It was not my intention to have entered into any discussion concerning the probable date of Avignon cathedral; but, since Mr. Fergusson again referred to it, on the 18th instant, at the Institute, and declared his opinion that the whole building, though vaulted with the pointed arch, might be ascribed to the eighth or ninth century, I feel that a few words are necessary. I am no speaker, or should then and there have spoken. On this account may I venture to ask your publication of these remarks? The church itself has been much altered and modernized internally; but the nave, dome, and choir, from a short height above the ground, remain much in their original state, though whitewashed and in part (the dome) painted with frescoes. The disposition of the parts, the mouldings, the carved ornaments, the construction, all belong to a well-defined and distinct period of architecture,—the Romanesque, of the eleventh and twelfth century, as practised in the south and centre of France. If the interior and exterior (which correspond in style and are clearly of the same date, including the tower and central dome), were built in the eighth or ninth century, then so were, probably, the churches of St. Gilles and Nîmes (both plain pointed vaults), Moissac, St. Trophime, Arles; the abbey church of Montmajour; St. Serin, at Toulouse; the cathedrals of Valence and Angoulême, and a host of others too numerous and well known to need cataloguing. Now, as the dates of several, if not all, of these buildings are pretty well known

and agreed to by all antiquaries in France and Germany, the cathedral of Avignon, being of the same class, bears in itself the testimony of its date, approximately at least.

We have now to speak of the portal, which is distinct in style from the building itself, though the date of its erection may be, and is quite open to dispute. That style is also distinctly marked, viz.,—very debased Roman. The cornice and architrave—there is no frieze—rest on angle columns, of the Composite order, with proper abacus-necking and base. The cornice consists of Roman mouldings and ornament, fret, leaf, and ovolo: the archway is enclosed with the ovolo moulding. The left impost consists of two Roman mouldings, one of which is the ovolo reversed. The right impost consists of four mouldings, ornamented with the guilloche, fret leaf, and dentil. The archivolt of the side entrance has the cyma reversa and three fascias, resting on an impost formed by the cavetto and the cyma recta. The pediment is pierced by an oculus, with a torus moulding round it, and is destitute of a cornice. Now, the infusion of Roman architecture in the styles of the eleventh and twelfth centuries is too well known to need comment, and it is especially marked in the south of France; but though the general form is frequently retained, the mouldings, especially the cymas recta and reversa, are of a peculiar character, and are easily distinguishable: to use correct Roman contours in the mouldings would destroy the character of the style in this district; and yet these Roman contours are seen in the Avignon porch. This fact, and the absence of any purely Romanesque ornament on the moulding, the ovolo moulding reversed, as before stated, the difference between the imposts of the central arch, the masonry (which is of the usual Romanesque nature), the darker colour of many portions of the ornamental parts, the absence of a cornice to the pediment, and the oculus, which is a common Romanesque one, combined with the fact of the porch being built against a buttress, all induced me to consider it as of later date even than the cathedral itself, and possibly to be formed of some old materials, added to and adapted for the purpose. I expect, of shelter against the high winds and clouds of dust on this rocky storm-beaten height; for the north side, where the dreaded mistral mainly blows, has no opening; moreover, there is a small buttress against the south angle of the porch, built with stones of the same kind and size as the rest, and quite Romanesque in character.

Such are my main reasons for arriving at the conclusion stated in my lecture, that probably the whole is a work of the eleventh or twelfth century, and that "my own impression is that no part of it can be ascribed to an earlier period." Such is still my impression. I do not pretend to dogmatise or to speak authoritatively. Mr. Fergusson asks my reasons: these are some of them. I could greatly extend my remarks. I am acquainted with a few buildings in Italy, Germany, and France, which antiquaries, and amongst them Kugler, whom I hold to be a cautious and trustworthy judge, ascribe to the eighth or ninth century: they bear little resemblance to this particular building, and are a distinct class of themselves.

And now I think, as I have given Mr. Fergusson reasons for my opinion, he in turn will not refuse to explain on what grounds he ventures to ascribe this building to the eighth or ninth century. Indeed, the *onus probandi* lies with him properly, and not with me, since he has publicly printed and stated it as an authority, whilst I only give my opinion as a professional man to his *confrères*, to be taken for so much as it may prove worth.

J. B. WAREING.

GEOMETRICAL STONE STAIRCASES.

SIR,—At the trial of the action brought against the Polytechnic Institution, in consequence of the fall of the staircase there (a case, by the way, into which a degree of prejudice was imported that was quite to be lamented), it was stated by some of the witnesses for the defence, that every step of a geometrical stone staircase should be capable of supporting itself as well as the weight it should fairly be expected to carry, independently of those below it. Some severe remarks were made on this statement, and, like a great many others on the same occasion, very unjustly, as the following circumstances will prove.

Being called on to survey and report on some settlements discovered in a church erected about seventy years ago, I found it had been built, as was frequently the case at that period,

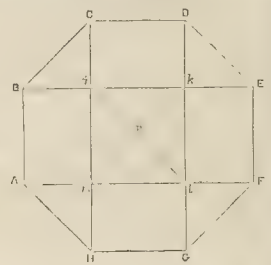
upon sleepers and planking. These were rotting by degrees, and of course the walls were settling, and full of cracks. At one angle of the church was a geometrical stone staircase, partly supported by an outer, and partly by an internal, wall. The former, being heavier, had settled more than the latter, and the steps of the lower portion of the staircase had dropped away from the upper, leaving ten fliers unsupported by anything but the pinning-in to the wall. In fact, I could put the end of my stick between the tenth and eleventh steps. I was informed the stairs had been in this state for many months, large congregations descending together by them three times every Sunday. Of course I advised proper precautions to be taken; and venture to trouble you with these facts, that justice may be afforded to the gentlemen who gave evidence on the previous occasion.

ARTHUR ASHPITEL.

TO ASCERTAIN THE AREA OF AN OCTAGON.

BEING awake early one summer's morning, I amused myself by studying the pattern of the bedroom carpet (an imitation of inlaid oak), and made out from it the following rule for finding the area of an octagon, viz.,—

MULTIPLY THE DIAMETER BY TWICE ONE SIDE FOR THE AREA.



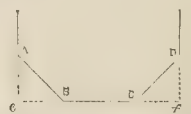
Let A, B, C, &c. be an octagon: it is evident (geometrically) that the two parallelograms formed by the diameter and the sides, C, D, H, G, and A, B, E, F, cover the area of the octagon, with the exception of the four triangles, B i C, D k F, F e l G, and H m A, but the square i, k, l, m, forms a portion of each parallelogram, and cannot, for area, be used by both.

Divide this square by diagonals into four equal right-angled isosceles triangles, i n k, k n l, l n m, and m n i: now of the triangle m n i, the base m i is equal to A B, and A B is equal to B C, the base of the triangle B i C, and (without going into the well-known detail of proof) the triangles m n i, and B i C, being both right-angled isosceles triangles, having equal bases, are equal to each other, and so on with the remaining three pairs of triangles; therefore the square i k l m is equal to the sum of the areas of the four triangles B i C, &c.; and, by being used as a part of each of the two parallelograms, C, D, H, G, and A, B, E, F, proves the rule.

I have nowhere seen the above rule published. I myself discovered it in the way I mention; and, if not hitherto adopted, I think it is worth attention.

As I am writing, I add an approximate rule I have used to find the side of an octagon from the diameter, or the diameter from the side; viz.,—

THE DIAMETER OF AN OCTAGON IS TO THE SIDE AS 17 TO 7, NEARLY.



Let ABCD be an octagon whose side is 7; make the right-angled isosceles triangle A e B on the side A B: now, in a right-angled triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides: the square of the hypotenuse A B is 49; consequently the equal sides A e, e B, are each (nearly) 5, the sum of the squares of these sides being 50; so that the diameter of the octagon is e B + B C (= A B + c f, equal to 17. More accurately, the diameter is 17.071, and the side 7.071, the square of which is 49.998981; but the approximate rule avoids the incumbrance of many figures; and, giving the fractions of inches to the sides, is so close as to be available for all practical purposes in building work.

HENRY DUESBURY.

* See Builder, vol. xvii. p. 856.

INSTITUTION OF CIVIL ENGINEERS.

On March 12.—Mr. Bidder, president, in the chair,—a statement was read, by the permission of the council, in reference to the remarks which had been made at the last meeting, upon the paper "On Floating Beacons." It was stated that seventeen keel buoys had been already constructed, and that there were two on the Arklow Bank and one on the Codling Bank, coast of Wicklow, one on the Butter Pladdy Reef, coast of Down, and one on the north-west Godwin, in the Gull Stream. The effect which had been attributed to the keel, or prolonged sides, was not only consistent with theory, but had been corroborated in practice, and its action was similar to bilge pieces, as the function of both was to press against a mass of water which by its inertia resisted the floating body. The paper read was "On the North Sea, or German Ocean; with Remarks on some of its Estuaries, Rivers, and Harbours," by Mr. John Murray.

THE STREET RAILWAY TO BAYSWATER.

On the 23rd instant, Mr. Train opened his first length of street railway, running from the Marble Arch, Hyde-park, to Bayswater; and afterwards received a large number of his friends at luncheon in St. James's Hall, who heartily wished him success in his undertaking; in which good wish we join. It seems difficult to find any other than personal reasons for opposition to what must prove a great boon to large masses of the population. The narrow flange on each flat plate of iron forming the railway is so slightly elevated, supposing the roadway maintained at its present level, that no inconvenience is felt by other vehicles in crossing it. The cars used are much longer and wider than common road omnibuses. The back and front are exactly alike; for the carriages do not turn round; but, when they have arrived at the end of the journey, the horses are removed, with pole and harness attached, from one end to the other; the back part of the pole being inserted into a recess in which it is pivoted. A low platform at each end, covered with the roof of the omnibus, serves for the entrance and departure of the passengers, and the driver stands in front of it. The wheels are not more than 2 feet in diameter, and are solid, like those of railway carriages. They run under the seats, so that the bottom of the omnibus is near the ground, and the entrance or exit is exceedingly easy. The width of these carriages admits persons to walk from one end to the other without incommencing the passengers who are sitting. There is room for ten passengers to sit on each side, and there is standing room at each end on the landing platform for six more, besides the driver and conductor. In narrow crowded streets they could not wisely be introduced, but there are many lines of road on which they may be used with advantage.

THE "BUILDER'S" LAW NOTES.

Joint-Stock Company.—Transfer of Shares.—A shareholder in a joint-stock company transferred his shares, for an alleged consideration of £7. It was proved, however, that the transferee gave the shares to the transferee, and that in fact no consideration passed. It was held that the transfer was not *bona fide*, and the name of the transferee was placed on the list of contributories when the company was being wound up.—*Eggar v. King Company, re Alexander.*

What is False Representation?—A clerk of a joint-stock bank stated to a person that the bank was in a flourishing condition, though it really at the time was insolvent. This statement caused the person to take shares. When the bank came to be wound up, this shareholder sought to be exempt from contributing; but it was held that such a representation could not be considered as a representation by the company, and accordingly the shareholder was held bound.—*Re Frowd.*

Liability of Railway Companies as Carriers.—Goods were sent on a railway to be carried to a certain station; but, by undue delay, they were not delivered for some weeks after the proper time. An action was brought to recover the loss sustained by reason of the goods not being ready for sale during the proper season. It was held that the proper measure of damages was not the loss of profits which the plaintiff might have realised if the goods had been delivered in the proper time, but only the actual value of the goods at the time of delivery.—*Wilson v. Lancashire and Yorkshire Railway Company.*

Imprisonment of Railway Passenger.—A passenger was taken into custody, by order of the superintendent of the line, for not having produced a proper ticket, although he offered a reasonable explanation of the mistake, and gave his address. In an action for false imprisonment against the company, the defendants contended that the superintendent was not their authorized officer for such a purpose. It was held, however, that the company was liable for his act.—*Goff v. Great Northern Railway Company.*

"WAT TYLER."

Sir,—Since the notice taken by the Institute of the letter bearing the above signature, I have (like many others, no doubt) read it carefully. I cannot regret the publication of the letter, because its suppression would have been dangerous; but I feel astonished that so sweeping a reformer should have been induced, by what must be considered false delicacy, to deprive us of the pleasure of becoming acquainted with his name. For what we know, the anonymous "Wat Tyler" of March may be recorded by some equally intangible "Jack Straw" of April; and I therefore venture to ask, whether it would not be better that the architectural profession, standing as they do in fair, open view, should have their assailants equally visible.

The random charges made by the writer in question, it must be borne in mind, are by no means new. I believe, also, that they are very easily disproved; but that it is really not worth while for any one to assume the task of disproving them. I fancy the real cause of Mr. "Wat Tyler's" indignation must be that "Mr. So-and-so," whom the alleged fraudulent architects prefer, contrives to outstrip him in the race of competition, by the simple expedient of contenting himself with a reasonable price. There are tricks in all trades (except, of course, that to which Mr. Tyler belongs), but I will venture to assert that, as the world goes, there is no craft in England which better deserves the confidence of the public, whether for hard work for little pay, or for honesty in the midst of temptation (from "Wat Tylers" of various kinds), than that which is represented by the Royal Institute of British Architects. ROBERT KEAR.

ST. THOMAS'S HOSPITAL AND THE CHARING CROSS RAILWAY.

Sir,—In a note in your last paper, on the subject of the decision of Vice-Chancellor Wood, in the case of St. Thomas's Hospital and the Charing-cross Railway, by which the Railway is compelled to take the whole Hospital, you add,—"An impression prevails that the trustees have not behaved well in this matter." If by "trustees" is meant the governors of this great institution, nothing can be more unjust than this impression. From the moment this Charing-cross scheme was made public, the authorities of St. Thomas's were on notice that this railway would destroy the hospital. They opposed it in both Houses of Parliament, and called every medical officer to prove that this must be the inevitable result of this ill-considered project. They pointed out a cleaner and better line; but their protests were disregarded and laughed at. No change or improvement was attempted, and the plainest directions of the law were disregarded. The consequences have followed that were pointed out from the first, and St. Thomas's Hospital must be first bought and paid for, and then removed.

The governors of the hospital have been unanimous on this subject from the first; and certainly there is no ground for any accusation of inconsistency or unfairness. As to the railway, its authorities state publicly that they are very happy in the opportunity of obtaining so valuable a site. They have passed a bill in the House of Lords for making another bridge across the Thames, and another terminus in Cannon-street, and this within the last fortnight; though where the money for these works can be found surpasses even railway comprehension.

MEDICS.

PATENTS CONNECTED WITH BUILDING.*

PLATING AND PLASTERING HOUSES AND PUBLIC BUILDINGS WITH NATURAL STONES.—*A. Juttan, Orleans.* Dated 22nd June, 1860.—The patentee claims covering, renewing, or altering the appearance or style of architecture of the exterior of houses or edifices of every description with plates, slabs, or veneers, of natural stone, dovetailing the one into the other, and fitting into the body of the building, whether by the system of tongue groove and tenon described, or by any other similar mode of attachment.

CHIMNEY TOPS, OR COWLS.—*J. M. Fisher, Tannock.* Dated 9th May, 1860.—This invention consists in constructing chimney tops of a series of conical shaped funnels, placed one over the other, and held at a convenient distance apart by side bars or frames.

WATER-CLOSETS.—*H. Jones, Annery, near Bideford.* Dated 23rd June, 1860.—The basin, which it is preferred should be of a conical form, is made of glazed pottery or earthenware, with a flange around the upper edge thereof. The basin is set in a vessel, by preference of a cylindrical form, which is of glazed pottery, and made suitable at its upper end to receive the flange of the basin, and to admit of its being cemented or luted airtight when they come together. The bottom of this outer vessel is closed, there being a side outlet suitable for connecting with a glazed earthenware pipe. Below the end of the basin there is a pan of glazed pottery or earthenware, made with necks or axes, which are received into bearings

* From the Engineer's lists.

formed within the outer vessel near the bottom. The pan is so hung on its axis that, when full of water, it will stand horizontal, and the water therein will rise above the lower end of the basin. The front part of the pan is made with a spout, so that, when tilted the water and soil will be completely emptied therefrom. At the back of the pan a suitable connection is made to a handle on the seat of the closet, such connection, where it passes out through the seat, being made airtight by vulcanized india-rubber or otherwise.

WATER-CLOSETS, AND SEWERAGE AND SANITARY APPARATUS OR APPLIANCES.—*H. Macfarlane, Glasgow.* Dated 22nd June, 1860.—This invention relates to the arrangement, construction, and working of what may be termed dry water-closets, or receptacles for fecal and other refuse matters of a generally similar nature. The apparatus consists of a cast-iron trough, fitted with the discharge valve at the end or side, as may be most convenient, the bottom line of which is in a line with the bottom of the trough, or slightly dipping or inclined, one surface of the valve being of a hard or inelastic substance, whilst the corresponding surface is of a soft or elastic substance. The valve is fitted with a hinge and lock. The actuating parts of the valve are placed on the outside of the closet or receiver, and also on the outside of the house or building.

Books Received.

The St. James's Magazine. Saunders and Otley.

The first number of Mrs. S. C. Hall's new magazine is a good one. Mr. Robert Bell has a semi-archæological paper on St. James's Palace: Mrs. Hall begins well a tale "Can Wrong be Right?" Dr. Doran gossips very pleasantly on "The Hills of London;" Captain Drayson gives some useful information "Among the Stars;" and Mrs. Merrifield introduces the need of sanitary knowledge to women. This is a topic on which it will be well to dwell. As to poetical contributions, there are some good lines in "Helios," by Owen Meredith: Mr. Thomas Hood's contribution the "Song of the Lark in the City," is very charming; nor can we omit mention of some verses for music signed with three stars, Mr. J. O. Halliwell, Mr. R. Hunt, Miss Muloch, and others aid in making this a famous shilling's worth.

Miscellanea.

THE VICTORIA CROSS GALLERY.—For the 3rd season, Mr. L. W. Desanges has opened, in the Egyptian Hall, Piccadilly, his exhibition of pictures illustrating actions which have won the Victoria Cross. Mr. Desanges has added eight interesting paintings, six relating to the recent struggle in India, and two to the Crimean war. The collection now consists of 47 pictures,—a remarkable work, calling for a visit. We have before now suggested that the collection should not be distributed: its value and interest will increase with years. Either a general subscription or a national grant should be obtained to render it public property.

ECCELESIOLOGICAL SOCIETY.—At the last committee meeting, held on the 19th inst., amongst other matters, Mr. Bodley urged the importance of some steps being taken by English ecclesiologists to protest against the wholesale destruction of the original architecture, and especially the sculpture, of the finest French churches, under pretence of restoration. After much discussion, it was agreed that the officers should be appointed a sub-committee, to draw up a memorial to the Royal Institute of British Architects, requesting them to make a formal appeal to their French brethren on the subject. The committee examined Mr. Bodley's designs for the new church of All Saints, Cambridge, to be built opposite the gate of Jesus College. Mr. Burgess staid in conversation with respect to the French mania for destructive restoration, that Avignon was about to be taken in hand by M. Viollet Le Duc. The committee examined some specimens of a method of needlework, independently invented by Mr. A. Bell, which proved to be of the same kind exactly as that used at Cologne, for the hangings behind the stalls, noticed in a recent number of the *Eccelesiologist*. Mr. Bell announced that he had taken the advice of the committee, and meant to exhibit the specimens at the Architectural Exhibition, in friendly rivalry with the Cologne specimens brought over by Mr. Beresford Hope, and sent by him for exhibition in the Conduit-street gallery.

MR. RUSKIN'S TURNER DRAWINGS.—Mr. Ruskin has presented the greater part of his collection of drawings by the late J. M. W. Turner, R.A. as a free gift to the University of Oxford, to be placed in the custody of the Curators of the University Galleries.

BARRACK DRAINAGE AT CANTERBURY.—Arrangements are, it is said, in progress for draining the barracks here with patent bituminized paper pipes, mentioned by us some time ago, and such as have been in use in Paris during the last three years: they are about one-fifth the weight of iron pipes and half the price, it is stated.

PAINT MADE WITHOUT OIL.—Dissolve 8 lbs. of glue in boiling water, with which slack a bushel of quicklime till the whole is of the consistence of paint. Apply three coats of this mixture on the stone with a painter's brush, each coat being quite dry before it is succeeded by another. Over the third coat apply greystone dust with a dredger. This forms a non-absorbent surface. It may be rendered green by mixing common blue and yellow ochre, and applying them hot.—J. B.

HURSTMONCEUX.—During the last few days a portion of the ancient ruins of Hurstmonceux Castle, Sussex, have fallen down, more especially the vaulted kitchen or mess-room, the cover of which was of a brick arch. This is entirely destroyed; also the chimney of the same has partly fallen, and more is likely to follow. The exterior remains in the original condition. On the afternoon before the brick arch fell, several of the children of the Rev. Mr. Chataway was at play in the kitchen. A great many tons of bricks have fallen.

RAILWAY RETURNS.—The traffic returns of railways in the United Kingdom, for the week ending March 9, amounted to 480,450L, and for the corresponding week of last year to 158,610L, showing an increase of 21,840L. The gross receipts of the eight railways having their termini in the metropolis amounted to 205,482L, and for the corresponding week in 1860 to 197,258L, showing an increase of 8,224L. The receipts on the other lines of the United Kingdom amounted to 274,968L, and for the corresponding week of last year to 261,352L, showing an increase of 13,616L.

THE REPORT OF THE ROYAL COMMISSION ON DOCKYARDS.—This report has just been published. Its principal suggestions are for the naval minister to be entirely responsible for the control and management of the dockyards; for the concentration of all the departments of the admiralty connected with the dockyard under one roof; for the consultation of scientific and practical men; and for an annual programme of ship-building works to be submitted to Parliament with estimated cost of each ship, under head of "materials and labour."

FALL OF A SUSPENSION BRIDGE IN FRANCE. An account of the complete destruction of the suspension bridge across the Garonne, at Verdun, is given by the *Courrier de Tarn et Garonne*. During a violent gale, a heavy squall lifted the platform bodily from its place, and the suspending chains snapping, it fell into the river, causing a great obstruction. The shock on the columns at either end of the bridge, to which the chains were attached, was so great that they both fell. The French seem to have been rather unfortunate with their suspension bridges.

METROPOLITAN DRAINAGE, &c.—In the Commons last week, Mr. Tite moved an address for returns, from the Metropolitan Board of Works, of the date of the Act of Parliament authorising the execution by the Metropolitan Board of the main drainage; the total amount authorised to be raised, the amount borrowed, and rate of interest paid for the same; total length of sewers intended; length in yards contracted for, and total amount of contracts; the length in yards executed, and total amount paid on account; the date of Act of Parliament authorising the carrying out the South-west and Westminster New-street, &c. The motion was agreed to.

PROFESSOR WILLIS ON THE FALL OF CHICHESTER SPIRE.—A lecture was delivered last week at the Assembly Rooms, Chichester, by Professor Willis. The lecture was given in connection with the Chichester Literary Society and Mechanics' Institution. The chair was taken by the Lord Bishop. As Mr. Willis will probably repeat the substance of it at the Institute of Architects on Monday next, we may delay our report till then. The lecturer entirely exonerated from blame all connected with the recent works there. Salisbury Cathedral, he was sorry to say, threatened exceedingly; and he was of opinion, from what he knew of it, that the spire might fall at any moment. He knew it was a serious opinion to propound, but it was what he believed.

THE SOCIETY OF BRITISH ARTISTS.—The exhibition comprises 870 paintings and drawings, and seven pieces of sculpture, and is of the usual character. On the private-view day, Saturday, the 23rd, and the first day it was opened to the public, Tuesday, the 26th, sales were effected to the extent of about 1,500L. We must postpone further notice.

THE NATIONAL PORTRAIT GALLERY.—29, Great George-street, Westminster, will be freely open to the public on Easter Monday, Tuesday, and Wednesday, from 10 to 5 o'clock. At other times admission is restricted to Wednesdays and Saturdays, from 12 to 5 o'clock. Tickets are no longer required.

READING ABBEY GATEWAY.—We are glad to learn from the *Reading Mercury* that, acting on the suggestion in the *Builder* that a great deal might be done by means of local exhibitions, concerts, bazaars, &c., towards the restoration of the gateway, the Reading Amateur Musical Society have offered the proceeds of their Easter Concert in aid of the restoration fund, and the Mayor and Corporation have consented to patronize their efforts.

THE METROPOLITAN HOTEL BILL.—On the motion by the Earl of Shelburne in the House of Lords that this bill be read a second time, Lord Redesdale moved, as an amendment, that the bill be read a second time that day six months; and, after some discussion, the amendment was carried by a majority of 33 to 25, so that the bill was lost. Lord Redesdale's main objection to it as a private bill, was, that the promoters required power to remove house property by compulsion, and had declined to withdraw this clause from the bill.

THE DRINKING FOUNTAIN MOVEMENT.—The public fountain committee at Portobello, near Edinburgh, have accepted the tender of Mr. A. Sanderson, builder, Portobello, for the erection of the fountain on the Marine Parade.—Mr. Sew-see, the wealthy commissariat contractor, has given orders, according to the *Bombay Gazette*, to Messrs. Walker, ironmongers, to procure for him three ornamental drinking fountains from England. These fountains are intended for public use, and will be located in the most prominent parts of the island.

THE ENGLISH IRON TRADE WITH FRANCE.—The commercial treaty concluded between Great Britain and France is beginning to produce some effect. An English house has obtained a contract for supplying the French Government with 6,000 tons of iron, to be delivered within a limited period at the port of L'Orient, in bars, at 123 francs the ton. A French ironmaster presented a tender for the proposed supply at 135 francs the ton. The price paid for a similar article previous to the treaty of commerce was 200 francs.

EXTRAORDINARY FLOW OF EARTH-OIL.—A gentleman who has just returned from the oil region, says the *American Gas-light Journal*, informs us that the men engaged in boring one of the Economic wells, at Tidouet, have struck, at the depth of 98 feet, a vein of oil and gas, so powerful that it was thrown up some 70 feet above the surface! Such an extraordinary flow of oil was never before seen even in the Tidouet region, so fruitful of surprises of this character. Some 232 barrels (about a third of the flow) were secured, and the flow still continued. Extraordinary as all this about lands flowing with oil is, one of the most singular facts connected with it is, that it is only now it has all come out.

WELDING IRON IN VACUO.—In a communication to the Academy of Sciences, at Paris, M. Faye, according to *Galignani*, gave the following account of some experiments, in which M. Ruhmkorff took part. An iron wire was cut in two, and the ends brought into contact without any mechanical pressure: this done, by means of an electrical current the wires were heated to a dark red *in vacuo*, and they were thus instantaneously welded together. The wires were at an angle of 150 degrees; and yet, with that inclination, they supported a weight of upwards of three kilograms, before breaking at the point where the welding had been effected. The same experiment, made in the open air, by way of a counter-proof, led to no result. Encouraged by this success, M. Faye heated a thick iron cylinder *in vacuo*: it had been sawed in two, and the parts then joined together by two screws. The latter having inadvertently been made of brass, they began to melt during the heating process; but although but a very small portion of the metal had actually become fluid, it penetrated by capillary attraction, aided by the vacuum, into the smallest fissures, soldering the two pieces with extraordinary nicety.

ARTISTS' BENEVOLENT INSTITUTION.—The forty-sixth anniversary dinner of this excellent Institution, established in 1814, for the relief of decayed artists, and affording assistance to their widows and orphans, was celebrated at the Freemasons' Tavern, on Saturday evening, 23rd inst., under the presidency of the Right Hon. F. W. Cowper, M.P., supported by Sir Charles Eastlake, president of the Royal Academy, and others. The subscriptions of the evening amounted to about 500L; and, in announcing a donation of 10L 10s. from Mr. George Jones, R.A. (who had previously presented thirty-eight donations, amounting in the aggregate to 294L 9s.), Mr. Phillips, the honorary secretary, stated that he scarcely knew whether he ought to make the fact public, but it was of such a gratifying nature that he could not refrain from doing so. Mr. Jones had announced his intention of giving to the society during his lifetime an amount of money, the interest of which would secure to the Institution the 10L 10s. per annum he now gave them in perpetuity.

TENDERS

For erecting warehouse, No. 3, Little Knight Rider-street, for Mr. G. M. Boyes; Mr. W. Hudson, architect. Quantities supplied:

Abbott & Hopwood.....	£1,646 16 0
Foster	1,189 0 0
Lawrence	1,139 0 0
Pritchard	1,085 0 0
Brown & Robinson	1,068 0 0
Child, Son, & Martin (accepted)	1,040 0 0

For the addition to St. Marie's Convent, and for Girls' School, Richmond Hill, Leeds; Mr. M. E. Haddield, Sheffield, architect. Quantities not supplied.

"N.B. in the amounts given below, the old materials have been deducted; and, where the tenders were not for the whole work, the lowest separate tenders have been added to them respectively:—"

Hoggard	£2,489 17 0
Smith	2,439 10 0
Whitcham	2,463 16 0
Richardson & Moses	2,458 2 0
Nicholson & Son (accepted)	2,452 17 0

For ten cottages at Plymouth; Mr. Moffatt C. W. Horne, architect:—

Stevens	£3,938 0 0
Lavers	3,509 17 4
Cheseman & Co	3,185 0 0
Clark	3,056 0 0
Elliott & Mitchell	2,923 0 0

For building new workshops at Brighton, for the Brighton Railway Company; Mr. Hood, engineer. Quantities supplied by Mr. C. H. Driver:—

Reynolds	£3,265 0 0
Sawyer	7,715 0 0
Shap	7,658 0 0
Patching	7,610 0 0
Bashly	7,591 0 0
Cheseman & Co	7,281 0 0
Fabian	6,738 0 0
Rowe	6,359 0 0
Chinnock, Brothers	6,211 0 0

For the building of Ladbroke Chapel and Lecture-room, &c., Notting-hill; Mr. Charles G. Searle, architect:—

Moore	£3,921 0 0
Higgs	3,000 0 0
Myers	4,893 0 0
Turner & Sons	4,899 0 0
Ennor	4,774 0 0
Howard	4,493 0 0
Macey	4,475 0 0
Hill	4,470 0 0
Hewlett & Brown	4,411 0 0
Kays & Head	4,359 0 0
Robinson	4,323 0 0

For the erection of a house and offices, lodge and stable, between Watford and St. Albans, for Mr. R. Harrison; Mr. Wm. Coats, architect. Quantities by Mr. L. Curtis:—

Chamberlin	£3,876 0 0
Raby	2,093 0 0
Stevenson	2,990 0 0
Biggs	2,244 13 8
Arnold	2,085 0 0

For alterations to 102, High-street; Mr. Horace Jones, architect:—

Clemence	£3,919 0 0
Conder	4,95 0 0
Cannon	595 0 0
Hawke	341 0 0
Thomas (accepted)	332 17 0

For proposed works, Newport-market, Soho; Mr. W. Sim, Dane's-inn, Strand, architect:—

Specification No. 1.	No. 2.
Mathews	£581 0 0
Fish	589 0 0
	59 0 0

For houses to be built at Notting-hill, for Mr. Robert Offord; Mr. Habershon, architect:—

	4 Houses.	7 Houses.	11 Houses.
Walker	£3,712 0	£5,516 0	£10,158 0
George	3,434 0	6,000 0	9,444 0
Moore	3,324 0	5,065 0	9,349 0
Cois & Co	3,358 0	5,885 0	9,156 0
Downs	2,226 0	5,828 0	9,924 0
Colman	3,199 0	5,550 0	8,870 0
Rudkin	3,380 0	5,540 0	8,822 0
Pawsett	3,220 0	5,460 0	8,478 0
Mann	2,281 0	5,277 0	8,248 0
Stevens	3,000 0	5,232 0	8,250 0
James & Ashton	2,050 0	5,150 0	7,955 0
Pyle	2,266 11	5,909 6	6,300 12

The Builder.

VOL. XIX.—No. 948.

Temple of Apollo Epicurius at Bassæ.
Greek Art.



ASTE we now to terminate our notice of Mr. Cockerell's account of his early researches at Ægina and Bassæ.* We have already given more than usual space to it; but the interest of the subject, the rareness of such a book in England in these days, and the esteem in which the author is held by the whole profession, sufficiently justify us.

The remains of the Temple of Minerva, near the ancient port of the island of

Ægina, to which Mr. Cockerell devotes the last chapter of the former portion of his book, are comparatively of little interest, owing to the fact that, of the entire edifice, only two columns remained in 1811-12: their proportions were elegant, and they were monolithic. On a close examination, Mr. Cockerell proved them to have formed a portion of the posticum at the west end of the temple; and he is of opinion that the edifice was of larger proportions than the Temple of Jupiter. So extensively, however, had the site been plundered of all its architectural riches by the hands of the Venetians, that our author (who was alone in his labours here) was unable to find any ante or walls of the original cella, or, indeed, any other portion of the temple that stood above ground, though he excavated the foundations of the western portico to a depth of about twelve feet. The foundations he found interspersed with rubble-work and an abundance of mortar; and, what is more curious still, he detected the shippings of the stones used in the original construction of the edifice, interspersed with charcoal and portions of the bones of animals, probably those of the sacrifices offered to the deity in the course of the work. It is not a little curious that, at intervals, minute should have been brought to light, and in such microscopic detail, after lying buried in the earth upwards of two thousand years; and that, too, whilst it is literally true of the more solid portions of the structure that "not one stone was left upon another." This temple, we should add, is the same which Chandler, in his work on "Ionian Antiquities," asserts to have been dedicated to Venus; but it is quite clear that he was mistaken in such a supposition.

The same work which was carried out in the spring of 1811 at Ægina was effected by the same enterprising party of four in the wildest part of Arcadia in the following July, and with very much the same amount of success, though the results, as we have already mentioned casually, were more satisfactory to us as Englishmen, inasmuch as the sculptures dug up in the course of their excavations there are now to be seen in the British Museum. The Temple of Apollo Epicurius at Bassæ, near Phigaleia, in Arcadia, was the scene of these investigations. Its name is far less generally known, both to classical scholars and to modern travellers, owing to the remoteness of its situation in a country which, even in the best days of Hellenic civilization, was sadly behind the

rest of the Peloponnese in respect of communication with its neighbours. Still, this very remoteness from the more populous districts of the Morea has tended to preserve the remains of the Temple of Apollo in what Mr. Cockerell calls (no doubt by comparison only) "a most surprising condition of beauty and order;" and we cannot help feeling something of the "*libera bilis*" of indignation rise in our throats, when we are told by our author that "had it not been for the fury of the iconoclasts in the early part of the Middle Ages, the whole of the temple might have been preserved entire to this very day." That "its partial destruction," he adds, is due "to their hands and not to an earthquake is evident to the architect from the fact that, while the well-buttressed and iron-cramped walls of the cella have been destroyed, the lengthened peristyles, naturally so weak from the want of lateral support, are still standing in their entire periphery."

Like the Temple of Jupiter, which we have described at length, this edifice stands on the brow of a high hill, and forms a conspicuous object, even amid the rugged mountains and wilds among which it is placed. It was erected in honour of Apollo in his capacity of the God of Health, in commemoration of his intervention and staying the progress of a pestilence. In some respects the temple exhibits a great similarity to the Thesium, more especially in the proportions of some of the leading features; whilst in others, as, for instance, in the centrality of the isolated column in the interior, we cannot fail to recognise the work of Ictinus, the architect of the cella of the Parthenon.

Mr. Cockerell remarks as follows on the unusual disposition of the cella in this temple:—

"Instead of supporting the roof with isolated columns in two orders, as in the Parthenon at Athens, at Ægina, at Paestum, and elsewhere, the lower ordinarily three-quarters of the height of the external columns, we have one order of attached columns performing this office, and exceeding the external columns in height. Ten of these are of the same order, in the form of the parastases or buttresses to the wall, and giving an extraordinary strength and solidity to the structure: these, together with one central and isolated column, distribute the intercolumniations in equal and harmonious divisions round the cella; the columns and sculptured entablature of which, adorning this important feature of the temple, are elaborated in the most careful and exquisite manner."

With Ictinus, the centrality of the isolated column may have been a doctrine, though common perhaps to other architects in Greece at the same period; at all events, it appears to have been derived from very ancient, and, possibly, from Hebrew authority. The tabernacle of Moses, the great temple of Jupiter at Agrigentum, the temples at Paestum and at Pompeii, and the Choric monument of Thersyllus, all exhibit this centrality. The diagonal position of the two columns or piers on either side of the central column call for some remark. It is quite certain that, viewed from the doorway, and absolutely from the third column on the flank, they would appear to be equally isolated with the central column, and in consequence would properly be adorned with the same Corinthian cap and base: the latter (the base), however, having been found *in situ*, reduces all doubt to the cap only; and it is evident that this, ranging with the others, would present its angle towards the cella, while the northern and southern faces of the cap would be incomplete. Various attempts have been made to solve this difficulty, which, after all, must be left to conjecture, and to the faith which we may confidently place in the genius of the architect employed upon this important work; neither can we doubt the removal of all objection to the arrangement on the part of the spectators, as they stood in contemplation of the idol in all its beauty and sanctity. This and other peculiarities of this work exhibit the perspective science of the architect, and show how freely and confidently he would deal with his materials, regardless of the reproach of anomaly and caprice.

The structure of the walls comprising the interior architecture . . . with their insertions and attachments plainly show that the whole edifice was covered, and by the same hand, and part of the original design."

As we have given the dimensions of the Temple of Jupiter in Ægina, it may be well to place on record here those of the edifice which we have at present under our consideration.

The temple in Arcadia was hexastyle in front, by fifteen columns in length, and greatly exceeding the rule of Vitruvius, that "the length of the temple should be twice its width." At Ægina, it will be remembered, we have an hexastyle, with twelve columns on the flanks; the Temple of Thesius, at Athens, also hexastyle, has twelve columns in the flanks; at Selinus, the hexastyle extends to fourteen and fifteen, and even seventeen columns in the flanks. At Syracuse, at Paestum, and at Segesta, the columns in the flanks are

fourteen in number. A comparison of these examples seems to show, as Mr. Cockerell remarks, "that the elongation of the parallelogram was a growing innovation of Grecian taste, and therefore that the most elongated are, in all probability, of the most recent structure." The artistic advantages of this plan are obvious: internally the several features, the porticos, the pronaos, posticum, and cella, are all rendered more spacious; while, externally, the contrast of the horizontal line, and the architectural regularity of the order with the irregular lines of the mountains and surrounding scenery, is rendered much more striking and effective, as will be seen by referring to the illustrations with which the book is enriched.

The practical architect will study with much interest, from plates vii., viii., and ix., the structural details of the roof and ceiling of this magnificent temple, which were wholly constructed of marble, as we are told by Pausanias,—a point in which it exhibits a marked difference from that at Ægina, where only the eave tiles over the cornice and over the pediment were of that material, the rest being worked in terra cotta. The tiles used in the present temple appear to have been of unexampled magnitude and elegance in workmanship, and of efficacy no less in their contrivance, since the covering tile was wrought in one piece with the tile itself, thereby better securing the roof from the admission of wet. No doubt, too, it is extraordinary to meet with tiles of so large a superficial extent, and scarcely two inches thick, wrought in so friable a material; but in fig. 1 of plate vii. the reader will find explained the position of the two first rows of marble tiles and the mode of fastening them to the bed of stone and wood on which they repose. The structure of the stone and timber roof, we can hardly help adding here, is no less interesting to the practical architect than it is to the archaeologist, as affording the best exemplar of the Grecian method of roofing that has come down to us from all the stores of antiquity.

We should much like to continue these remarks, and to speak at some length upon the Ionic order of the interior, the combination of the Ionic and Corinthian orders with the external Doric, and several other matters of interest to the professional reader; but we fear that we have already exceeded the space at our disposal, and possibly have trespassed too far on the patience of our readers. We will therefore content ourselves with recording our opinion that Mr. Cockerell has been particularly successful in dealing with the sculptures which once adorned the pediments of the temple at Bassæ, and which, as he shows *seriatim*, represented the ancient mythical subjects of the Centauro-machia and the Amazonomachia.

Mr. William Watkiss Lloyd, a member of the Dilettanti Society, and of whose investigations into the system of proportion adopted by the ancient architects our readers are aware, has appended to Mr. Cockerell's volume a letter to the author (under the name of a minute), in which he discusses, in the most careful and elaborate manner, the systems of proportion employed in the designs of the Doric temples at Phigaleia and Ægina respectively. We all know that the grandeur and grace of many of our Medieval structures depend largely upon simplicity of proportion; but it may well be doubted how far any other architects, except those of Greece, ever set the true and full value on the principle of proportion, not merely as a convenient aid to design, but as essential to expression; but "certainly," as Mr. Lloyd observes, "none others ever applied it so consistently, so logically, so ingeniously, or with such admirable effect." His paper is intended to work out this view, by showing that the old Hellenic architects "attached the greatest value to simple ratios of low natural numbers for regulating the proportions of parts and divisions of their structures relatively to each other." It is universally admitted that it is the greatest

* See pp. 133, 153, and 159, ante.

triumph of all scientific inquiries to reduce the various phenomena submitted to their inspection to the fewest and the simplest rules; and if this principle be true, then we can only say that Mr. Lloyd has shown himself thoroughly master of his subject. The "Minute" is one which deserves, on many accounts, a careful study.

We will end our notice of Mr. Cockerell's magnificent work by transferring to our columns the closing remarks of Mr. Lloyd, and adding a few words of personal bearing:—

"Here, therefore, I bring to a conclusion the observations on the proportions of the Doric temple, for the exposition of which an opportunity has been so liberally afforded me. I have been allowed to aim my shafts, like another Teucer, from under the ample shield of the *Æacid* heroes. I can only hope that enough of my shafts have told to compensate for those that have swerved, or over-shot the mark, or fallen short. One word remains to be said in palliation of the inevitable incompleteness of my 'Memoir,' whether as expository of a theory of architectural proportion, or of its application. The subject could not have been taken up at all, but for the guidance derived from the materials for study provided in the detailed publication of the Parthenon, by the Dilettanti Society. Again, it can only be in connection with the great Alhambra masterwork that the perfected system of architectural proportion, as employed by the first Greek artist, can be fully set forth even to that extent to which it appeared recoverable: the exposition of this point is therefore, and its vindication by collation with natural principles and independent theory, must await the precarious providence of a distinct treatise on a special basis. I recently indicated some brief general outlines of results in a paper read in the rooms of the Institute of British Architects, which will be found again abbreviated in their 'Transactions'; and here the subject at present remains. Meanwhile, it will, perhaps, be thought that the admirations of proportional system, plan, and process in the examples we have gone over of Phigaleia and *Ægina*, are so far not without interest, though I make it a conscience to record my sense of how much by necessity remains unattempted here.

I have endeavoured in these notes to indicate from time to time, the points on which we still desiderate more exact testimony from the monuments. I would say further, that the best service that remains to be rendered to Greek architecture after the records contained in the plates of the present volume are before the world, will be the measurement and publication of the hitherto wonderfully preserved Thebesium, with the same full and scrupulous detail that Mr. Penrose bestowed so happily upon the Parthenon. When this shall have been done, the world will have acquitted its responsibility for placing beyond the risks of wars and revolutions the means of hereafter fully recovering and setting forth those principles of eternal truth and beauty, which the genius of the Greeks embodied in their Doric architecture."

In taking leave of Mr. Cockerell's work, which needs no praise from us, we strongly recommend our younger readers, when studying it, to note the learning, the literary ability, the patient perseverance, and the artistic power it exhibits, and to reflect on what is required from those who would worthily carry on the torch.

Let us not keep the praises till the ear be deaf,—withhold the wreath till the brow be cold; but, while we have amongst us this admirable and learned artist, this accomplished and courteous gentleman, let him hear how fully we appreciate, how affectionately we regard, and how greatly we honour him.

AN ARCHITECTURAL JOURNEY IN AQUITAINE.*

Now, this coupling of shafts under one abacus is by no means peculiar to Aquitaine: there are English examples of it; but it is in Aquitaine that it is far more usual, and looks far more natural; and it is a feature thoroughly Saracenic. Of course, even in Aquitaine, it does not present the wild eccentricities which it does in the actual Mahomedan buildings. The Aquitanian architects had good taste enough to keep them from great stilts overhanging the capitals, and from arches again overhanging the stilts. But surely these cloisters give us a Saracenic conception, tamed down into something like European propriety. The only question is, are the Saracenic models followed by the artists of Aquitaine to be looked for among the eastern or the western Saracens? Is the Saracenic influence Syrian or Spanish? Are these Mahomedan features trophies of the crusading warfare of Duke William of Aquitaine, and of Count Raymond of Toulouse? Or are they vestiges of the Saracenic empire in Spain? Of the temporary Saracenic occupation of part of Aquitaine itself? Geography looks one way: architecture may or may not look another. The Spanish Saracens commonly—I will not for fear of error say invariably,—used the round arch, down to the latest times. The pointed arches of Moissac and St. Emilion are surely direct importations from the East. But the general con-

ception of a cloister with coupled shafts may well have existed before. Probably in the round-arched cloister at St. Bertrand we have the earlier type, developed purely from Spanish models, while in the pointed-arched cloister at Moissac we have a further development from Oriental models. And observe that, in so saying, I do not at all rule that the St. Bertrand cloister is itself necessarily older than the Moissac cloister. I do not know the date of St. Bertrand, but St. Bertrand might be of late date, or later than Moissac, and yet belong to an earlier type.

So much for Aquitanian Romanesque. The native Aquitanian Gothic, as I have already said, is mainly distinguished from the Northern Gothic by the outlines and proportions of its buildings, or at least their differences of this kind press themselves so much more forcibly on the mind that differences of detail are hardly thought of. The Gothic of Aquitaine, in short, though widely different from the Gothic of England and France, and though clearly adapted to a more southern climate, is still true Gothic: it is not like that pseudo-Gothic of Italy which it just now is fashionable to run after. An Aquitanian church has more blank wall and less strictly architectural detail than an English or French church, but what detail it has is perfectly pure and good. The glory of the style, the metropolitan church of Alby, is, as a piece of building, exceedingly plain, as, indeed, a brick building can hardly fail to be: its internal decoration is due entirely to the paintings which cover every inch of wall and roof. But the windows at Alby, and whatever little architectural detail there is, are as good and pure Gothic as anything in Normandy or Northamptonshire. If we must run after a southern Gothic, if the rich stores of England, France, and Germany will not suffice, it is surely not in Italy, but in Aquitaine, not among utter strangers, but among neighbours and fellow-subjects, that we should look for our models. And I believe that the churches of Aquitaine may afford us some very practical hints for church building at the present day. I must be understood to be speaking architecturally and not theologically when I say, that if French buildings give us the finest examples of the High Church, Aquitanian buildings give us equally noble specimens of the Broad Church. A true Aquitanian church, cathedral, conventual, or parochial,—for all these classes follow the same type—consists of a large spacious body often positively lofty, but with breadth as its dominant dimension, no transepts, no aisles, one huge vaulted hall, its wall on each side broken only by small chapels between the buttresses. The material is often brick, the windows are small, so that large blank spaces are left. Now it strikes me that these great churches, with no aisles, no transepts, no pillars, are exactly suited to receive the great congregations of our special services. The details may be made Early English, Decorated, or Perpendicular, as we please, and in our climate there is no reason why we should copy the narrow windows of the south. The chapels between the buttresses may be omitted, but I really believe they might have a use. As long as people will set up busts, tablets, and such like ugly things—when attempting Gothicism they are ugliest of all—it is better that they should be stowed quietly away in little corners of this sort than that they should impudently parade themselves on the main walls and pillars. But if any body wishes to raise a Perpendicular Alby in the middle of Manchester, he must remember that it is absolutely essential to give it that feature, that "special ornament," of which English builders seem to have been more or less afraid in all ages. "It is the godly vault of stone,"—I believe more truly of brick—which makes Alby one of the noblest churches in Christendom: the walls of Alby crowned by a wooden roof, even by the grandest trefoil roof in Norfolk or the finest cradle roof in Somerset, would be something fearful to think of.

I have before said that the Aquitanian Gothic is found side by side with examples of northern Gothic. As French influences increased, especially after the final French conquest, the native style died out. And though English influences may be seen, yet even in the English provinces the architecture, when not native, is commonly far more French than English. Bayonne cathedral, in a city which saw no French master till 1450, is mainly French in style: so is the eastern part of the metropolitan church of Bordeaux. Here we can see something of the juxtaposition of the two styles, and something more in the other great Aquitanian metropolis of Toulouse; though, unluckily, in neither do we see the native style in its purity. Bordeaux Cathedral consists of a broad nave, whose lower stage is Romanesque,

while the triforium and clerestory are of a rather English Early Gothic. East of this come, on a scale at once much more lofty and much narrower, the transept, choir, and apse of a beautiful French Decorated church, affording a most curious contrast to the old nave. This cathedral has neither central nor western tower, but four transept towers, the southern pair crowned by spires, and a large Flamboyant detached campanile standing near the east end. Toulouse Cathedral is more extraordinary still. Here we have the nave, or part of the nave, of the old church, a most singular instance of what Aquitanian Gothic was in its transitional days. It is very low and broad, without aisles; flat pilasters with capitals have a more Classical look than is usual even in the Romanesque of the country, but these pilasters support, not the barrel vault of the earlier style, but decidedly transitional groined cellular vaulting with pointed arches. The windows are still more advanced, being two-light Early Geometrical examples, not very different from those common in French work of the same date, probably early in the thirteenth century. Doubtless the Aquitanian architect found it easy enough to imitate simple features like windows, while he found it very difficult to emancipate his general conception of what a church should be from lingering vestiges of the earlier style. To the north-east of this strange nave has been built a choir, on a far larger scale, in late French Flamboyant, presenting the most marked contrast to the native style. It was doubtless intended to destroy the nave, and to rebuild it to match the choir; but this never having been done, these two utterly incongruous elements remain parts of the same church, the south wall of the nave ranging with the outer wall of the chapels surrounding the choir, and the north wall of the nave coming to about the middle of the choir itself. The effect is most strange and perplexing.

The tendency to broad churches without aisles comes out much more strongly in the Aquitanian Gothic than in the Aquitanian Romanesque. Indeed, in the cathedral of St. Bertrand, it is perfectly plain that the Romanesque church, of which considerable portions remain, was divided by piers, which have been removed, and the whole thrown into one enormously wide body. At St. Peter, Orthez, in Bearn, I do not remember any Romanesque vestiges: the style is, throughout, good Decorated Gothic, and of a much more English than French look. The windows especially are quite English, and show hardly any French peculiarities. But a most remarkable change seems to have taken place since the erection of the building. The choir is of common English proportions, if anything, partaking a little, not of Aquitanian breadth, but of French loftiness: it has aisles, and a three-sided apse, much like the few English apses we have, such as that at Marden, in Herefordshire. Now, it was evidently designed to carry the church on westwards on the same plan: the responds are there, and the springs for the nave arches, and for the vaults both of the nave and its aisles. This design, however, was given up, and the church has been finished, without any change of style, upon a wholly different plan. The nave was made of the full width of the choir and its aisles together, into which it opens by, so to speak, three chancel arches. There is something a little like it in my old parish church of St. Mellon's, in Monmouthshire, where the wide nave opens, by two arches, into the chancel and a northern chapel. The custom of wide naves without aisles, but almost as common in Wales as in Aquitaine, but is almost as common in Wales as in Aquitaine, but is not carried to the same degree, and it does not extend into churches of so high a class. There is nothing, for instance, like it in the great ministers of South Wales, while in Aquitaine it attains its climax at Alby, and in the monastic churches of Toulouse.

There is, perhaps, some English influence at Orthez: it may be seen much more plainly in the noble church of St. Michael, at Bordeaux. I do not exactly know why, but the outside of this church reminded me of Fintern, and the inside of St. Mary Redcliffe. There is certainly something English in its general effect, and its east end is plain compromise between English and French ideas. The choir has a flat end, a large east window, more Perpendicular than anything else, and a single arch below it, a good deal like the east end of St. Mary Redcliffe. But just beyond the apse, apses of the same kind forming also the end of the choir-aisles. But there is something more curious still: there are a great many Flamboyant windows, apparently inserted at different times. One of these has the letter H clearly wrought into the tracery: two others have, as is so common

* By Mr. E. A. Freeman, M.A. See page 207, ante.

French tracery, the fleur-de-lis. Are not these historical monuments, dating respectively immediately before and immediately after the French conquest? It is surely for Henry—Henry, King of England and Duke of Aquitaine. It shows the faithful city of Bordeaux still clinging to her ancient princes against the French invader, perhaps in the very moment of renewed loyalty, when, after she had tasted what French domination was, she again revolted to the easier sway of her natural duke, and when Talbot was striking the last blow for Aquitanian freedom beneath the walls of Chastillon. In the other badge we see the trophy of the conqueror: we see the city, once rather the ally of England than her subject, trampled down in the common bondage: we see the proud capital of Aquitaine reduced to the same dead level which was soon to swallow up imperial Aries and free Massalia, to degrade Strasbourg and Cambray and Besançon into subject cities of a despot, and at last to extend the yoke over Savoy and Nizza before our own eyes.

I have now tried to point out the most characteristic features of the local style of Aquitaine, both Romanesque and Gothic. I will now briefly run through my own travels in the country, mentioning the most remarkable churches which I saw at various points. I do not profess to give a minute history, or even a minute description of any single building, but simply to mention what struck me most, especially such points as bear on the peculiarities of the native styles. I mean to confine myself to my own stores. Mr. Petit's beautiful volume on "French Architecture" contains many examples which I have not seen: on the other hand, I have seen some which do not appear there. As the order in which I happened to see the places does not much matter, I mean to roll my two real journeys into Aquitaine into one imaginary one.

The whole Loire region, as I have before said, is an architectural as well as a political march. Mr. Petit is inclined to see something of an incipient southern character, even so far north as Etampes, in the middle of the Royal Domain. Certainly the wonderful church of Our Lady, which seems to have been originally a Jews' synagogue, is very unlike other churches, French or English; but its peculiarities are as likely to be of Hebrew as of Aquitanian origin. Perhaps, however, the very tall clustered pillars, without triforium or clerestory, may be taken as a sign that we are approaching the frontier; and the southern doorway has a Classical look. Of the latter three churches of the town, all highly curious, St. Giles's has a flat east end and a perpendicular east window, which may possibly be owing to the English occupation in the fifteenth century. St. Basil and St. Martin have much fine Romanesque work, but quite of a northern character.

Reaching the Loire at Orleans, I remember nothing suggesting an Aquitanian origin; but descending the river to Blois we first find a distinctly southern feature in the dome of St. Nicholas. This shows that now we are really in a border land; but the rest of that noble church is French Transition. The architect imitated a single Aquitanian feature, but in no wise designed any general plan after Aquitanian models.

Going down to Tours, we find ourselves within the dominions of the Angevin kings of England and dukes of Aquitaine. The metropolitan church is a noble study of the whole development of Gothic architecture. It exhibits every stage of that development, from the Transition of its eastern apse to the Cinq-Cento of its western tower. But it is throughout French, not Aquitanian Gothic. The ruins of St. Martin's also show that that was of northern Romanesque. We must remember that the political connection of Touraine with England and Aquitaine only lasted about half a century. Now, the Romanesque of St. Martin's is doubtless earlier than the marriage of Henry and Eleanor, and by far the greater part of the cathedral must be later than the confiscation of the northern fiefs of their son John. Yet in the third principal church at Tours, St. Julian, I think we cannot fail to see a rather English look, especially in the flat east end and large east window. Yet, with its fully-developed geometrical tracery, it must surely be later than the French conquest in 1204.

Angers I have never visited, a most unpardonable omission in one professing to investigate the differences between French and Aquitanian architecture, as it is there, according to Mr. Parker, more than anywhere else, that the two come into contact, collision, and commixture. Crossing the Loire, the first important city we reach is Poitiers, so long the capital of all south-western Gaul, the

rival of Toulouse as the seat of the poetry and refinement of the *Lingua d'Oc*. At Poitiers the sovereign Dukes of Aquitaine long held their court: the greatness of Bordeaux rather belongs to the later days of connection with England. Here, then, we are fairly on Aquitanian ground, and yet the Aquitanian peculiarities are not so fully developed as we find them farther south. Thus, in the Church of Our Lady, a glorious Romanesque pile, we have the Aquitanian barrel-vault as perfectly developed as at St. Sernin: we have also the lofty pier without triforium or clerestory; but the pillars are clustered, less freely clustered and formed of larger shafts, than they would be in England; but still they are clustered, and not rectangular like St. Avenin. The cathedral, with its tall clustered pillars and aisles of the full height, approaches the same general type, but the date is later, being Transitional. Its interior reminds us somewhat of Our Lady's Church at Etampes. Instead of the barrel-vault of its neighbor, there is a cellular vaulting, but it is of the Angevin type, approaching to the domical form, and the transverse arches are very bold and prominent. The outline of the cathedral is strange and awkward. It has no central tower. The enormous height of the great French churches commonly hinders the existence of that finish; but this long and comparatively low church really cries for it. The west front has two unequal towers, strangely placed: they project beyond the aisles, like Wells and Rouen: at the same time they project in front of the termination of the nave and aisles in a way which I do not remember to have seen elsewhere, except in some Scotch churches. The east end is, like St. Michael's at Bordeaux, a compromise between English and French ideas, but the compromise is effected in a different way. The east end outside is flat, inside it has three apses formed in the thickness of the wall: the same thing may be seen in Romsey Abbey. The aisles of the full height begin to bring in the heavy Aquitanian buttresses; but there are no chapels between them. In St. Radegund's they come out more strongly. Here the church is Romanesque,—late Romanesque, doubtless, bordering on Transition; but the nave has the complete proportions, the one tall, broad, unbroken body, of the Aquitanian Gothic; but, instead of the barrel-vault of Our Lady's Church, it has the Angevin cellular vault of the cathedral. The western tower is fine Romanesque, rather more classical than we are used to in England. Both here and in the cathedral large Geometrical windows have been inserted, much broader than we shall find farther south. The other principal church, St. Hilary, is much mutilated, and I could not make it out so well as the others, owing to repairs. But it too begins to have marked, though not fully-developed, Aquitanian features. A more venerable building than all, the Carolingian monument, called the Temple of St. John, does not immediately concern us. It is clearly akin to the Laurisheim gateway, and to our own Anglo-Saxon churches.

Advancing south to Angoulême, we first find the domical principle carried out on a grand scale. I have already mentioned some of the more remarkable features of this cathedral. I must now speak of the noble side tower. I believe it once had a fellow, which certainly could not have improved the effect. It rises high, stage upon stage, like an Italian campanile, utterly unlike anything in the north. The apse, strange to say, has a marked east window set in a buttress. This we do not find, as far as I remember, in our few English apses, but the late Gothic east ends in Scotland make a desperate attempt to combine the French tradition of the apse with the English tradition of the large east window. Another church in Angoulême, St. Andrew's, has a broad Aquitanian nave with barrel vault. The choir is mainly French, with pillars with discontinuous imposta, but it has a flat east end, and a rather English east window.

Entering within Aquitaine, in one of the narrower senses of the word, the later French province of Guienne and Gascony, one of the most remarkable places is St. Emilion. It is like a city of the dead. Medieval houses, Medieval walls, Medieval gateways, churches and cloisters, ruined or disused, one of the latter hewn out of the solid rock, meet the visitor at every step. What is more remarkable still, I did not see there a single soldier or a single gendarme, and the walls of the little inn were still hung with pictures of the Revolution of 1848. St. Emilion is, indeed, one of the most wonderful spots in Christendom: it reminds one not a little of an inland St. David's. Of the rock church I know not the date. There the Aquitanian Romanesque makes itself: the

square piers and barrel-vault appear in their most primitive and yet their most perfect type. A few simple Romanesque ornaments carved on some of the imposta form the only original decorations; but a fine Early Gothic tower and spire have been built over the chancel, and a rich doorway—Flamboyant, I think—attached to it. The desecrated Trinity Chapel is a very pretty piece of Transitional work, but I do not know that it specially suggests anything bearing on my immediate subject. Of the smaller churches, chiefly Friaries, the remains are scanty, except that of the Cordeliers, where the church is not very remarkable, but there is a Saracenic cloister, with round arches, a miniature of that which I have already mentioned at the Collegiate Church. The Jacobin Church, like the greater one which I shall have to speak of at Toulouse, seems to have had two bodies, but it is on a very small and humble scale. The small fragment remaining of the Dominican Church seems to point to a tall, single-bodied building, with the vaulted roof and long narrow windows of the true Aquitanian Gothic. So far south as St. Emilion, we no longer see the broad windows of England and France, such as we have traced as far as Poitiers. But some of the tracery in the St. Emilion churches has quite an English look. The numerous military and domestic remains of the most interesting town I willingly resign to Mr. Parker.

But the main architectural glory of St. Emilion is, after all, the great Collegiate Church. Externally it suffers much from an irregular outline and from its only tower, at the west end, being unfinished. The nave is of plain but good native Romanesque, or rather Transition, for the pointed arch is not confined to the roof. The belfry arch and that of a curious constructive gallery beneath it are pointed also. The nave has three bays, without aisles: the western bay has cross-vaulting; the others have domes. The vaulting shafts show a curious mixture of shafts and rectangular pilasters. The choir has aisles: it is of Early Gothic, in which I fancied that I discerned a mixture of French and English details: except in being rather wide it has little resemblance to the native Gothic. There are many Flamboyant alterations, including, as I think, the addition of the present apse. I suspect that the choir had originally a flat east end like Poitiers cathedral. Of the cloister of this church I have already spoken.

We now reach the capital of Aquitaine, the noble city of Bordeaux. An Englishman can hardly help, whether with or without reason, lamenting the loss of what was once so fair a jewel in the crown of our own kings: still it is pleasant to mark in its Roman remains, in its Medieval churches, in its stately modern buildings, and in its broad river still covered with the ships of all nations, the signs of a prosperity which, for at least 1,500 years, has been interrupted only by Scandinavian devastation in the ninth century, and by French conquest in the fifteenth century. Of the metropolitan church and that of St. Michael I have already spoken. I may, however, mention more especially the two noble roses of the cathedral, and the detached campanile of St. Michael's. The other two principal churches are St. Severinus or Sernin, and St. Cross. St. Sernin has been much altered at various times: a noble doorway rich with statues was added in 1262, and more barbarous changes were made inside in 1566 and in 1700; but it still remains for the most part a fine example of a very peculiar sort of Romanesque, or rather Transition. The church has aisles, aisles the height of the nave, and yet the feeling is rather that of a building without aisles. There is nothing that can be called a pier-arch; the aisle is like a series of chapels with transverse barrel-vaults springing from the piers. I do not know whether I have succeeded in explaining my meaning, but I hope the drawing will make it clearer. The vault is cellular. There is something English in the free clustering of the shafts and in the flat east end. Some of the capitals, especially under the tower, are very odd. In the small churches of St. Peter and St. Helen, I think some English features may be discerned. So in the noble abbey of St. Cross, the Romanesque is for the most part not very unlike English Norman. The tower and the principal apse, which is polygonal, have a southern look in their many shafts without arches, and we see the same tendency in the projection in which the great west doorway is set; but the doorway itself and the clustered piers are not unlike English work. There is cellular vaulting and a later clerestory. The church is altogether a very fine one; but, like all the Bordeaux churches, it sadly wants a central tower.

At Dax we shall find nothing to help our inquiry. The cathedral, now such in rank no longer, is an Italian church on Medieval foundations. The great antiquarian attraction of the town is the town-wall, which I took for Roman, but which I have since heard is really a Medieval imitation of Roman work. Still more lately have I heard that a large part of this has been barbarously destroyed since my visit. Bayonne I have already mentioned. The cathedral, heavy and awkward outside, a vision of perfect beauty within, is more French than English, not at all exaggerating French peculiarities; but still, though the arms of England are still blazoned on its keystones, more like a French than an English building. Our immediate point is that, whether English or French, both the church itself and its noble cloister are purely exotic, and not Aquitanian.

We will now plunge into the mountains of Bearn and Gascony. The town of Pau is very poor in churches. Its position reminded me of Brecon; but, strange to say, in comparing a Welsh and Aquitanian town, the buildings of Brecon surpass those of Pau, at least as much as the Pyrenees surpass the Brecknock Beacons. In Bearn I missed the little cathedral of Lescar, described by Mr. Petit; but I saw a few curious parish churches, one at Laruns, an excellent specimen of a broad vaulted Aquitanian chancel or a very small church. It was in the neighbourhood of Bagères de Luchon that I saw more of these small mountain churches than elsewhere. They are all curious: some are remarkable for paintings, and for inscriptions in *Lingua d'Oc*; the only ones of much architectural importance—Serge and St. Aventin—I have already mentioned. What struck me most was that so many of the small church towers had midwall shafts, a good deal like those of our Anglo-Saxon churches; but I believe the resemblance to be quite accidental. The English and the Aquitanian architects hit on similar forms, while independently imitating common Italian models. Of the larger churches of this district I have already mentioned the mountain cathedral of St. Bertrand, the church of Aquitanian Gothic, with its Saracenic cloister. Arreau has two curious churches, with both Romanesque and Gothic porches: one of them has an elegant octagonal tower and spire. The church at Luz is chiefly remarkable as a fortified church, and for its noble porch among the mountains; but it is a good specimen of the local Romanesque, and a Lady Chapel has been added between the original church and the wall in a most singular way. St. Savin's Abbey is one of the best in the country,—a cross church without aisles, with three eastern apses, all pure Aquitanian Romanesque, stern and rectangular, except that, instead of the central dome, which one would have expected, is a late octagon. All the arches are round. An external gallery runs round the church, like St. Sernin, at Toulouse. Portions of conventual buildings remain, especially the approach to the chapter-house,—a beautiful vaulted substructure, with an elegant Romanesque central shaft. Not far off, among the hills, is a beautiful little transverse triapsidal chapel. Tarbes Cathedral is much modernized; but its three Romanesque apses and its central octagon, are not unlike St. Savin's. There is another church at Tarbes, very broad, and with a curious flat east end; but this, too, seems to have been much tampered with.

By a considerable leap, we will emerge again at Toulouse. I have already done something like describe both the metropolitan church and the far nobler Abbey of St. Saturninus. The other churches, both monastic and parochial, are mostly of brick—broad, vaulted buildings, admirable examples of the native Gothic. The noble Church of the Jacobins alone consists of two equal bodies, with a row of pillars down the middle. The conventual buildings attached to this church, now forming a barrack, are worth attentive study. But the most beautiful piece of ecclesiastical-domestic architecture at Toulouse is the cloister of the Augustinian church, now the Museum. The arches are of advanced Gothic, pointed, foliated, and foliated again, but they rest on true Saracenic coupled columns, though with capitals adapted to the later style. The use of brick in the Tolosan churches has produced a class of towers of which we see the first form in the central octagon of St. Sernin, tall, octagonal towers, tapering in stages, and with a very free use of straight-sided openings which are so convenient in brickwork. They struck me as not confined to any particular date, as especially as the churches to which they are attached exhibit both early and late Gothic, though in both cases of an Aquitanian type.

Of the metropolitan churches of Alby I have already spoken, as well as of the small church of

Lescure, in its neighbourhood. But let me add that to see Alby, and Alby alone, would amply repay even so long a journey; and if any architect or founder should think my hint as to the ground-plans of the Aquitanian churches worthy of attention, it must be at Alby, where the Aquitanian style appears in its greatest perfection, that its principles must be chiefly studied. The archbishop's palace, also, is a noble rich building; and the church of St. Savin would challenge attention were it not outstripped by its sublime neighbour. It has some Romanesque and some late Gothic portions, and a remarkable cloister.

We will begin our return by an irregular course. At Montauban the cathedral is modern: the church of St. James is a large broad building, with a Tolosan west tower: in Toulouse itself they are commonly at the side. Castel Sarrazin (*Castrum Saracenum*) has a very curious church, chiefly of Transitional date, and in some things, the narrow aisle especially, a good deal like St. Sernin, at Bordeaux. It has an immensely massive western octagon, which looks as if it ought rather to have been in the middle of the church, like those of St. Savin and Tarbes Cathedral, to say nothing of St. Saturninus itself.

Moissac Abbey is a wonderful pile. I have already mentioned its Saracenic cloister. The nave and choir are of Aquitanian Gothic, of the type with which we had become familiar at Toulouse and Alby, though certainly of very inferior merit. But the enormously massive Romanesque tower is marvellous indeed: the southern portal is gigantic, loaded with sculpture. But the tower, with the curious military additions, in late Romanesque, would require a monograph rather than the fig end of a lecture. I hasten to the less known church of St. Macaire. This is chiefly Transitional, though with many later insertions: it is transverse triapsidal in plan, with polygonal apses, polygonal side tower, no aisles, gorgeous internal paintings, three of the arches of the lantern being clearly left flat to receive them. I do not know a more interesting church.

We must now dash across to Perigueux. Of St. Front I have already spoken. The elder cathedral, St. Stephen, commonly called La Cité, has two domes, of the eleventh and twelfth centuries respectively: the east end is flat and most unchurchlike; a third dome to the west has perished. Perigueux is a most interesting city in every way, rich in Roman remains and in mediæval houses ranging from Romanesque to Cinque Cento. Less known, doubtless, than the buildings in the town of Perigueux are some others which I saw in the neighbourhood. Chancelade Abbey is a fine cross church, with extensive conventual buildings remaining. It is essentially Romanesque, but with many inserted windows, and the central dome is masked by an Early Gothic tower. Hard by is a small but pretty and neat rich decorated chapel. Though the style is advanced Romanesque, or rather Transitional—the fine west doors having a pointed arch—it has the baluster-shafts of our own Anglo-Saxon buildings. At Bourdeille the castle is the great object, but the church is an admirable specimen of a domestic Romanesque church on a small scale. Brantôme Abbey is a most extraordinary building: the tall white bays, of advanced Transition, almost Early Gothic, form the whole church. A tall Romanesque tower, of very curious and I think early detail, stands at the north-east angle. The cloister, instead of being as usual against the north wall of the nave, stands at the west or south end, like an Italian cortile, or like the cloister of New College. The east end is flat.

Limoges has several fine churches. Of the Romanesque Cathedral nothing remains but the lower part of the tower, with a sort of round cupola. This is cased by a Transitional or Early Gothic tower of great height, its upper stage being hexagonal. Now a beautiful church of French Gothic—French rather than English that is, and utterly unlike native work—was begun to the east of this tower, which, if completed, would necessarily have carried with it the destruction of this thoroughly local tower. But the choir, transept, and two bays of the nave are all that was built, so a large gap remains between. I trust that a design to finish it and destroy the tower may be averted. The other two churches, St. Peter and St. Michael, seem to me to imitate the cathedral tower in a rather later form, and with the addition of spires. Both are fine churches. St. Michael has a wishy nave, but with aisles and clustered pillars in four or five irregular ranges. The choirs of both churches, I think, are gone. The College Chapel has a space of 48 feet wide traced out for vaulting, the date, unless I am mistaken, being as late as 1558. Limoges is as rich as Perigueux in ancient

houses, some are very early, but I thought I saw, both at Limoges and elsewhere, a good deal of late imitation of Romanesque. But the domestic antiquities of all these towns, even of Bourges, with its noble House of Saques Cour, and its other splendid mansions, I willingly resign to Mr. Parker. I make one remark only. No English city at all rivals these French towns—for French they had become when the finest houses were built—in their stores of domestic work. But I do not think that this proves that France was at all more advanced any way than England: it rather proves the contrary. It shows, as all history shows, the disturbed state of the country long after England was peaceful and orderly. Outside the walls of a town there was no safety for any one but the lord of a fortified castle. In England, the owners of these beautiful houses would have rather lived in those country dwellings of moderate size which form so attractive a feature in our Late Mediæval and Elizabethan architecture.

We now approach the French frontier. The church at Vézère is wide, but has no vault, save in the apse; the south side has three large chapels, with distinct transverse gables. Pleinpiéd Abbey I must mention again, both for its own sake and because of the welcome I met there, perfect stranger as I was, from the venerable Curé M. l'Abbé Thibaud. I owed my first knowledge of this church to Mr. Petit's "Architectural Studies in France," and it is not the least of my obligations to that beautiful volume. Pleinpiéd is a triapsidal cross church with central tower, and aisles both to nave and choir. The eastern part is purely Romanesque, and curiously combines northern and southern ideas. It has the clerestory of a northern church and the barrel vault of a southern one. The result of this is that the walls are raised a good way above the clerestory windows, and the space being decorated with a blank arcade forms a stage which is decidedly more important in the outside view than the real clerestory. The roof seems to have been raised, as it encroaches on the central tower: probably it had originally a low pitch, which, I believe, I forgot to mention is common in both the Romanesque and the Gothic of Aquitaine. The principal apse forms a distinct building, a good deal lower than the rest of the church: this greatly increases the wonderfully picturesque effect of the view from the east. The choir piers are a clear compromise between the rectangular pier of the south and the clusters of the north: the attached shafts are large, but what is specially distinctive of Pleinpiéd is a sort of heavy roll continued all round both arch and pier. I believe that this part of the church is of an ascertained date in the eleventh century; but there is, above ground at least, no sign of rudeness of work. On the other hand there is no great richness, except in some of the decorative arches round the apse, where we see something like both the flat pilaster and the double column. But the capital below is in quite another style, having baluster columns, which I do not remember to have seen before on so large a scale, with rude capitals. The nave at Pleinpiéd has suffered much from a fire and from the repairs which followed it; but it is easy to see that Aquitanian elements were stronger in it than in the choir. The arches were pointed, and there is no clerestory. The vault has perished; but I think it is clear that it was of the pointed barrel form, resting on shafts. The aisles, both of nave and choir, have cross vaulting.

With this fine border church I will end my series, as at Bourges we shall find ourselves on really French ground. I have gone hastily through a great subject, but I hope that I have done something to set forth the general propositions that the study of general history is imperfect without some knowledge of architecture, and that the study of architecture is still more imperfect without a careful attention to general history; and also the particular propositions, that Aquitaine is to be looked upon historically and architecturally as something wholly distinct from France; that its history and its architecture must be studied as those of an independent country; that the historical study of Aquitanian architecture is one of the most curious branches of our general subject; and, finally, that some of its buildings may give very practical hints to architects and church-builders among ourselves.

THE ELECTRIC LIGHT IN FRANCE.—The French Minister of Marine has, it is said, decided to establish eight electric lights on the coast of the department of the Seine Inférieure, to maintain a communication with ships within sight of land, and to transmit news rapidly to the interior.

ON THE ARCHITECTURE OF THE ELEVENTH CENTURY.*

THE eleventh century forms a very important era in the history of architecture, and yet it is one which has been commonly overlooked. We have long been in the habit of considering buildings as either Roman or Early Saxon, of the time of Bede and Augustine, or else Norman; but there is strong ground for believing that the usual habit of the Anglo-Saxon people was to build in wood only, and that stone buildings before the eleventh century were extremely rare. The language itself affords good evidence of this: the Anglo-Saxon word for a building of any kind is *tymbre*; and to build is *getymberea*.

There is also good ground to believe that the inhabitants of Gaul were very little in advance of those in England at the same time.

During the tenth century the general belief in the Millennium is supposed to have exercised considerable influence, and made people averse to any substantial building. In the words of Dean Milman:—"In many parts of Christendom there prevailed a deep and settled apprehension that with the thousandth year of Christ the world would come to an end. Men hastened to propitiate the coming—almost present—Judge, by the sacrifice of their ill-gotten, now useless possessions. The deeds of the time, the donations of estates, and of all other gifts to the Church, are inscribed with the significant phrase, 'the end of the world being at hand.'"[†]

Rudolphus Glaser, who wrote in the early part of the eleventh century, records under the year 1003 that, "All over the world, but especially in Italy and Gaul, the number of new buildings that were being erected of stone was so great that it appeared as if the world were clothing itself with a new white robe. In every town and village, churches, monasteries, or bishops' seats were in the course of erection; and even in the hamlets small oratories."

From the beginning of the eleventh century the history of Mediæval architecture really begins. Whatever the cause was, whether the disturbed state of all the countries of Europe during the two previous centuries, in which we read of nothing but warfare and pillage everywhere, or whether the general belief in the Millennium and the prophecies of Bernard the Hermit really had much influence,—the fact is certain that we have scarcely any remains of buildings of the ninth and tenth centuries in Europe, and very few records of any having been built during that period. At Rome itself we do not find a single building recorded, from the middle of the ninth century to the beginning of the twelfth, the great revival being there a century later than in France and England. In all the rest of Italy we have only two on record of the ninth century, and two of the tenth.

In France, the examples of this dark period are scarcely more numerous, and from the time of Charlemagne to the beginning of the eleventh century is almost a blank.

In England, where our records are more perfect than in any other country, we have just seven churches recorded to have been built of stone during the same period, in terms which show that the building a stone church was an event to be recorded. But we find no mention of the building of castles or palaces, or houses; and many other churches are mentioned in such terms as to show that they were built of wood only. In 1032, Canute's charter to Glastonbury is dated from the wooden church there. As this was one of the most wealthy and important abbeys in England, situated in one of the most fertile and peaceful districts, the case is rendered particularly strong by this evidence, that such was the general custom.

It follows that when a people had been accustomed for two centuries or more to build almost entirely of wood, the arts of quarrying stone, of hewing it smooth, and still more of carving it, must have been almost lost. The appearance of the buildings which we find coincides exactly with what we are thus led to expect, both in England and France. All the buildings of the early part of the eleventh century are a rude imitation of such Roman buildings as were then standing; and

in particular parts of France a provincial character was formed, during the eleventh and twelfth centuries, from the imitation of the particular Roman buildings in each province. In England the Roman buildings had been so generally destroyed, that when the fashion of building in stone was revived, there was a difficulty in finding models to copy from, as well as workmen capable of executing them.

The long-dreaded year, 1,000, having passed, it was concluded that the world had been granted a new lease, and the people now became anxious to build in the most substantial and permanent manner. In England, their efforts were, at first, very rude, and the work appears more like that of carpenters than of masons: some of the early towers, such as Earls Barton, look as if they were copied from timber buildings; and one of the characteristics of the Anglo-Saxon buildings, technically called long-and-short-work, in which one long stone is placed up the angle and another through the wall as a bond, is more like carpentry than masonry.

Our fathers called all our Norman buildings Saxon, and, by a natural reaction, we have gone to the opposite extreme, and called every thing of this style twelfth century. There are, however, a numerous class of buildings which really belong to the eleventh; and the gradual development of the skill of the workman from their first rude efforts when the building movement commenced, at the beginning of this century, to the consummate science of the thirteenth, affords a remarkably interesting subject for study.

At first, from ignorance of the quality of their building material, stone, they thought they could hardly build their walls thick enough, or make their pillars heavy enough; the masonry, also, is very rough, and the joints of mortar very wide. A gradual, slow improvement takes place in all these respects, and before the end of the eleventh century we have very good masonry, and walls and pillars of more moderate thickness, as the workmen gradually acquired more confidence in their own skill, and in the strength of their material.

These general remarks apply to France quite as much as to England. In some parts of France, the progress was more rapid than in others; and during this century Aquitaine and the western provinces appear to have taken a decided lead, probably from their more intimate connection with Byzantium, one of the high roads of commerce being at that period through those provinces; and a settlement of Byzantine merchants appears to have been established at Limoges and Périgueux.

The inhabitants of England were actuated by the same spirit as their neighbours on the Continent, and were equally anxious to erect substantial buildings of a permanent character, but, for want of models, were driven more upon their own resources and invention, and soon developed a style of their own, the idea of which being taken chiefly from the wooden structures to which they were accustomed, their towers are of a more lofty character than the buildings of the corresponding period in Normandy, although the masonry is not so good.

The Norman masons had the immense advantage of an excellent building stone, easily worked, and found in the cliffs of the navigable river Orne, so that it was easily transported by water carriage, and a good deal of it was brought over to England even before the Conquest.

In a great part of Aquitaine these early masons had the same advantage. The stone of Angoulême and some other quarries is as good and as accessible as the better-known Caen stone.

Considering the comparative disadvantages with which the English had to contend, their buildings of this period are remarkably good, and have an original character which we find nowhere else. Their towers have been compared to the campaniles of Italy, but the resemblance is very slight: both are tall and slender, but that is all. In Italy they are all of brick and all of one stereotyped pattern, and not one of them is of this period: some may possibly be earlier; many are certainly later; and all, from the earliest to the latest, are almost exactly alike, even to minute details. The Italians were such admirable copyists, that it is almost impossible to tell which are early and which are late.

Of our English towers, on the contrary, no two are alike, and there is an evident steady progress in them quite as rapid as we could reasonably expect. They have not yet been sufficiently examined and compared with each other to arrange them in strict chronological order, but I have no doubt that it may be done and will be done.

The towers of this period have more commonly been preserved than the other parts of the churches; being used for the belfry, it has been convenient to preserve them when the rest of the church has been rebuilt or altered.

We have not a single perfect church of this period remaining, but we have enough remaining, by taking different parts from different churches, to make out satisfactorily what these churches were like, which is more than we can say of an earlier period.

One of the characteristics of the buildings, the long-and-short-work for the groins on the angles, has been already mentioned. Another is the use of a kind of stone *baluster* to divide the windows in the place of a shaft or a mullion: these balusters have evidently been turned in a turning-lathe, which is just what we should expect a carpenter to do, but what a mason would never think of doing. The construction of the walls is rude and coarse, either of rag or rubble, or sometimes partly of herring-bone work, and often plastered on the outside.

The use of what we call pilaster strips on the surface of the wall instead of buttresses, is another imitation of woodwork. There are sometimes several tiers of these used as ornamental arcades. What is called the straight-sided arch, or the triangular head to an opening, as at Barton-on-Humber and Earls Barton, is also obviously derived from placing two pieces of timber to meet at the point. The windows are usually placed in the middle of a thick wall, and the opening opened or spread out, both outside and inside, as at Caversham; and when there are two lights to the window, a long stone is carried through the wall, and supported in the middle by the baluster, as at St. Benet's, Cambridge.

The frequent use of Roman tiles in the masonry, or rather in the rubble walling, is hardly to be considered a characteristic. The use of old materials is not confined to any style, and the earliest builders in stone would naturally use the remains of Roman buildings whenever they could find them, as they did in all countries. The use of plain square blocks of stone for impostis is, I believe, peculiar to the earlier specimens of this style, and belongs obviously to the rudest kind of construction.

The peculiar moulded impostis, as at Barnack, are quite as much like pieces of wood let into the wall horizontally for bonding, as they are like Roman mouldings, of which they are supposed to be a rude imitation. In the later examples, such as St. Benet's, Cambridge, Corhampton, &c., the moulded impostis are of very decided Norman character.

I cannot find any special peculiarity in the plans of these churches, and the circular staircases, which Mr. Rickman considers one of the features, appear to me to be even more common in Norman work.

They have no buttresses. The arches are quite plain, square in section, and not recessed, except in the later examples. They are often formed of tiles or thin stones used edgewise, like tiles, as at Britford, Wilts. When there is any carving it is rude and shallow, and an unskilful imitation of Roman.

One of the most perfect churches of this century that we have remaining, has only recently been noticed; it is at Bradford-on-Avon, in Wiltshire, and stands side by side with the present church, a part of which is Norman, though late. The two churches stood originally in the same church-yard, but a road has been made between them.

It was not an uncommon practice to build the new and larger church by the side of the small old one, in order that divine service might not be interrupted; and the old church was sometimes retained for a school-room, the purpose to which a part of the one at Bradford is now applied.

This church is built of ashlar masonry (that is, of cut stone, as distinguished from the rubble walls of the earlier work), and is more ornamented than usual in this style, having an arcade cut on the surface of the stone along the upper part of the exterior. There is a large porch on the north side, which is unusual; but this position was probably dictated by convenience, as the church stands on the slope of a steep hill. The chancel arch is very small, which is commonly the case in all Early churches, and may be considered one of the characteristics of the eleventh century, though sometimes found afterwards. The doorways, and impostis, and pilaster-strips are of the usual Anglo-Saxon character, as at Corhampton and Sturton Lacy.

In the very first year of the eleventh century "King Ethelred gave the monastery and village of Bradford to the nunnery of Shaftesbury, in Dorsetshire, to be always subject to it, that the nuns might have a safe refuge against the insults of the Danes, and, on the restoration of

* Read by Mr. J. H. Parker, F.S.A., at the Architectural Museum, on Wednesday evening last. At the conclusion of the lecture, Mr. Street, on behalf of the committee and of the meeting, moved a vote of thanks to Mr. Parker (which was carried unanimously), on his interesting and erudite paper. He was sure the profession would receive it with gratification; and the only reason why there was not a larger number present was that another meeting (Architectural Exhibition) happened to be held the same evening.

† Milman's "Latin Christianity," book v. chap. 13.

peace, return to their ancient place; but some of the family to remain at Bradford if it should be thought fit by the prior."

We usually find that, when any mayor or village was given to a monastic establishment, the church was rebuilt within a few years afterwards. Each monastery usually had, as we know, a gang of workmen in their regular employ, as part of the necessary establishment; and, by always doing a little each year, great things were ultimately effected. As the country was in a very disturbed state at that time, it is hardly probable that a stone church would be begun until things had settled down under Canute, which was twenty years after the donation; and as such a church was an important work for that period, it would require some years to build it, so that it was probably near the middle of the eleventh century before it was completed. The masonry is unusually good for that time; but Bradford stands on a bed of fine building stone, and was, therefore, likely to be in advance of other places in its masonry.

It is remarkable that of the churches that have been described by Mr. Bloxam and others as Anglo-Saxon, and which amount to nearly a hundred, fully one-half are in that part of England in which the Danes were settled, and they are far more numerous in Lincolnshire than in any other county. This was, as we all know, pre-eminently the Danish country.

It seems probable that the churches burnt by the Danes in their piratical incursions were almost all of wood, and that those which they built under Canute to replace them were of stone, and are for the most part the earliest churches we have now remaining, or rather of which we have any parts remaining, for none of them have been preserved entire.

We must remember that Canute was the greatest of the Scandinavian kings; that he was not king of England only, but of Denmark also; he was a man in advance of his age, and justly called the "Great." Under his firm sceptre England had breathing time, and enjoyed more tranquillity than she had for a century before; and in such circumstances we might naturally expect the arts of peace, and especially architecture, to revive with new life and vigour.

It is recorded in the Saxon chronicles that in the year 1020, "King Canute caused to be built at Assingdon, a minister of stone and lime, for the souls of the men who were there slain, and gave it to one of his priests whose name was Stigand."

William of Malinesbury adds that "Canute repaired throughout England the minsters which had been partly injured and partly destroyed by the military incursions of himself and his father. He built churches in all places where he had fought, and more particularly at Asendome, and appointed ministers to them, who through the unending revolutions of ages might pray to God for the souls of the persons there slain."

At the consecration of this church he himself was present, and the English and Danish nobility made their offerings. "It is now [says Malinesbury, in 1125] an ordinary church, under the care of a parish priest" (B. ii. c. 11). This church has, unfortunately, not been identified by modern antiquaries. There are several places of the same name.

A.D. 1032, "Over the body of the most holy Edmund, whom the Danes had killed, he built a church with princely magnificence, appointed to it an abbot and monks, and conferred on it many large estates. The greatness of his donation, yet entire (in 1125), stands proudly eminent at the present day; for that place surpasses all the monasteries in England" (B. II. c. 11). This relates to Bury St. Edmunds, in Suffolk, of which I shall have more to say when it was rebuilt, about fifty years afterwards.

A.D. 1041, the church of Stow, in Lincolnshire, was founded by Leofric earl of Hereford and his wife Godiva. There are considerable remains of the church of this period, consisting of the lower part of the walls of the transepts, and of the arches of the central tower. The walls have been raised and the arches rebuilt. The church has been much altered at different times. The nave is early Norman, only a few years later than the earliest part, and was probably executed about 1091, when the establishment had been changed from secular priests or canons to regular monks of the Benedictine order, and was richly endowed. This monastic establishment was removed to Ensham, in Oxfordshire, in 1109, and the estate of Stow was annexed to the see of Lincoln.

A.D. 1056, a church or chapel was built at Deorhurst, in Gloucestershire, by Earl Odda.

In the year 1675, a stone was dug up in an or-

chard near the present church, on the site of the church which has long been destroyed, with an inscription commemorative of the dedication. It is now preserved among the Aundel marbles at Oxford, viz.:—

"Odda dux jussit hanc regiam aulam constru atque dedicari in honore sancte Trinitatis pro anima germani sui Elfrici, que de hoc loco assumpta, Ealdredus vero episcopus qui eandem dedicavit in. Idibus Aprilis, xiiii antequam anno S. regni Eadwardi regis Anglorum."

From the forms of the letters, and also from the letter S, indicating *sancti*, placed before *regni*, which would not have been said had King Edward the Confessor been alive, it is evident that this inscription is of a later date than the event to which it refers; but as all the circumstances therein mentioned are correct, its authority cannot be doubted, and the inscription is not later than the end of the eleventh century.

Odda, who was also named Agelwin, according to the Saxon chronicle, (ed. Dr. Ingram, p. 232), "was appointed Earl over Devonshire, and over Somerset, and over Dorset, and over the Welsh," in 1051.

The priory of Deerhurst was given by Edward the Confessor to the abbey of St. Denis, at Paris, and the grant was confirmed by William the Conqueror in 1069.

The same authority (p. 247), informs us that "in 1056, died Odda the Earl, and his body lies at Pershore, and he was ordained a monk before his end; a good man he was, and pure, and right noble. And he died on the second of the Kalends of September" (i.e., the 31st of August). Florence of Worcester, who gives a high character of Odda, says that "he was a lover of churches," and adds, that "he died at Deerhurst, and that he received the monastic habit at the hands of Bishop Ealdred a short time before his death;" so that it was probably on that occasion that the church was built. We learn also from the same writer, that Alfrie, Odda's brother, died at Deerhurst on the 22nd of December, 1053, so that this place was probably the residence of the family.

All the details of this tower agree with the style, called Anglo-Saxon, the proportions are lofty and comparatively slender; the door-ways are small and plain, with the usual clumsy impost; the lower window is of two lights with the triangular heads, divided by a strip of wall, on the face of which is a fluted pilaster. The upper part has been altered, and a spire was blown down in 1666.

Barnack, Northants.—We are told by Ingulphus, that the village of Barnack was ravaged and laid waste, with the whole of the neighbourhood, by the Danes in 1013, and that it lay desolate until 1048, when, after a long law-suit it was recovered by Sward, Earl of Northumberland, and by his son Waltheof, Earl of Northampton, it was given to the Abbey of Croyland. It appears to me to have been rebuilt at that time; the work appears of the middle of the eleventh century, corresponding with Deerhurst, and others. The sculpture is of the thirteenth century; part of the same work is the spire, which is built upon the old tower.

About 1060 was rebuilt the church of Kirkdale, in Ryedale, Yorkshire, as we learn from the curious Danish inscription still preserved over the south door, which may be translated—"Orm, son of Gamal, bought St. Gregory's church, when it was all ruined and fallen down, and he caused it to be made new from the ground to Christ and St. Gregory, in Edward's days, the king, and in Tosti's days, the Earl. Tosti was Earl of Northumberland from 1055 to 1065. Orm was murdered by Earl Tosti's order in 1064."

"As this inscription has been removed from its original place, it is now no evidence of itself as to what part of the church is Saxon; but as the western door, now stopped, and the arch to the chancel, are both of them very rude, though in some degree resembling Norman, they may, on a careful examination of them, be considered portions of the old building," according to Mr. Rickman.

In Oxford, the only building supposed to be Saxon is the tower of St. Michael's Church, in the Corn-market: this has many of the features considered as characteristic of the Anglo-Saxon style, balusters in the belfry windows, a rude doorway with clumsy impost, on the west side, blocked up effectually on the outside, but distinctly visible within, and a rude single-light window over it, placed in the middle of the very thick rubble wall. Still this tower is so nearly of the same character as the tower of Oxford Castle, which we know to have been built by Robert D'Oiley, in the time of William Rufus, that I cannot believe St. Michael's Tower to be any earlier than the time of the Conqueror. Both are built of rubble, and both of these towers batter considerably; that is, they are larger at the base than at the top, and

the walls slope gently upwards. St. Michael's Tower was close to the north gate of the city, and probably formed part of the fortifications of the time of the Conqueror. It is mentioned in the Domesday Survey, but that, we are all aware, was not made until late in the reign of the Conqueror, being finished only in the year before his death.

Having now supplied all the historical particulars that I have been able to collect respecting buildings in England before the period of the Norman Conquest, something remains to be said respecting the other buildings closely resembling those whose dates we have ascertained by historical evidence.

We know that, from that time to the present, a particular fashion of building seldom lasted more than half a century, if so long; a continual change of style was going on. Each new generation seems to have required a new style, and to have considered the buildings of their fathers as old fashioned and ugly. This seems to be a rule of human nature, and there is no reason to suppose that it did not apply before the Conquest as well as after. Wherever we find the same mode of construction, and the same style of ornament used, we may be pretty certain that the buildings are of the same age, or that there are not many years between them.

We have now ascertained that some of the best examples of this style belong to the eleventh century. The celebrated manuscript of Coedman, in the Bodleian library, the illuminations of which afford rude drawings of buildings of this class, and have been much relied on as an authority, is also a MS. of the eleventh century, probably of about 1020, according to Mr. Cox, whose opinion is high authority.

With a few exceptions of very rude work, we have not been able to fix an earlier date on any of these buildings. About a hundred churches or towers of this character have been observed, and described in various parts of the country, and nearly the whole of them may fairly be ascribed to the eleventh century. The next question is whether all of them are before the Norman Conquest, and whether that Conquest produced any immediate change of style. I am inclined to think not. Architecture in general is little influenced by the political circumstances of the country. An enlightened ruler may have assisted in setting the fashion, or introducing improvements, but in general the intercourse of the people with others, the opportunities that they had of seeing the changes and improvements which were going on elsewhere, had much more to do with the progress of architecture than the will of the ruling power.

The intercourse with Normandy began before the Conquest. It is distinctly recorded that Edward the Confessor built Westminster Abbey in the Norman style, and the existing remains bear out the fact. But it is very rude and Early Norman, and only one step in advance of Anglo-Saxon buildings as Deerhurst; and, although after the Conquest, there was more intercourse with Normandy, and the large number of castles which were built to keep the Saxon people in subjection, are all in the Norman style, and far better masonry than had been used before in England, yet for the first ten years these castles seem to have furnished enough work for the Norman masons, and they had not time to build many churches. It is probable, therefore, that the Saxon people continued to build their churches, where they wanted them, in their own style, only taking such hints as they could from the Norman masons, and improving their own masonry accordingly. But it was not until about twenty years after the Conquest, that the Normans began to build many churches. We know that the English people long retained their own language and their own customs, and it is highly probable that they kept up their own fashion of buildings, although for some time after the Conquest.

Some of these towers exhibit such excellent masonry, that they could hardly have been built before the middle of the eleventh century; and their architectural character indicates that several of them were built after the Conquest. The towers in the lower part of the city of Lincoln, afford a good example of this, and agree remarkably with the history of the city.

The original city was Roman, the walls of which still exist in great part on the top of a steep hill forming the extremity of the high ground overlooking the fen country. The city continued to be thickly inhabited by the Danes down to the time of the Conquest. The Conqueror took possession of one-fourth of the city to build his castle, and the first Norman bishop, Remigius (or St. Remi), purchased another fourth to build his

cathedral upon. The inhabitants were thus driven out of half the city on the hill, and, in order to remain as near to their old houses as they could, they drained a part of the fens at the foot of the hill, and built themselves a new town there, connected with the old one by a very steep street; and in this town they built several churches, the towers of which remain to our day, and are distinctly of the so-called Anglo-Saxon type,* but of a later character than most of the others.

Of the work of Edward the Confessor at Westminster we have none of the church remaining, but we have the substructure of the dormitory, and the walls of the dormitory itself: the latter is so much altered and patched that only one of the original windows remains, which is plain Early Norman, with shafts in the jambs. We have also a considerable part of the walls of the great refectory, and other domestic buildings. The vaulted substructure of the dormitory is very curious and interesting. The vaults are groined without ribs, carried on round arches square in section, as is usual in all Early Norman vaults: the material of which it is constructed is chiefly tufa, which, from its porous volcanic nature, combines lightness with strength in a remarkable degree, and is frequently used in early vaulting.

These vaults are supported by a row of short pillars down the centre, which are precisely of the same diameter as they are high, about 3 feet. We must bear in mind that such proportions as these are the beginning of the Norman style in England, and as we advance we shall find the proportions become gradually lighter. The capitals of each of these pillars have an abacus of remarkable thickness, and the capital itself is as remarkably short in its proportions; those which are in their original state consist of merely a square stone, with the angles rounded off, and scarcely any thicker than the abacus. But the greater part of these capitals had been carved by the monks at a later Norman period, being just at a convenient height for a man to stand and amuse himself with carving. This fact is proved by different sides of the same capital being of different patterns, and parts of the same capital left in their original state, which is further accounted for by the two sides of the capital having been in different apartments, for these vaulted substructures were always divided into a number of small store-rooms or cellars, as they evidently were at Westminster; and in this instance the partitions remain for the most part in their original situations, though some have been altered.

Similar substructures remain in many of our ancient monasteries, though none are of so early a character as this at Westminster; and the partitions have commonly been cleared away by ignorant persons, thinking to make a great improvement, the space thus thrown open being called the ambulatory—a modern name for a modern idea. The old monks required no other ambulatory but the cloisters.

In the substructure at Westminster there is an original doorway of the same plain early character as the rest. This is at the extreme south end, and appears to have opened into some of the offices beyond, as it is not an external doorway; and the external wall of the room into which it opened remains, with a small loop window in it, with long and short work in the jambs. The head of the early window is cut off by a plain barrel-shaped vault of Norman character. This vaulted cellar is about 50 feet long, and seems to have been an enlargement of the confession buildings, at the extreme south end.

It should be mentioned that the dormitory joined on at its north end to the south transept of the church, and there was a passage and staircase from it into the church, for the monks to descend for the night services. A part of the substructure, near the transept, is the celebrated chapel of the pix, formerly the royal treasury; and although it now contains only empty chests, the old formalities respecting it are still kept up. It can only be opened in the presence of a representative of the Treasury and another of the Exchequer.

The portions which remain of the walls of the great refectory are extremely interesting. The whole of the north wall remains up to the roof, and is nearly so, though much altered in appearance by the insertion of large windows by Abbot Littington at the end of the fourteenth century. The lower part of the walls at the east and west ends, and a portion of the south side, also remain. This

great Norman hall or refectory was ornamented round the lower part of the walls by an arcade, which still exists (although blocked up with rubble stone-work).

We have no evidence that Edward the Confessor built more than the choir of the church, which was consecrated the day before he died. The nave or vestibule, as it was called, was clearly not then built, and it is quite possible that the monks who had to perform the service in the new church were at first accommodated in temporary wooden buildings, as was very commonly the case; but the permanent domestic buildings would be proceeded with before the nave, as more necessary, and these buildings can hardly be more than twenty years later than the death of the king.

Their style and character is very Early Norman; the capitals are all of the simple kind called the cushion capital, merely a cube with the corners rounded off, which is generally the earliest kind of capital. The scalloped capital did not come in until near the end of this century.

Whether the English copied their style from any foreign country, and if so, from which, or only copied their own wooden buildings, is an interesting question not easily decided. I have myself searched diligently in many parts of Europe, and have made inquiries among the best informed persons for any buildings corresponding with them, but in vain. With a few rare exceptions of a partial resemblance, I think we may conclude that the buildings of this class are peculiar to England, and my own opinion is that they are mainly copied from timber buildings. Still we know that the archbishops of the Anglo-Saxon Church had to go to Rome for their palls, and as each was accompanied by a numerous retinue, and the journey occupied some months, they had every opportunity of seeing what was going on in other countries, and were ready enough to bring home anything new which they thought likely to be useful.*

THE ARCHITECTURAL EXHIBITION CONVERSAZIONE.

On Wednesday evening the Architectural Exhibition was opened in Conduit-street, and a *conversazione* took place. The subjects exhibited we shall hereafter review.

The *conversazione* was well attended in spite of the pouring rain; and great satisfaction was expressed by the visitors, among whom were a large number of ladies. In the absence of Professor Cockerell, Mr. James Bell was called to the chair. Apologizing for the very short notice, he made a brief review of the objects and history of the society, and the services rendered by it to the profession. He also acknowledged the kind support of the public, and particularly urged on them the advantages of the season tickets. He then called on the treasurer, Mr. Ashpitel, to make the usual statement, which he told the meeting was not a long, dry, elaborate secretary's report, at which they might be frightened, but a short *resumé* of the position and prospects for the year.

Mr. Ashpitel said that the principal objects of the evening were, the inspection of the various works exhibited, and a pleasant conversation thereon; and not the delivery of a formal lecture. But, of course, as so much kind interest had been expressed as to the progress of the society, he felt great pleasure in shortly making a general statement as usual. And in the beginning he would express his gratification at the continued success of the society, and the position it had taken. It was now one of the established institutions connected with the fine arts, acknowledged, recognised and supported by the public. Its influence was now apparent; the results of their labours for the last ten or eleven years were now felt. He was pleased to hear the remarks in the room of satisfaction at the present exhibition, which he heard on all hands was considered as the best yet seen there. The architectural part, in particular, seemed to evince more care, more thought than usual. However tastes might differ among themselves as to the preference of one style to another, every one seemed to have done his best for that in which he had chosen to labour and great power had been shown with much less of striving after some extravagant effect or startling display. He regretted, however, that some few members of the profession, and those very few, had not contributed to the exhibition this season, although very anxious for its success. He was aware that it was difficult for gentlemen in large practice to get up show drawings, but

that was not necessary. A few sketches of what they had in hand might surely be spared. It was not in mere artist-like drawings the public were interested, but in the actual works in progress. He pointed out the kind way in which some gentlemen had collected their sketches and grouped them together on screens, not having time for more elaborate works. Mr. Ashpitel then adverted to the department of manufacture, which he said in this year was a marked improvement both in execution and design, and contrasted it with what might have been seen ten years ago. In the matter of newly invented materials now exhibited for the first time to the public, he called attention to a most novel use of concrete from the Reading Abbey works. The material was pressed into a number of useful building forms, and promised to be a very cheap and valuable adaptation. In the department of decorative material, several novel methods of imitating marbles were before them, by which colour on wall surfaces might be got at very small comparative expense. He dwelt especially on Mr. Bridell's process. A method of painting on glass, which should be imperishable, was also before them, and appeared likely to be very valuable. But one of the most original modes of decoration was a specimen of a species of embroidery, suitable either for ecclesiastical decorations, or as tapestry for houses. It was invented by M. Rambou, for the hangings at Cologne cathedral, where it had been executed by 300 ladies of that city; and could be done in a tenth of the time the old embroidery required, with quite as much force and artistic effect. He considered their best thanks were due to Lady Mildred Beresford Hope, by whose kindness the specimens were exhibited. He then had to apologise for the late period at which the cards for the *conversazione* had been distributed: it was solely due to the intervention of the holidays and the impossibility of getting men to their work. After a short allusion to the fact that increased funds would afford a larger power of useful action to the society, and confirming what had fallen from the chairman as to the season-tickets, the treasurer concluded.

A few pertinent remarks were afterwards made by the chairman. The refreshment-rooms were then thrown open, and the rustle of dresses and the hum of many voices lasted till a late hour.

THE LABOUR QUESTION.

London.—It is understood that, before the appearance of our present issue, the workmen will have determined whether or not to come in at the 7d. per hour, leaving off at 1 o'clock on Saturdays, thus getting a half-holiday and obtaining the same rate of wages (33s. per week) as of old. If we may judge from numerous letters received from individual workmen, the men themselves, if left to the dictates of their own good sense, will accept the proposition; but under their present guidance it is impossible to say what the decision will be. A few days ago a deputation of delegates waited upon Messrs. Lucas, and asked whether, if the men worked their ten hours under the hour system of payment for five days, they would object to have their pay-books ready at 1 o'clock, so that the men might from that hour take a half-holiday. To this Messrs. Lucas at once consented; and it was agreed by Messrs. Lucas that the wages should be, with the half-holiday, 33s., exactly the same as at present without the holiday. We are told that by their offered concession Messrs. Lucas and Messrs. Kelk will give up 14,000l. on their present contracts. At the interview, it is stated, the delegates—

"Asked Mr. Lucas (and, by implication, Mr. Kelk, for both firms have acted together throughout the whole dispute) to withdraw his proposition of payment by the hour, to which Mr. Lucas answered that it was only put forth in answer to their demands, and that till their demands of nine hours' work for ten hours' pay were withdrawn, he could not listen to any such propositions. He further added, that the masters were now determined to abide by payment by the hour, as they considered it, in the face of these repeated combinations, better for the interest of both employers and employed. At a previous interview one of the delegates actually asked Mr. Lucas if the men accepted his proposition of payment by the hour, what guarantee he would give that he would not limit the workmen by closing his yards. To this unguarded question Mr. Lucas at once replied, 'Then you want me to give guarantees that I will not concede the demands for which you now actually profess to be striking?' As no one could explain away the manifest slip of the delegate, no answer was given, and Mr. Lucas explained that the best guarantee he could give the men that he would not comply with their demand of limiting the hours to nine was, that it was not his interest to do so. He would be a loser by having his horses, machinery, and yards idle, and it was the certainty of this loss which had induced him, with all other masters, to resist the strike of 1859; for though by that suspension the masters lost heavily, yet their loss was but a trifle of what it would be if they closed the works after nine hours' labour."

Men are gradually coming in at Messrs. Lucas's,

* For these particulars respecting the history of Lincoln I am indebted to my lamented friend the late Mr. E. J. Williams, of that city. Professor Worsaae observes that the names of several Danish clergymen are mentioned in the Domesday Book, "in the old Danish city of Lincoln."

and the latter have no doubt, from the many applications received from the country, that they could, if necessary, get as many men as they need; but, of course, they would prefer their old hands. Our earnest hope is that the men will accept the offer now made to them, and that the uncertainty which has so long paralysed building operations may be removed.

Liverpool.—The operative painters at Liverpool held a meeting on Saturday last, to hear a statement of delegates appointed to wait upon the employers for an answer to the memorial of 27th February, asking for an advance of 2s. per week wages, and a reduction of an hour in time on Saturday. The following resolution was moved,—"That having heard the report of our delegates, and the masters' decision, we do confirm and agree to uphold and abide by the resolutions passed in public meeting on Tuesday, the 26th March, thereby pledging ourselves to refuse working for any employer not complying with the requests contained in our memorial." It was moved, as an amendment,—"That every man turn out on Monday morning for the contents of the memorial." Another motion, to the effect that having heard the reports from the delegates, and the reports from the representatives of the various shops, the consideration of the advance of wages and the reduction of the Saturday seven hours should be deferred for twelve calendar months, was received with derision, and, on the first motion and amendment being put, the amendment was carried by an overwhelming majority, amidst boisterous applause. Thus a strike has commenced among the Liverpool building trades operatives.

Warrington.—The bricklayers on strike at Warrington have reduced their demand of 6d. per day extra, to 3d. The masters refuse to grant even this, affirming that they will give no more than what they gave before the turn-out.

Glasgow.—One of the master builders, whose men had struck, obtained the assistance of several of his fellow-employers in finishing the mason work of a new tenement, in North St. David-street, themselves; and throughout the day the employers were seen vigorously at work on the building, and attracted the attention of various bands of the unemployed operatives, who stood idly gazing on. The greatest difficulty was experienced in retaining the labourers who had been engaged. After learning that the employers were personally assisting, they left the work; and a second supply were also induced to leave on the same day; nevertheless the mason work was so far completed that the building was got ready for the roof, and the joiners had all returned to their work on the old terms. The number of operative masons on the roll still standing out is now reduced to 250. The *Scotsman* says that the Operative Masons' Society has resolved to undertake various contracts which have been offered to it—the men employed working only, of course, the maximum fifty-one hours per week. It is also said that several of the strike hands, backed up by advances from moneyed friends of the movement, are about to start in business on their own account.

Elgin.—The house-carpenters here have made a demand for an advance of wages to the extent of 2s. a week, but which their employers have refused to grant, and, as a consequence, a considerable portion of the men are out on strike.

A CORRESPONDENT, after sketching the results of the last strike in London, the misery which it produced, and the steps towards another disruption which have been taken, goes on thus:—

The agitation having commenced, however unreasonable as it is admitted to be, the grand question is, "How is it to be dealt with?" To this I answer, not by a lock-out; for that would be unfair to those who are willing to work on the old terms.

Not by peremptorily refusing to listen to the demand, for this would be ungenerous.

Not by each employer dealing in his own way, and single handed, with the difficulty, for this would be suicidal.

Not by yielding at once to the demand; for this would be unwise, and the concession would, no doubt, be followed by other demands not more tenable.

Another evil arising from concession would be, that scores of capitalists who are already well nigh disgusted with these frequent strikes and disturbances, would decide, once for all, to find other channels for investment in lieu of building. I may here remark, that many within my own knowledge have already thus decided; and, if these agitations continue, or periodically occur, the wages of the building operative will most assuredly decrease, as the supply of labour will mischievously preponderate over the demand.

Again: the question recurs, how is the difficulty to be met?

Several of our largest contractors, a few weeks since, offered a compromise, viz.,—1st, to increase the wages both of artisans and labourers, to the extent of more than

half the amount said to be asked for by the operatives, but, in reality, demanded by Mr. Potter; and, 2ndly, to alter the mode of payment (they do not propose to disturb the term of the hiring), and henceforth to pay by the hour in lieu of by the day, as heretofore.

It will be in the recollection of some, at least, of your numerous readers, that the "one-hour system," and indeed the precise scale of payment now proposed, was suggested by me last November, vide p. 320 in your vol. for 1860, and this I did in the interest of the industrious working man, with the view to an amicable settlement; and beyond all, in the hope that, if adopted, it would preclude the possibility of any future derangement until the matter arrived, as it may, when the rate of wages must be again adjusted in harmony with the law before referred to, viz., that of supply and demand.

Adverting for a moment, at the risk of wearying your readers, to the recent order promulgated by Messrs. Lucas, Kelk, and others, I confess that, considering the operators had not struck, but had merely submitted a memorial for the consideration of the masters, I think the latter were a little premature.

It is highly desirable, in fact it is of the last importance, that the views of the workmen should be correctly ascertained on the proposed change; and this is not likely to be achieved by a peremptory order such as that referred to: we none of us like coercion.

Mr. Potter and a few others say the men will never submit to it. I find, on the contrary, that many of them highly approve the proposition, while some are afraid to express their real sentiments lest they should find their names enrolled in the black list.

Might not the much-voted ballot be successfully brought into requisition with a view to the solution of the difficulty?

Should this suggestion meet with favour, I will endeavour to furnish, as soon as possible, a draft plan by which the views and feelings of the building operatives, in their individual capacity, may be correctly and satisfactorily ascertained.

WILLIAM ELLISON.

EXHIBITION OF INVENTIONS AT THE SOCIETY OF ARTS.

THE annual exhibition of articles recently invented, patented, or registered, is open at the house in John-street, and consists of 221 items, besides a few drawings. The coming exhibition of 1862 has probably operated upon it. In our own specialty it is not very rich. On entering the hall a majolica chimney-piece and improved fire-grate (157) are seen, exhibited by Thomas Goode and Co., South Audley-street. This chimney-piece was manufactured by Messrs. Minton & Co., and as the first produced in this country, deserves notice. Neither in colour nor design, however, is it particularly good. The fire-grate, for wood or coal, was designed and manufactured by D. O. Boyd, Conduit-street.

Behind the chimney-piece is a specimen (154) of relief coverings for walls and ceilings; by White and Parly, Great Marylebone-street. They say,—

"The basis of the material is plaster of Paris, which, combined with other ingredients, forms a compound inflexible mass, perfectly dry, durable, and not liable to shrink or crack. It is especially adapted to large works in public or private buildings, in forming domed or wagon-headed ceilings, curved surfaces (however complex), coves, cornices, intersecting ribs and panels between ribs, together with all work of a like description."

Messrs. Edwards, Great Marlborough-street, exhibit their patent chimney (161). This is intended to give a contracted form to the openings of chimneys, and renders a chimney more simple of construction. By giving a contracted opening, it improves the draft, and leaves no space for the lodgment of soot. The specimen shown has an improved register door attached to it, but this is not a part of the invention. We have already spoken well of the chimney bar. Their ventilating hearth-plate (162) is intended to afford a supply of fresh air into rooms, and for preventing drafts. It is provided with a hollow chamber, into which a current of fresh air is introduced from an external wall.

(57.) Weston's Patent Differential Pulley Blocks, S. and E. Ransome and Co., Essex-street, Strand, give advantages. In the specimen exhibited, the upper block has a double chain-wheel of two different diameters, with spaces respectively for 20 and 22 links of the endless chain geared to it, forming two loops, in either of which may be placed the single block, having a hook for attaching the weight to be hoisted. At each revolution of the double chain-wheel in either direction, 22 links of chain pass over the larger diameter, and 20 links over the smaller; each loop hanging from opposite sides of each diameter, one of the loops is shortened, and the other equally lengthened. Reversing the direction in which the double chain-wheel revolves has a like effect on the motion of each loop. A weight, hanging by the single block in either loop, does not run back, because the opposite sides of the loop pull against each other on opposite sides of the double chain-wheel. Even if the chain is suddenly released whilst hoisting or lowering, the weight will not run down. The purchase is 22 to 1.

(139.) "Ornamental Tiles." Maw and Co., Benthall Works, Broseley, Salop, are better laid than we usually find them in practice.

(140.) Artificial Stone, Building Bricks, &c.; Carolus Paine, Dippenhall Silica Works, Farnham, Surrey. These imitations of Bath stone, the bricks and bracket, are made of the building material "Soluble Silica."

We fail to discover the advantages of the Patent Method of Sheet Roofing with Slate (143), exhibited by the Rev. Thomas Martin, of Little Newcastle, Pembrokeshire.

Messrs. Bell's specimens of aluminium and aluminium bronze (88); White's arrangement for drying hay and corn (129); Mr. John Brown's padded wood strips (149) for rendering window sashes and doors, air, dust, and water tight (of which we have before spoken); and specimens of Mr. Charles Tuckett's method of staining designs on leather for bookbinding and upholstery, deserve notice.

THE PRESENT POSITION OF LAND SOCIETIES & LAND TRANSFER.

THERE are few subjects that appeal more directly and substantially to *self* than the gradual but certain advance in the value, commercially speaking, of landed property. The certainty of Consols and funded property will at all future time, as hitherto, make them the resource for the savings and hoardings of certain timid investors, as well as for trustees, who may be bound to embark the trust moneys in accordance with the testators' directions, and many others; even though the result be that the capital produces but half the income that it would if otherwise invested, as saving all anxiety, trouble, fear of losses from defrauding tenants, depreciation of value, or other unforeseen causes. Many years have passed since we have been promised an effective measure to insure a cheap and easy transfer of land. When we purchase a property to suit, and are dealing with the admitted owner, who has been in receipt of rents perhaps for years, why should not conveyance or transfer be made in four or five lines, containing a description of the property and place, and the purchaser in possession?

This system is owing entirely to the apathy of the people; and so accustomed is a purchaser to submit to delay and heavy bill of costs in a purchase, before he feels that he is really the owner, that if the transaction were simplified to something like drawing a bill of exchange, the purchaser would not rest satisfied that his holding was safe; and, in fact, would still look for all the papers, deeds, wills, and other mysteries belonging to former owners, and as such be recited to form part of the title, and to be engrossed on several sheets of parchment, which, if read over, are seldom understood by the different parties affixing their signatures thereto. And not only are these forms expensive to a purchaser; but, if he require a little assistance by way of mortgage, the same process of delay and expense is to be incurred. All the true reformers seem united in the feeling that this state of the law ought to be altered, and that the time for delay has passed away.

Let such an advance be made in legal reform, and the boon would be fully appreciated by the public, and the Government fully compensated, by substantially adding to the schedule of the Property Tax, as the advance in value from the increased dealings in land, both in large and small investments, would correspondingly increase the amount of the tax. We have already full experience under the working of the different land societies how quickly the working classes appreciate small allotments of land, as the best fancied investment of their hard-earned savings; but would this be the case if such allottees had to have his title separately examined for sixty years antecedent to his purchase, so that his solicitor can say he is justified in commencing to build? Certainly not. It is the temptation of the conveyance being included in the amount of the purchase money, and no law costs; but then, after a time, when a sale is effected, how many difficulties often arise from the purchaser's solicitor, who may state to his client he is about to buy a good holding title, but the purchase is not complete for all purposes unless he has evidence of certain circumstances that perhaps do not exist, or if they do, would cost the vendor more to produce than the price he has agreed to sell his land for? It may be a question if the various land societies have really been of benefit to individual interest. Competition, while confined to private speculation, no doubt has led, at all times, and always will lead, to an increased value and the due appreciation of landed property as it develops its advantages, or as circumstances may alter the proximity or transit to or from an estate. Many instances could be named to illustrate this. Take

one case as a sample. An estate with about thirty acres, and mansion and other buildings of a rental value of about 250*l.* per annum, very close to Richmond-bridge, lay for several years waiting a purchaser, at a very low price—about 4,000 guineas. It was purchased for something under that sum; and, in less than two years, the Windsor line passed through a small section of the estate, taking away about three acres. The compensation claimed was laid at the modest sum of 10,000*l.*, on the ground that the land was valuable for building purposes; and lo and behold! to demonstrate the theory, Pecksniff & Co. laid out the roads, villas, church, &c., on paper, and calculated the ground-rents and their saleable value, all as a reality, and the proposed railway the only preventive, instead of the railway being the essence and only spur that could convert pasture land into squares and crescents. The jury awarded 3,000 guineas, and a small quantity, severing about five acres, was sold for 1,500*l.*, making together more than the entire cost of the estate, and leaving the mansion and above twenty acres, for which the freeholder refused 20,000*l.* The development of railways has now made all estates so well known, as to their commercial value, as nearly to prevent such instances of profit as just alluded to being of frequent occurrence; more especially as the large estates are no longer to be competed for by possibly two or three adjoining land-owners, with a view of being "monarchs of all they survey;" but now the survey committees of the different land societies will boldly enter all towns, cities, and villages, and purchase wholesale, and retail them again in small allotments at such high prices, comparatively speaking, that the bulk considerably increases, even after the payment of all costs of management, all the law costs that would fall on an ordinary purchaser, and, again, such further costs as the several conveyances to the different allottees; and also allowing a large margin to meet all contingencies; and, finally, still, an available balance to pay a dividend to the investing shareholders. Then say that an estate is purchased by a land society that can outbid private individual speculation at 10,000*l.*; yet they can at once add 4,000*l.* to meet the contingencies before named; and feel certain, by the subdivision of the estate, they are working a safe plan, and conferring a boon on hundreds, who, though buying second-hand by the society, yet often realize large premiums by reselling. But, in spite of all the advantages, it is a question of great doubt if such dealings in land are in the bulk to be encouraged;—such vast quantities of small allotments, with so many different owners, all waiting for interest, or to see the day when their ground will be sought for building purposes,—land thrown out of all use, contributing nothing to the parish rates, but, on the contrary, making the rates on the existing properties heavier than they were previous to the laying waste of the estate, and three-fourths becoming the property of persons who have no other means. And, therefore, though owners of the soil, it in most cases proves a flat, stale, and unprofitable investment; while, in the other section, representing but one-fourth of the estate, are, perhaps, persons possessed of means which they intend to employ in either building themselves, or in advancing money to speculative mechanics, for such parties do not deserve the name of builders; and, further, these allotments are so divided and intermixed among the unavailable allotments that all encouragement to start building is perfectly useless. Unless several unite, it would be madness to expend capital on a solitary plot with, perhaps, a dozen vacant spaces on either side; and in front to be a play-ground, a dust-heap, or other nuisance. To obviate this, in many instances, building societies have, it must be said, done great service. Among the estates near London are two that will, perhaps, show most forcibly our argument; viz. (—Early in the land movement the National Society purchased their crack estate at Stoke Newington. Many causes led this purchase to be an immediate success, and laid the foundation of a belief in the shareholders that to become an allottee was a safe fortune. In the Stoke Newington estate, long before the roads were made or drains completed, every plot was taken; and within a few months most had changed hands several times at increased premiums, in each transaction some realizing more than 100 per cent. profit, and some plots on which only a few weeks' subscription had been paid (say 2*l.* or 3*l.*) having fetched more than 60*l.* bonus, and quickly the entire estate was covered; and, all things considered, with tolerable uniformity in the elevation of the houses, and the rentals fully on a par with those in the neighbourhood. As a contrast look at the Conservative Land Society's

estate at Hackney, about the same or less distance from the City, and quite as accessible, which appeared to take the public fancy equally well, as all the lots were taken up with the same rapidity; but there our parallel, so far as success is concerned, stops. A considerable period has now elapsed, and the choicest lots remain a waste for stray pigs and donkeys. Even the best public-house plot, that would be sure of a license, does not tempt the owner, or even a speculator with a brewer's assistance. The shop lots are not noticed; in fact, except at the worst end of the estate facing a lonesome footpath, the estate is barren; and at this end some dozen miserable houses have been huddled together, but are tenantless, and some carcasses that will soon drop down if the boys will but give them time, as they are gradually helping to pull them down; and a beer-shop, under the noble sign of the Marlborough Arms, trussed up and bolted in at all points, from the external walls having bulged out; and doing the extensive trade, the landlord states, of 2*s.* 6*d.* per day. This estate is only a sample of the many attempts of overstocking and glutting the market. Scarcely an estate, with the exception of the one at Stoke Newington, but is more or less a failure; and it will take years to colonize and use up the land already in stock by the societies. In charity to those who have been their customers, their operations ought to have a pause, in order that the present holders of allotments may be able to resell instead of finding a constant additional quantity entering the market. Let there be cheap transfer in land, and then there will be no need of societies to achieve what can be done by individuals, or a select few combined. Let a few combine with some 25*l.* each, as a common stock, to represent 20 per cent. of the capital required for a purchase, and then they can compete in their own locality with the squire, and hold a stake of value that will form a useful adjunct to his business. The spirit of making money by reselling the allotments is apparently the only end in view of many members of the different societies. In the same manner as one friend tells another acquaintance to invest in such and such shares, that will in a few days command a large premium; so in like manner A tells B that a certain land society has purchased a first-rate estate, and advises immediate membership, or to purchase a right of choice to select an allotment. B follows the advice, not intending to possess a freehold investment, however small: he troubles himself not even to visit the locality; nor does he care how many miles it is distant from his business: he does not care in what position it stands. Choosing, if any choice is left, at hap-hazard, all he wants is a slice of the estate that is sure at once to command a premium. We have seen such cases occur; and, when all is allotted, and every allottee congratulates himself on possession, lo and behold! the adjoining freeholder, in disgust at his new neighbours, puts his field into the market; then other rival societies come in and purchase, and all the expected premiums reckoned upon from the first estate have vanished. In some of the suburbs, this has been carried out to such an extent that six separate estates, all contiguous to one another, have been purchased and divided into small allotments, as at Harrow, Forest-hill, Barnet, Sutton, and other localities, where, perhaps, building materials requisite would add 20 per cent. to the proper cost of the building; other estates with no water;—in short, every element wanting that could ensure any number of prudent men running the risk of covering a tithe of the ground. As the estates become gradually covered, each succeeding year will make the task more comparatively easy, so that those who are able to hold their allotments may yet command a premium; but if interest and compound interest be computed of the years of waiting such a desirable result, it will be found to be a very unprofitable and uncertain speculation. So long as the public support by their subscriptions fresh purchases, they will find, at their own expense, that they are injuring in value what they have already invested in land. Let the public petition to secure cheap law, and by discussion make the land-transfer question so simple, that if A meet B, and agree to sell his allotment, a few hours for a trifling fee will complete the transaction. Equally so let it be, if A borrow for temporary accommodation, that B will be safe in taking the deposit of title instead of an ordinary mortgage delay, which so often renders nugatory all the good the bargain promised or the loan offered. It is essentially a boon for all classes; so let all unite in expressing to Parliament, that their duty is at once to pass a comprehensive, practical scheme, to effect cheap

land transfer. No great movement is made without laborious exertion; and such a movement as we are now advocating will encourage thrift, industry, and morality, that cannot fail to increase the general prosperity of the people, and be of infinite advantage to posterity. Let no one be apathetic or indifferent, but each feel as though *he were a capitalist*. If an unlucky speculation, let it not be aggravated by an additional grievance of costs that cannot beforehand be estimated and calculated for. Let any measure be free from blundering and clumsy obstacles; and then, with hope and confidence, we will wait the result. Let all unite to strengthen their end of the wedge, till it is fairly driven home. Let each village demand of their representatives, that they will assist the Government in passing a sound scheme of land transfer.

FRANCIS CROSS.

ELIZABETHAN LONDON.

HOLYWELL-STREET AND WYCH-STREET, STRAND.

WITH the exception of Winchester-street, in the City, there is not now remaining in the metropolis any street which enables us so well to form an idea of old London as those represented in the accompanying engravings; and it is probable that before long these, too, will be demolished. The bill recently submitted to Parliament for clearing this district of its houses was thrown out, but the attempt will probably not end there, and the whole of the houses lying between the Strand and Wych-street will doubtless soon be pulled down. Much as we may admire the picturesque and value old structures,—landmarks in our history,—we can express no sorrow in this case. We have thought it desirable, however, to preserve a memorial of their appearance. One of the views here given represents Wych-street, looking towards the East. Another shows Holywell-street, of evil notoriety, looking in the same direction. The centre engraving represents some of the houses at the Wych-street end of Drury-lane, with the ancient inn, "The Cook and Magpie." We have before now illustrated and described other ancient parts of Drury-lane. In the Coal-yard, at the Holborn end of Drury-lane, Nell Gwynne was born. Adjoining the Cook and Pie Fields was a considerable extent of land, called the Aldewych Close and Aldewych Fields. From these Wych-street takes its name. The title seems to show that in the Saxon times a suburban village, or wych, stood here, which in succeeding ages had passed away. In an old map of the date about 1300, these fields are shown, and the present course of Drury-lane is marked *Via de Aldewych*.

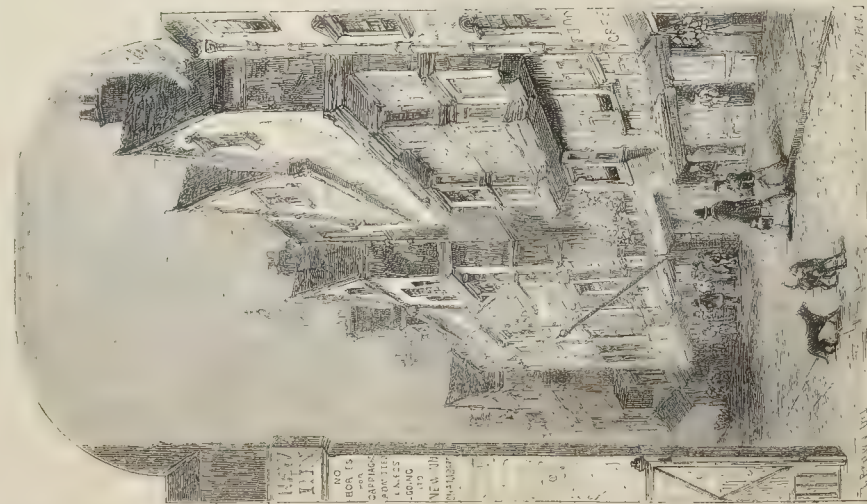
In 1662, William d'Avenant, on quitting the cockpit, built the Duke's Theatre, on a portion of the Aldewych field, and a part became the property of Sir Henry Drury, in the reign of Queen Elizabeth. On this point Pennant says, "Drury-lane, the modern of the Aldewych-road, originated from Drury-house, which was built, I believe, by Sir William Drury, a most able commander in the Irish wars, who unfortunately fell in a duel with Sir John Burroughs, in a foolish quarrel about precedence. Sir Robert Drury, his son, was a great patron of Dr. Donne, and assigned him apartments within this house."

This mansion stood near the bottom of the lane, on the south of Aldewych-close, and in St. Clement's parish. On its site William Lord Craven, created earl in 1673, built a magnificent residence. It seems that this mansion was allowed to fall into decay, and was afterwards a place of public entertainment, known by the sign of the Queen of Bohemia. Craven Buildings now stand on the site of this house.

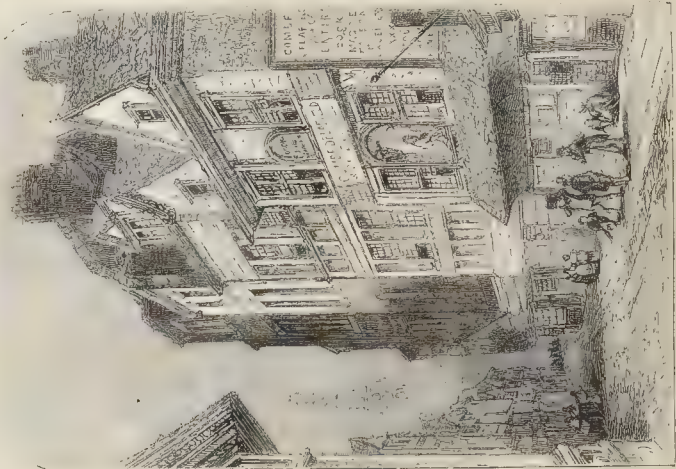
Some idea of the respectability at one time of part of Drury-lane may be formed by the following list of inhabitants, in 1623:—Sir John Cotton, Sir Thomas Finch, the Earl of March, Sir Francis Kynaston, Sir Lewis Lewknor, Sir Edmund Lenthall, Sir Edward Peto, Sir Antony Bugg, Sir Antony Henton, Philip Parker, esq., Sir Gilbert Houghton, Lady Henage, Sir Lewis Tresham, Sir John Sydnham, Lady Lambert, and others.

In the old map above mentioned, at the bottom of the *Via de Aldewych*, two lanes take the course of the present streets, one leading to Holywell-street, and the other continuing straight down the Strand, opposite Somerset House. This is called Maypole-lane, and shows that, in times now remote, the Maypole was raised in merry May time, in the Strand, near the spot now occupied by the recently-erected drinking-fountain. Holywell-street had its name from a well of reputation, said to be under the Old Dog Tavern, and even now supplying, it is asserted, the Roman Bath, opposite the end of Newcastle-street, in the Strand.

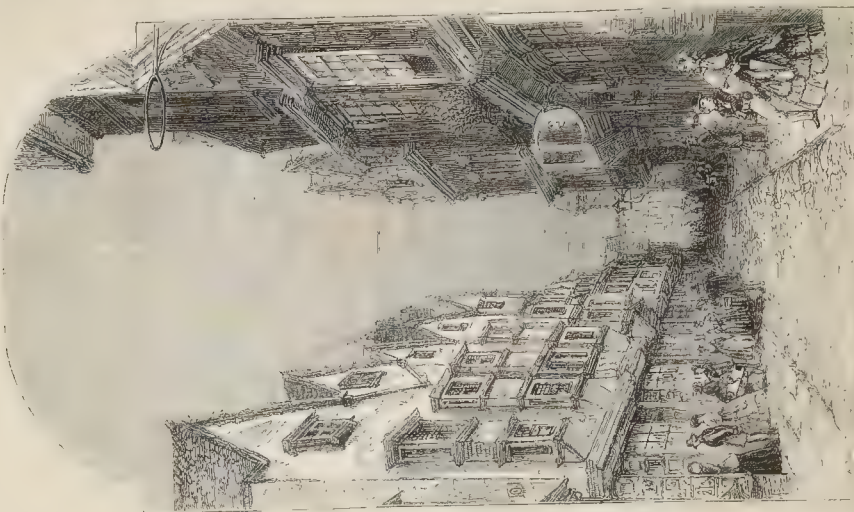
ELIZABETHAN LONDON.



Wynd Street, Strand; as seen looking towards the East.



Wynd Street, Strand; as seen looking towards the East.



Wynd Street, Strand; as seen looking towards the East.



NATIONAL GALLERY, LONDON: THE NEW ROOM.—MR. JAMES PENNETHORNE, ARCHT. R.

IMPROVEMENTS IN THE NATIONAL GALLERY.

UNDER the direction of Mr. Pennethorne, Messrs. W. Cubitt & Co. have completed the works that have been going on for some short time past in the National Gallery, as well in the half of the building occupied by the Royal Academy as the other, and the rooms are now ready to receive the pictures for the annual exhibition. The Royal Academy gains a well-lighted sculpture gallery, and some little additional wall-space for pictures; while, for the ancient pictures on the other side, there is an additional gallery, handsome and light, besides some improvement in the old parts.

As our readers are already aware, the alteration is chiefly in the hall, where the new sculpture-room on a lower level, reached by steps, is formed. This is in three divisions, so to speak, with a lofty window in the centre, northward, and a smaller window in each of the other divisions. The centre division has also a glazed roof. The walls are coloured lavender, and the ceilings are in two colours, very light grey and drab. The staircase to the Royal Academy galleries, which formerly ascended to a landing or corridor between what were known as the architectural room and the miniature room, has been brought nearer to the front (south), and opens into the miniature room. The area of the corridor is thrown into that of the architectural room, and here a handsome apartment with large lantern light is formed.

The same change has been made on the other side of the building; and, in addition, a large gallery has been formed over the sculpture room below. Of this gallery we give a view. It is 75 feet long, 40 feet wide, 21 feet in height to the cornice, and 11 feet 6 inches thence to the crown of the vault with which it is covered,—or 32 feet 6 inches in all. The lights form the crown of the vault throughout. The ornamented panels below, on each side, are perforated for ventilation, the openings being regulated by handles in the floor of the gallery. These panels and the rest of the ceiling are delicately tinted with cream-colour, drab, and grey. The walls are hung, as are those of the other new rooms, with a morone paper, with a gilt moulding top and bottom: the same colour (morone) is introduced at top and bottom of the gulloche in cornice. In each of the angle panels of the vaulted ceiling the raised ornament represents a palette and brushes amidst bay-leaves. Little plastering has been used, the walls being boarded throughout. Hot-water pipes, by Easton & Amos, will serve to warm the gallery when needed. A doorway is provided (though now stopped), to communicate with the rooms at present occupied by the Royal Academy, through the new room formed out of the corridor and architectural room; so that, should the Royal Academy act up to its expressed intention to erect a structure for itself, and the whole building be appropriated to the national collection, a continuous promenade will be afforded, entering the gallery by one staircase and leaving it by another. Mr. Pennethorne, as we have already mentioned, was the architect under whom the alterations have been made. Messrs. W. Cubitt & Co. have ably and rapidly executed them, and Mr. John Street was clerk of the works.

THE PUGIN MEMORIAL.

WE are glad to find that all difference of opinion in respect of this memorial is dying away, and that men of all shades of artistic opinion are lending their aid. The president of the Institute, Mr. Cockerell, has recently added his name to the list, with the handsome donation of £1,000. The sum paid and promised amounts now to £1,000, but nothing satisfactory can be done with a less endowment than £1,500, and we hope some of our readers will aid in raising it to that amount forthwith.

SOCIETY OF BRITISH ARTISTS.

Mrs. HURSTON exhibits several large pictures, chiefly painted in Spain, especially 176, "Joseph, a Gipsy of the Cuesta of the Alhambra," a dashing brilliant head; 239, "Spanish Armonies;" and 284, "Spanish Peasant Girls of the Spurs of the Alpujarras Mountains." We are pleased to think that if Mr. Hurstone had painted instead of six, and had given the time thus liberated to more thoughtful finishing (notice the use of the hands, for example, in more than one of the parties would have been gainers. The best landscape in the gallery is contributed by Mr. Cole, 125, "A Surrey Corn Field," an admirable work. Mr. E. J. Cobbett has made an advance: 434, "Girl Sewing," and 527, "Reflection," may be pointed to in proof. Mr. Henzell

has several very careful, pleasing pictures. Mr. Clint's can scarcely be called more than sketches, though large and effective. Mr. J. J. Wilson's water is always truthful, though the execution of it has become "a knack." "The Emigrant's Letter," 24, by W. Hensley; "The Lace-maker, Father's Dinner-hour," 40, T. Roberts; "The Thames at Wargrave," 212, W. W. Gosling; "Among the Thistles," 255, by T. Worsey; "La Chiffonière," 302, P. H. Calderon; "Ophelia," 463, T. F. Dicksee; "Rouge et Noir," 513, A. Ludovici, are all noticeable pictures. 495, "A Flower Girl from Vierlanden, near Hamburg," by P. Levin, is elegantly painted, though that waxen face has seen little of the sun. The same objection may be taken to J. J. Hill's, 172, "Summer," representing a female and child,—hot-house plants in common pots. Mr. Luker is steadily progressing: see his "Bedouins seeking Shelter in a Tomb near Cairo," 197, and the "Columns of the Hypostyle Hall, Luxor," Mr. Baxter has some heads invested with his usual charm. Mr. Croudace's first oil painting, 200, just above one of these, is too high up to be judged of. There are several small pictures, both landscape and figures, which deserve hunting out; but we must end our brief notice with recommendation of Mr. G. Cole's donkey and turkey, called "Pride and Humility," 595; "Gretchen," 656, by J. Bouvier; and the piquant "Portrait," 712, by Sigr. Colnaci.

CHICHESTER AND ITS BUILDINGS.

THAT we may to some extent appreciate the force of the calamity which has lately fallen on Chichester, let us first take a general survey of the architectural monuments of this ancient city: we shall then understand how pre-eminent a feature the cathedral tower and spire formed if taken merely as a work of extraordinary architectural and archaeological interest, and how much more pre-eminent when to these motives of interest are added the feelings of constant familiarity, personal reverence, and ever-recurring memory of past history and association.

The general arrangement of the town as to its form can have undergone but little change, whether as the *Regnum* of the Romans, the Cissa-cæster of the second prince of the South Saxons, the see of the Norman Bishops, and city of the stern Norman earls of Chichester and Arundel. It approaches a circular form, and is intersected by four principal streets meeting in the centre; and, from time immemorial, and I may say before (for, in a legal sense, that remote period dates back only to the reign of Richard I.), it has had the eastern suburb of St. Pancras situate on the Roman road from London, which entered the city at that part and the western suburban parish of St. Bartholomew. To these in our own days has been added the northern suburb of Somers-town. Passing by for the present the mutilated cathedral, we are arrested in the centre of the city by the striking market cross erected by Bishop Storey, who died in 1502. Cheddar, Salisbury, Glastonbury, and Malmesbury crosses are very inferior to it. Winchester cross is more delicate, the Eleanor funeral crosses more pure in detail; but none are superior in the general arrangement of the design, in fitness for the purpose, and grace of outline. Except some mutilation consequent on the introduction of the clock and the loss of its original finial, the original form is well preserved. The existing finial, or one very like it, was erected in 1724, superseding an ill-formed classic niche which had taken the place of the first design. This design is now wholly lost. If any reliable idea could have been gained of its ancient appearance, I believe it would before now have been restored; but the attempts in this direction have not been deemed altogether satisfactory, and appear to me to err in losing sight of a cross for a finial, without which the monument loses vastly in significance.

The parish churches within the city walls are those of St. Olave, St. Peter-the-Less, St. Martin, St. Andrew, and All Saints, which are ancient, and subdeanery, otherwise St. Peter the Great, which is a modern church in an ancient parish. Until this last church was erected, about ten years ago, the parochial services had for ages been performed in the north transept of the cathedral. When the Domesday survey was made, only one church besides this cathedral was named in the city: this church belonged to the Archbishop of Canterbury, and, as the church of All Saints, is still a peculiar in his jurisdiction. It appears highly probable that this is the church referred to, although the structure of that day has been replaced by one of later date.

These ancient churches were at the first of the most simple pretensions and humble dimensions; one has been pretty thoroughly neglected; but for the necessity of accommodation, for the most part they have been metamorphosed, in the more recent instances, with good taste, the earlier in a style which neither needs nor merits description. One of them, St. Andrew's, possesses a monument connected with Cawley, the regicide, or his family. I speak from recollection, for it is at least ten years since I saw the inscription. The modern subdeanery church, if completed and placed by itself, would be a very respectable edifice, but its giant neighbour, the cathedral detached belfry tower, which covers an area of ground nearly approaching that of the church, dwarfs its proportions inconceivably. The subdeanery parish which includes the western half of the city, and a large area outside, is by far the most important of the city parishes. Two churches, that of St. Mary, *in foro*, supposed to have stood at the angle of the south and east streets, and St. Peter, at the Golden hall, which apparently was near the south-east angle of the cathedral close, have long disappeared. Their loss is attributed to the siege by the Parliament forces, and their parishes have been consolidated with that of the subdeanery. Another church of St. Peter is spoken of by some as having stood where now the Council Chamber stands, and very anciently a temple of Minerva and Neptune had the same site. The identity of this church is not very clear, and another St. Peter, called subcastro, seems to have been pulled down about 1229, and to have been transferred to the present St. Peter the Less. A remarkable building, whose history is involved in some obscurity, is St. Mary's Hospital. It consists of a fine chancel, of the thirteenth century, larger than any of the ancient parish churches, and possessing some interesting early woodwork, with a large nave, constructed under a huge roof of enormous span, divided by two rows of massive timber standards, in lieu of the ordinary stone columns and arches. I incline strongly to the belief that this was intended for a church, although I know the usually received idea is, that it was more of a common hall, something like its present application. It is now divided into cabins occupied by almshouses, but the existing division does not seem older than the seventeenth century. One other building within the walls demands notice. It is now the Guildhall or Court-house, though even for that purpose it is disused. It was the chapel of a Franciscan Friary, and a fine one of the date of 1233, the original foundation or thereabouts. It has five fine lancets in the east end, and good side windows, but is in a state of deplorable dilapidation. The only other conventual establishment of the city was that of the Dominicans in the south-east quarter, but every trace of it has disappeared. There was a chapel of St. Cyriac and one of St. Michael, but no part of them exists. The city walls remain round nearly the entire circuit of the city. When the Norman earls were lords of the city there was a castle near the north gate: a trace only exists. The north-west and south gates were swept away in 1772-73, and the east gate in 1783,—one of them doubtfully said to possess Roman features; so that, beyond the fact that the walls do give a venerable aspect to the place, and afford a pleasant promenade, there is but little subject for observation concerning them. Without the walls the ancient church of St. Pancras, destroyed for the sake of the defence of the city against the Parliamentarians, is represented by an edifice erected in 1750, a date which warns us not to expect interest in its history or architecture; and, at the opposite gate of the city, the church of St. Bartholomew, demolished at the same time as St. Pancras, was not rebuilt till 1827, and needs no more remark than the other. A short distance from the city stands the merest fragment of the leper hospital of St. James. It is one of the few establishments whose head retains to this day the title of Prior. The brotherhood has, of course, long passed away, and I am reminded to mention the circumstance only by having heard within the last few days of the death of the prior, an aged clergyman. I may pass over the modern churches of St. John, within the city, and St. Paul, in the northern suburb, as they are bare both of archaeological and architectural interest, and, just alluding to a well-designed diminutive new Roman Catholic church, close my account of the bareness of the city in architectural monuments. Seeing, then, that our survey enables us to commend to architectural notice only the graceful cross, and the dilapidated Friary Chapel, and St. Mary's Hospital, we may gladly turn to the south-west quarter of the city, where, from the earliest ages, all that was most imposing has been placed.

Here, it seems probable, was the house of the Roman governor. I have myself witnessed the exhumation of a considerable quantity of broken Roman pottery at a depth of about 6 feet below the cathedral floor. Here was the residence of the Saxon prince Cissa; and, as some say, he built a temple here to Thor, or Jupiter; and here, when William the Conqueror changed the see of Selsey to Chichester, Sigand, the twenty-fourth bishop of Selsey, and first bishop of the new see, was granted a site for his cathedral buildings by the Norman earl. Tradition says that a monastery of St. Peter then existed on the site. This rests on an allusion by William of Malmesbury. A few words in a Saxon charter also seem to point to the existence in early times of a conventual establishment here, and even at this day there is a disputed claim of the vicar of the subsecenary parish to grant permission for certain offices to be performed within the cathedral, which, it may be, is derived from this remote source. The times, however, were too troublous to permit Sigand or his successor to carry these plans into effect, and it was not till the commencement of the reign of Henry I. that Ralph, the third bishop of the see, was able to make any real progress with the building. With the assistance and countenance of the king he was enabled to proceed rapidly, and in 1108 completed his cathedral. It has been erroneously supposed that this building was constructed of wood. I see no ground whatever for such a notion beyond the fact recorded, that, in 1114 it was burnt, of which we are to understand the destruction of the roofs and parts usually of combustible material. Ralph set heartily to work to repair the disaster, and had effected this before his death, which occurred in 1123.

I think it has been too generally assumed that Bishop Ralph built two cathedrals. I apprehend, rather, that the Norman portions of the cathedral we now see are for a large part, at any rate, the cathedral of 1100 to 1108. He probably finished the choir, and was proceeding with the remainder when the calamity of 1114 occurred, and he then occupied himself in restoring the choir roofs, which had been burnt, and in pushing forward the other work, so that at the time of his death he had again completed the choir fit for service. The cathedral, at this time, had two western towers, a nave of eight bays, a low central tower, carried on four lofty arches, measuring nearly 60 feet high to the crown, transepts, and a choir. The nave had an aisle on each side, as also the choir, and the latter terminated at the east end in an apse; there was a plain triforium and clerestory. Except the apse and the central parts involved in the calamity of the past month, all these features may yet be seen. The eastern apse of the Norman cathedral has long been recognised beyond dispute, the bare commencement of the curving wall still existing on the outside of the church, and various changes in the strings, showing that the existing outside straight wall of the eastern part was not built with the choir walls. During the late alterations in the choir, further evidence has been produced, the foundations of the inner wall of the apse having been exposed. It is clear from this that Bishop Ralph's cathedral had its high altar just where the altar has stood down to our own day; and thus we see that in dimensions it has but slightly increased since his plan was set out. His tomb is yet preserved in the cathedral. About 1180, the cathedral, and almost the whole city, suffered from a destructive fire. Seffrid II., bishop of the time, vigorously proceeded to repair the damaged church. In 1193, it was re-consecrated with great splendour. He also built a palace for the bishop, cloisters, and houses for the clergy. Of his palace but little remains beyond the domestic chapel, a charming work; which, however, underwent some alterations about a century after. His cloisters do not exist, but some part of the houses and offices still stretch along the south side of the cathedral precinct towards east street. This part is interesting, though much defaced and mutilated, and used now for schools and warehouses. His work in the cathedral can be traced with complete accuracy. The triforium remains still as Bishop Ralph left it; but it appears that the burning roof injured the interior of the walls at the top and the burning timbers when they fell destroyed the stonework near the floor, so that Seffrid found it necessary to reface with new stone the whole of the clerestory on the inside, and also the nave arches. He adapted the light mouldings and graceful forms of the Early English style then in vogue, with great skill, to the Norman forms of Ralph's work, and profusely introduced marble columns. He also determined to add a vaulting throughout the building, and for this purpose threw some massive flying buttresses against the Norman clerestory,

outside; which, otherwise, he left with all its external Norman features; and inside he carried up slender vaulting shafts from the floor, with marble bases and capitals, and bands. It has been suggested, I know not why, that the vaulting itself was not done in his time. I see no reason to doubt that the work was followed up consecutively to its completion. It was certainly also part of his plan to abolish the apse and add the beautiful retro-choir which we now see. It is the most graceful and charming piece of work in the whole building; and may, indeed, challenge comparison with anything of the period to be found in the kingdom. In execution it must have followed shortly on the rest of his work. He appears also to have contemplated the erection of a lady chapel, although the existing structure is later. To Seffrid's work also belongs the upper part of the south-west tower.

Ralph Neville, Bishop of Chichester from 1223 to 1244, and Chancellor of England temp. Henry III., built a chapel or oratory in the cathedral, and bequeathed 130 marks to the church. It seems to me that from Seffrid's death, in 1204, there could have been no respite in the work. Between his death and that of Neville, in 1244, the additional aisles must have been added to the church, and seeing the extremely early Pointed form of the ancient windows on the south side, it is highly probable that some part of the work was even earlier. We see that Bishop Neville built a chapel in the cathedral, and that this may refer to those on the north side, which are rather later than the others. Coeval with this period, too, I must place the central tower,* with which, by this time, Bishop Ralph's Norman piers were loaded, and from this time we must date the commencement of the ruin. It is clear to me that the projector of the tower included a spire in his design from the first moment.

The architect determined not to trust to the four great Norman arches, but added immediately above them very deep and strong pointed arches. On the south side, this discharging arch had a perfectly clear space between it and the Norman arch; and on the other three sides the Norman arches were nearly as completely relieved from all weight. This, of course, did not affect the piers or legs, which still had to carry any additional weight which might be placed above the relieving arches. I confidently believe that the spire itself was commenced before the death of Bishop Neville. The moulding on the angles of the spire cannot, I think, have originated later, but it is also highly probable that a settlement in the old Norman piers warned the architect to desist. A settlement which occurred at a very early age was distinctly marked in the junction of the south-west pier with the transept wall; and there were evidences of an attempt to readjust the work to a level line, an attempt evidently made in remote times.

The next work in course of time was the Lady Chapel, erected by Bishop Gilbert de S. Leofard, about 1290, exhibiting a very marked advance into the Geometrical or Early Decorated period. It is vaulted throughout; and though, under the use to which it is now applied, viz., as the cathedral library, its beauty is much concealed, it is in a good state of preservation, and is a pleasing specimen of architecture. The windows are peculiar, and lose somewhat in effect from the smallness and multitude of the mouldings.

John de Langton, who became bishop in 1305, and sat till 1336, munificently added to the architectural attractions of the cathedral. The only work of his which can be strictly identified is the splendid transept window inserted in the old Norman wall in the end of the south transept. The chapter-house which he built is not now in existence, and the detached belfry tower is wrongly attributed to him. It is impossible to regard the four-centred arch and square-headed door of the detached tower, and its purely Perpendicular windows, without seeing the impropriety of assigning them to the same period as Langton's window, the flowing tracery of which agrees perfectly with the date assigned to it in the records.

I have suggested that the construction of the spire was arrested in the thirteenth century. The architectural evidence, which I have frequently had occasion to examine personally, shows a long respite in the work above the central tower, and, indeed, a general respite for some time after

Bishop Langton's death. The cathedral, minus its spire, was an imposing and nearly perfect edifice, and there were no pressing wants of accommodation to satisfy.

From Bishop Langton's time, I pass over 100 years. This includes the period of the exhausting wars with France, made brilliant by the achievements of Cressy and Poitiers, the disastrous reign of Richard II., the troubles on the accession of the House of Lancaster, renewed wars with France, including the battle of Agincourt,—a period little favourable to the arts,—and brings us to the reign of Henry VI., who, before the Wars of Roses commenced, was a patron of architecture. Adam de Moleynes, bishop of Chichester, from 1445 to 1449, was keeper of the privy seal, and councillor to this monarch. I do not attribute the later works to this prelate—his connection with the see was too short to have permitted such an undertaking,—I attribute them rather to the earlier part of the reign of Henry VI., and suppose them to have been completed before the full tide of civil war set in in 1450.

If we may imagine the reasoning of the promoters of the several works belonging to this age, it would, perhaps, amount to this. The great central tower was incomplete, i.e., wanting its spire, but the dread of settlements which had caused the respite had ceased, as no further change had taken place; some daring and ambitious man was anxious to secure the fame of carrying the work to a completion. To make the project more safe, the bells, if they were there, must be removed from the central tower. The western towers were ill adapted to receive bells, and therefore a new belfry must be built. Thus, nearly at the same time, as I conceive, arose the spire of the cathedral and the detached belfry, popularly called Ryman's Tower. To the spire I give some precedence in time. The early mouldings were continued up the angles, two bands of ornament which encircled the spire, very plainly fix its date at the early part of the fifteenth century; and the pinnacles and canopies grouped around its base belonged to the same age, and bore very distinct marks of insertion into older works, thus justifying my idea that the base of the spire had been commenced long before.

Of Ryman's Tower there is a popular legend as to its origin, and the legend is not without authoritative support. Richard Ryman was a gentleman of Appledram, a village two miles to the south of the city, and he, intending to build a house or castle for himself, collected a quantity of stone. King Edward III., however, inhibited him from proceeding with the work, and the Bishop of Chichester purchased the material he had prepared. I believe the fact of King Edward's inhibition is well established; moreover, there is at Appledram a part of a crenellated mansion now used as a farm-house, and the stone of the belfry is different in kind from any used elsewhere in the cathedral precinct. I am not able to say whether it agrees with that in the house at Appledram, but in date certainly the two buildings do agree. Their age is, however, later than the time of Edward III., as I have already pointed out, with respect to the belfry.

Another important work which belongs to this age, although we have no authority beyond the architectural features to guide us as to date, is the cloister. Bishop Langton's cloister disappeared entirely, and with it his chapter-house, and the builders of the fifteenth century gave us a complete cloister of their own age, and raised a new chapter-house on the top of the ancient sacristies. This cloister and chapter-house have come down entire to our own day. The chapter-house yet retains some of its oak seating and panelling: some of it, we are expressly told, was destroyed by the Parliamentary soldiers, who tore it down in search of treasure. The stall, or state chair, for the presiding dignitary, yet remains, and close to it a sliding panel in the wainscot discloses a massive oak door, strongly bound with iron, which opens into a space over the south porch, of the cathedral, and which formed the treasury. For access to this chapter-house a large stair was cut in the transept wall, which makes us wonder at the hardihood of the builders, who, having placed a spire on the already weakened Norman legs, yet ventured to weaken the wall which supported them. If this was bold or reckless, I have a yet more startling fact to disclose. We have traced the history of the cathedral to its final completion; but, under Bishop Arundel, who presided from 1459 to 1478, a singularly reckless act seems to have occurred. Before his time the bases of

* The editor of Murray's "Handbook" is decidedly in error in the date he assigns to this, as he is also with respect to the date of the detached belfry, and, indeed, several other particulars. The work in the central tower bore very much analogy in style to the upper part of the south-west tower, which is very distinctly connected with Seffrid's work.

the shafts under the east and west arches of the tower had been cut away, for a height of 12 feet, to widen the space for the choir stalls. He is reputed to have erected the screen which stood cross the nave, filling the two arches next the tower. I know not if there is any other authority or attributing it to him than the fact that it has been called commonly Bishop Arundel's screen or brine, which, after all, might arise from his tomb having stood close by, as it did till within a few years. This screen just touched on the angle of the two western tower piers, and some portion of their face was further concealed by the stairs placed between the screen and the stalls. On the removal of these fittings last year, not only was it perceived that the tower piers were seriously rent, as it was long known was the case, but a piece of one of them at the base was entirely cut away, and an important part of the superincumbent work carried upon two slight oak props,—an alarming weakness which had thus for ages been concealed.*

Mr. Hills then gave some account of the weaknesses discovered recently in the substructure of the tower, and of the events connected with the late calamity, details of which have already appeared in this journal.

PATENT ENAMEL PICTURES ON GLASS.

We have lately seen specimens of a new mode of decoration for dwelling-houses, which seems capable of adapting itself, in point of style, subject, and especially of price, to the growing taste for artistic ornamentation, and we recommend an examination of the process to our readers as one of the recent applications of the photographic art, by means of which almost every description of subjects, whether landscape or historical, even portraits, can be transferred to glass, in enamel colours, and burnt in the kiln, thus acquiring complete durability.

The invention is patented, and, we believe, is destined to receive considerable development, as the process is simple, rapid, and at the same time expensive as compared with the price paid for painted glass.

In most cases, where ordinary ground-glass is resorted to, either to subdue the light, or to improve a screen to the view from outside, the introduction of painted glass through this process may prove of great advantage; and we understand from the patentee, Mr. F. Joubert, that it can be produced of any required size or colour.

IMPROVEMENT OF BROMPTON.

A CORRESPONDENT "W. H. Thomas," writes,—The increased traffic through Brompton to the South Kensington Museum, I think, should draw the attention of the proper authorities to the advantage of removing the rails now enclosing the pieces of waste ground fronting the houses in Brompton-row. This would give a wide road, very much improve the property, and be in harmony with the rising neighbourhood surrounding it. If this communication be instrumental through your influence in bringing about great public improvement, I shall be much obliged.

We have on several occasions in years gone by urged the desirability of improving this road, and pointed out the facilities for doing so which exist. The desirability is becoming a necessity, and it is to be hoped that previously to the opening of the Exhibition of 1862, if not of the Horticultural Gardens in the present year, something effectual will be done. It might be made the most beautiful road out of London, and a most appropriate approach to the Museum, the Gardens, and the fine neighbourhood arising around them.

THE COMING CENSUS.

Some official-looking printed papers will, ere the close of this week, find their way into every habited domicile in the three kingdoms. Many ignorant persons will doubtless feel alarmed, and clamour of rates and taxes; but the more intelligent will know that all such fears are entirely groundless, and that in filling up the printed forms for the National Directory, as we may call it, nothing need occur of which the least advantage will be taken to affect their pockets in any way, at any future time. In the days of poll-taxes might have been different; but in this country there are no such taxes now; and even the land-tax need not be in the least afraid that the

Registrar-General, or his peaceful army of 30,000 "enumerators," will ever even "tell" their ages,—at least unless they wilfully misrepresent them, in which case they are liable to a penalty of 5*l*. This penalty, therefore, and the consequent publicity, all can easily and safely avoid by simply telling the truth. It is to be hoped that, considering the various important and useful objects in view in taking the census, every facility will be given, by every householder, in enabling the Registrar-General to obtain full and true statistical details of all the kinds required, and which a few minutes' leisurely perusal of the papers sent in will enable every intelligent person to do. The enumerators will all willingly assist those who cannot read, write, or understand what is required of them. No questions as to religious persuasion will be asked; and perhaps the sole difficulty will be to get at the actual ages of females of a certain or rather uncertain age, the sex is such a beautiful type of eternal youth, and longs so much to realize it.

Knowing the vast labour of the Registrar-General and his able staff, and the anxiety of these gentlemen to prepare a census which will for the next ten years to come be of great use to the nation, and which may be taken as a model by other countries, we trust that all, to the utmost of their ability, will aid the exertions which are thus being made at Somerset House and the Census-office in Craig's-court. Some idea of the extent of this work may be gathered from the circumstance that, although the paper is of a light description, the quantity required for the purpose of taking the census weighs over forty-two tons, and the number of documents and schedules amounts to upwards of five millions. All this mass of papers is to be classified, and it is of the greatest importance that the instructions in the schedules should be most carefully attended to. The plan of the document has been a matter of great study, and has been suggested by the experience of ten times seven years. In order properly to classify important branches of our industry, trades, manufactures, &c., it is most necessary that the employer should in all cases be distinguished. Example: "carpenter—master,—employs six men and two boys." In the case of firms the number of persons employed should be returned by one partner only; and we would press most particularly upon workers in mines and manufactures, and generally in the arts, that they should describe the particular branch of work, and the material, as in "coal-miner," "brass-founder," "silk-throwster." When the trade is much subdivided, both trade and branch are to be returned thus:—"watchmaker—finisher." Artisans and mechanics should state their particular branch and art in business. Weavers should write "silk," "worsted," "cotton," &c. before the general term. Messengers, porters, labourers, and servants, are to be described according to the nature of their employment on the day the census is taken.

Persons following no profession, trade, or calling, and holding no public office, but deriving their incomes chiefly from land, houses, mines, dividends, interest of money, &c., may designate themselves, "landed proprietor," "proprietor of iron mines," &c. Proprietors of houses and persons who have retired from business, may be entered thus:—"retired farmer," "retired grocer," &c.

Persons in almshouses, after being described as such, should state their previous occupation; and against the names of children daily attending school, or receiving regular tuition at home, must be written "scholar."

The proper and careful filling in of the occupiers' schedules will much assist those engaged in the tedious office in gathering the different classes together; and, by showing the present extent of various kinds of industry, &c., enable us to compare 1861 with past conditions, and also hereafter to contrast the present with the future.

We are glad to observe, in the schedules of 1861, the following new and important feature:—"If the house is let or sub-let to different families or lodgers, each occupier or lodger must make a return for his portion of the house upon a separate paper."

Doubtless the enumerators will carefully attend to this duty, and when the Registrar-General makes his report, we will be enabled to see, particularly in the metropolis and large towns, the considerable extent to which dwellings are subdivided. This will be a difficult part of the duty of the enumerators, but one which we trust will be most minutely attended to.

Valuable as will be the figures obtained by this clause of the schedule, it is not sufficient; for, when a house is subdivided, in either town or country,

we should know the number of rooms in it, and the number of apartments occupied by each family. We might not by this means be able to get certain particulars of the extent of these apartments, but the return would direct attention to particular localities, and enable us to compare the death-rates with the extent of the sub-division of dwellings. It is a long time to look forward to; but at the taking of the next census we hope that so great will have been the advance of intelligence, that this and other useful particulars will not by any one be objected to. In the meanwhile let all classes of the community put into the hands of the Registrar-General the best and most correct returns in their power.

LIVERPOOL.

THE twenty-third Annual report of the borough surveyor of buildings at Liverpool, Mr. William Rishton, has been printed. From this report it appears that building operations in the borough still continue to make remarkable progress, and that a greatly improved class of cottages is now being erected. This, says the report, "partly arises from your Committee having to deal with a more intelligent class of builders than in former times; and partly from the tenants being more observant as to the conveniences with which dwellings are provided, and more careful in selecting residences where sanitary requirements have been properly attended to. In Liverpool a working man may now obtain, at a rent fully within his means, a house, in which health and decency, even taste, can be consulted." This is much more than can be said as yet of London, where working men, from want of cottages within their means, are obliged, like so many other classes here, to become either lodgers or lodging-house keepers, and in dwellings totally unsuitable to occupation by more than a single family. Mr. Hornblower's boast about the independent feeling of Englishmen, and the "insuperable objection in the English mind to occupy a house in common with another," as "an Englishman's home is his castle," may be now a little more applicable to Liverpool than it has been; but it is ludicrously inapplicable to London, the gregarious and universal lodging-house system of which is intolerable to the very people for whom Mr. Hornblower insinuates that this abominable system of herding in common may do very well since they (the Scotsmen) have not the "independent" feeling of Englishmen in such a matter. Mr. Hornblower plainly knows little about the Scottish and French system of flat dwellings; but does he, an Englishman, know as little about the very different system of English lodging-house keeping? If so, then has he indeed much to learn on a subject in which he desires to instruct his professional brethren in Liverpool. Were the English lodging-house system convertible into the Scottish flat-system, it would greatly tend to promote self-respect and independence of feeling in those who occupy such dwellings. As for those who can obtain and can afford to possess separate houses, both Englishmen and Scotsmen have independence of feeling enough to prefer them; and it is satisfactory to find that in Liverpool, where small cottages are possible within reasonable distance from the centre of population, so many improved ones are now being built, as Mr. Rishton reports. In 1860 there were erected 1,129, at rents of 12*l*. to 25*l*. per annum, and 161 at rents below even 12*l*. The total number of houses built in 1860 was 1,549, equal to the accommodation of a population of 9,294. The chief districts in which these houses have been built are Kirkdale and Everton. The probable cost of all the building operations within the borough in 1860, the reporter estimates at 441,953*l*.

A great deal of excitement has been felt at Liverpool in consequence of a mistaken rumour that plague had been imported along with an Egyptian Government vessel, which recently put into the port under circumstances of distress, as regarded the health of the crew, who had been stupidly brought within reach of the rigours of our northern winter without any provision being made, in clothing or otherwise, for the difference of climate. One series of consequences to the poor fellows, who were about 300 in number, were bronchial and lung diseases, dysentery, frost-bites, and other evils; and, from overcrowding in close quarters and filth while sick, typhus fever broke out among them. Upwards of thirty had to be sent to the Liverpool hospitals. A number of hospital attendants were seized with typhus fever, and several died, as also did a bath attendant, where some of the Egyptians went to get a bath. Of the entire crew of 300 seamen, nine died

* Read by Mr. Gordon Hills, at a meeting of the British Archaeological Association, already referred to.

of dysentery; but no fatal case of fever occurred among them, although they communicated the disease to 11 individuals who were brought into immediate contact with them, and of whom five died. So far as is known, none of these 11 individuals have communicated the disease to others. Liverpool, so far from being infected with malignant fever, has a mortality from fever at present, it seems, below the average.

THE PROGRESS OF BUILDING ABOUT WORCESTER AND MALVERN.

THE following particulars are collected from the *Worcester Chronicle* and other sources:—

Worcester Cathedral.—On the exterior, the south-eastern transept, which had reached a dangerous state of dilapidation, has been restored. Internally the same transept has now the true character of a transept: the three Italian arches which closed it up like a chapel, and which were introduced at some time or other to support the tottering masonry, have been removed; and the transept arch is open from the pavement to the apex. Two of the transept walls have been rebuilt and all the windows restored. The latest restorations run from the easternmost transepts to the east end, and comprise the whole of the walls, piers, and windows of the lady chapel, except those in the east, which had before undergone restoration. In taking off the plaster from the walls several blocked-up ambries and a staircase in the wall have been discovered. A memorial window is in preparation, by Messrs. Hardman, of Birmingham, for the east window of the north aisle of the lady chapel. New contracts will shortly be entered upon for carrying on the repairs westwards from the lady chapel to the principal transepts. Mr. Perkins, the architect to the Dean and Chapter, designs and superintends the improvements. Mr. Bennett is the present contractor.

St. Andrew's, Worcester.—This church has for some months been under repair. The improvements consist in nearly rebuilding the east end, putting in an Early Decorated east window, and new roofing the chancel. It is in contemplation to put in a painted window at the east end. Mr. Perkins is the architect, Mr. Bennett the contractor for the stonework, and Mr. Wilson for the roofing. The sculpture and decoration are by Mr. Bolton.

The City and County Bank.—Progress is being made at the Cross with the foundations of this building. The frontage on the Cross will be 56 feet in length, and the building will run back to the east 106 feet. The style is Roman. The walls of the Cross and the Avenue fronts, and a portion of the side opposite the church, will be of stone; the rest chiefly of brick. The stone will be obtained from the "Tally-ho" quarry, near Doughton-on-the-Hill. The stonework will be ashlar; the first story and the quoins rusticated. There are three stories with moulded string courses beneath the windows of the two upper stories. The architect is Mr. E. W. Elmslie, of Malvern. Messrs. Wood & Son are the contractors, and Mr. Thomas Sutton is clerk of the works.

Barbourne District Church.—This building is in progress, and has been carried as high as the windows. The architect is Mr. Freedy.

Broadheath Chapel.—The internal arrangements of this chapel have undergone some alterations. These have been effected under Mr. W. J. Hopkins, architect.

White Ladies Aston Church, near Worcester, has been undergoing restoration and enlargement under the superintendence of Mr. W. J. Hopkins.

Cow Honeybourne Church, which was rescued from desecration principally through the exertions of the local Architectural Society, has likewise been partially restored under the direction of the same architect.

Malvern Priory Church.—A great portion of the restoration of this edifice has been completed, but much still remains to be done. The operations have ceased in the nave for the present; and this part of the church is used for Divine service. It is closed from the tower by hoarding, which fills the arch on the nave side of the tower, and from the north transept in the same manner. The expense of completing the restoration will be considerable, and there is room for renewed appeals for further assistance. Upwards of 4,000*l.* have already been spent in the present restorations. The works are carried out under Mr. Scott, by Messrs. Pearson & Son, of Ro-s, the contractors. Mr. H. Roome is the clerk of works. The decorations on the ceilings are by Messrs. Clayton & Bell, of London.

Malvern New Cemetery.—About a mile from the Bell Vue Hotel, and near the Barnard's

green-road, a new cemetery has been constructed for Malvern. It occupies about 3½ acres of land, and is provided with two chapels, and a lodge. The chapels are connected by a tower surmounted by a broach spire. The style is Decorated, and the materials are the Malvern-hill rubble for the walls and Bath stone dressings. In the walls over each window throughout the building an arch of Cradley stone has been let in. The spire is of Bath stone. The roofs are covered in with ornamental Staffordshire tiles. The Dissenters' chapel has an internal area of 28 feet 2 inches by 17 feet. Its height is about 14 feet to the top of the wall, and 25 feet to the internal apex of the roof. The Church of England chapel has an area of 34 feet by 18 feet; is about 13 feet 6 inches to the wall plate, and 30 feet to the internal apex of the roof. The tower is 36 feet high, and the spire 36 feet above the tower. The architect is Mr. W. H. Knight, of Cheltenham; and the contractors are Messrs. McCann & Everal, of Malvern. Mr. A. Wall is clerk of the works. The chief of the carving has been executed by Mr. W. H. Morgan, of Birmingham; though some of the bosses of the Dissenters' chapel are by Mr. Wall. The contract for the chapels was 2,500*l.*, and for the lodge, gates, and laying out of ground, 1,000*l.*

The New Malvern and Malvern Link Railway Stations.—The new station at the Link (of which we have given an illustration) is drawing to completion. It is built of the local stone, with Bath stone dressings, and contains the usual station accommodation, with refreshment-rooms and offices. The Malvern station, for which the design has been prepared by Mr. Elmslie, will stand on the site of the line nearest the town. It will contain the usual accommodation of a first-class station. The walls of the station will be of red bricks, with Bath stone dressings; and the roof will be high-pitched, and slated with differently tinted slates in bands. The Malvern Railway Hotel Company have possessed themselves of twenty-two acres of land by purchase, adjacent to their hotel, and have laid it out in building lots, divided by broad roads, such as to allow of the erection of villas, with grounds. Several of these plots have already been sold. A number of other new villas are also now in progress. Some of these are from Mr. Elmslie's designs. Mr. James Shipway, architect, is superintending the erection of villas on the Chase estate. Other buildings are in progress at the Wells, the Link, and West Malvern.

STAINED GLASS.

Doncaster Parish Church.—Mr. Scott having been consulted as to the designs of Messrs. Hardman and Mr. O'Connor, for the Sharpe memorial window, and having given his opinion in favour of Messrs. Hardman, "subject, perhaps, to a few little improvements in detail," the committee last week decided, in accordance with Mr. Scott's recommendation, to adopt the design of Messrs. Hardman, and entrust that firm with the filling in of the window. An amendment to the effect that Messrs. Hardman be requested to state what alterations they propose making in their design, and that inquiry be made of Mr. Scott whether such alterations could not be made in the design of Messrs. O'Connor as would be satisfactory to him, was, after a lengthened discussion, rejected by a majority of 13 to 10.

St. George's, Altrincham.—The stained glass memorial window, given by Mrs. Holland, has just been placed in the east end of St. George's Church, Altrincham. It is in the Grecian style, and consists of three lights. The subject of the centre light is the Ascension, on one side of which is the Baptism of Jesus, and on the other side the Last Supper. The window has been executed by Messrs. Edmundson & Son, of Manchester.

PROVINCIAL NEWS.

Newbury.—The plans and specifications for the new Corn Exchange in this town have been sanctioned by the Home Secretary, for the raising of the sum required, which is 3,400*l.* The design is Italian. The front is to be of Bath stone, with pilasters and Corinthian capitals. The principal entrance is in the centre, and on each side are circular-headed windows. The roof, a great part of which is to be covered with glass, will be constructed with circular wooden ribs in one span, springing from moulded stone corbels, and the spandrels filled in with ornamental ironwork. Ventilation is provided by means of louvre boards running the whole length of the exchange. The internal dimensions of the building are 160 feet

long, 50 feet wide, and nearly 50 feet high. Mr. J. S. Dodd is the architect.

Pendleton.—The chief stone of the new schools in connection with Brunswick Wesleyan Chapel, Pendleton, has been laid. They are to be erected in Gardner-street, near to the Mechanics' Institute, from plans drawn by Messrs. Hayley & Sons, Manchester, architects. The building will be only one story high, in the Gothic style, and of red brick, the ornamental work and tracings to the windows being of stone. The roof will be of open timber. There will be accommodation in the schools, according to the *Manchester Courier*, for 650 Sunday, and 420 day scholars. The school will include a mixed or juvenile school, with four class-rooms, lavatories, and lobbies. A master's house, costing about 350*l.*, is also included in the estimates. The estimated outlay will be about 3,200*l.*, which includes 700*l.* the cost of land and law charges.

COMPETITIONS.

Saltburn Hotel.—The directors of the Stockton and Darlington Railway, after considering the merits of the respective designs for the Saltburn Hotel, have awarded the first premium of 50*l.* to Mr. Thomas Naden, of Temple-street, Birmingham; and the second of 30*l.* to Messrs. Green & De Ville, of London.

Longton Markets.—A correspondent, "Fair-play," asserts that several sets of designs were received with coloured perspectives, although these were prohibited. The writer further complains of partiality in the ultimate selection (the old story), but gives nothing but assertion.

Eastbourne.—Thirty-six designs were sent in competition for the new chapel in the old town of Eastbourne, Sussex, lately advertised. Out of these, seven were selected for further consideration, when one submitted by Mr. Blessley, architect, of London and Eastbourne, was adopted.

THE EXHIBITION GROUNDS.

Sir,—For the last seven years the progress of these works has excited much observation;—at first, the opening of magnificent roads; then the clearance of sundry houses in Kensington Gore; next the erection of museums most original in *liacaire* of design; and lastly, the laying out, or rather the circumscription, of some 20 acres destined for Horticultural Gardens.

An edict from the Royal Commissioners has now decreed that the National Exhibition is to occupy the whole area of unappropriated ground in juxtaposition with the gardens, and to extend the entire length of the south and west ranges. The plans have been already published; therefore it is permissible to give an opinion as to the arrangement and classification of institutions in such close proximity.

In the first place, it is assumed that the Exhibition building is to be permanent. The solidity of the structure in masonry bespeaks it; for it would be prodigal, if not worse, to demolish, after six months' service, a colossus which had been raised at the cost of 250,000*l.*; and that, even although the requirements of art in this vast metropolis needed not a permanent temple for the purposes of collecting and comparing, every tenth year, the advances of industry. But, in truth, such a temple could be occupied and well filled every year; and the reserve of so grand an institute, dedicated to useful or competitive objects, would not only pay the speculators, but prove a national benefit.

As to the character and style of architecture chosen, that has been pronounced on in the *Builder* of last week; and it clearly proves, as do also the buildings already erected on the land of the Royal Commissioners, that beauty of design had no place in the estimation of the authorities.

So far as the Museum is concerned, there is that within which passeth show. It was got up hastily, for utilitarian purposes. The Palace of Arts and the Horticultural Gardens are totally different: they ought to be, if indeed they are not designed to be, permanent.

To form gardens at an enormous expense would be idle, if, after a season or two, the whole were to be cleared away like the Crystal Palace of 1851; and yet, on regarding the position selected, seeing that they are surrounded by a 25 feet wall; that across the boundary roads they are overshadowed by houses 70 feet high; that dwellings agglomerate daily on every side of them; that the towering structure on the south will curtain off the meridian sun; and that the London smoke already forfends the bloom of our moss or common rose—surely it would seem that this is a most questionable site for a floral garden.

For a great international exposition, no site could be better adapted: in fact, there is no space left within the range of London, without trenching upon the parks; and of that we saw the havoc perpetrated by the first experiment.

There are some intrusions made on the Cromwell, the Prince's, and the Exhibition roads, *one-third part of the width being fenced off* throughout the whole frontage of the projected buildings; but that we suppose is only a temporary trespass, during the progress of the works; for its continuance would be both a violation of public rights, and a breach of faith with builders, who have expended large sums in noble ranges which illustrate the South Kensington quarter.

The immediate proximity of the Gardens is a convenient arrangement, so far as it will afford a popular promenade in all weathers. The invalid or valitudinarian will find in the mile of arcade a most agreeable solace in winter; and, in summer, fashionable crowds may resort thither, if a military band be superadded to the statuary, fountains, and exotic rarities of Flora.

Viewed, then, as the accomplishment of a great public necessity, and as a model to which other nations, having already deferred, will look with some interest; surely the plan and design of the intended building ought to be, if not illustrious, at least faultless; and, above all, it ought to be of an enduring character. A palace of Aladdin, a dissolving view, a crystal bubble to be blown into splendour, only to burst on the decline of a summer's sun, would be a needless waste of national resources, a profanation of the taste and talent of the age, and a wanton outrage upon most valuable grounds which have hitherto been always agreeable to look upon.

QUONDAM.

THE DESCENDANTS OF SIR WALTER SCOTT.

SIR,—Your correspondent "A. B.," in his interesting notes on "Descendants of Eminent British Worthies," falls into a mistake in saying that Sir Walter Scott's "race" "has perished," and also that "those of but slight relationship inherit his name and title." Now, not only has Sir Walter Scott a direct descendant living, but at the same time the title is extinct at present. A few words will explain this. The representative of Sir Walter Scott is Mary Monica Scott, the daughter of Mr. Hope Scott, the eminent Parliamentary counsel, and Charlotte, the daughter of Lockhart, who, as all the world knows, was Scott's son-in-law, having married Sir Walter's eldest daughter Sophia. Mary Monica Scott is the only surviving daughter of the late Mrs. Hope Scott; for, although a son and several other daughters were born, they died prematurely. Miss Hope Scott, who is now about nine years of age, is, therefore, the great-grandchild of Sir Walter Scott by the female side, and is the heiress of Abbotsford House and estate; her father, Mr. Hope Scott, being merely administrator or tutor in respect to the property at present. Should Mary Monica Scott die without issue, then the property, but not the title, will revert to the nephew or nephews of Sir Walter Scott, the sons of his eldest brother, who, I believe, are at present resident in America, or some of the other colonies. Thus, although "the hope of founding a family" in the direct male line, as Lockhart observes, "died with him," there is still a hope, which all will cherish, that this child, the sole living link that remains of the great minstrel's house and family, may grow up to woman's estate, and perpetuate the "race" which has already suffered such adverse fate.

TWEEDSIDE.

AN OPINION OF KING'S COLLEGE CHAPEL.

OUR facetious friend, Mr. Wm. Burges, in his lecture at the Architectural Photographic Exhibition (*ante*, p. 192), admires "a mock tournament between a man seated on a hog and a woman on a cock," when sculptured in Mediaeval masonry, "it makes fun with his usual 'fizziness' (whatever that may mean) of 'two acrobatic individuals' carved in the details of St. Paul's Cathedral, London.

In other words, he admires, with the rapturous (and often obscene) details in Mediaeval work, but holds up Classic angels to general reprobation. May I inquire if that be fair criticism, which leads to elevate the study of architecture?

In the same style he descants upon King's College Chapel, in Cambridge, but does so merely negatively. He says it is,

1. "That wonderfully over-praised building."

2. "It can hardly be placed before the architect as an example to be studied."

3. "The roof is a pretty puzzle in stone-cutting."

4. "All the rest of the building is positively bad."

May I ask Mr. Burges to give some reasons for these sweeping statements, viz.:

1. How, when, and where, it is wonderfully over-praised; with the chapter and page of books of reference that will prove his dictum.

2. All the leading architects, from Sir C. Wren to Sir C. Barry (both inclusive), have studied it with profit. Great men may differ: will Mr. Burges say why they were all wrong?

3. Professor Willis, in a paper read at the Institute of Architects, mathematically demonstrated the construction of the stone roof: will Mr. Burges state what portions are still a puzzle to him?

4. When a thing is "bad," it is generally negatively so: will Mr. Burges detail his proofs for asserting that this "building is positively bad."

I respectfully await his candid reply,
Trinity College, Cambridge.

M. A.

THE NUMBERING OF METROPOLITAN DWELLINGS.

HAVING been lately called upon in connection with certain inquiries to visit several houses in streets erected before the passing of the Metropolitan Building Act, I find much difficulty caused by the irregular numbering of the houses. In some streets the numbers are so confused that, even in the daytime, it is not easy to find them. In some streets there are three or more similar numbers, and halves and quarters of the same figure.

In my own case, in the house which I occupy, although the street is of no great extent, there are two Nos. 20, a 20½, and two Nos. 16. The trouble to the postman is considerable, and the wrong delivery of letters frequent, notwithstanding the care of these functionaries. In connection with my No. 20 the matter is made worse than usual, for my name is a common one, and the occupier of the other No. 20 seems to have the same. The postmen feel that a careful revision of the numbers of several streets is much required; and it is to be hoped that the mention of these circumstances in your pages will cause the subject to be taken notice of by the authorities, and will lead them to devise measures which will make the numbering of the streets of this vast metropolis as perfect as possible.

ONE NO. 20.

FIRE ESCAPES.

A LATE number of a pictorial American paper contained a representation of experiments made with "fire escapes," from the front of a "seven-storied hotel." Some particulars may be useful here.

1. A "sheet," or tarpaulin, or rug—materials not known,—apparently about 15 feet square, held by several persons, for the party to be rescued to jump into; and a fireman is represented—in rather too professional an attitude—doing so. Some courage would be required; but the dreadful immediate alternative, with the certainty of being safely caught, might brace the most timid mind. Might not our fire escapes, and especially engines, where the additional weight and inconvenience would be little, be furnished with these?

2. Italian (I am pretty certain,—else French—not having the paper before me) "ladders"—long, light, flexible, and extensible—say 25 yards, appearing to fasten by prongs, or grapples, to the walls, up and down which firemen move with celerity.

3. A "sliding" escape, similar to that best, perhaps, of ours, out of which a person cannot fall after entering. Strange to say, however, this appears to be a close tube, with no perceptible orifices, though there may be minute ones; resembling a gigantic elongated chimney-pot, rendering the idea of suffocation, spite of any rapidity of transit, more than problematical. If there be a reason for this imperviousness, it is probably that from the fabric being rendered anti-combustible, with chloride of zinc, or potash, &c., the "patient" might escape any outburst of flame.

Whilst on this head, the sliding escape may be flexible (canvass and ladder "sticks" rolling up), and kept in houses for letting down; the writer having descended in such a one, from curiosity, upwards of forty years ago.

Lastly, an idea which actually occurred to the

writer some eighteen years ago, only he proposed it to act from within, without external agency.—A species of sack, or resembling a large circular "portmanteau," raised on end,—here, probably, of leather or India-rubber, slung by a rope, with diverging cords; into which sack the party enters, and is lowered by a pulley. In the representation a fireman has entered, and lowers it, and the machine is large enough to hold three or four at once, and a male and female are represented descending together at the "trial." The writer's idea was that of a single one kept in a house, into which a person might get, and descend by a kind of jack-pulley. A graduating rope might be held in the hand, as related of the "cliff" ascent, in "The Antiquary." There are objections to this idea: it is for others to say whether they are insuperable.

It has been well said, that "escapes" from fire should presuppose want of presence of mind through alarm; but the contingency is so dreadful, that persons should discipline their minds by acquaintance with the openings and details of escape, including moving as near the ground as possible in case of its occurrence.

D. P.

THE MAGNESIAN LIMESTONE.

SIR,—A very cursory view of the Anston quarries, whence the stone used in the Houses of Parliament was excavated, will account for the dilapidation of the Palace at Westminster.

The face of the stone in the quarries exhibits at irregular distances perpendicular sand cracks extending the whole depth of the quarries, and separating the stone into large masses, 30, 40, and 50 feet square. On each side of these sand cracks the stone is soft, and crumbles away; and, at the distance of 12 to 24 inches, it becomes again hard and flinty. There are also a top and bottom bed of the stone much softer than the general mass of the workable stone, which is inexhaustible in quantity, and equal in durability to any magnesian limestone in existence.

In conversation with some men who had worked for many years in the quarries, I learnt that it was notorious that much stone unfit for external work had been sent to London; and I observed in the quarries, when I visited them recently, several refuse blocks, one end of which was decaying, whilst the other end was perfectly hard.

Without imputing any wilful neglect to the architect or inspectors of the works then in progress, I cannot help thinking that, if a more strict examination of the stone supplied by the contractors had been exercised, we should not now have to lament the dilapidation so prevalent in the Houses of Parliament.

I have no interest in the Anston stone quarries, and my sole object in this communication is the elucidation of the truth.

G. T. H.

THE STAGE.

Royal Italian Opera.—Mr. Gyo opened his new season on Tuesday evening last with the "Prophète," and a house full to the ceiling. It is more than likely that he will remain without rivalry, the manager of "Her Majesty's" giving no sign. Madame Czigag (*Fidel*) is justifying all we hoped from her. Tamberlik is in admirable voice, and the whole opera, indeed, is faultlessly performed. The scenery is of striking beauty. Although produced last year it must be considered as quite new—only a few nights having elapsed after its production before the close of the season. The opening scene, the winter scene for the skaters, and the interior of the cathedral arranged for the coronation, are admirable specimens of scenic art. The subscription for the season, we are glad to hear, is a very good one.

The Haymarket Theatre.—Some very pretty and effective landscape scenery has been painted by Mr. Frederick Penton for Mr. Buckstone's revival of "The Miller and his Men";—especially the first, a view on the Elbe, Bohemia, with Cottage of Kelmair; and the Interior of the Robbers' Cave beneath the hill, with a "live" waterfall of no ordinary extent at the back. "The Miller and his Men" recalls those days when "characters," a penny plain, and twopenny coloured, were the delight of boyhood. Every word of it must be recollected by thousands, but this evidently does not interfere with the success of the revival, which seems to be unquestionable. "A Duke in Difficulties" increases in popularity. Many ill-natured things have been said about it most unjustly. It is to some extent wrongly cast. Mr. Compton, for instance, good actor as he is, is altogether out of place as the lady-killing Bellecour. Mr. Buelstone, Mr. Clark, and Mrs. Stirling

are, on the other hand, excellent. The opening of the second act, the Ruins of Waldstein, with a Royal Pic-nic, is a picture worth seeing.

DISCOUNTS TO ARCHITECTS.

SIR,—I beg to recommend to architects the following form of reply to tradesmen whose letters, similar to one I inclose, are a constant and serious nuisance.

J. P. S.

"SIR,—Your letter offering a commission upon orders obtained for you by me I have placed in a pigeon-hole specially devoted to 'insults'; the next I shall forward to the Builder. Your obedient servant."

SIR,—One or two letters have appeared in your columns on the subject of trade discounts, as allowed to architects.

Discounts are given to the trade, as I understand the matter, on the principle that the trade is entitled to wholesale prices, while the public is only entitled to the retail prices; and I presume the reason for this distinction is, that builders and others in the building trade require larger quantities of bricks, lime, glass, timber, tiles, ironmongery, &c., than the public does, and are more likely to repeat their orders; the orders thus being on a larger scale, and more frequent, can be executed with greater economy by the dealer in building materials; and part of this benefit is conferred on the builder who gives the order.

Now, if my statement of principles be correct, why is not a surveyor, in his degree, entitled to a trade discount as much as a builder? Does not he, perhaps in a smaller way, repeat his orders, and order larger quantities at a time than the public? Perhaps the trade discount should be less to him as his transactions may be smaller; but in his degree he is between him and the dealer in building materials—is surely entitled to a discount. As between the surveyor and his employer, I admit, another question arises; but this question is one simply of honest dealing, and must be left for each surveyor to settle between himself and his employer; the best way being, in my opinion, to give the employer the benefit of any discount procured, and charge the employer for any additional trouble the surveyor may have incurred in procuring it. If it is a convenience and also an economy in many contracts to reserve, say, the tiles for pavements, the plate glass, the ornamental iron-work, &c., and supply these to the contractor when wanted, reserving these involves the architect or surveyor in additional trouble. Let him procure the things reserved for his employer at the lowest rate he can, and charge for his additional trouble.

Assume that we hasten the commencement and therefore the completion of the work, that we economise or otherwise benefit our employer, and what other than some such courses, as men doing the best we can for our employers, are open to us?

If it were not that the dealers in building materials, &c., make a mystery about their discounts, as if there was really something under-hand in the matter, such transactions as I have described would never be confounded with that lack of fair dealing, into which employers have been made to draw all of us doubtless: I mean, the receiving a percentage from builders employed by us. A percentage from a builder is doubtless money drawn, as was, indeed, tenaciously insisted some seven or eight years ago, when a builder, who had for the first time given me an estimate for a job, on understanding that I expected no money from him, at once reduced his estimate by 5 per cent., saying he had put on that amount for me! Another builder I recollect, who, having been at work for me for three months of a year, ought to have known better, actually sent me in, "to begin the year with," a scale of percentages he proposed to allow me, under different circumstances; the least per cent., if I recollect rightly, being for contract work procured in competition, the largest for jobbing and day work. But surely, receiving a trade discount from dealers in building materials, openly acknowledged for between ourselves and our employers, is not only altogether different from such transactions as these last, but is receiving something we are, each in our degree, fully entitled to, from the dealers in building materials, which, as doing the best for our employers, we are bound to procure for their benefit. For the dealers to object to it, indeed, is, in my opinion, merely for them to stand in their own way, as they are thus interposing needless difficulties in the way of the public getting their work done in the most advantageous manner to itself, and we all know that it is the interest of the seller to put every possible facility in the way of the buyer.

AN ARCHITECT AND SURVEYOR.

SIR,—Mr. Kerr's letter, headed "Wat Tyler," which I have but just noticed in the *Builder*, of the 30th March, is the first intimation I have had of my letter in the *Builder*, of the 2nd March, having been noticed by the Institute. In cases where any personal matter is involved, I have just as much objection as Mr. Kerr can have to anonymous communications. But in this instance there appear to me several reasons justifying my refusing to divulge my name. My good faith, is, I think, sufficiently guaranteed by my name being known to yourself, and I wish to avoid the suspicion involved by a much too common practice of discussions of this kind being made a mere excuse for publicity. I could not publish my name and business without casting a reflection on my brother manufacturers of kindred craft, who deem it right to allow discounts to architects; and, furthermore, it is scarcely just to ask me, for the sake of a mere matter of etiquette, to alienate from myself several of my customers.

However much Mr. Kerr may doubt the justice of my charges, it must after all be a matter of fact whether they are true or false. I did not make a single statement of a "random" or indefinite character, but merely chronicled the fact of certain communications having been made to me, and, if my facts are doubted, I shall be quite willing to put myself in communication with Mr. Kerr or Professor Donaldson; and, if they think it will not involve me in a breach of good faith, show them the letters to which I referred. If they, on seeing them, think my statements were in the slightest degree exaggerated, I shall feel that they will be perfectly warranted in calling upon me for a public explanation. I cannot think any one is justified in taking umbrage, on behalf of the

* "Wat Tyler" does not read his *Builder*.

Institute, at my letter, as a reflection either upon architects in general or upon the Institute in particular. Amongst the numberless requests for discounts I have received from people practising as architects, I believe I have never had a single application from a member of the Institute. The conditions of membership at once disprove such a suspicion, and my proposal to further extend the operation of the Institute to check the practice clearly exempts me from the charge of having cast the slightest reflection upon any of its members.

I have received, since writing my letter of March 2nd, two or three fresh applications from architects for discounts; and it was only this morning's post that brought me a letter from an architect concluding as follows, viz.,—"I suppose you allow architects the usual commission on all work." Does the word "usual" mean anything or not? And, again, I ask, is it a good thing for the profession to be supporting a number of men on the direct plunder of the public? I, as a manufacturer, know that I suffer from it in a variety of ways, as does every member of the architectural profession without knowing it, or can only be responsible for his share of assistance in their checking surreptitious commissions upon which they have worked to a certain extent with success? or is every one who exposes them to be called in question?

WAT TYLER.

PATENTS CONNECTED WITH BUILDING.*

MACHINERY FOR THE MANUFACTURE OF PLAIN AND ORNAMENTED BRICKS, SLABS, TILES, AND QUARRIES.—*J. T. Green*, Moreton, and *S. B. Wright*, Parkfields, Barnstaple, Staffordshire. Dated 30th April, 1860.

This invention consists, under one modification, of a revolving screen with a self-adjusting or elastic roll-squeezer to feed the clay into a pug-mill, as heretofore used, and of a combination of two, three, or more such pug-mills, by means of which two, three, or more streams of clay are delivered into a chamber with adjustable partitions or tongues, the bottom of which is, by preference, composed of revolving rolls (such as have been heretofore used in working clay), which, carrying the clays past the tongues, forms them into sheets of the thickness of the space between the tongues and the surface of the rolls: these streams of clay are then carried between the jaws of the rolls, and squeezed together and united into one compact stream. If bricks are required, the clays are propelled by the rolls, as in other brick machines working by rolls, through a die of peculiar construction.

CONSTRUCTING BRICK WALLS, AND ORNAMENTING THE MATERIALS TO BE USED FOR THE SAME.

W. Bosford, Burslem. Dated 12th May, 1860.

The first part of this invention consists in constructing walls so that their interior or exterior or both faces shall be composed of materials more even and permanent in colour, and more suitable for resisting the action of the weather, than those ordinarily employed. The patentee effects this by using small slabs or bricks of a better material, and prepared in a superior manner to ordinary bricks. These slabs are of two kinds: the one has a sectional area equal to that of the ordinary header brick; the other has a sectional area equal to the face of a stretcher brick. He calls these the improved header and stretcher faces, or face bricks. Their thickness varies according to their application, being from 1 inch to 3 inches, or even more. He makes use of one or both of these bricks, as may be wished, or according to the kind of wall built. In the next part of the invention he proposes to rabbet or recess either the two front corners or all the corners of the stretcher brick, according as he is about to line one or both faces of the wall; so that, when two bricks come together, he is enabled to place one of the face headers within the recess formed by the two rabbeted corners of the bricks, which not only produces the effect of an ornamental face, but forms a complete cover to the joints of the bricks. By causing the face to project from the rabbeted recess, and placing another stretcher face along the ordinary stretcher brick, so as to come flush with the front face, the whole of the wall may be faced with the improved slabs.

PORTABLE BUILDINGS.—*J. Chesterton*, Leicester. Dated 13th September, 1860. Bars of angle-iron are used for connecting together the panels, sheets, or plates of which the walls or sides

and roofs of the buildings are composed, as well as supporting the rafters or joists of the flooring and the roofs. The patentee constructs the walls of panels, plates, or sheets of zinc, iron, or other suitable metallic or non-metallic material, plain or corrugated, and to the vertical and horizontal edges of the said panels or plates he attaches, by riveting, or otherwise, bars of angle-iron. The invention cannot be described in detail without reference to the drawings.

IRON AND CAST-IRON DWELLING-HOUSES.—*A. Tronchon*, Paris. Dated 15th September, 1860. This invention consists in employing cases about 20 inches in height in the form of a rectangular parallelogram of cast-iron, corresponding to walls of 20 inches, 16 inches, or 8 inches in thickness, according to the height and size of the house to be constructed. These cases are without a bottom, and are superposed like free stones, and may be plain or ornamental as required. The large openings are formed by cases supported by internal frames, and these cases form the thickness of the walls. To avoid the too great expansion of the iron by heat, and also its sonorosity, the spaces between the sides of the cases are filled with earth, sand, or other suitable substances. The internal walls and partitions may be formed of two metal plates placed parallel, and strongly joined together. The openings are furnished with metal frames or casings having rabbets formed in them. The floors are made of T-form iron pieces, adjusted to the cast-iron frames by bearings, so as to be supported on each of the two sides of the same case.

BRICKS, TILES, &c.—*P. Effertz*, Manchester. Dated 28th August, 1860. The machinery purifies, mixes, and raises the clay by means of screwed and spiral knives, and presses the material so prepared into appropriate moulds in the following manner:—The freshly dug clay is passed into a hopper which opens into the machine. This hopper has in its interior, near an opening at the bottom, a shaft with revolving combs or beaters, by means of which the clay, partly prepared in this way, is pressed into an elevator close to the opening, and effects the supplying to the spiral knives, which are enclosed in an elliptical vessel called an elevator, in which above the knives is a grate or grid for the detention of stones and other objectionable matter. The knives raise the clay which has been conveyed from the hopper through the grate into a drawer which runs in grooves in the elevator. After the drawer has been pushed forward the clay is removed out over the mould, which is close to, and at the same elevation as, the elevator, and is then pressed into the mould by means of a closely-fitting piston or presser; when, according to the size of the machine, from two to ten bricks may be formed in the moulds. After the pressure the piston is removed out of the drawer, when the latter moves back again over the elevator to be filled afresh. During the time of re-filling, the piston goes down a second time; and, when coming up again, the bricks are raised in conjunction with a type which, during the pressure, forms the bottom of the moulds. The bricks are now pushed out by the again approaching drawer, on to an endless apron, and are then rolled off, by means of a ratchet wheel, on to the adjoining roller table of the wagon. By means of this combination one or two men are said to be capable of transporting from 200 to 500 bricks to the drying places without touching them.

Books Received.

Transactions of the National Association for the Promotion of Social Science. 1860. Edited by G. W. HASTINGS, LL.B., General Secretary of the Association. London: Parkers & Bourne, West Strand. 1861.

SOCIAL SCIENCE embraces the whole community of a nation in one all-comprehensive view: it is quite as much affected by the rich as the poor, the high as the low. It even transcends to separate nations, and has just pretensions to an international status, as the true regulator of social intercourse between one people and another. The questions involved in the pursuit and progress of this noble and most important—we had almost said this highest—branch of human science—the science of ourselves—the true nose-à-terreum, so to speak, are not mere poor man's questions, therefore; although the science comprises every poor man's question in its extensive grasp. Many questions in social science have nothing specially or directly to do with the state or prospects of the poor, although in truth there is no single question within its limits with which both poor and rich have not indi-

* From the *Engineer's* lists.

rectly and ultimately to do. Neither has social science anything specially or directly to do with that bastard science which has so long usurped its name; although indirectly it may, some time or other, be called upon even to consider its errors, and its truths as well,—for "Socialism," so called, is a hypothetical and erroneous science which could not have been reared unless its errors had been mixed and cemented with important truths, even while based fundamentally on totally mistaken ideas of the natural constitution of man, as a living organism, possessed by energetic, active, regulative, self-originating forces, and not a passive creaturely result of mere organization, totally at the mercy of outward circumstances, and plastically and entirely moulded by them.

The grand objects of social science may be gathered from a brief summary of some of those questions and objects which "The National Association for the Promotion of Social Science," whose "Transactions" in 1860 we are about to speak of, have in view.

This association was established in 1857, under the presidency of Lord Brougham, to aid in the general development of social science; to guide the public mind to the best practical means of promoting the amendment of the law, the advancement of education, the prevention and repression of crime, the reformation of criminals, the adoption of sanitary regulations, and the diffusion of sound principles on all questions of social economy. The association aims to bring together the various societies and individuals who are engaged or interested in furthering these objects; and, without trenching upon independent exertions, seeks to elicit by discussion the real elements of truth, to clear up doubts, to harmonize discordant opinions, and to afford a common ground for the interchange of trustworthy information on the great social problems of the day.

Of its several annual meetings, and the valuable papers read at these, we have, ere now, given accounts in the *Builder*. The association met at Birmingham in 1857; at Liverpool in 1858; at Bradford in 1859; and at Glasgow in 1860. It is the record of the Glasgow meeting we have here before us. In August of the present year the association will meet in Dublin. Various branches and local associations have been, and are being formed, as at Liverpool, Bradford, Edinburgh, Aberdeen, and even Constantinople. Efforts are being made to establish others, as at Brighton. There are also societies formed in connection with the association, none of which is the Workhouse Visiting Society, of which the Hon. W. Cowper, M.P., is the president, and Miss Louisa Twining, the secretary; another is the Society for Promoting the Industrial Employment of Women, of which the Earl of Shaftesbury is the president, and Miss Jane Crowle the secretary.

The volume of Transactions of the Social Science Association for 1860 contains, besides an introduction by the editor, a sermon preached before the association in the High Church, or Cathedral, at Glasgow, by the Rev. John Robertson, D.D., on "The Kingdom of God," and the Opening Address by Lord Brougham; many other important addresses and papers, including an address on Jurisprudence, by the Lord-Advocate,—on Education, by Sir James Kay Shuttleworth, Bart,—on Punishment and Reformation, by the Hon. A. Kinnaird, M.P., and on Social Economy, by Sir James Emerson Tennant; select papers, notices of papers, &c.—on Jurisprudence and Amendment of the Law, mercantile, proprietary, international, &c.—on Education, upper and middle class, as well as public, elementary, and other forms,—on Punishment and Reformation, including the treatment of offenders, reformatory and industrial schools, drunkenness, &c.—on Public Health, with an address by Edwin Chadwick, C.B., and including papers on the Influence of the Construction of Houses and Towns on Public Health, measures for its improvement, hospitals and epidemics, diseases, &c.—and on Social Economy, including labour and capital, the condition of the working classes, industrial employment of women, poor-law and charitable relief, &c.

Many of these papers, as well as the addresses,

* We may here reiterate that, under the auspices of this Society, an Industrial Home for Young Women has been opened at 29, New Ormond-street, under the sanction of the Bishop of London; the management being carried on by a sub-committee of the Workhouse Visiting Society. In this home, girls of 15 to 25 years of age are received from workhouses, and trained for service, taught needlework, &c., and are thus happily rescued from pauperism and depravity. Contributions for this most excellent object are earnestly requested. For 4s. weekly, or 10l. a year, any one can recommend an inmate to the Home. The secretary, Miss Twining, receives contributions at the Society's office, 3, Waterloo-street, S.W.

are given at length in the volume, which extends to 900 pages, including a useful index and a laborious summary of numerous minor papers.

VARIORUM.

"PEOPLE whom we have never met" is the title of a lecture delivered in the General Post-office Reading-room, by Mr. Frank Ives Scudamore, and now printed.* If all their lectures have been as good as this, the members have reason to be satisfied. With a pleasant pen and good memory Mr. Scudamore introduces his readers to the troll, dryad, faun, peri, fairy, brownie, nix, and cobold of the poets. To enter fairy land usefully,—

"Imagination needs must stir,
And we may well believe,
Minds which have nothing to confer
Have little to perceive."

The spirit land is never empty, though its bowers often change owners:—

"So long as the heart has cravings which the visible world cannot satisfy; so long as the execution by human instruments falls short of the conception by human minds; so long as anticipation transcends enjoyment, and weariness follows on success;—so long will man imagine to himself a land in which no bitter drug can dash the cup of pleasure; so long will he picture to himself that bright and happy world, store it with whatever he most values and admires, endow its inhabitants with whatever he can conceive of power, majesty, and beauty, and exult in the hope, nay, in the conviction, that they will not always be 'People whom he has never met.'"

"Ventilation of Coal Mines," by a Colliery Manager (Simpkin & Marshall), although not very well written, contains, in sixteen pages, a great deal of sound sense, and deserves the consideration of all who are interested.—A very useful idea is being well carried out in "Low's Quarterly Index to Current Literature" (Sampson Low & Son, Ludgate-hill, publishers), of which the eighth quarterly part has just been issued. It contains a good selection of titles, &c., of the more important subjects treated of in new books and in the chief reviews, magazines, and journals of the day. The quarterly reviews referred to are the *Edinburgh Quarterly*, *British*, *London*, *North British*, *North American*, and *Westminster*; the monthlies, *Blackwood*, *Gentleman's*, *Fraser's*, *United Service*, *Bentley's*, *New Monthly*, *Dublin University*, *Macmillan's*, and *Cornhill*; weeklies, *Athenæum*, *Literary Gazette*, *Critic*, *Saturday Review*, *Examiner*, *Spectator*, *Builder*, *Economist*, and *Gardener's Chronicle*; daily, the *Times*; occasional, the *Transactions of Learned Societies*, *Reports*, and *Parliamentary Papers*. Of the manner in which the Index is made up we may give the following as an example:—

Stone for building: production of... *Builder*, p. 761.

"Weight of... Architects' Institute Papers, 1850.

"Work, decay: *Times*, Oct. 16, 17, 18, 20, 24,

Dec. 25; *Builder*, p. 761; *Cornhill Magazine*, Dec., p. 712.

Miscellaneous.

LIVERPOOL SOCIETY OF FINE ARTS.—Mr. H. P. Horner delivered an interesting lecture on "Architecture in Outline," at the Royal Institution, Colquhoun-street, on Tuesday evening in last week, to the members of this society. Mr. Thomas Duncan presided.

STEAM ON COMMON ROADS.—Mr. George Frederick Young has forwarded to us a communication in reply to the letter from the Secretary of Bray's Traction Engine Company in a previous number, giving his reasons for omitting mention of Bray's machine in his book, and denying that his interests are in any way identified with the "Endless Railway." These reasons would not be satisfactory to the Company, and would lead to a controversy, for which we could not afford room.

A STREET TRAMWAY AT SALFORD.—The municipal authorities of Salford have resolved to allow Mr. John Greenwood, of Pendleton, to lay down, on Haworth's patent perambulating principle, of which we have before spoken, an iron tramway for omnibuses, from Windsor-bridge to Albert-bridge. The principle of Haworth's patent is regarded by the Salford committee, to whom the matter was referred, as being preferable to Trains. It seems to be scarcely so simple, however, although it has the advantage of being available for all vehicles to which a perambulating guide-wheel for the middle rail can be applied; such vehicles requiring no flange wheels in this case, although the side tramways are level with the road. The guide-wheel runs in a groove 9-16ths of an inch wide, in the centre rail on the road, and can be depressed so as to enter the groove, or raised so as to be free of it, so that the vehicle can either run on or off the tramways, at the pleasure of the driver.

* Griffith, Langley-street, Long-acre. 1861.

GLASGOW ARCHEOLOGICAL SOCIETY.—The monthly meeting of this society was held last week, Mr. Galloway in the chair, when a paper was read by Dr. Soular, on "Celtic Mythology." A short communication was also read by Mr. Neil, entitled, "Notes of some instances of Volunteer Services of the Inhabitants of Glasgow."

PLATE-ENGRAVING IN RELIEF.—A new process of engraving, termed *Christophy*, has been invented by M. Firmin Didot, the object of which is to transform a plate engraved in the ordinary manner (*en creux*) into a relief, in which the subject can be printed on the usual printing-press, or surface-printed.

A NEW BRIDGE FOR BLACKFRIARS.—In the London Court of Common Council, last week, a report recommending that Blackfriars-bridge be demolished and a new one built was adopted, by a majority of 72 to 47. The committee are of opinion, after taking advice of some of the leading engineers, that the present bridge is so hopelessly unsound at the foundations that it will cost much more in the long run to maintain it than to build another. Two amendments, proposing, in the first place, a competition for designs and estimates, were rejected.

THE HANLEY SCHOOL OF ART.—The annual meeting of this school has been held; the Mayor presiding. The hall was crowded. The local building called the British School is to be purchased for the exclusive use of the School of Art. The Mayor congratulated the meeting on the satisfactory state of the school. The report stated that the attendance of the pupils had continued firm, and that the total number shows an increase on the previous year. The works sent to London for the national competition held in May last proved highly creditable to the school, and as successful as at the former competition, the Queen's prize having been awarded to seven out of thirteen. For three years in succession the maximum amount of prizes has been reached. The statement of accounts showed, donations and subscriptions, 1307. 0s. 6d.; fees from students, 1257. 14s.; total, 2564. 2s. 6d. The total expenditure had amounted to 3191. 15s. 5½d.

"LIQUID GAS:" A LAND FLOWING WITH OIL.

—A correspondent of the *Times*, in describing the oil springs in Pennsylvania, of which we some time since gave an account, says:—"The wells are mere holes in the ground, about 6 inches in diameter. They are dug by driving cast-iron pipes, 4 inches inside diameter, to the rock, varying in depth from 10 to 60 feet. After finding a 'good show' of oil, a pump is put into the well, driven by steam, and the oil and water pumped into large vats holding a hundred barrels each, the oil rising to the top while the water is drawn off at the bottom. The crude oil is sold readily at 1s. 2d. to 1s. 4d. sterling per gallon at the well, and the barrels paid for extra. It makes a better light when refined than any other burning fluid. I have ever seen—second only to best coal gas, with no liability to explode like many illuminating fluids. It is also in its raw state an excellent lubricator. The phenomena produced upon opening some of these wells are very singular. One opened at Tidionte, a week ago, spouted the oil and water to the height of 60 feet, forced by the gas, the generation of which seems at all times to be going on. The supply seems inexhaustible. Wells that commenced pumping at the rate of 160 gallons per day are now pumping six or seven times that amount. The demand seems to augment with the supply." This oil is evidently much the same with those mineral oils which are distilled from shale, coal, &c., and now getting into extensive use in this country as a sort of "liquid gas." These oils are more or less pure hydrocarbons, and seem, when properly distilled, only to require some further improvements in the lamps in which they are burnt, to render them a convenient and excellent substitute for gas. Even as it is, by a little attention and management, they are not only cheaper, but for light far preferable to composite candles, and even to much of the gas in use. Could not platinum gauze be so applied near the wick as to greatly improve the lamps in use for these oils? The wicks are of cotton, but last for months; and, being tipped with platinum gauze, properly applied, there might be no waste at all of wick; while the oil, which rises under the heated dome of the burner in a gaseous or at least vaporous state to be burnt, would burn still more brilliantly than it does, and clear of the least smoke or trouble. If we are now to have pure gas in private dwellings, there may be less need for the liquid gas lamps than we lately anticipated; but much use may be required of them in towns as well as country dwellings ere this desirable end be fully accomplished.

A TRADE FOR CONVICTS.—The whole of the convicts employed on St. Mary's Island, Chatham, are to be instructed in brickmaking, a clay of a nature suitable for the manufacture of bricks having been discovered on the island.

FALL OF AN IRON ROOF.—The iron roofing of a gasbush in course of erection at Batley has fallen on a number of labourers who were working at the structure. Five of them are so seriously injured that their lives are despaired of.

SHIPMENT OF GAS FROM AMERICA TO LONDON. Mr. Williams, who fitted up the cars on the Pennsylvania Central Railroad for burning gas, says the *Philadelphia Gazette*, has also taken a contract from Hathaway & Leach, of this city, for fitting out a number of cars to be used on the street railways in London; and wrought-iron cylinders have been sent to the railroad workshops in Altoona, to be filled with compressed gas by means of the company's apparatus there; so that before long we may expect to hear of American street railway cars in London, lighted with gas made at the foot of the Alleghany mountains.

STEEL MANUFACTURE.—An invention which relates to a new mode of manufacturing cast-steel direct from malleable, scrap, or bar iron, or both, by means of which the iron is converted into steel in a very short time, and at a great saving of fuel, by a simple process, without the intervention of blower-steel, has been provisionally specified by Mr. George Nimmo, of Glasgow. According to one modification, the iron is cut into small pieces and placed in a crucible, and the carbonizing materials, with black oxide of manganese, are added thereto. The contents of the crucible are subjected to the heat of a furnace, the action of which is assisted by the aid of a blast of air either heated or at the natural temperature. In about 1½ hour the crucible is withdrawn, and the contents poured into ingot moulds.

ELECTRO-TELEGRAPHIC PROGRESS.—The London District Telegraph Company having nearly completed their original system of wires for general messages, extending east, west, north, and south of Charing-cross, are now undertaking the erection and maintenance of lines exclusively for private purposes. The Company are also issuing adhesive stamps somewhat similar to postage stamps, to be used in payment of messages, thus avoiding the inconvenience of the frequent payment of 6d. for each message. These stamps are available wherever any of the seventy London or suburban telegraph stations extend. The wires of the General International and Submarine Companies are now carried into the offices of the *Times* and *Morning Post*.—The Russian Telegraph from China to Europe, according to late advices, is making rapid progress, and is already complete over some 600 miles to the eastward of Moscow, viz., to Perm, on the border of Siberia, say to long. 55 deg. E. and lat. 58 deg. N. The line will not follow the Amoor river, but cross to Nestschinsk, and then run down the Shilka to Oustrelka, a point 6,000 miles from Moscow.

GRINDING MONEY.—In the Sheriff's Court, London, a case, *Best v. Lamprell*, was brought to recover 1s. 3d. for one quarter of a day's grinding money, plaintiff being a journeyman, and defendant a master builder. After some evidence had been gone into, the sheriff signified that he was hardly satisfied with plaintiff's case as it stood. As far as it went, defendant admitted having paid grinding money, when the journeyman worked out of doors; but the point to decide was, was it customary to pay grinding money to other journey-men? He would grant an adjournment. At this moment, however, a tradesman stepped out from the body of the court, and said he was a stranger to plaintiff and defendant, and had come to the court upon business of his own: he then said, "My name is James Weighill. I am a master builder. I have worked as a journeyman. I have kept men. I now keep two. I have received and paid the 1s. 4d. grinding money. Whether working in the shop or not at a job, it is customary to pay this money." Cross-examined by defendant: I have worked for some large firms. One large firm in the Kingsland-road paid it. Messrs. Myers pay it, and all the large building firms pay it.—The magistrate then said: I confess the evidence of the last witness considerably relieves the court: the witness has bridged over the gap in plaintiff's evidence; and, having been himself both journeyman and master, is well qualified to speak. This is not a small matter of 1s. 3d., but one of considerable importance to both masters and men. If defendant objects to paying the grinding money to men employed in his shop, he must mention it when they enter his service, or put up a notice in the shop. In the present case plaintiff will have a verdict with costs.

NARRAGHMORE CHURCH, CO. KILDARE.—The chance of this church was rebuilt some years since; and, in consequence of the dilapidated condition of the nave, it has been determined to rebuild it. Plans have been prepared by Mr. Withers, architect, of London. The new nave will be built on the old foundations, in the Geometrical Decorated style. A porch and western spirelet will form part of the design. The roof timbers will all be exposed to view, and stained. The walls and dressings will be of local granite. Stained glass and coloured decorations are intended, as funds permit. 1,000*l.* are required by the rector to complete the main features of the work.

ELOCUTIONARY ENTERTAINMENTS IN MECHANICS' AND LITERARY INSTITUTES.—The president of the Barnsbury Literary Institute warns Mechanics' and Literary Institutions of the penalties they may be sued for by the Dramatic Authors' Society, on account of elocutionary entertainments. A meeting, he says, will shortly be held, "to denounce the system of harassing those who freely devote time and energy to the support of Literary Institutions, and to apply a remedy." We cannot believe, however, that there is really the least reason for alarm on this score, whatever powers, in the state of the law, the Dramatic Authors' Society may be able to use, and however strictly they may look after the performances at concert-rooms, and such like places of entertainment.

NEW LONDON CHURCHES.—The Bishop of London has appointed Tuesday, the 9th inst., for the consecration of the new church of All Saints, Kensington-park, designed by Mr. White, and illustrated in our pages long ago. The new church in course of erection in Baldwin's-gardens, Gray's-inn-lane, the place where the "Thieves' Kitchen" formerly stood, at the sole expense of Mr. J. G. Hubbard, M.P., is approaching completion, and will be ready for consecration in the course of the summer. The church, which is from the design of Mr. Butterfield, is built of common brick, banded in different colours, the shafts of the pillars being of red earthenware. The walls are carried up to a considerable height before the windows are reached, and the greater portion of the light is obtained from the clerestory. At the west end is a narthex, or Galilee porch. To the south are the parsonage and sexton's house. A new church is in course of erection in Star-street, Paddington, for the accommodation of a portion of the rapidly-growing district of St. John. The church in Knightsbridge is approaching completion, and that in Windmill-street, Piccadilly, is progressing satisfactorily.

BREVETTY.—M. Louis George, of Deane-street, Soho-square, and Rue d'Enfer, Paris, has taken out a patent, in this country as well as in France, for an invention by means of which, as he states, compositors can economize their time at case to the extent of one-third that at present requisite in setting up types for the press. M. George has what he calls a cold solder, with which the compositor, or any one else, can solder together the types of such letters as are frequently used together, so that they can be used at one lifting instead of two, three, or more, as in those cases in which such letters as fl, &c., are already cast together in one piece. The idea of an extension of this latter practice is by no means a new one; but it is alleged that M. George's system does not necessitate much increase in the number of separate compartments at case, and that the compositor need scarcely lose a moment's time, by hesitation, or want of habit, even at the commencement of the system. Many years since attempts were made to realize some such system by casting frequently associated letters, and even very common words, in one piece; but the case to contain so many compartments became too ponderous and unmanageable: what advantage M. George's cold solder has, over this older method of attaining what seems to be much the same end, we cannot well see; but it might be made useful in altering stereotyped plates.

TENDERS

For erecting ten carcases at Forest-gate, for Mr. Hart. Mr. John M. Bryson, architect. Quantities supplied:—
Howard & Walker 2,956 0 0
Hemmings 945 0 0
Soden 940 0 0
Rivitt 693 0 0
Davis 869 12 0
Watts 837 0 0
Page 750 0 0

For alterations to Llangwn vicarage. Messrs. Prichard & Seddon, diocesan architects:—
Lewis 210 0 0
Ramm 238 0 0
Doule 210 0 0

For the erection of schools, Jacket-street Congregational Chapel, Ipswich. Mr. Frederick Barnes, architect:—
Hunt £870 0 0
Luff 785 0 0
Wright 777 0 0
Girling 733 0 0
Fells 729 0 0

For alterations, Guildhall, Norwich. Mr. Barry, city surveyor:—
Lloyd £720 0 0
Worman 636 0 0
Wordingham 681 0 0
Bright 619 5 0
Spinks 610 0 0
Rust 577 0 0
Stanley 570 0 0
Lacey 503 10 0
Young 555 0 0
Ling & Balls (accepted) 551 19 0

Second contract for works in making sundry alterations and additions to No. 1, Waterloo-terrace, Commercial-road, E., for Mr. J. Ashbridge. Mr. Charles Dunch, architect:—
Curtis £335 0 0
Emnor 450 0 0
Brown 445 0 0
Wood, Bros. (accepted) 429 0 0

For chapel of ease at Buckfastleigh, Devon. Mr. John Norton, architect:—
Dennis £1,665 0 0
Chinnock, Bros. 1,425 10 0
Willocks 1,300 10 0
For Eccenator's, Bricklayer's, Mason's, Slater's, and Furneaux & Willocks 633 16 0

For building parsonage house at Magor, near Newport, Mon. Mr. John Norton, architect:—
Bolt £1,955 0 0
Wall & Hook 1,570 0 0
" (if dressings of Bath stone instead of local sand. 1,620 0 0
Darby 1,581 0 0
Moore 1,193 0 0
Durk (accepted) 1,125 0 0

For restoration of Llangwn Church, Monmouthshire, Messrs. Prichard & Seddon, diocesan architects:—
Jones £750 0 0
Lewis 730 0 0
Ramm 680 0 0
Doule 660 0 0

For Mountain Ash Church, Glamorgan. Messrs. Prichard & Seddon, architects:—
Evans & Stone £2,068 0 0
Chinnock 1,909 16 0
Stacey 1,844 0 0
Prichard 1,700 0 0
Williams 1,695 0 0

For making new road and footways on the Tarnor estate, at West Ham, under the superintendence of Mr. John M. Dean, surveyor to the estate. Quantities supplied:—
Rivett £1,683 0 0
Yeomans 1,683 0 0
Powell 1,573 0 0
Cattell & Hills 1,472 0 0
Stacey 1,244 0 0
Tottle 1,187 0 0
Cordery (accepted) 1,179 0 0
McKie & Mansergh 1,048 0 0
Marney 795 0 0

For rebuilding Gllrhyden Church, Pembrokeshire. Mr. Withers, architect:—
Evans & Stone £1,170 0 0
Jenkins & Co 943 7 0
Davies 911 9 10

For the new Catholic church, Manchester, for the Rev. J. Fox. Mr. E. Welby Pugin, architect:—
Benches.
Ward £3,183 £149
Glaister 3,659 148
Neill 2,927 115
Yates 2,915
Toggett 2,828 118
Penk 2,815
Eaton 2,456 130
Farrell & Ledger 2,407 120
Molyneux 2,390
Bunker £4,893 0 0
Huller 4,190 0 0
Downs 4,180 0 0
Todd 4,090 0 0
Hollis 3,990 0 0
Fletcher 3,635 0 0
Trollope & Sons
For alterations and additions to Windesham Court, near Sunningdale, Berkshire, for Sir George Lee. Mr. R. W. Drew, architect. Quantities supplied by Mr. J. A. Bunker:—
Huller £4,893 0 0
Downs 4,190 0 0
Todd 4,180 0 0
Hollis 4,090 0 0
Fletcher 3,990 0 0
Trollope & Sons 3,635 0 0

For the partial restoration of the church of St. Cyriac, Laccok, Wilts. Mr. A. W. Blomfield, architect:—
Jones £1,450 0 0
Fletcher 1,135 10 0
Watts 936 18 0
Gale 910 0 0
Mullings 890 0 0

For foundations, retaining-wall, &c., to prepare site for Skircoat Cotton Spinning Company's new mill and apparatus, near Baxby, Yorkshire. Messrs. J. E. & J. D. Oates, architects. Quantities supplied:—
Foster & Co £1,260 0 0
Birkby & Houldsworth 1,200 0 0
Farrar 1,390 0 0
Harrison 1,189 0 0
Waterworth 1,113 0 0
Levy 1,057 0 0
Mann (accepted) 1,020 0 0
Wornop 750 0 0

The Builder.

VOL. XIX.—No. 949.

Condition of our Chief Towns.—Newcastle-upon-Tyne.

"Behold, I pray thee, the situation of this city is pleasant, as my Lord seeth, but the water is naught."

"And if the plague come again, and break out in the house, after that he hath taken away the stones, and after he hath scraped the house, and after it is plastered :

Then the priest shall come and look and behold, if the plague be spread in the house, it is a fretting leprosy in the house : it is unclean."—Lev. xiv. 43, 44.

EW of our chief towns can boast a more remote antiquity than "Canny Newcastle,"—for here came the Roman general, Agricola, with his antilegions; and here came the travelled and accomplished Emperor Hadrian;—or enjoy a more world-wide reputation, as evidenced by the old adage that a Scot, a rat, and a Newcastle grindstone are to be found in every part of the universe. Newcastle has received many royal visits, both in seasons of war and in peace, being a convenient rendezvous and resting-place on the high-road to Scotland; but the pivots upon which Fame turns, as she trumpets forth to every "air" the renown of Newcastle, are the enormous trade and traffic arising from the coal produce and various manufactures, and the daring spirits of the sailors in the collier ships—nursing for our navy the germs of the strength which upholds the glories achieved in the wooden walls of England:—

"Hail, Tyneside lads! in collier fleets
The first in night and motion,
In sunshine days or stormy needs
The lords upon the ocean."

With the immense yield of coal in the Newcastle fields, and with the contiguity of iron stone at the Cleveland Hills, it is no wonder that, next to the Clyde, the Tyne should be the greatest iron ship-building port in the world. Palmer's gun-boats for the Baltic and Black Seas, and for China, proved the capacities of the Tyne for this branch of commerce; and Transatlantic steamships, steam-colliers, and mail-clad warrior men-of-war, have become staple branches of its manufactures. Fostered in its infancy by the mighty genius of Stephenson, the iron trade has grown, and bids fair to rival in extent and productiveness that of the coal commerce. The principal manufactures here and in the neighbourhood comprise locomotive and marine engines, steam engines, and machinery; iron foundries, and agricultural implements, and works in wrought and cast iron, steel and brass, file, shovel and spade, nail and tool making, chain cable, telegraphic and other wire rope making; and latest, but not least, Sir William Armstrong's rifled guns. The factories of the Hawthorns and Stephenson send forth locomotive engines which may be found on almost every railway in Europe, while others at this moment may be fanning wind in the desert, thus providing a novel luxury for a luxurious pasha of Egypt, or a great nabob in India. Nor are the fame and commercial success of Newcastle less notable in other manufactures. Three-fourths of the alkali works in the kingdom are here. Lead smelting and refining, red-lead, sheet lead, pipe lead, and patent shot, are all but indigenous commodities; and glass—Newcastle crown—was in cosmopolitan

use long before the window-tax was repealed, and is now no insignificant source of wealth, though glass-making has assumed a more refined character, and is wrought at the works of the Swinburnes, Cooksons, Northumberland Glass Company, Wright Brothers, Wailes, and others, into plate, sheet, flint, and stained, and into bottles and chemical retorts. Highly favoured is Newcastle and its neighbourhood, with indigenous building materials. For excellent stone, there are the Westgate, Jesmond, and many other quarries, in the heart of the town, and abundant supplies from Prudhoe, Kenton, and Gateshead Fell. At Fulwell and Aycliffe are inexhaustible supplies of lime, and in the clay districts, in the hands of Joseph Cowen, are manufactories of fire-bricks, retorts, and crucibles; by Harriman of Blaydon, and Snowball of Gateshead, of drainage, sewerage, and other pipes; and of building bricks by the great makers, Cail, Pearson, Grey, Barnes, and Waite & Howard. While Birmingham may boast of its ability to make any given object, from a needle to an anchor, Newcastle can be proud of its power to manufacture anything from a watch-glass to an Armstrong rifled cannon. With such incentives to progress and prosperity, with civilization at such a high pressure, we naturally expect from Newcastle strong evidences of enlightened advancement in every phase that appertains to the social and sanitary welfare of man.

With regard to its sanitary condition, however, some awful disclosures were made a few years ago, in these columns, before inquiry commissioners, and by local men of literary intelligence and mark, who devoted themselves to the task;—Mr. Sydney Gibson, Dr. Win. Newton, Mr. Wm. Kell, Mr. Hylton Dyer Longstaffe, and others. With their mercantile success and gain, and eagerness still further to enrich themselves, the people of Newcastle had so utterly neglected all provision for their health, that the stalking, stealthy fiend, cholera, was enabled, insidiously, to spread its pall over the town unchecked. Cholera preyed upon Newcastle as upon one of its easiest victims. From 1839 to 1853, a period of fifteen years, an average number of 1,200 lives was annually sacrificed, entirely owing to the artificial aggravation of natural diseases caused by the want of sanitary precaution and arrangements. The mortality from cholera reached its climax in the autumn of 1853, when thirty-seven of the gentry, 316 tradesmen, and 1,174 artificers and labourers were hurried into eternity. To such an alarming extent was Newcastle panic-stricken, that the trade seemed likely to be extinguished: the receipts of the railway in the cholera months diminished to the extent of 3,000*l.*; the hotels suffered by their business falling off 25 per cent; Messrs. R. & W. Hawthorn paid in wages 200*l.* per week less for four weeks; the receipts of the linendrapers were 50 per cent. less than in the previous year,—with this significant exception, however, that, taking mourning into account, there was only a diminution of 14½ per cent.; and to this day, if anything more reminiscent of this dread period were required, we find it in the existence of the "Newcastle Cholera Orphan Society." The pestilence had scarcely wasted its nasty strength, by mowing down at one fell swoop the fearful number of 1,527 human beings in the prime of life, when the town was visited by a not less dreadful scourge—the "great calamity," by fire and explosion, recorded as one of the most destructive and most appalling of disasters.

No city in the world, scarcely Sodom or Gomorrah, could have received more potent warnings, whether by the inquiry of the superintending inspector of health, Mr. Rawlinson, in 1849, when a great number of the aggravative causes and the non-exercise by the corporation of their then powers for the suppression of them were specially adverted to;—whether by the disclosures which were made by the commissioners who sat in Newcastle in 1854, for inquiring into the causes

which had led to or had aggravated the outbreak of cholera;—whether by the sympathy of royalty, when her Majesty and the royal family, returning from Balmoral on Friday, the 13th of October, 1854, at the time of the "great calamity," addressing the mayor, said to him, "This has been a most calamitous occurrence: I feel exceedingly sorry;" and the Prince Consort remarked, "That commonly some good came out of every evil;"—or whether by the force of the example set by the inhabitants of the neighbouring towns of North Shields, Morpeth, Berwick, Penrith, Lancaster, and Alnwick, who, wisely memorializing the General Board of Health, secured the services of their sanitary engineer, Mr. R. Rawlinson, and under his direction set about the task of causing their towns to be thoroughly and permanently purified with such success as is pointed to in every case with becoming pride on account of the practical results. In the case of Alnwick particularly, warned by the attack of the pestilence, the leading inhabitants at once devoted their time and attention to accomplish the designs of the engineer successfully. A local geologist of eminence, Mr. G. Tate, F.G.S., scoured the country and sought for and analyzed water in the spots where his experience taught him it would be found purest and in the largest quantities. Another resident, the clerk of the peace, a sage lawyer and antiquary, put himself at the head of a chosen band of fellow-townsmen, as a local board of health, and with the co-operating aid of Mr. J. W. Carr and Mr. J. A. Wilson, men learned also in the law, who successively took the post of clerk to the board, all opposition and difficulties were surmounted, and the town converted from a slough of despond into the fairly sanitary state which we described not long ago.

But the terrible warnings that fell upon the minds of the public with all the force of blows from sledge-hammers appear, in the eyes of Newcastle magnates, as light as snow-wreaths, which a gleam of sunshine would dissolve; the examples of neighbouring towns are as nought: the warnings by pestilence, fire, and governmental inquiries, suffice not: in a word, the work of reform has yet to be commenced. Revolving as the task of drawing public attention to these matters may be, we did not flinch from it when we had to deal with "London Shadows" and "Town Swamps;" nor shall we hesitate now. As a preliminary to the correction of abuses, there must be many painful disclosures; and with this end in view we make no further apology for the nature of the statements the exigencies of our task will compel us to make.

Entering Newcastle by a triumph of engineering skill, the high-level bridge over the Tyne, the view of the town and river would be picturesque in the extreme, if the Smoke Consuming Act were in effective operation. Of the arrangements at the central station we may speak with praise: they are complete. On this as on several occasions we have witnessed crowded trains starting north, south, east, and west, and have seen every passenger able to find his right seat in the right train without difficulty. The exterior of the station does not fittingly represent this well-ordered system. The original design of Mr. Dobson, the architect, has been abandoned, unfinished and the serviceable handsome portico is still wanting. The spacious roads, too, in front of the station as elsewhere, are not properly kept—a municipal omission to which we shall have to recur in strong terms in the course of our survey. Passing the remains of the fine old keep of the castle, we note that the modern restorations are not in strict architectural keeping with the character of the structure. We had occasion to make this same complaint some years ago, when, in a brief paper upon this interesting locality, we condemned the appearance of the battlements. The absence of archaeological sentiment here ap-

parent is the more surprising, seeing that the Newcastle Society of Antiquaries, with Lord Ravensworth for president, and Drs. Bruce and Charlton, and Mr. Hylton Dyer Longstaffe, for secretaries, hold their court within the precincts of the castle. We take this opportunity to suggest that, as the growth of the antiquarian collections calls for further accommodation, and subscriptions are flowing in for the purpose of enabling the Society to build over a space adjoining the venerable pile, due care should be taken to avoid spoiling the Norman building, and that before any irremediable steps are taken, the antiquaries should not only take sweet counsel together, but competent professional advice also. For the taste and learning with which the collections are displayed and assorted in the ancient chambers we cannot say too much.

The castle is built upon a precipice, one descent from which is now effected by a narrow street built in steps, called the Castle Garth stairs. The houses are lofty, rattle-down places, with shops,—the business carried on appearing to be exclusively that of the sale of old boots, shoes, and clogs. Here there is one great fester; two hundred or more tenements are in such close contiguity, that ventilation and daylight must be almost unknown, and the even more needful matter, in a sanitary point of view—drainage, is quite unheard of! We inquired of the inhabitants the whereabouts of the nearest convenience, and after putting the question in various forms, for the ordinary terms were not even understood, we ascertained that the only accommodation was that provided by a public "netty," under the railway arches. Nor was this scandalously inadequate provision for the residents of the two hundred tenements within easy access; the steep street must be climbed, and the castle yard traversed before the filthy "netty" could be gained. This distance and consequent exposure entail upon the more decent of these poor people, the unhealthy and fever-engendering practice of retaining in their crowded and tainted rooms what should at once be got rid of till dusk or dark, when they dispose of it as best they may. Lest the term "netty" be not understood, we may explain that it consists of a large open cesspool, over which is thrown a rail, upon which the frequenters support themselves in a row in the closest proximity, without the slightest partition, much in the same style as birds at roost. We are ashamed of making the statement: more shame on those who force us to it.

Leading to the river from "the Close" are numerous passages with houses on either side, such as in London are termed alleys, and in Edinburgh wynds, but which are here known as "entries." We thread one, hap-hazard. The ground is strewn with ashes, liquid ordure, and offal, with which a colony of little children are making "dirt pies;" and in answer to our inquiries we are assured that the pathway on which we stand is the only outlet of any description for the filth from the surrounding crazy houses. We mount a flight of dangerously ricketty steps, and learn from the spectral people who come out into the sort of gallery, that seven more families exist in this unhealthy quarter, who have but one place of convenience between them all, and that "is very nigh down." On inspection, taking due precautions for our personal safety, we find that the place referred to is a wooden erection overhanging the river, of which the back and part of the sides have disappeared. There is no seat; and the only substitute for one is a stick of wood; the whole affair appearing in danger of being swept into the roaring tide below with the first gust of wind. To all intents and purposes this is a place of peril to be avoided rather than frequented; and there remains, therefore, for the whole of the inhabitants of Salt-house-entry nothing but the ground of approach to their dwellings, which is used too as a playground by their blighted infants, to serve as a place of deposit for impurities,

ashes, slops, and filth of every description. Some scavengers are at work in "the close," near the entry, as we re-pass into it, who assure us that notwithstanding the filth strewn in every direction, the ground has already been cleansed thrice since daybreak.

Moving onwards to the quay, in close proximity to the steps to the old bridge—always a busy thoroughfare—we are apprised by its unmistakable aroma of a public privy called "the High Crane." Like those we have described, it is seatless and filthy; and several people are jostling each other in the hideous den. Sickening at this sight, we feel grateful for the breeze upon the quay side, where, however, before we take many steps, even this is tainted with an impure odour. A cart-load or two of fish entrails lie in a heap upon the bustling and pleasant waterside-thoroughfare, just outside the fishmarket. Although the architectural appearance of this columniated market is in some respects pleasing, surely a more appropriate site could have been chosen for it than the "throngest" mercantile centre of the town adjoining the Guildhall, immediately under offices belonging to the corporation, and surrounded by merchants' offices. Nor are we the only dissatisfied critics,—hear what the fishwife says.—

"The can't eat wind blows I've teeth,
With iron bars we are surrounded;
It's better, far, to suffer death,
Than thus to lie vor feelings wounded."

We have yet to mention a most astonishing fact—the merchants' offices of this opulent quarter are as destitute of every private accommodation as are the poor denizens of Castle Garth stairs. Only one of the numerous "chares," dark dingy alleys with no outlet, where men sit by gaslight in the daytime, absorbed in the business of money-making, has any private accommodation. The purvey merchants and their clerks must either go to the nearest public house, which is the "*cabaret d'aisance*" for the chare, or make use of the "high or low crane," the dens we have described on the quay-side. We have said only one of the chares is better provided; the exception is due to the painstaking efforts of the late Mr. Thomas Oliver, under whose superintendence the offices in it were rebuilt, with proper attention to necessary conditions, the same individual whose minutely-accurate plans and surveys of the town are to this day valuable works for reference. Several of these chares were destroyed in the "great calamity," and, after seven years of inaction on the part of the corporation, some good has come of the evil, in the shape of a very large and handsome block of palatial offices, built in the Italian Renaissance style, by a private speculator, Mr. Walters. Inasmuch as they are well lighted, drained, and ventilated, we wish his venture well. Before turning our back upon the quayside, which should be as clean in all its accessories as a Dutch picture, we observe that dogs are scratching out of the ash and offal heaps permitted to accrue on the public way, among merchandise, such morsels as may be palatable to them, and scattering others about, in the same way that the Roman dogs serve the *immondezzaio* in the city of the popes.

Cologne has a bad name; Cairo has even a worse reputation; but that part of Newcastle called Sandgate must be allowed to exceed either city in stench, filth, over-crowding, and pestilential ill. Huddled together on a strip of land, 240 yards long by 110 yards, with a narrow street up the centre of it, is a mass of lofty dilapidated dwellings, evidently part of more ancient tenements, reared in Medieval times beneath the protection of the castle walls, for the reception of leprous people or other persons whom the warders would eye with suspicion from the battlements or saltports adjacent. They have ultimately become the refuge of the keelmen, of the immigratory Irish, who flock here in prodigious numbers in the harvesting time—in the most choleraic period of the year; of promiscuous lodgers, of whom different sets occupy the same room by day and by night, and of foreign sailors and tramps. Here,

in alley after alley, and entry after entry, are tenements of so vile a description that words fail to convey a sense of their utter wretchedness. At every turn in all these passages deposits of excrement and putrid puddles meet the eye; and nauseous effluvia pervade the air; for the 5,000 people herding in this district are unprovided with any accommodation, and men, women, and children are constrained to make use of "kits" in their tainted chambers, of which they dispose after dark in the alleys or where they may. 10,000, men, women, and children—for the population is doubled here in the height of summer, when two sets of people occupy the same rooms, alternately by day and night,—10,000 human beings are thus conditioned. So much does custom blunt perception, that the fact of one of these chares belonging to a noteworthy individual, zealous in the matter of the health of the people of Newcastle—Sir John Fife—fails to create astonishment.

In reply to our inquiry of a man lounging at the entry to "Sir John Fife's Chare," he said, there is no accommodation for the many occupants "except what you see opposite"—a public place,— "which serves 500 families." This, on examination proves to be between the milk-market and the "swirl," in the public thoroughfare; and to be capable of holding half-a-dozen men and boys on one side, and, perhaps, as many women on the other. On a Sunday morning, when the male population are at home, men and women are to be seen in crowds waiting their turns. Are there any clergymen in this neighbourhood?

Tracing St. Ann-street, which is a continuation of Sandgate, with but a slight improvement in its worst features, a decent old woman at a shop-door, confirms all we have asserted; neither she nor her neighbours in St. Ann's district have places of convenience, and all are compelled "to do the best they can." Retracing our steps past the Ford Pottery, where the road and footway are ankle deep in mud, because the spouting from the pottery buildings is allowed to discharge rain-water across the roads, and convert them into a swamp, past a ridiculously absurd mimic temple called the Royal Jubilee School, past the picturesque Keelmen's Hospital, we find our way to a district called Pandon, which shares with Sandgate its unenviable notoriety. But we may not shock our readers with further details on this head.

The air gives evidence of the proximity of cows, and close to this spot we find round three sides of a large square, closely encompassed by dwellings, a series of cow-byres: on the fourth side, or that which is formed by the public thoroughfare, is a huge cow-dung midden, the foul drainage from which is soozing in a stream through the walls, and flowing in an open gutter, down the steep street. This disgusting state of things by no means precludes a wealthy Newcastle magnate from occupying a mansion in the midst thereof, nor has it induced him to promote the covering up of the "common shore," or open gutter, into which, be it remembered, his poor neighbours are constrained to discharge the contents of their water-pots, and which flows almost before his door. Cowgate itself is composed of houses so dark, so dismal, so dilapidated, so like an old and patched garment worn to shreds, that we can but marvel at their holding together. Nevertheless, at the junction of Cowgate and Broad Chare resides another wealthy Burgess, a worthy member, too, of the corporation, Mr. Matthew Plummer.

The day is waning as we stand before the Hospital of the Holy Jesus, incorporated in 1681, "for the support of poor impotent people, being freemen, or freemen's widows, or their sons and daughters that have been married, for ever." We are surprised to see many of the rooms shut up and vacant, although the building is in good preservation, cheery, sunny, and picturesque, with a pleasant cloister, made bright with its contiguity to an open square or garden, having a fountain in the centre. The riddle is soon solved. The in-

mates receive such handsome annuities, that, under the plea of their age and incapacity to take care of themselves, their friends find it convenient to lodge them elsewhere: this non-residence being permitted, their disused chambers are left as hunting-grounds for the rats and mice. A strange departure from the original intention of the founders.

With the bright sunshine of another morning we resume our investigations. The main street of Newcastle retains its ancient name,—Pilgrim-street. Standing in the arcade, at the head of Mosley-street, we are in close proximity to the recent improvements in street architecture. At the junction of Grey-street and Dean-street we are in the presence of the first grand effort of the speculative genius of Mr. Grainger, and which is justly pointed to by the Newcastle people as representing the Londoners' Regent-street. Dean-street leads by a most precipitous descent into the "side" and main road to the quay. Here common sense dictates as bold an experiment for the remedy of this inconvenience as any that Mr. Grainger has successfully carried out. Several plans have been suggested, the most practicable of which appears to be that of Mr. Richard Cail, for tunnelling through the Castle-hill, as this would form the most direct approach to the new bridge which, sooner or later, will have to be thrown across the Tyne. When the piers of the high-level bridge were laid down it was not expected that they would have the effect of silting up the piers and arches of the old bridge; but this has proved to be the case, and the old, inadequate structure is doomed. It is not clear, however, why a carriage-way cannot be made through the arches of the piers of the high-level bridge, nor why roadways for foot passengers could not rest upon the already projecting foundations of the piers on each side of them; so that, instead of building a new, costly bridge, that of Stephenson might serve the triple purpose of the railway on the highest level, and the carriage and foot way on a level with the new street near the castle, as existing, and the new carriage and foot ways on the low level from the Newcastle to the Gateshead quays.

As we move through the more aristocratic regions of the town we find scandalous disregard of the public health is not confined to the poorer quarters. A handsome new terrace, called Lovaine-place, the east end of Saville-row, Ellison-place, and George-street, the latter being the residences of the old *régime*,—all overlook a remarkable place called Pandon Dene. This is an immense and steep ravine, in whose valley flows a burn or stream. A few years since, when the dene was covered with blossoming trees, and the clear waters of the burn sparkled in the sunshine, this was a delightful promenade; but now the light summer-houses dotted over the banks have been converted into crowded tenements; the limpid stream is changed into a foul, common, open sewer; and, in fulfilment of some wild scheme for obtaining a level building site, this immense ravine has become a prodigious deposit of all kinds of fetid slush, of street scrapings, and "rubbish shot here." We envy not the aristocratic denizens of Ellison or Lovaine places the perfumed breezes which must come fluttering into their handsome chambers whenever a window is opened.

We next turn our steps westward, by Barras Bridge, where fresh northern breezes from the town moor float into the neighbouring houses; along old-fashioned Percy-street, in which are the hay-market and Dr. Bruce's excellent school; past some new baths and wash-houses at the corner of Galligate, built from the designs of Mr. T. Oliver, which we are told are so successful as to pay a large rate of interest, and to require extension; down Newgate-street, where we note a new street in course of formation into Westgate-street; past the very handsome Roman Catholic church and bishop's residence; into Marlborough-street, one of the great arteries to the west.

Here we are distressed with the disregard paid to modern teaching in sanitary science, in the erection of a new cattle-market in close contiguity to the new wing of the great infirmary. The cattle-market appears to possess all the modern requisites; but the taste displayed in the punch-and-judgy box to contain the market-bell is not striking. We cannot, however, speak too seriously on the grave question of the objectionable choice of site. Erasmus Wilson, the great pathologist, writes, "A cattle-market proximate to an infirmary for sick persons does certainly seem an outrage upon every sanitary idea; not only on account of the malaria arising from such market, but also on account of the noise and brutal violence which are the common attributes of a cattle-market." Another authority on sanitary regulations, Mr. Rawlinson, writes, "A cattle-market next an infirmary must be an abomination. Miss Nightingale holds that the sick require cleanliness, quiet, and fresh air."

We must now recur to a neglect on the part of the corporation—the state of the roads. In the thoroughfare in front of the cattle-market, where 30,000 people pass and repass daily, the pavement is only 6 feet wide, and on to this door-steps and scrapers protrude. It is formed of miserable free-stone, which is worn away in some places, and has disappeared altogether in others, so that the rain stands in puddles for hours after all traces of a shower should have passed away. At the crossings of Wharfedale, Maple, and the other streets which intersect the Scotswood-road, there are dangerous cuttings worn by the rush of day water down these streets, making the thoroughfare, which is not paved at the crossings, very conducive to the attainment of sprained ankles and broken legs. The whole pavement of Scotswood-road is in a most disreputable condition,—the freestone spotted with puddles; the asphaltic worse with pools; and the so-called macadam nothing more than mud. The whole of the district is laid out into long streets or terraces, about a mile long, up a steep eminence, northwards from the Tyne, and is intersected by the main arteries, Western Turnpike, Elswick-lane, and Scotswood-road. It is a most favourable natural site for building purposes. A good use has been made of it in the erection of neat and even handsome houses for the suburban residences of the wealthier classes. But the roads are so bad that it is impossible for carriages to approach many of them. Before one of these terraces there are mud-banks so high that no vehicle attempts a passage save the coal-carts, and three horses have to be used to drag a load that ought to be amenable to one; others are unpassable; even horses cannot be drawn up to the door to receive the dead. We saw the "ladies' doctor" obliged to get out of his carriage at a great distance from his patients' houses, to which he had to walk through the rain, to enter the sick room cold and wet. A shameful abomination in connection with this part of the town has yet to be noticed. The drainage from a row of houses is allowed to accumulate into a huge fetid pond in the hollow of "Lawton's-field," and there to remain poisoning the atmosphere of the whole neighbourhood.

Thus, from personal observation and inquiry, we have ascertained that Newcastle is in a perilous condition as regards its sanitary arrangements; that there is no regular system of sewerage; no authorized plan of what existing drainage there is; and that the outlets of such drains as do exist (25 in number) are above low-water mark. Ash places and middens exist under rooms, and rooms under ash middens. Of the water supply we have said but little. It is principally obtained from the Whittle Dene Water Company, or Mud Company, as it is ironically and more commonly called; and the supply being cut off in the drought of summer for twelve hours out of the twenty-four, is clearly not an adequate provision. There is no lack of funds to assist to remedy these ills. The income of the Corporation a century ago was 8,506*l.*; nearly fifty years ago (1813) it was

43,981*l.*; in 1860 it amounted to 108,594*l.* 15*s.* 7*d.* Of this latter large sum only 2,019*l.* 6*s.* 6*d.* were spent in sewerage, while 5,035*l.* were laid out in gaol enlargement, and 8,343*l.* 10*s.* in watching the borough.

Whilst we write we have corroborative evidence of the need of our warnings. Let Newcastle take heed of the recent incident at Liverpool, where the landing of a handful of Egyptians has endangered the town. If such seeds fall upon the ripe soil of Newcastle, the harvest will be of the same fatal kind as in the cholera seasons. Nor is this all there is to dread. An unusually hot summer would engender the most devastating disease without any foreign cause. Let, then, Newcastle be advised in time, before her valleys ring with the lamentations of the widows and the fatherless. Even considered in a monetary point of view only, sanitary reform is a profitable investment of public money. Trade suffers by no panic, and the poor-rates are diminished. The first step needful is to place the whole of the drainage in the hands of a competent engineer, so as to ensure the adoption of one well-ordered, comprehensive scheme. Superficial improvements could then follow. No town in the world is better situated for sanitary purpose. It rises up a steep slope some two or three hundred feet above the level of the river. This slope is cleft into several lateral slopes, valleys, denes, and brooks, all falling into the Tyne; and even the lowest of the streets is 8 feet above high-water level.

That Newcastle has not been behind-hand in building operations is evidenced by the numerous public buildings recently erected. The new Town Hall buildings, containing corn market, music hall, and council chambers, are in the Roman style, the external character being principally adapted for shops. The building has none of that distinctive town-hall appearance that we find in similar edifices at Leeds, Birmingham, and Liverpool. The markets are most commendable; the butcher-markets being most cleanly and complete. The Central Exchange Reading Room is a regal apartment, replete with every convenience in luxurious chairs, stands for papers, and cosy fire-places. The institutions are numerous. The Philosophic and Natural History Society, with its recently-added handsome lecture theatre, is a delightful place for study. The Literary and Scientific Institution, in Blackett-street, has an ugly plain house exterior, but is a valuable and much-frequented institute. Of cemeteries there are no less than six, proving that Newcastle has wisely attended to one sanitary requirement in closing the intramural churchyards. Pillar post-boxes and drinking fountains are numerous, but not one exhibits a particle of taste in the designs.

We must not omit to mention that the Newcastle worthies are great patrons of native and metropolitan modern art, and the pietre collections of the Bunnets, Seithart, Bell, and Philipson are rich and tasteful. Of new churches and chapels in Newcastle their name is almost legion, as their towers and spires dotted over the town illustrate, although none of the authorities connected with the ancient churches ever accepted Major Anderson's bequest of 500*l.* to each old church for a spire, provided it was built in a given period. The principal new churches are the United Presbyterian, adjoining Earl Grey's monument, in good Early English detail, but with a stunted tower surmounted by a spire: the Trinity Presbyterian, also in Early English, with two dwarf towers and spires, and the Unitarian Chapel, of highly decorated character, with open traceried parapets and crocketed pinnacles; the Clayton memorial church, with a tower and spire of poor, wiry detail; St. Thomas's, on Barras-bridge, built in the days when Gothic was not understood, and hence looking like the fabric we see Italian image-men selling in plaster; the church in the Shieldfield, which is good; the Bath-lane chapel, with tower and spire with bold entrance, richly carved by Beale, of

Newcastle; and the excellent composition of the late Benjamin Green, St. Mary Magdalene Church and Almshouses. The Wesleyans have several excellent chapels, and we have already mentioned the splendid church of the Roman Catholics. But we have yet to mention the pride of Newcastle, the lantern church of St. Nicholas, of which the Newcastle song says,—

"Of a' the churches in our land,
Let them be e'er sae braw,
St. Nicholas of Newcastle town
Yet fairly bangs them a'."

THE ARCHITECTURAL EXHIBITION.

THE Exhibition now open in the galleries, Conduit-street (the eleventh year of the "Architectural Exhibition," *par excellence*), comprises about 386 designs, drawings, photographs of structures, and cartoons for stained glass, and 36 sets of specimens of building materials, inventions, and manufactures. Its aspect is similar to that of previous exhibitions; not yet representing what is desiderated,—the architectural works of the country during the past year; but showing to a considerable extent the change which is taking place in the practice of the younger members of the professions. It has a practical aspect,—in fact, in one respect too much so; for the drawings by which the design is set forth are in few cases better than those an architect would make for his client. We should be sorry to discourage architects from sending drawings, however slight or rough, of the works they have in progress. But we must, nevertheless, keep constantly before the eyes of those who are entering the profession the desirability, not to say necessity, of acquiring power of drawing and of becoming artists. The science of the profession, if neglected at first, may with effort be acquired later; but the artistic faculty, to be gained at all, must be cultivated early. Mr. Cockerell's prize offered through the Institute of Architects, is directed against any possible falling off in artistic skill, and will be awarded with special reference to the goodness of the drawings.

The best drawing in the gallery (as a drawing) on the present occasion, with a long interval, is 522,—illustrations of Mr. Goldie's "new R. C. Church, Lanark, drawn for Mr. Monckton, of Carstairs, by H. W. Brewer." The principal view is an interior, looking west, very cleverly coloured; and on each side of it are three smaller drawings of other parts, the whole framed as a triptych. Another design, by the same architect, on the other hand (No. 194), "Interior View of St. Pancras Church, Ipswich," is so coarsely though cleverly drawn, as to do injustice to the design. While on this head we may point to some beautiful little drawings of the Church of St. Pierre, Touques, and other churches in Normandy, 122, exhibited by Mr. J. H. Parker.

No. 1 is a "Design for Proposed Rebuilding of a Grammar-school," G. E. Street. The same architect, besides photographs of several buildings in progress, gives a good specimen of his style and manner in 185, "All Saints' Church, Parsonage-house, and Schools, now in course of erection at Denstone, Staffordshire." No. 4 is a selection of sketches by the Class of Design of the Architectural Association,—inferior to those which the class has exhibited in previous years. 7 "Proposed Restoration of the Old Town Hall, Hereford," J. Clayton, is a proposition that was submitted in the competition last year, to remove and restore the two lower stories of the building at the wider end of the High-square. 12, "Perspective View of the New Assembly Rooms and Music Hall, Newport, Monmouthshire," now erecting from the designs of W. G. Habershon. It comprises a hexastyle Corinthian portico on a basement; the pediment displaying sculpture which is so unsatisfactory in design that we allude to it in the hope of inducing revision. 16, "Bird's Eye View of the Great Malvern Estate Company's Land," as laid out, by Mr. Joseph Clarke. This is a large drawing, showing all sorts of detached villas and other buildings in the midst of the beautiful scenery of the place. 36, "Leeds Mechanics' Institution and School of Art: First Prize," Cuthbert Brodric. The circumstances of the competition in which this design was selected, and an account of the design itself, will be fresh in our readers' recollection. The exterior is monumental in aspect, and displays some of the ability Mr. Brodric has shown in the Town-hall of the same town; but the upper part is very heavy, and, if to be executed in cement, will be unbearable. 42, "Entrance Porch, House erected at Knight's-hill, Norwood," James Edmeston. Mr. Edmeston is

strong in porches, and with very simple elements introduces considerable variety and effect. He also exhibits "Tomb of the late Matthew Uzielli, Esq., Highgate Cemetery" (52), and other works.

Judging from the photographs, 59, "Minley Manor House, near Farnborough," recently erected by Mr. Henry Clutton, must be more curious than beautiful. The number and variety of the roofs interfere with its unity, and produce a disjointed aspect. The West Midland Hotel, now being erected at Great Malvern, from the designs of Mr. E. W. Elmslie, is set forth in 73. It is a large building in red brick, with stone dressings. The windows have segmental heads; the mouldings and tracery are Gothic. Of hotels, we have also Mr. Currey's, at London-bridge, 110, a lofty structure, to which we shall have occasion to return; the Malvern Link Hotel, by Mr. Elmslie, which we have already illustrated; and the new Victoria Hotel, Sheffield, 262, by Mr. E. Hadfield, a dwelling-house erection of the plainest type. 134, "A Professional Census, 1851 to 1861," Charles Gray, includes in one frame several houses, in Henrietta-street and Southampton-street, Covent-garden, as well as a church at Tottenham, and a design for the church of the Holy Trinity, Knights-bridge. Of these houses, which have a character of their own, and have justly obtained for Mr. Gray a position, we have often before spoken. The church last mentioned was erected, as our readers know, from a design by Messrs. R. Brandon & Eytton, who exhibit two views of it, 176, the exterior, and 182, the interior. The latter we have engraved: it appears in our present number. The style, though mainly that of the thirteenth century, must be termed eclectic. The introduction of the circular window above the triplet is less satisfactory in effect than are some other parts of the structure. Mr. Brandon also exhibits, amongst other works, a View of Datchet Church (179), with octagon tower, and picturesque general effect. 233, "Bird's-eye View of a Medieval town," W. Burgess, is rather a portrait of some St. Simeon Stylites working out his self-imposed penance on the top of a column. Beyond showing the artists' cleverness, it does little. Is any such appropriation of a column in Medieval times known? 283, by the same, the Closets at Gayhurst, Buckinghamshire, is more practical. Mr. Burgess, recurring to the old garderobe plan, has ranged his conveniences around a central shaft, for ventilation, the result being a Glastonbury-kitchen-like building. 243 marks a frameful of drawings of houses by Mr. G. Truett, erected, or being erected, at Muswell-hill, and on the Batson Estate, Holloway. With the same amount of originality and truthfulness that characterize some of his previous works of the kind, they have an additional spice of beauty.

Next week we shall hope to devote more space to the exhibition; and, meanwhile, may mention that amongst the other contributors will be found Mr. Aspitel, Mr. T. D. Barry, Mr. Blomfield, Mr. J. J. Cole, Mr. Colling, Mr. Deville, Mr. E. W. Godwin, Mr. Habershon, Lady Mildred Hope, Mr. l'Anson, Mr. Horace Jones, Mr. Owen Jones, Mr. Lamb, Mr. Norton, Mr. W. Papworth, Mr. J. L. Pearson, Messrs. Walton & Robson, Mr. Whitehead, Mr. White, Mr. Drayton Wyatt, and others.

A very promising card of lectures has been issued; one that ought to induce a large subscription. Mr. Beresford Hope will commence the session on Tuesday evening, April 30th, treating of "Architecture in London;" and then we have, May 7th, "Sir C. Wren and his Times," by Mr. Robert Kerr; May 14th, "Romanesque Architecture," by Mr. Edward A. Freeman; May 21st, "The Revival of Styles," by the Rev. J. L. Petit; May 28th, "Church Architecture of the Nineteenth Century," by Mr. R. P. Pullan; and, June 4th, "On the Restoration of Ancient Buildings," by Mr. G. E. Street. A nominal subscription, 2s. 6d., admits to all these, as well as to the galleries during the day. Surely there ought to be more applicants than can be accommodated.

CHICHESTER CATHEDRAL.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The ordinary general meeting was held on Monday last, at the House, 9, Conduit-street. The chair was occupied by Mr. Godwin, V.P. The minutes of the last meeting having been read and confirmed, several donations to the library were announced, and thanks were voted to the donors.

The Chairman, referring to the proposed election of Herr C. R. Lepsius, of Berlin, and of M. Mariette, of Alexandria, as honorary and cor-

responding members, observed that their claims to the distinction about to be conferred upon them had been stated so fully at the last meeting by Professor Donaldson and others, that he would content himself with merely proposing their names for election.

The motion was carried by acclamation.

The Chairman stated that, in addition to the various premiums and prizes which had been announced, and which would be distributed, the Council had great pleasure in intimating that Sir Francis Scott had placed at their disposal a prize of ten guineas annually, for five years, for the best set of sketches for a building for civic or domestic purposes, in the style of the thirteenth, fourteenth, and first part of the fifteenth century. He referred with great pleasure to this liberal contribution; because, by having prizes of this sort, it enabled them to get rid of the objection which had been raised against the specifying of any particular style of architecture. Now that the admirers of various styles had made the Institute the representatives of their desire to forward that particular branch of art in which they themselves took the deepest interest, the number of prizes had increased, and opportunity was afforded for the illustration of architecture as a whole. In dismissing the subject for the present, he had only to state that the Council had taken care to thank Sir F. Scott in the name of the Institute for his kind liberality. Before calling on Professor Willis to read his paper on the Architectural History of Chichester Cathedral, he wished, on the part of the Council, to direct attention to certain alterations which were about to be made in one of the public buildings in the city of London. When an ancient building was threatened with demolition or injury, the Institute, if it saw reason to interfere in the interests of art, was in the habit of raising its voice, protesting against any injury being done to it, and using its influence to preserve it to posterity. In like manner the council felt that, when the Royal Exchange was threatened with an alteration which would completely destroy the inner court, they ought to make a representation to the Gresham Committee to stay their hand. On visiting the building the other day, he found that the roof of a railway shed, supremely ugly, had been placed over the first order of columns, supported by standards of iron, which completely divided the columns into two parts, and shutting off the whole of the upper portion of the court. Under these circumstances, he hoped the meeting would not think the Council open to a charge of exceeding their legitimate province, if they were to address the Gresham Committee, expressing a hope that, whatever was to be done might be done in accordance with the architecture, and so as to improve, and not destroy, the interior of a really fine building.

Mr. Digby Wyatt said that the step which the Gresham Committee was taking was really suicidal to the object in view, as the area beneath never could be ventilated if the present plan were persisted in; while, in the case of a fall of snow, the building would be so dark that the merchants could not conduct their business in it. He hoped that some respectful but earnest representation would be made to restrain the Gresham Committee from the act of barbarism which they were now perpetrating.

Professor Willis (honorary member) then proceeded to make some observations on the architectural history of Chichester Cathedral, and on the fall of the tower. The learned gentleman illustrated his lecture by reference to a number of diagrams, representing portions of Chichester and other Norman cathedrals. He commenced by stating that about eight years ago, on the occasion of the Archaeological Institute meeting at Chichester, he made a minute examination of the building (which, however, he had often visited before), with the view of giving a complete history of its architecture—not from written documents, but a history in which the stones would, as it were, tell their own tale and structural history. The information collected upon that occasion was subsequently put into type, with a view to its publication in connection with two other papers, also read at the same meeting; but, owing to circumstances over which he had no control, the work had not yet seen the light; but he hoped it would shortly be published, as he understood that Mr. Mason, of Chichester, was at length in possession of the whole of the necessary MSS. When the fall of the tower and spire happened he hastened to the spot so as to put upon record the exact circumstances with reference to the accident. History had given us many records of the fall of similar towers; but we were now

enabled to judge of the nature and extent of such a disaster by reference to the late catastrophe at Chichester. It was essentially a Norman erection, and had no connection with any Saxon building previously erected upon the same site. The soil upon which the cathedral was built was in fact virgin soil, similar to that at Norwich. In the year 1114 a fire occurred which damaged the cathedral: another fire occurred in 1186, which was of great importance, and consumed the mother church and the whole town; but the then bishop rebuilt it, and the cathedral was rededicated in 1199. What was added to the Norman work on this occasion belonged to what might be termed the nascent Early English period. The date of this restoration extended from 1186 to 1204. On examining the choir he found the trace of what was called a procession path, and he fancied that there had been radiating chapels north and south, and a central chapel. There had also been an apsidal apse, of which, however, there was now no trace, as the vault or burying-place of the Dukes of Richmond was carried to a height of 7 or 8 feet above the pavement, which was completely destroyed. In mentioning this circumstance he did not, however, wish to be considered as suggesting that the Institute should remonstrate on the subject, for he felt persuaded that the matter might well be left in the hands of the zealous men of Chichester, who had come forward so nobly, and who had done so much to restore the ancient beauty of their cathedral. The Norman church was, as he before said, re-edified after the fire of 1186, and the nature of the repair presented a curious example of Mediæval restoration in a very economical manner. The bishop and chapter had, evidently, no money to spare, so they went to work to make the most of what they had. When the fire occurred it damaged the upper and lower portion of the walls, and the middle was uninjured. This was to be accounted for by the fact that the burning roof would necessarily destroy the top of the wall, while the intense heat of the interior caused by the fall of the burning timbers and other wood-work would damage the lower portion. The fire damaged the thin inner wall of the clerestory; and to repair it new mouldings, string courses, and shafts of Early English were inserted. They also put on a stone roof, so as to prevent the recurrence of a similar disaster. When they came to the east end of the church they resolved to pull down the apse, and to add two new compartments. The manner in which these works were executed showed what would have been done if the cathedral had been rebuilt from its foundations. There were apsidal chapels at the east transept, and a chapel was erected which was now used as a vestry. There was also a large square apartment with a central column, which was called the "chapter-house," because it had a central pillar. He did not, however, think it followed as a matter of course that every building found in connection with a cathedral with a pillar in the middle had been used as a chapter-house, because there were many instances (as at York, for example), where the chapter-house had no such pillar. He believed that the building to which he referred at Chichester Cathedral was not a chapter-house, but a couple of chapels. Having referred to the exertions which had been made by the bishops and capitular bodies at Chichester, Salisbury, Wells, and other places to build and maintain their cathedrals, Professor Willis expressed his opinion that the bishops whose names were connected with certain restorations had not personally carried them out, but that they had employed professional architects, just as a professional architect would be employed to restore the tower and spire which had lately fallen. Referring to the masonry of many of our English cathedrals, especially that at Bury St. Edmunds, he called attention to the manner in which the walls had been carried up between two shells of ashlar, and the interior filled up with rubble and mortar, without proper binding. This was especially noticeable in a structure at Bury St. Edmunds, where the ashlar had been stripped off, and the impression of the stones left in the mortar behind. With regard to the history of the fall, it was necessary he should state that in 1859 the removal of the choir was determined upon, so that the nave might be thrown open for the services. The return stalls were taken away, and a transparent screen was adopted in lieu of the solid one which existed before. The removal of the stalls disclosed at the back of the wall the extreme insecurity of the piers, as they had been hacked away to allow the stalls to go under; and oak shores, which soon became rotten, were substituted for them. The building had exhibited cracks and fissures for many years before this. The piers of the tower had

sunk down into the foundations, and had separated themselves from the adjacent walls by fissures, which travelled from the head of the arches downwards, until they lost all the support they formerly derived. This dislocation destroyed the principle upon which the piers stood. At Chichester Cathedral the pier arches were very small; and, when the spire collapsed, it went down very gently, resembling rather the shutting-up of a telescope than the headlong fall and smash of an immense superstructure. The piers were so weak that they must have crushed and melted away, softening the fall of the tower, which settled itself in a great mountain of ruins, reaching half way up the triforium and filling up every part of the cross. One piece of masonry alone, a part of the tower, about 9 or 10 feet high, came down nearly vertical, and settled itself amid the ruins in that shape, presented a very remarkable appearance. In examining the history of Norman cathedrals, it would be found that falls were the characteristics of several of them. The first to which he would refer was Winchester. This was one of the first Norman cathedrals built. It was constructed by Bishop Walkelin, one of the first Norman bishops who came to England. William Rufus was buried under the tower, and the monks asserted that it fell on account of the wickedness of that individual. There was a curious connection between Winchester and Ely. The latter was built by Simson, Bishop Walkelin's brother; and singularly enough the central tower of Ely fell in 1311. It seemed, according to the ancient chronicles, that when Alan de Walsingham, a skilful architect, was made sacrist in October, 1341, the tower was threatening to fall. The monks were consequently afraid to carry on the service in the choir. On the night before the feast of St. Etheldreda, after they had made a procession to the shrine in her honour, and they were returning back to their dormitory, a few only of the brethren had entered their beds, when suddenly, and without warning, the bell-tower fell upon the choir, with so much noise and crushing, that it appeared like an earthquake, but neither wounding nor crushing any person. Another wonder happened, attributed to a miracle rather than a natural cause; namely, that the large and beautiful canopy which covered the sepulchre of the Holy Virgin escaped even the slightest injury. The chronicle then went on to say, that at this dreadful and lamentable damage the sacrist, sorrowful and grieving exceedingly, knew not whither to turn, or how to repair so great a ruin. But at length, taking courage, and trusting to the Divine assistance, and confiding in the Virgin Mary, and the merits of St. Etheldreda, he set to work manfully. First of all he caused all the stones and timber which had fallen in the ruin to be carried out of the church (the very thing which they were now doing at Chichester). He then cleared the church of the excessive dust which covered it (at Chichester the whole interior of the building was covered with a fine white powder), and he divided the place in which the new campanile was to be built, into eight parts, measured with architectural skill, and caused it to be excavated and examined to reach solid ground, to commence the foundation upon, while eight piers were to be erected to support the building within which the choir and its stalls were to be constructed. The tower of Gloucester fell in 1160, without warning, at the time; when one of the bishops came to preach; and it fell when the bishop was about to deliver his solemn benediction to the congregation, who had all crowded for that purpose into the choir; and thus it was so ordained that no loss of life or limb occurred at that time. The tower of Worcester Cathedral, built in 1081, fell in 1175: that of Evesham fell in 1213; the two towers of Unstunbury Priory, in 1221; two small towers of Worcester in 1222; and the tower of Lincoln, in 1240. The steeple and belfry of Norwich Cathedral were blown down in 1361, when the choir was destroyed; but had since been rebuilt in its present magnificent form. The west front of Hereford also had fallen within the memory of living men. Having thus enumerated the disasters which had befallen many Norman cathedrals, Professor Willis proceeded to point out what measures the architects of old had taken to prevent similar disasters. At Wells, for instance, the tower was dreadfully crushed; and, in 1321, the bishops and canons expended 1,000*l.* upon it, and were 200*l.* in debt. They arrested the destruction which threatened the edifice, by building inverted arches, carrying a sub-archabovault, built between the tower piers, and strengthened with enormous buttresses. At Canterbury another expedient was adopted to prevent the tower from falling; and, although the ancient

chronicle said that it was done "by the prudent forethought of the architect," there could be no doubt that what had been done was done after the mischief had occurred. At Chichester, he believed that the vibration of the spire in a high wind was quite sufficient to account for the disintegration of the entire fabric. He was persuaded that the piers had arrived at such a state of disintegration that they must have fallen, and that it was absurd to say that the removal of the screen had caused the catastrophe. The screen was only 15 feet high, and could not possibly have opposed any resistance to the tower. The fall, so to speak, was providential; and as the tower must have fallen sooner or later, it was a subject for deep gratification that it fell as it did, without entailing loss of life or limb. It did not even damage the new stalls which were erected under it. There were many cathedral towers, that of Salisbury for instance, which were in a very precarious condition. The west front of Ely, also, might be mentioned as likely to come down; and therefore it behoved architects and engineers to consider by what mechanical means such disasters might be prevented. In the present state of scientific art, he did not suppose any one could contemplate for a moment the erection of arches buttresses such as were to be seen at Wells. Mechanically speaking, they might answer the purpose for which they were intended, but they were in gross violation of all taste and architectural propriety. In the case of Chichester Cathedral, he did not think that any architect could have averted the disaster unless he was fully aware of the state of the tower. Having referred to the means taken to strengthen the tower at Hereford Cathedral with the view of showing that the architects of those early times were in reality no better than, and in fact by no means so good as, those of our day, Professor Willis concluded by observing that if any information he had been able to give might lead the profession to consider what steps should be taken to remedy the evils which threaten some of our ancient cathedrals, his purpose in drawing attention to the catastrophe at Chichester would be fully realized.

Mr. Beresford Hope, in moving a vote of thanks to Professor Willis for his erudite and eloquent lecture, observed that he wished also to give expression to the feeling of personal relief which some of the statements just made afforded him, as he had been one of the persons directly responsible for the removal of the Arundel shrine or screen. He (Mr. Hope) was a member of a small committee which had been entrusted with the carrying out of the restoration of the choir in memory of the late Dean Chandler. The removal of the Arundel shrine or screen was a necessary element in what they were carrying out; namely, the opening of the nave for the congregation and of the choir for the service; and this could not have been done so long as the screen was in the way. The committee were quite incapable of wantonly destroying an ancient ornament; but, when they came to consider how the choir was to be restored, it was perfectly manifest that the Arundel shrine must go. Their excellent architect, Mr. Slater, agreed with them that there was no other alternative; but, so anxious were the committee to stand well before the public in reference to the matter, that, in the absence of Mr. Slater, they resolved to take a second opinion,—the opinion of some gentleman who would not view the subject either as a matter of taste or of ritualism, but merely as a question of thrust. Mr. Yarrow was then called in; and that gentleman reported that the screen might be either taken down or left where it was, as it in no way affected the stability of the tower. Under these circumstances the screen was removed; and he thought the fact he had mentioned ought to be known as extensively as possible; as, owing to some want of information on the subject, those concerned in the work of restoration had been made the victims of unfair aspersions in certain quarters. On behalf of the committee and of Mr. Slater, he rose to declare what was the truth in reference to the matter; and he thanked Professor Willis for the manly and candid manner in which he had stated his view of the subject. The fall of the tower was a calamity which no human foresight could have prevented. The loss, however, was not irreparable; and he hoped that at no distant day the work of restoration would be commenced, and carried out to the satisfaction of all parties. In moving the thanks of the meeting to Professor Willis, he ventured to express a hope that his lecture would be published in connection with their transactions, and that it would be illustrated with the valuable diagrams which he had exhibited.

Mr. Edmund Sharpe explained the circum-

stances under which he had, eight years ago, undertaken, at the Archaeological Congress at Chichester, to supply for publication a paper on the churches of Sussex; and observed that the task which he had undertaken (and which was now concluded), had engrossed far more of his time than he had at first anticipated. When he heard that Professor Willis was about to lecture that evening upon Chichester Cathedral, it occurred to him that the interest of the subject might possibly be increased if they were to regard it from a different point of view, and endeavour to throw some additional light upon the history of the church by reference to the chronological series of its mouldings. He feared, however, that it was too late that evening to invite attention to the subject; but, should the debate be adjourned to a future day, he would be glad to take part in it. He might say, however, that he hoped the cathedral would be restored as nearly as possible to the condition in which it formerly had been.

STRENGTH OF THE STONE IN THE PIERS.

Mr. Alfred Thompson, C.E., stated that he had examined the "ashlar" and "respond" from the tower piers of Chichester Cathedral. He found the stone to be a shelly limestone from the Isle of Wight, nearly a pure carbonate of lime, but of a very light, porous, and absorbent character; the specific gravity of the stone being only 1.915. He handed to the chairman a thin slab sawn from the stone, through which light passed in numberless places. He had made experiments as to its crushing weight, and found that, when laid in its bed, it crushed with a weight varying from 466 lbs. to 566 lbs. per square inch; but, when placed vertically to the bed, it sustained a weight of 860 lbs. to 1,070 lbs. per square inch, before it crushed. In the first instance, the stone crumbled into powder; but, when placed vertically, it split diagonally, as had been adverted to by Professor Willis. Mr. Thompson accounted for the increased strength of the stone, when placed vertically, as follows:—"The layers of shells formed long, flat, and thin arches on its bed; but, when reversed, the layers became either laminated columns or narrow lancet arches.

The area of one of the tower piers, as calculated by him, was 10.10 square inches; and, as the tower and spire had been reckoned at a weight of 6,000 tons, it followed that 1,500 tons, bearing on each pier, gave a superincumbent weight of 331 lbs. per square inch of surface. Now, as the piers were only cased with the stone laid in its bed (which crushes with a weight of 466 lbs. per square inch), and the interior was a mass of rubble stone, filled in with mortar in large lumps, some of it in a crumbling state; it appeared to him not surprising that the spire should have fallen down, but that it should have stood so long on such weak piers; and he considered that the early settlements which had been mentioned were as much due to the crushing of the stone as to the sinking of the foundations, from the excess of weight placed on them.

The Chairman inquired whether Mr. Thompson had found that the stone was placed bed-way.

Mr. Thompson.—Yes, in the very weakest way. Mr. Wyatt asked upon what scale were the experiments that had been made.

Mr. Thompson said they were made with equal cubes of stone so as to compare them with others.

Mr. Burnell observed that with regard to measures which might have to be taken for the preservation of these buildings for the future, the subject was one that would require considerable attention. Lately, some important works had been carried out in France, and a cathedral tower had been underpinned with remarkable success. If a similar principle had been adopted at Chichester, he believed the spire might have been preserved. If the discussion was to be adjourned he would endeavour to collect all the information in his power on the subject, and put it into a connected shape.

The Chairman said there could be no question as to the desirability of obtaining such information; and the council would have great pleasure in appointing as early an evening as they could, consistently with other arrangements.

Mr. Morris thought it desirable, after what had passed, that those gentlemen who had been connected with the work of restoration should be exonerated from all responsibility in respect of the recent catastrophe. In his opinion the pendulum which Sir Christopher Wren affixed to the spire was sufficient by its vibration to account for the fall.

In reply to Mr. Papworth,

Mr. Gordon Hill said that, with reference to

the south-west pier, it had exhibited a tendency to press outwards at two-thirds of its height; and that on the last day of its existence it threatened to bulge out 4 feet from the ground. He suspected that, when the ruins were cleared away, the pier would not be found to be more than 4 feet in height.

The Chairman, in putting the vote of thanks to Professor Willis, observed that he was convinced that all who knew him would be anxious to testify their sense of the great research, the extensive knowledge, and the great acuteness, which he brought to bear on architectural studies. The lecture entirely refuted the unfair aspersions, referred to by Mr. Hope, which had been thrown upon those engaged in the restoration of the cathedral; and it could not fail to be satisfactory to the public, and to the members of the profession generally.

The motion was carried *nem. con.*

The following gentlemen were, on ballot, elected Fellows of the Institute:—G. E. Pritchett, Associate, of 4, Great St. Helen's, Bishopsgate; John Henry Chamberlain, of Birmingham; and Henry Parsons, of Gresham House-chambers, Old Broad-street. Mr. William John Bodman, of East Dean, Hampshire, was elected an Associate.

ON THE ARCHITECTURE OF THE ELEVENTH CENTURY.*

WILLIAM OF MALMESBURY has given a letter from King Canute in 1031 stating that he has been to Rome, and, among many other things, that "the Emperor Constantine, at my request, and the King of the Romans, the princes, and confirmed with an edict that my subjects, traders, as well as those who went on religious account, should peaceably go and return from Rome without any molestation from wardens of the convent, or tax-gatherers." Again, I complained before the Pope, and expressed my high displeasure that my archbishops were oppressed by the immense sum of money which is demanded from them when seeking, according to custom, the apostolic residence to receive the pall; and it was determined that it should be so no longer."

These frequent journeys to Rome throughout the Middle Ages had the advantage of keeping the English clergy always acquainted with what was going on in other countries, and they were always ready enough to make use of their information.

But at the period of which we are now treating, I believe it will be found on investigation that the other countries of Europe were in much the same state of civilisation as the English, and that buildings of stone were as rare in other countries as in England. At the end of the eighth century, in the time of Charlemagne, a spasmodic effort was made to revive the art of building in stone, but it soon died away.

We have a few isolated buildings of that period remaining in France and Germany, and interesting links in the history of art. As might be expected from the history of Charlemagne and his era, they present a curious mixture of debased Roman and Byzantine: two of the most perfect are the gatehouse of the convent of Lorsch, in the Elg-trasse on the banks of the Rhine, which is debased Roman, and Germigny, on the banks of the Loire, near Tours. This is a mixture of Byzantine and Roman, the plan being a Greek cross with a central octagon, and a series of cupolas, but with details rather of debased Roman than Byzantine.

After the time of Charlemagne for two centuries it is very difficult to find a stone building anywhere in the West of Europe. In Normandy there is one church which approaches in some degree to the character of the Anglo-Saxon churches. It is called Vieux Pont (in Calvados), and is built of Roman materials, a very rude and simple structure, with a central octagon, and a series of cupolas, and it has an inscription, but one which does not give a date: it is probably quite at the beginning of the eleventh century, but may possibly be of the time of Charlemagne.

It is probable, however, that there are many churches still remaining in different parts of France, or, more properly speaking, of Gaul, which belong to the first half of the eleventh century; and of several of these the history is so well preserved that it is necessary to give some account of them here.

Perhaps the most remarkable of these is the church of St. Front, at Perigueux, which is a regular Byzantine church, with its five domes. A considerable part of it has lately been restored, which means entirely rebuilt from the ground, but I was fortunate enough to see it before this was done and again while the rebuilding was going on. The original work was of rubble only and very rude, and numerous fragments of Roman buildings were used as old material in the mass of the walls: the Roman capitals were also used again. This church was consecrated in 1047. The walls of an earlier building exist, and forms a vestibule to the present church, and the west front of it is tolerably perfect, though concealed by a house built against it. The work of this earlier church is debased Roman, and the nave had a timber roof only, which has been destroyed.

The domical church bears so much resemblance to St. Mark's, at Venice, that my friend Mr. Felise de Vernelli, who has studied it very carefully, and has published a work upon it, has no doubt that it was copied from that church. I consider it more probable that both were copied from a common type at Byzantium, as Venice was then only a subordinate city of the Byzantine empire, and the resemblance is not so exact as M. de Vernelli imagines: at St. Front the arches are pointed; at St. Mark's they are round; and there are other variations. In that part of Aquitaine called Perigord, of which Perigueux is the centre, there are about forty of these Byzantine churches with their domes, some of which have inscriptions recording their erection in the latter part of the eleventh and beginning of the twelfth centuries. These domes also exercised a considerable influence on the vaulting of the whole of Aquitaine, and a few straggling instances extend as far as Normandy.

* By Mr. J. H. Parker, F.S.A. See page 325, ante.

The church of Bernay was founded in 1024, by Judith, wife of Richard II., Duke of Normandy. It is now a market-hall and has a west front of the seventeenth century, but the greater part of the walls are original, with the triforium and clerestory. These are very rude, with baluster shafts. The aisles are vaulted with a series of small domes under a wooden roof: these are considered by Mr. Pett as original, and I am disposed to agree with him, although the French antiquaries consider them as part of the work of the seventeenth century, built at the same time as the west front. They are quite plain rather than domes of rubble, or at least of small uncut stones, not of ashlar.

The celebrated and fine church of Tournus, on the Saône, was built between 1068 and 1019, and a portion of the original structure remains. The nave is vaulted with transverse barrel vaults across each bay from north to south, instead of the usual longitudinal vault. This arrangement is said to be unique. It is many years since I saw the church, and I did not then know the history of it, and did not clearly make out to what period the different parts belong, but it seems not improbable that the transverse stone arches originally carried a wooden roof only, as in many other examples; and that the vaults were put on subsequently, perhaps after a fire had destroyed the wooden roof.

The Cathedral of Auxerre was founded in 1065, and the crypt appears to be long after that date: it is very rude, with wide jointed masonry and plain early capitals, which correspond with others in some of the other early crypts.

The church of St. Germain des Prés at Paris was rebuilt after its destruction by the Normans, by the Abbot Morard, who died in 1014. A small part of the nave is said to belong to this period: it is plain and early-looking.

The cathedral of Nevers was founded in 1028, and parts of the existing building agree with that date: these are the western apse and the crypt under it, and the transepts with their chapels: the capitals are exactly the same as those in the crypt. The eastern apse and the choir in section: the piers are square and massive, with heavy shafts attached to them, carrying a large round moulding under the soffit of the arch: the vaults are groined with a central rib, and the original transverse arches of the church was small and cruciform, with a very short head to the cross, terminated by an apse. A new church was added eastward of it in the thirteenth century, and the eastern apse and choir were entirely rebuilt.

The church of the Ronceray, at Angers, was founded in 1028, by Foulques, Earl of Anjou, and a considerable part of the existing church is of early character, not long after that date.

The church of St. Hilary, at Poitiers, was rebuilt by Agnes of Burgundy, wife of William III., Duke of Aquitaine, and was consecrated in 1049. A part of the existing church belongs to this period: the greater part has been again rebuilt; but the plan and arrangement of the fabric probably belong to this century, though most of the ornamentation is later.

The fine abbey church of Junieges was consecrated in 1057, and a considerable part of the existing ruins belong to this period: the capitals are plain and early: they have been covered over with plaster and painted.

These are all the dated examples of the first half of the eleventh century that I have been able to identify. I have a list of many others either founded or rebuilt during that period, but have not been able to ascertain what portions remain.

The churches of the Pyrenees were admirably described by Mr. Freeman, a fortnight since: they are of early character, and have belfry windows, with mid-wall shafts and balusters resembling those in England, and some of the arches are probably of the eleventh century, more probably of the twelfth: their history has not been investigated: but in remote and mountainous districts the earlier style is generally continued to a later period than in more cultivated parts of the country.

In Switzerland there are two or three churches which partake of this character. The tower of St. Maurice is built of Roman materials at the beginning of the eleventh century, and the windows bear a resemblance to the Saxon baluster windows, but they are formed by using Roman columns taken from some older building, and these columns being too long for the windows, the lower part of the columns is built into the rubble wall as more easily than cutting the marble columns.

The church of Roman Moter has long and short work in the angles; but this may arise only from the nature of the building material.

There are many occasional instances of resemblance are found, but it seems to arise more from their belonging to the same rude period than that one is copied from the other. The idea that the ancient Lombards were great builders in stone, and the predecessors in the art of the Normans, I believe will be found, on examination, to be altogether groundless. I have searched in vain in Lombardy for any work of any importance between the Roman period and the eleventh century. The absence of any examples of this period at Rome has been already mentioned.

The buildings of Pisa and Lucca, ignorantly attributed to the ancient Lombards, very commonly bear inscriptions recording their erection, and of others the history is perfectly well known.

They are the glory of the Pisan republic of the twelfth and thirteenth centuries, with sometimes portions of older buildings of the eleventh century, or earlier, built up in them. At Ravenna, at Rome, and in the cities of central Italy, the buildings are almost entirely constructed of brick, and with marble, which they protect, and which whatever from which the Anglo-Saxons could have derived the peculiar features of their buildings.

I believe that the style called Lombardic has as much to do with the Anglo-Lombardic as the Gothic has to do with the ancient Goths, and no more. Both are convenient terms as indicating the races by whom they were used; but we must be careful not to be misled by these names into erroneous notions about the dates of the buildings, which is very frequently the case, even with popular writers who ought to know better. The buildings of Italy so constantly bear dates inscribed upon them, that a little examination of them is all that is required to ascertain the point.

To return to England and our supposed Anglo-Saxon churches, it is remarkable that, out of nearly a hundred examples, spread over twenty-nine different counties, there are so few of which we have any account, or even any mention in history: they are nearly all obscure village churches. The large number of sixty-three Benedictine monasteries were founded in England before the year 1060, but of this large number not more than three

or four are found to have any existing remains of early character, and there are not altogether more than six out of the hundred early churches that remain to us, of which we may mention before the year 1000, the church of St. Andrew, the two crosses of St. Wilfrid at Eborac, and Ripon; the walls of the church in the castle at Dover, and of the church at Brixworth, both built of the fragments of some Roman building, and in the rudest manner, and some portions of the walls of the church at Eborac, at St. Martin's, Canterbury. These exhaust the list of buildings which we can at all authenticate for the long period of five centuries. When we come to the eleventh century, the work is widely different, the first building era now begins, and we have a number of buildings remaining which we can identify and authenticate; and several of these are before the Norman conquest, as we have seen.

The Normans did not bring over an army of masons with them; and, although many of their soldiers were masons also, there is no doubt that their buildings were erected mainly by Saxon hands; and, as the Norman rule was not very readily or quietly submitted to, they were obliged, in the first instance, to turn their attention to building castles to keep the people in subjection. Forty-nine castles are enumerated in the Domesday survey, which was made about twenty years after the Conquest; and of these, one only, that of Arundel, is mentioned as having existed in the time of Edward the Confessor. It is said that William attributed the facility of his conquest chiefly to the circumstance of the Saxons having no strong place to keep the Norman army in check, and that he set about providing them as soon as possible.

These early Norman castles are all built in the same type—a square massive keep or donjon, with the ground-floor vaulted for store-rooms, or stables, or prisons, according to circumstances; the entrance on the first storey, with sometimes an external flight of stone steps; in other cases a drawbridge to an outwork.

These keeps do not appear to have been originally intended for the purpose of raising fortifications; the custom of raising fortifications of a trench and rampart surrounded by wooden palisades was not yet abandoned; in fact, it was used occasionally after the Conquest, and these keeps seem to have usually surrounded by a double entrenchment, the inner one being the keep, or the principal court, in which the keep was situated, the outer one enclosing the outer bailey or yard; and this was frequently of considerable extent, in order to drive the cattle into the inner court for the purpose of protection.

This custom of enclosing two courts or baileys round a castle was continued throughout the Middle Ages; and in later times farm buildings were erected in the outer bailey, and degrees in more peaceful times this was changed into the farmyard.

The Norman keeps were so massive and so well built that a large number of them have been preserved in the present day, often upon no other ground than that it was the most modern and the strongest, from the great strength of the masonry, than the masonry was worth.

We have, however, very few castles remaining that appear to have been completed in the time of William the Conqueror. During the twenty-one years of his reign his hands were generally full.

It seems to have been completed for the most part in the time of his successor, William the Conqueror, either from real piety, or in order to make his peace with the Pope and with the Church, founded several churches, and some of them are still existing; and to say that he built them in general is a mistake: the monks erected the buildings with the help of the funds which he gave them. The two most celebrated of these are the church in Normandy, St. Stephen's, or the Abbey aux Hommes, was founded by William in 1060, and dedicated in 1077, which shows that in eleven years so much of the church was completed as to enable it for the performance of divine service. It was the usual custom of the Middle Ages to consecrate a church as soon as the choir was completed, leaving the nave and other parts to be completed afterwards; but the nave and other parts for the whole were generally laid at once, and the choir was left to be built as the work proceeded; and the transepts were commonly begun at the same time as the choir or very soon after it; and as the monks or priests must have some place to live in to enable them to perform the service, the transepts and choir of the abbey were generally begun at the same time as the choir, but they were frequently obliged to be content with temporary wooden buildings for a considerable time.

A careful examination of this building shows not only that the choir has been rebuilt in the thirteenth century, and the spires added at the same time, but that there is work of three periods antecedent to this, all belonging to the twelfth century, and that the whole of the west front is so familiar to us from engravings, belongs to the second period: the original work terminates at the back of the western towers, which are placed against it with a straight joint all through. The original work can be distinguished on examination, more especially by the wider jointing of the masonry, but very little it is visible to the casual observer. The main walls of the nave and transepts in reality belong to it, but they have been entirely concealed, and covered over in the interior to carry the vaulting, and the whole of the ornamentation of the interior belongs to the third period. The original construction, no doubt, belongs to the time of the Conqueror, 1066 to 1077, the date of the interval must have elapsed between the first and the second period, and shown by the difference of masonry and ornament, and it belongs in all probability to the last ten years of the eleventh century, and we have seen, in looking at the investigations into the history of Waltham Abbey, I have come across a bitter complaint of the monks of the robbery of that Abbey of all its treasures by William Rufus against it, and by transferring them to the abbey founded by his father and mother at Caen, the date of this complaint agrees so well with what I should expect to find from the architectural character for the second period, that we may with confidence assign it to that date.

We have so long been accustomed to look at the west front of the Abbey aux Hommes as the starting point, the type of the earliest Norman work, that this proof of its belonging to a period thirty years later than had been supposed makes a complete revolution in our ideas of early Norman work. These western towers afford us further evidence: they contain a portion of the triforium of this second period, quite different from that now existing in the choir, and prove that the existing triforium and choir, which all belong together, are of the third period, which is probably about 1160. A further examination of the passage through the choir shows that the masonry remains of the twelfth century, and the fact that the wall is of fine jointed masonry, and the junctions in the

work are very evident, while neither the masonry nor the ornamentation agrees with the west front. My friend Mr. Bouet, of Caen, has made me a set of drawings of the details of the twelfth century, and the matter is clear, even to those who have not the opportunity of examining the building for themselves. Another peculiarity in the arrangement of the clerestory of this church has long been observed, but not explained. Each of the windows is composed of two lights, and instead of two, as is the universal practice. The cause of this appears to me to be this: the original church had no vaults: these were added to the aisles in the second period, but to the central space not until the third; the original thin roof was carried on stone arches at intervals, as was the case in the Abbey Church of Cerisy of about the same period, and in several English halls.

When the stone vaults were put on, these early stone arches interfered with the arrangement of them, and they were obliged to be accommodated to the spaces which they had to occupy: hence the apparent irregularity of the plan.

The character of the masonry of the earliest period is exactly the same as that of the early work at Westminster, which we usually attribute to the time of Edward the Confessor, but which may perhaps be twenty years later, as we have seen in this church remaining.

The Church of the Holy Trinity, or the Abbaye aux Dames, at Caen, was founded by Queen Matilda in 1066, and the church was dedicated the same year, which is almost a proof that it was a temporary wooden church only; for a stone church would not have been built in the time, and there could be no reason why one of the two churches should require eleven years before it was ready for consecration and the other only one.

The work of the existing church is evidently of later date than the Abbaye aux Hommes. It was built at two different times during the course of the twelfth century, but hardly any of this church can be considered as belonging to the eleventh.

I have entered into the particulars respecting these two churches because they are considered by many persons as the foundation of all ecclesiastical architecture in England, and are appealed to as tests of the style in use at the time of the Conquest, and for this purpose they are almost as fallacious as Malmesbury Abbey was to Carter and the antiquaries of the last century, who considered the existing building there as the type of the Saxon style.

I take this opportunity also of reminding you that in travelling on the Continent it is necessary to be very cautious how you receive the dates which are given you by the local guides, or even by Mr. Murray's excellent hand-books, which are not only very good, but in a great degree, from local guide-books and other foreign works. The dates usually assigned in such works are those of the original foundations only, without taking any notice of subsequent rebuilding, which has taken place everywhere, just in the same manner as in England. In many foreign countries the subject of Medieval architecture has not yet been studied, and very few buildings have been subjected to the same searching investigation which Professor Willis has given to Canterbury Cathedral: his work is really the only safe guide to the history of all the great churches in Europe.

Wherever we go and examine the buildings carefully we find this history, and it amounts to nearly the same story: the character of each century is distinctly marked everywhere; and although there is, in each country and in each province, a strong national and provincial character, yet the one is altogether subordinate to the character of the age in which the building was erected.

King William also founded Battle Abbey, in Sussex, on the site of the battle of Hastings, the year after the battle, but we have no work of his period remaining there.

In 1078, Archbishop Lanfranc rebuilt his cathedral at Canterbury; but within fifty years afterwards the choir was again rebuilt by Conrad and Ernulf, and the nave subsequently, so that we have none of Lanfranc's work remaining; from which we may infer that the work of this period was still very inferior to that of the twelfth century, or the architect would not have thought it necessary to rebuild work so recently erected. In further confirmation of this it may be mentioned that of the thirty-two Benedictine monasteries founded in the eleventh century, there are only three or four of which we have any buildings remaining that belong to this period. Of the Cluniac priories, four only belong to this century—Lewes, Castle, Wenlock, and Bermondsey;—and in neither of these, I believe, are there any remains earlier than the twelfth century.

In the years from 1070 to 1095, the Abbey of Bury St. Edmund's was rebuilt by Abbot Baldwin, assisted by the sacrista Thurstan and Tolin. The Church of the Monastery, consecrated in 1035, having been for the most part, like its predecessor, built of wood, though not finished, was still unworthy both of St. Edmund and of the establishment endowed with such magnificent remedies as St. Edmund's Bury: accordingly, under the auspices of Abbot Baldwin, the sacrista Thurstan and Tolin demolished the church which had been so recently constructed. King William the Conqueror on this occasion issued a precept to the Abbot of Peterborough, commanding that the abbot and convent of St. Edmund should be permitted to take sufficient stone for the erection of their church from the quarries of the rock, in Northamptonshire, granting at the same time an exemption from the usual tolls chargeable upon its carriage from that place to Bury. Baldwin was a monk of St. Denis, at Paris, then prior at Deerhurst, in Gloucestershire, a cell to St. Denis. Lytgate says "he was greatly expert in craft of medicine." King Edward the Confessor granted to him for his monastery the privilege of a mint. He was also in great favour with King William the Conqueror, under a charter from whom he made considerable acquisitions to his monastery.

The new edifice was completed in 1095, and the body of St. Edmund was translated into it in 1096.

Square masonry was never used in the abbey is standing, and probably belongs to this century: the shallow porch and rich doorway on the west side are evidently insertions of a subsequent period.

The building of the churches of Jarrold and Monkswearmouth, in the county of Durham, is recorded by Bede, and the dedication stone of Jarrold has been preserved, recording the date of 685. It was long considered that the existing towers belonged to that early period; but the

researches of the late Dr. Kaine have demonstrated that they have both been rebuilt subsequently to the Norman Conquest. The original churches were destroyed by the Danes in 867, and had laid waste for above two hundred years, when some monks from Durham endeavoured to restore them to divine service: they found the walls alone standing, without a roof, and choked up with trees, briars, and thorns, as we are told in the Chronicle of Simon of Durham who was living at the time. This was in 1073, and "shortly after, when the bishop saw the monks wishful to rebuild the church itself, and the ruined monastic dwelling-places, he gave them the vill of Jarrold and its appendages." There is little doubt that they carried out this intention: the masonry of the existing tower is of early Norman character, but not earlier, and a portion of a Saxon cross is built in as old material.

The history of Monkswearmouth is the same as that of Jarrold; but here it would seem that the new church was not on the site of the old one, for Dr. Kaine has found mention of the old church, used as a barn, in 1360, in an inventory of the cell of Monkswearmouth preserved at Durham; and again in 1447, where it is called in English "the Alde-Kirke." These inventories have been printed by the Surtees Society, edited by Dr. Kaine.

A.D. 1077-1115, the church of St. Alban's Abbey was rebuilt by Abbot Paul, of Caen, according to the distinct evidence of William of Malmesbury, Henry of Huntingdon, the "Saxon Chronicle," and the "Annals of St. Edmund's Bury." I am particular in mentioning the authorities in this instance because the fact has been much doubted, and the character of the work is earlier than we should expect to find at this time,—partaking very much of the Anglo-Saxon character, and built partly of Roman tiles from the neighbouring city of Verulam, mixed with rubble-stone work, the joints of mortar, very wide, and baluster shafts used abundantly in the windows. Abbot Paul died in 1093, and the work was completed by his successor, Richard de Albi, and consecrated in 1115, in the presence of King Henry I.

The church of Winton Warren, in Warwickshire, which is of the style called Anglo-Saxon, was given by Robert de Toms, standard-bearer to the Conqueror, as a cell to the Abbey of Couches, in Normandy, not long after the Conquest, and was probably built about that time.

A.D. 1073-1093, Winchester Cathedral was entirely rebuilt by Bishop Walkelyn on a new site: the crypt and the transepts of this period remain, and the work is of very early Norman character, closely resembling the original part of St. Stephen's at Caen, and very little in advance of St. Alban's, or of the Confessor's work at Westminster.

The capitals are of the same simple form,—merely a cube with the angles rounded off, which is called the cushion capital, but the abacus has the Norman chamfer under it, and the bases are moulded: the masonry is still under-jointed, but not quite so rude. The plan of the church was on the same magnificent scale as the Norman churches of the twelfth century generally are, but the ideas of the architect seem to have been rather in advance of the skill of the workmen, for the central tower fell down in 1107 and was rebuilt in a more substantial manner.

The mass of masonry used for the piers of the new tower is enormous: the workmen evidently were determined that it should not fall again, and compensated for their own want of skill by over-massing the tower; it was in the new work the masonry is fine jointed, and this serves to distinguish it from the old.

The crypt belongs to the original work, and the pillars of the nave are nearly as short and as massive as those of the substructure at Westminster; nor are the capitals much, if at all, in advance. Some of the capitals in the transepts have evidently been carved at a subsequent time.

Winchester Cathedral was commenced by Abbot Samson, brother to Bishop Walkelyn, in 1030, and was dedicated in 1106: part of the nave and transepts belong to this work, though probably built after the dedication of the choir, and, therefore, belonging rather to the twelfth century; the work is somewhat in advance of the early work at Winchester.

The chapel in the White Tower, London, is said to have been built by Bishop Gundulph in 1061. The original work is extremely plain and massive, but not rude: the chapel of the Royal Palace, and, therefore, might be expected to be the best work of the age. It has a plain barrel vault: the arches of the triforium are perfectly plain, with square piers, without any impost; the pier-arches are also plain square-edged and not recessed, but they are carried on round pillars with capitals and moulded bases.

The original capitals are of the cushion form, with the Norman chamfered abacus, some of these have been carved afterwards, being, like those at Westminster, just of a convenient height for the purpose: others have the peculiar Tau cross in the centre, which is one of the characteristics of the latter part of the eleventh century, and seems to have been intended to be carved in imitation of the cauliculi of the Classical capitals. This chapel is on the second and third floor of the tower: the aisles of it are carried on the solid walls of the first floor, a waste of material which betrays unskilful workmen: there are no passages in the thickness of the walls excepting in the upper story. The council chamber which adjoins the chapel is still more plain and rude: it has no arcades, but wooden posts in two rows to carry the floor above, and this seems to have been the original arrangement. Nearly all the windows throughout the building have been modernized and enlarged: only one remains in its original state in the chapel. On the exterior the only original features are the early plain buttresses and the masonry.

The cathedral of Worcester was rebuilt by Bishop Walstan, who had increased the number of monks from twenty to fifty. The foundations were laid on a new site in 1084, and the church was consecrated in 1089. As five years was not sufficient time for building so large a church, it is evident that the choir only was completed when it was consecrated according to the custom of the age. William of Malmesbury records that when the procession of monks took place, translating the relics from the old church to the new one, the bishop went instead of rejoicing; saying that he feared the superfluity of the new buildings would make them forget the simplicity and piety of the primitive times. This is evidence of the larger scale of the new buildings, their greater magnificence, and that they were on an entirely new site. The crypt of this period under the choir remains perfect, their itself was rebuilt in the thirteenth century, and the nave is of several different periods, begun at both ends, and meeting in the middle with a very clumsy junction.

* Inventories of Jarrold and Monk's Wearmouth. 8vo. Durham, 1854.

* See Mon. Ang., vol. iii. p. 101, and the extract from the Register of the Abbey, preserved in the office of the Duchy of Lancaster, fol. 80, 81, 82.
† MS. Harl. 447; also Mon. Ang., vol. iii. p. 102.



THE WATER GATE, ESSEX STREET, STRAND.

That the country had suffered severely from the long unsettled state it was in during the reign of the Conqueror is evident from many passages in contemporary documents, especially from the Domesday survey; and this sufficiently accounts for our not having many buildings of this reign, and not much progress visible in those that we have. For instance, in the city of Oxford there were in this last year of his reign 213 houses paying the tax to the king, and 478 houses so waste and decayed that they could not pay the tax. These were evidently wooden houses only. The manner in which the taxes had been increased is also shown by the statement of the Commissioners, that in the time of King Edward, twenty pounds a year was paid by the City, and now in 1086 it pays 60*l.*, equal to about 1,300*l.* of our money; and as the number of inhabitants according to the usual reckoning of five to a house had been reduced to one-third of this number, or from 3,600 to 1,200, the tax amounted to a pound a head on the average. Besides the houses enumerated there were twenty mural mansions paying only 14*s.*, because they were liable to keep the walls in repair. These walls were probably earthenwork, with wooden palisades only, which were continually wanting repairs.

The last ten years of the eleventh century belong so completely to the twelfth in the style of architecture that no line of distinction can be drawn, and the architecture of the twelfth century, the great era of the Norman style when fully developed, is far too wide a field to enter upon at the end of a lecture, which I fear has been already far too long. If I have succeeded in awakening any degree of attention to the eleventh century, which has long been too much neglected, I shall accomplish the object that I proposed in addressing you.

SCRAPS OF OLD LONDON.

THE WATER GATE OF ESSEX HOUSE, STRAND.

GREAT changes have been made since the north side of the Thames at London was lined with the stately mansions of the nobility. If we now wander over this site, it will be found that of those abodes which some 300 years ago were centres of fashion, as homes of the old English aristocracy, few traces now remain. Northumberland House is the most important. In a narrow lane towards the east, a portion of Durham House may be seen: not far off is Buckingham Gate. The place called the "Roman Bath" may have been a portion of Norfolk House; and there are some old fragments at and near Whitehall: with these exceptions, and the gateway shown in the engraving,—all these important houses here, which were so familiar to Londoners, have disappeared. Printing-offices, warehouses, and other useful establishments, have taken possession of the site once belonging to the Bishop of Durham, the Duke of Norfolk, the Earl of Essex, and other worthy and unworthy personages.

In the old days, when the pavement of London streets was in a bad state, when land carriages were not in use, the water-gate of a gentleman's mansion, particularly when the Court was at the Tower or Whitehall, was an important adjunct.

At the Tower, the water-gate, which is con-

nected with so many historical associations, may still be seen. There is a water-entrance to Somerset House, and Buckingham gate still remains, and will well repay the trouble of close inspection, when the tide is in, and the last of the Westminster watermen is at hand.

The water-gate of Essex House will be found at the bottom of Essex-street. Many pass under it to and from the steam-boats without noticing its interest. In a view of the Thames, showing the Frost Fair, in the reign of Charles II., the King, Queen, and others of the Court, are seen coming down the Temple Garden stairs, to witness the sports on the ice; and in part of the background is the archway, and beyond the archway are the gables and other parts of Essex House. A garden, with terraces, is between the arch and the river.

Through the gate as it now stands we have a peep at the Thames, and a portion of the new library and greenery of the Temple.

THE CRADLE OF THE ARCHITECTURAL MUSEUM.

THE quaint and ancient congeries of wooden buildings in Canon-row, Westminster,—the immortalized "cock-loft," in which lords, ladies, and commoners assembled to inaugurate the "Architectural Museum," and afterwards, many a time and oft, to view the collection and hear of its progress,—has flashed out of the world in fire and smoke; in plainer English, has been burnt down. A sketch of its many gables, and a larger view of the interior, will be found in one of our earlier volumes. It was a piece of Old London, oddly hidden away and preserved. Having done its best in the world, it has vanished out of it, streaking the sky with flame and covering the river with a sable coat. Poor cock-loft!

LIVERPOOL ARCHITECTURAL SOCIETY.

At the fourteenth meeting of this society, held on Wednesday evening, the 3rd inst., Mr. James M. Hay, the president, occupied the chair.

Mr. Wm. Stubbs read a paper, entitled, "Iron Construction." At the close of it he said,— "Simple rules are sufficient; and as an instance I may quote one for the strength of pipes that has never been printed before, but which I am certain answers perfectly well for ordinary sizes. It is thick, will stand 100 yards pressure of water. The coincidence of 1 inch metal, 10 inches in diameter, and 100 yards pressure, is sufficient: for every inch in diameter increase or deduct by

one-tenth of an inch, and for every yard of pressure add or deduct one hundredth of an inch. For columns, calculation requires care, as the circumstances vary very much; but a safe plan is to find the diameter of a solid column necessary to bear the compression, and then distribute the same area of metal in a tube to form a hollow one, and if the thickness of the metal is proportioned so as to be one-seventh of the external diameter, the strength of the column will be increased by more than half. The diagram shows also a simple plan of doing this. The line BC, which is simply a tangent touching the inner circle, is the diameter of a solid column, containing the same metal as the hollow one. A convenient example to remember, as a guide, is the remarkable fact that a column of this sort 10 feet long, having an area of 10 inches of metal, will bear ten tons. These are the kind of rules which can be carried about for use at a moment's notice; for, after all, it is really not so much what we know as what we can make use of that is valuable."

The President said the mixing of timber with iron never seemed to work well, and he should have liked to have heard some observations on that point. He rather questioned the remark made in the paper, that painting iron with the rust upon it was better than painting it before any rust had accumulated on the surface. He had observed that, when the rust was painted over, corrosion still seemed to go on.

Mr. Stubbs, in his reply, adhered to the opinion that it was better to paint into the rust than on the smooth surface. The rough rusted surface of iron had in some measure a porous character, over which the oil, if properly rubbed in, formed a thicker coating, and was less liable to strip off.

The President said that, perhaps Mr. Nichol could throw a ray of light upon the subject of the present strikes.

Mr. Nichol replied that all he could say was that they were coming to a crisis of some sort or other; and that, as a large employer, he was prepared to close his place for mouths.

GOVERNMENT COMMITTEE ON THE HOUSES OF PARLIAMENT.

ON Monday last the committee appointed by the Government to inquire into the causes of the decay of the stone used in the erection of the Houses of Parliament, and to suggest, if possible, a remedy, closely inspected the works with a view to a report. There were present Sir Roderick Murchison, Mr. Tite, M.P., Mr. G. G. Scott, Mr. Sydney Smirke, Mr. G. Godwin, Professor Frankland, Professor Hoffman, Mr. C. H. Smith, Mr. G. R. Barnell, Professor Abel, Professor Ansted, Mr. Digby Wyatt, Mr. Hawkesley, and Mr. Bonham Carter (secretary). The committee were occupied nearly the whole of the afternoon in the investigation. Mr. Quarm attended, as the representative of the architect, to give such information as might be needed. A day was fixed to receive statements from those who have applied remedies to the stone-work. The particulars of any new modes founded on direct experiments, and tested by time, would doubtless be well received by the committee, and properly considered.

HOLY TRINITY CHURCH, KNIGHTS-BRIDGE.

THE Holy Trinity Church, on the north side of Knightsbridge, was consecrated on the 30th ult. by the Lord Bishop of London. In our last volume we gave a view of the exterior.* The accompanying engraving represents the interior, looking east (ritually), but north in reality. Its largest dimensions are 76 feet by 38 feet, and it is 65 feet high to the ridge. It provides accommodation for about 650 worshippers, and has cost about 3,300*l.* The principal peculiarity about the building, as we before mentioned, is the roof, which is so constructed as to have a continuous range of clerestory lights the whole length of the church. These are accessible from the outside, so as to regulate the ventilation.

Messrs. Dove, of Islington, were the builders, and Mr. Raphael Brandon and Mr. Eytton were the architects.

We must note that, since the drawing was made, the mode of lighting has been altered. Uprights are affixed against the front of the gallery, with burners at top and at bottom, to light above and below the gallery. Further, the coloured decorations at the altar end and the panelling in the gallery front are postponed.



HOLY TRINITY CHURCH, KNIGHTSBRIDGE.—MR. R. BRANDON AND MR. EYTON, ARCHITECTS.

THE NEED OF CHANGE IN THE
POOR LAW.

In a short time the management of the pauper population must be brought, in a prominent manner, before Parliament; and certainly few subjects could be discussed by the House of Commons of more universal importance than the condition of the poor of the realm. We therefore trust that, setting aside all prejudices, and all special or local interests, the discussion will be so arranged, that general good will be the result; and, without materially adding to the public cost, at the great masses of the poor will be no longer treated by poor-law or parish boards in a manner which is not creditable to a prosperous nation.

We feel it a duty to direct attention, just now, to a few points which are worthy of notice; and in the first place, we may glance, though but slightly, at the extent of pauperism in Great Britain.

In 1851, according to the last census report, there were 132,704 inmates in the workhouses. This, however, gives but a small idea of the number of persons dependent on the poor-rates, or other charitable sources, for a maintenance, during some of permanent or periodical distress. At the time of the census of 1851, for instance, there were 9,876 inmates of hospitals: there were also many in the national hospitals of Greenwich and Chelsea: a vast number were assisted by out-poor parish relief, and the London magistrates' poor boxes: to asylums such as St. Luke's, the poor are admitted to a certain extent: there are almshouses for soldiers' and sailors' children; schools more or less supported by charity; besides training and reformatory establishments, also supported by the benevolence of various classes, which numbers who would be otherwise destined to find support.

Cost, in all management, is no doubt an important consideration; but there should be higher motives than mere money in our care of the poor; who could not, in the time of their great distress, be insulted, brow-beaten, and treated (as they often are by parish functionaries) in a way which no humane person would think of subjecting them to. Of the 132,704 who were lodged in the workhouses at the date above mentioned, it is shown at under five years of age there were 6,192 males and 5,735 females, in all 11,927; of the age five years, males 10,236, females 8,650, in all 18,886; of ten years, males 11,441, females 8,495, all 19,936.

These figures show that 50,649 children, of both sexes, in the workhouses, were at or under ten years of age.* By good management such a state matters might be turned to a profitable account, but neglected it will become a prolific source of evil as well as of cost.

Dr. Parr has shown, by ingenious calculation, that the average value of an agricultural labourer, at the age of twenty-one years, is about £207. According to this, if these 50,649 children were properly trained in habits of industry, so that they might be fitted for agricultural labour; and even though 25,000 of them only should live to the age of twenty-one years, we should by this means have added to the material wealth of the country no less than 5,500,000.

Great improvements have been effected during the last few years in the management of the vast pauper population of the country; but a great deal still remains to be done; and while it is by no means advisable to make the workhouse accommodation so good as to cause the working classes to contrast unpleasantly the condition of their own families and dwellings with that of the inmates of workhouses, it is clear that those who from various causes have been forced to go to the workhouses should have better diet and treatment than criminals such as those whose conduct has been lately so notorious at Chatham. There are peculiarities in the treatment of the pauper population which require alteration.

Thousands of instances might be given of cases where the proper management of temporary outdoor relief would have saved a whole family from pauperism, and from being a permanent burden on the public; and in actual £.s. d. a saving might be thus effected, to a parish, of several hundreds of pounds for every such family. The great costs and evils of the present system it will be difficult to state briefly. A workman with a family of children loses his tools by fire; or it may be that he is stricken with fever or other illness: a little timely assistance would often save those so situated to recover or preserve themselves but useful home.

* This is upwards of one-third of the pauper population in workhouses.

It seems to be the usual practice at present that, if a man apply for parish out-door relief, he is offered work in the stone-yard. This is no great hardship to a "navigator," or to others used to rough employment; but by a watchmaker, a tailor, French polisher, and many other workmen, this labour cannot be done except in great misery, and even bodily pain. It is also usual to examine the furniture of those who so seek help; and it is known that aid is refused if the effects be of greater value than 4s.

This reminds us that we want a different classification of the inmates of the workhouses than is at present customary. The writer has frequently met with persons in these places, within the metropolitan district and elsewhere, who were reduced to seek a shelter in them, though possessed of learning and ability; and many who have been engaged in large businesses, and have for years contributed to the support of the poor themselves; and yet these ruined men and women are clad in the same humiliating livery, and treated in no way different from those who have been all their lives a burden on the parish. This phase of the question is well entitled to humane consideration.

In glancing at the return by the Registrar-General of the pauper population of 1851, it will be found that, in England and Wales alone, amongst those in the workhouses were 2 union relieving officers; 1 master of a workhouse; 1 army officer; 2 army half-pay officers; 1 barrister; 7 solicitors; 7 surgeons; 26 druggists; 10 painters (artists); 82 schoolmasters; 23 innkeepers; 1 merchant; 2 ship agents; 3 brokers; 8 auctioneers; 15 accountants; 118 commercial clerks; 11 commercial travellers; 6 pawnbrokers; 14 publishers and booksellers; 14 engravers; 4 surveyors; 6 builders; 74 grocers; 20 tobacconists, &c. This list might be prolonged to a great extent to show that, amongst the males who have sunk to the necessity of applying to the parish and residing in the workhouses, a considerable number have been in superior circumstances, and have probably paid largely to the rates.

There can, we think, be no question of the immediate need of an equalization of the rating of the metropolitan districts; and perhaps it would be advisable to strike an equal rate throughout the kingdom for the support of the poor. This would prevent the increase of pauperism in districts which are at present almost bankrupt, — such, for instance, as Coventry, and the eastern and several other parts of the metropolis. On improved arrangements in this and other respects the welfare of the agricultural, and of many other classes, of labourers in a special manner depends. The equalization of the poor-rates, and their general reduction, where in excess, throughout the land, would be a means of preventing certain landowners from driving out their surplus agricultural labourers, or those who have numerous children, from the land; and, in other situations, would lead to a beneficial change in cottage accommodation.

The right care of the poor, who, it is said, on the best of all authorities, "shall not cease from the land," is a national duty. It is unfortunately the case, however, that, owing to the hurry and struggle of modern life, many who, by their intellect, disinterestedness, and kindly feeling, would make useful members of parish boards, shrink from the duties of such an office. It is to be wished that this were not the case, and that arrangements also could be made for the election on to these boards of some of the most intelligent of the working men who are ratepayers.

How far the superior accommodation and better treatment of criminals than of the honest poor may have tended to fill the jails while emptying the workhouses is a fearful question, which may not easily be settled; but it is one of most serious responsibility, both to the legislature and the Government, and requires the gravest consideration.

ON BRICKWORK.
ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening (the 5th inst.), at the House in Conduit-street.

The president, Mr. T. Roger Smith, occupied the chair.

Mr. G. R. Julian, of 13, Neville-terrace, One-square, and Mr. W. C. Brangwyn, of 2, Cemetery-terrace, Scarborough, were, on ballot, elected members of the Association.

The Honorary Secretary announced that he had communicated the resolution agreed to at a recent meeting of the Association, on the subject of the

Exhibition of 1862, to the various architectural bodies, and had received acknowledgments from the Royal Institute of British Architects, and from the Architectural Museum. He concluded by moving that the president, vice-president (Mr. Blomfield), Mr. J. D. Wyatt, and Mr. A. Allom be appointed a committee to examine and report upon the drawings submitted for the prizes to be given by Mr. Tite, M.P.

The resolution was agreed to.

The President having expressed a hope that the members generally would exert themselves to make the *conversazione* on the 19th inst. as agreeable as possible to their friends, reminded the meeting that Friday, the 12th inst., would be the latest day on which drawings could be received for the prizes offered by Mr. Tite. These prizes would be given for the best Essay on Street Architecture, and for the best Series of Sketches made by the class of design. He was happy to say that Mr. Tite had written to him to say that, unless prevented by Parliamentary business, he hoped to be able to attend the *conversazione*, and present the prizes in person.

Mr. J. B. New then read the following paper "On Brickwork."

My subject, you all know, is bricks: allow me, therefore, without irreverence, to open it by saying that I hope the members of this Association will ever be, in the fullest sense of the word, "regular bricks, so well cemented and bonded together, that this Association, in the metaphorical character of a most substantial edifice, will last time immemorial."

In appearing before you to-night, permit me to express a regret that my unavoidable absence from London should have prevented me from following up the excellent remarks on foundations, made by our worthy Associate, Mr. Bunker; for unhappily it has broken the wished-for uninterrupted line or series of discussions on Practical Architecture; and while we can all agree with Mr. Christian, that it would have been far better for the remarks on masonry to have followed brickwork, we are equally convinced that it would have been far better for the remarks on brickwork to have followed those on foundations. Under these circumstances it would appear advisable to retrace the question of foundations, propounded by Mr. Bunker; on which occasion we came to the conclusion that "gravel" was the best natural foundation, with the exception of rock, which was not always to be depended upon; and that concrete ranked among the best artificial foundations—not omitting the large or broad blocks of stone, which our good friend, Mr. Billings, so humorously designated "the man with a big foot."

But a word or two before I proceed. Our syllabus for the present session sets forth that a paper will be read by Mr. Bunker, myself, and others, "On Foundations," "Brickwork," "Masonry," and "Carpentry." Now I, for one, with others who proposed the introduction of these subjects on practical architecture, never intended they should be presented in the form of what is usually termed a paper. At the same time I hope you will not misunderstand the intention of these remarks, and run away with the impression that I object to the reading of papers: far be it from me to object to so excellent a medium of imparting information; and, for one, I heartily thank those gentlemen who have so kindly favoured us with the result of their researches in so concise a form as a paper thereon; not excepting many excellent ones we have heard this session: that of Mr. Kerr, the last one read, will repay us all for a perusal again and again.

But, pursuing my remarks, our intention on these evenings was merely to introduce the subject in a conversational form, upon any points of importance that might strike us would be interesting and instructive to the junior members of the Association; based, in a great measure, upon the experience of our own practice; and by that means draw forth some practical remarks from our senior members, and thus prove a golden opportunity of gaining a good deal of practical information from each other. I am glad Mr. Bunker did not write a long paper: you will, therefore, not be surprised when I say that I am not come prepared with a long paper to read to you this evening; nor is it my intention to enter into any of the abstruse geometrical principles of the science of construction, such as would be necessary to develop the formation of vaulting, doming, arching and groining, &c. All this is very necessary for the student of architecture to know: at the same time the treatment of such subjects would be very much out of place to-night; our object being to elucidate, to a certain extent, the

everyday practice of bricklayers' work; and, following out the excellent suggestion of Mr. Kerr, we will confine ourselves to the limits of such works as would be required in the erection of a country house.

I will now, therefore, only briefly advert to the definitions of brickwork, and then proceed.

I find, in Gwilt's "Encyclopædia of Architecture," and in Nicholson's "Dictionary and Practical Builder," brickwork or bricklaying is defined as the art of building with bricks, or of uniting them, by cement and mortar, into various forms for particular purposes.

According to Gwilt, a brick is a factitious sort of stone manufactured from argillaceous or clayey earth (the principal property of which is well known to be alumina). After being mixed with coal ashes or breeze, &c., it is well tempered and squeezed into a mould: when so formed, bricks are stacked to dry in the sun, and finally burnt to a proper degree of hardness in a clamp or kiln.

On the best of authorities, the use of bricks is of the greatest antiquity, the use of bricks is in the earliest periods was a kind of bitumen, it is said. In this manner the city of Nineveh was built by Nimrod, and the justly celebrated walls of Babylon, estimated by the Greeks as worthy to be numbered among the wonders of the world, were erected in the same material.

One author says, "For the purposes of building, bricks claim a decided superiority, not only as being lighter and more easily worked, but also because their porous texture facilitates their union with the mortar, and makes them less liable to attract or retain damp and moisture;" an assumption which I question the admission of by many. He that as it may, there is one thing very certain; and that is, that good brickwork is far superior, in point of durability, to much of the stonework of the present day.

The names of the bricks in general use in our modern works are, gray stocks, red stocks, washed stocks, place bricks, marls or malms of two qualities, called first and seconds, red rubbers or cutting bricks.

The gray stock is the most useful brick we have, made of good earth and burnt: it is well adapted for any work where strength and durability are required, as in external walls, counter or discharging arches, piers, or underpinning, and forms a very good front when carefully selected of a uniform colour.

The red stock which is so freely used now in the fronts of our modern structures is made of a clay containing much oxide of iron. The finest description of this brick, made from the purest clay, is called a red rubber or cutting brick, used only for gauged arches and very superior work.

The washed stock is made of a purer clay than the common stock, is of a yellow tone, and equivalent in appearance to the marl seconds for facing of fronts.

The place brick consists of half-burnt clay; and consequently what is termed sammel, or soft, is of a dark red colour, and readily crushed and crumbled. Of late years the place bricks have been so exceedingly bad that, in my opinion, they are worthless as a brick, and only fit to be broken up and used for burnt clay for paths or beds for pavings, drains, &c., and should strongly recommend the rising members of the profession to prohibit the use of them in their specifications.

The marl or malms, as they are sometimes called, are fine yellow-toned bricks of two qualities, firsts and seconds, both of which are much used as facing bricks. There is another description of malms, a harder degree of brick, used for the purposes of paving, and called malm paviers. There is another description of bricks, called Dutch clinker, which are exceedingly hard and vitrified, and are sometimes used for paving stables and yards, but more frequently for building ovens or furnace work; but the best bricks for such purposes are what are called fire bricks: they are chiefly made at Hedgerly, and hence they are known by the name of Hedgerly bricks.

There are two more descriptions of bricks worthy of notice, which of late years have been extensively used in our modern structures.

The first are the fine white bricks made in Suffolk, and denominated White Suffolks, expressly made for facings. Some have of late been introduced in moulded forms; which forms, when judiciously treated, have a very pleasing effect in window dressings, strings, and cornices; superseding the necessity of cutting and rubbing bricks to splays and other forms, which look well to the eye, while the process of cutting and rubbing injures the brick as an external material; as the erusting or outer surface of a brick is more durable than the interior; and, therefore, better calculated to

withstand the ravages of time, particularly in our changeable climate.

Again, the moulded bricks in window dressings, strings, and cornices, are superior in appearance and durability to cement dressings; and I have no doubt, when they become more generally known and more extensively applied, they will altogether supersede cement mouldings; for the greater the demand the cheaper will the manufacturer be able to supply them.

Last, but not least, are the patent machine-made perforated bricks, invented by a person of the name of Beart: hence they are known by the name of Beart's Patent Bricks, and they are readily moulded at a very moderate expense to any pattern or drawing you like to send them. They are not equal in appearance to the white Suffolk brick, but much cheaper, and in that case a desideratum when the question of expense is to be studied. Burrs do well for foundations, being often as hard as clinkers.

The lecturer then proceeded to refer to mortars, including those composed of chalk lime, stone lime, Dorking sand, Thames sand, pit sand, and road grit, and to their being well tempered and beaten with a mortar beater. When the materials are well mixed, employ the composition quickly, as the least delay may render the application imperfect or impossible.

As to mixing and blending, M. Felibien observes that the ancient masons were so scrupulous in this process that the Greeks kept ten men constantly employed for a long space of time to each basin. This rendered the mortar of such prodigious hardness that Vitruvius tells us the pieces of plaster falling off from old walls served to make tables.

The same Felibien adds—it was a maxim among old masons to their labourers that they should dilute it with the sweat of their brow—i.e. labour it a long time, instead of drowning it with water to have done the sooner.

As to cement, the best for constructive work is Atkinson's proportion,—half and half. The choice of fit and proper materials is a very important duty devolving upon the architect; and the adaptation of such materials to the specific work intended to be performed requires great care on his part. At the same time it is his duty to see that the works are carried out in the most workmanlike manner, based upon the best principles of architectural construction.

I think it may with justice be said there is no portion of a building that requires more care and attention to these essential points than the walling of the structure, whether of brick or stone.

The foundations having been treated of, footings are our first consideration. Walls composed of bricks should be so constructed that the component parts should form one compact mass. Too much attention, then, cannot be paid to the best mode of disposing the bricks in a wall, so as to form such a bond as shall constitute the wall a compact mass.

Old English bond is decidedly the best, alternately composed of headers and stretchers.

Flemish Bond.—The same course consists alternately of headers and stretchers. Facings are bad, as they break the bond.

The lecturer then referred to perpends being kept true, to king closure in reveals, queen closure to keep the bond uniform, to birdsmouth, piers over openings, grouting with liquid mortar, iron bond discharging or counter arches over lintels, arches—front face over apertures, bow arches which should be cramps to lintel, discharging arches in old work, &c.; and stated that the tops of wall should have throated copings. Brick on edge and tile coursing are not good.

He next alluded to courses put on sand for stone landings, to oversailings, underpinning, and pointing, including tuck-pointing, with plaster inserted in the joints with a regular projection, and neatly pared to a parallel width.

He then spoke in favour of air flues from every room, and of the advantages of cavity walls. Proceeding, he said,—Near to us is a fine specimen of good brickwork, though the smoke of London has made it look very dingy; that is at the south-west corner of Hanover-square.

Another fine specimen of modern brickwork is to be seen at the St. Katherine Dock, built by George Clements. That poor man is now provided for in his old days by the Builders' Benevolent Institution. Lord Alexander Baring Ashburton's house, 82, Piccadilly, is generally considered to be the finest specimen of modern brickwork, built by George Harrison.

Mention might be made of the church in Margaret-street, All Saints', and of the schools at the corner of Eddell-street, which are built in old

English bond. As to smoky chimneys, the lecturer recommended that the flues should be contracted towards the centre, and have a wide opening near the fireplace, so as to admit of a free current up and down.

At the conclusion,

The President, having referred to the practical nature of the paper just read, observed that Mr. New had not referred to block bricks; neither had he said anything on the mode of forming a judgment on the selection of bricks. He (the President) had learned to become very cautious as to the selection of local bricks, as they often turned out very deceptive. He should like to hear Mr. New's opinion as to whether mortar should be kept for a length of time; or whether the quantity made up should be restricted to a day's consumption.

Mr. New said he saw no objection to mortar being kept a week or a fortnight, provided it was well raked up for the day's work, and then covered up. With regard to the choice of bricks, he had to observe that good bricks, particularly stocks, were easily known. If they rang when knocked together, they were good. When they were bad if two were clapped together, one of them would break into halves, and they would not ring. As to the block bricks made in Suffolk, which were of a glazy appearance, and very hard, they were very difficult to be got, and he himself had waited for some in vain.

After a few remarks from Mr. C. H. F. Lewis, Mr. Adams, and other gentlemen, a vote of thanks was passed to Mr. New for his paper.

THE LABOUR QUESTION.

London.—The position of affairs, we fear, is much the same as it was last week as regards the prospect of the unions acceding to the payment by the hour system. Messrs. Lucas are filling up their vacancies; and it is said they can readily obtain additional men from the country; but, although, in one case, as we recently reported, building trades' workmen in the provinces not only stood out for new arrangements based on the hour system, but rejoiced in having obtained them, we are given to understand that there is a feeling in the country against this system. The objection, where it exists, is based on misconception.

Wolverhampton.—A meeting of painters, plumbers, and glaziers was held here last week to receive a report of the committee appointed to wait upon the employers to procure a reduction in the hours of labour and an increase of wages. The committee reported that the employers were willing to grant the rise in the summer of from 23s. to 24s., and would also consent to allow men employed on new buildings to leave work at half-past five in the evening as the committee had desired; but they would not agree to any alteration in the time (six o'clock) at which the men left work in houses that were inhabited. The committee had also desired the employers to increase the wages in the winter from 21s. to 22s. a week, and to make the hours of work from daylight till dark. The masters, however, declined to make any alteration in relation to the winter months. After a discussion the meeting determined to abandon their application respecting the winter season, but it was resolved that the masters should be requested to reconsider their decision, and to consent by that day week to all the men leaving work in the summer months at half-past five.

Chester.—The masons of Chester have turned out. They demand 25s. per week for nine months of the year, and 26s. per week for the three winter months, and to have the breakfast half-hour summer and winter alike. There is no prospect at present of the masters agreeing to the men's views.

Liverpool.—Though a few of the operative painters have consented to resume work at the old rate of wages, the general body still refuse to accept the masters' terms. At the police court, since the strike began, the magistrate, Mr. Raffin, in consequence of a complaint of espionage and intimidation, stated that, if any operative painter who was disposed and willing to work had cause to complain of any person intimidating him, or endeavouring to prevent his working, or interfering with him at his employment in any way, and came to him (the magistrate), he would at once grant him a warrant for the apprehension of the offender, whom he would punish as severely as law would allow.

Leancashire.—In the various manufacturing districts of South Lancashire it is estimated that there are now nearly 21,000 operatives unemployed.

these the greater portion are away by their own choice, refusing to resume work until their demands are complied with.

HERR SIGISMUND BLUMNER.

MUSIC, like architecture, is perpetually changing, but with strides more rapid. In the one, styles are the growth of generations; in the other, seasons. Classic and Mediæval in architecture have their counterpart in Classic and Romantic in music; but, in both, what is sterling and excellent will prevail over what is vitiated and ephemeral, and the caprice of fashion, though potent for a time, is powerless to undermine those canons of true art which are the foundation of modern invention, and which form time-marks in the history of progress that time itself shall not obliterate. At whilst architecture had attained a high state of perfection with many of the great nations of antiquity, music remained in primitive simplicity, and it is to modern times alone that we owe the perfection of a science which forms one of the most powerful aids to the advancement of civilization and refinement. As such its well-being could be of itself a matter of sufficient interest to arouse our sympathy, did not its alliance with the arts demand a record of its progress, side by side with that which forms the main subject of our pages.

A new aspirant for the favour of the London musical public afforded us, on Wednesday last, an opportunity of judging of his qualities as a pianist and composer, at a private *matinée*, at the Grosvenor-square Rooms.

Herr Sigismund Blumner has forsaken Berlin, where he held the post of a professor at the Conservatorium, to try his fortune in the wider sphere of action presented in London; and if what we heard yesterday may be taken as a fair criterion of his powers, we think his confidence in British patronage will not be misplaced. Herr Blumner young, energetic, and an ardent lover of his art,—qualifications indispensable to an artist whose reputation in a strange land is yet to be made. Moreover, he is a vigorous and brilliant performer, of what may be termed the New German School, but evincing those spring qualities, to be derived alone from the strict instruction. He was pupil of the celebrated artist Mayer, and of Frederick Wieck, the former being the pupil of Field, of St. Petersburg, and the latter the father of Clara Schumann, and edited composition under his brother, Herr Martin Blumner, a director of the Royal Academy in Berlin.

His antecedents, therefore, are thoroughly satisfactory; and, with his own talent and perseverance, we have no doubt of his success.

Herr Blumner's numerous friends had an opportunity, at his *matinée*, of judging of his qualities in four pieces, selected with judgment for their play. Commencing with Beethoven's trio in A-flat major, for piano, clarinet, and violoncello, played in a style that evinced his thorough respect for the classic; he next played a nocturne in A-flat major, of his own composition,—works of high taste, after the model of Chopin. Then an *opéra de concert*, by Charles Mayer, a work of great beauty,—we presume, out of his first concerto in F minor,—and finally Wagner's march in "Tannhäuser," arranged by Liszt. His performance was excellent throughout, and culminated in Liszt's arrangement of the "Walse" of the present foundations at those to where the fissures in the walls were exposed, and afterwards to bore until the solid stratum was reached. By this means he obtained an exact idea of the nature of the soil upon which the Shirehall stands. He found that the wall is built on the solid chalk, but that the wall stands in the centre of the moat, which is entirely surrounded the castle. He traced the actual shelving down of this moat from the level of 46 feet below the present level; and, as foundations, including the concrete put in in

1844, are only 8 feet below the surface, there are no less than 38 feet of loose-made soil, composed of mud and rubbish under the footings of the front wall, which is about 7 inches out of the perpendicular from top to bottom, or 1 inch in every 5 feet. At one spot where the staircase is shored up, the filling-in soil was found to be so loose in boring that the augur sank by its own weight nearly 2 feet. To underpin the whole of the walls until the entire Shirehall rests on the chalk would, Mr. Phipson said, entail an enormous outlay—probably several thousand pounds; but although this would undoubtedly be the most effectual remedy, he did not think the building was likely to be in such a state as to render such expensive measures necessary. The concrete put in seventeen years ago was of a very excellent quality, and its footings were spread so wide that no actual damage to the walls need be apprehended; but at the same time it was absolutely necessary to take some steps to secure the weakest points from going further, especially the two walls carrying the central stone staircase. Mr. Phipson recommended, therefore, that these walls should be underpinned down to the solid substratum (13 feet) with large brick piers and inverted arches, to form abutments in those places where the greatest settlements had taken place, and also that four iron ties should be introduced at the upper part of the building from back to front, with the view of checking the tendency of the front walls to go outwards. He believed that the extreme cost of these works would be 300*l.* or 350*l.* All the present cracks should afterwards be stopped up, and the walls and outside woodwork painted, making a total of 400*l.* The Shirehall would then be in such a condition as would render any further outlay upon it unnecessary for several years. It was agreed that the works recommended by the surveyor should be immediately commenced.

Knaresborough.—The want of a public building in Knaresborough has for a long time been greatly felt. Two or three preliminary meetings of persons favourable to the project have recently been held, and there is now some prospect of a new townhall being erected in the Market-place, partly on the site of the present hall, and extending more towards the Courthouse.

Edinburgh.—The important addition to the General Register Office, contracted for about two years ago, is now nearly completed, and partially occupied. From the severity of the weather, the centre or dome portion of the building, consisting of a series of galleries, and wholly constructed of iron framing, is not far advanced, but rapid progress is now being made.

CORN EXCHANGES.

Carlisle.—A committee of the town council here has been investigating and reporting on the question of a corn exchange for Carlisle. They made inquiries in sixty-eight towns, and received answers as to forty-eight corn exchanges, and found that in the majority of instances they pay, and pay well: only one out of fifteen returns as little as 3 per cent. on the outlay; while in the rest the return varies from 4 to 8½ per cent., and the average of the whole is within a small fraction of 5½ per cent. Out of the sixty-eight towns referred to, forty-eight had corn exchanges, and twenty none. Excluding Wakefield and Edinburgh, which cost respectively 15,500*l.* and 18,432*l.*, and Cambridge, Doncaster, Dunbar, Ipswich, Plymouth, Stirling, and Ayr, none of which exceeded 1,800*l.* as the cost of erection, there are fifteen markets in which sums varying from 3,000*l.* to 5,000*l.* have been invested, and seven from 5,000*l.* to 10,000*l.*, as follows:—

	Cost of Construction.	Nett Income.	Rate per Cent.
Berwick	25,000	1,133	4.53
Chichester	10,000	500	5.00
Chester	4,000	—	It pays very well.
Colchester	4,000	—	—
Dalkeith	4,200	240	5.71
Dundee	3,000	—	—
East Dereham	2,400	222	9.25
Guildford	4,675	237	5.07
Hereford	4,500	—	—
Hull	5,300	435	8.21
Kelso	3,800	190	5.00
King's Lynn	2,450	—	—
Louth	6,000	287	4.78
Maidstone	4,000	347	8.68
Melton Mowbray	3,500	165	4.71
Newark	7,100	330	4.65
Nottingham	5,000	346	6.92
Peterboro'	5,500	307	5.58
Stamford	3,600	252	6.99
Spalding	5,000	211	4.22
Warwick	5,500	307	5.58
Wisebeach	4,190	174	4.15
Exclusive of site.			† Present value.

Hawick.—A new building is to be erected here for use as a corn exchange, public hall, lecture

and concert room, &c. The cost is estimated at 3,500*l.*, to be raised in 5*l.* shares.

Oxford.—The corn exchange committee have reported in favour of the proposal of the corporation to erect a building on being guaranteed a specific rental for its use as a corn exchange. The committee recommended the formation of a limited company, with 500 shares at 5*l.* each, and a call of 5*s.* on each share, as sufficient to effect the object in view. The corn exchange hall will be 100 feet long by 50 feet wide, and the rental, for twenty-one years, is not to exceed 125*l.*, or less, if the building cost less than 2,500*l.* The committee's report has been unanimously approved of at a public meeting of those interested in the corn trade. Four hundred shares have since been applied for.

CHURCH-BUILDING NEWS.

Ipswich.—The new Wesleyan chapel, erected in Museum-street, has been opened for Divine service. The chapel will accommodate from 1,000 to 1,100 persons, including about 200 children. The front in Museum-street is faced with Kentish rag-stone, and ornamental details of Caen stone. The centre is formed by a projecting gable 48 feet high, in which is an arcade of three arches, moulded, leading to the principal entrance and to side staircases to the galleries; and above the arcade is a four-light window filling the gable. On each side are smaller projecting gables to form wings, and which are side entrances to the body of the chapel and the landings of the gallery staircases. The design is taken from examples of the early Geometric style of English Gothic. At the back of the chapel are school premises. The area of the chapel is 86 feet by 50 feet, and of the school-buildings 46 feet square. A house has been erected in the rear for a minister's residence. The whole cost of the work was undertaken by Mr. John Whight for 2,000*l.* from the designs of Mr. Frederick Barnes, architect. The erection of the chapel is mainly due to Mr. W. Pretty, who started the subscription list with 1,000*l.*

Yarnmouth.—Some time since, the tower and spire of St. Nicholas's Church was found to be in a precarious condition. Restorations have been going on under the superintendence of Mr. Hakewill, architect; but a few months since the additional aid of Mr. Scott was called in, and these gentlemen have minutely inspected the fabric, and are about to report on the same. As to the tower, however, no time was to be lost. Mr. Scott, according to the Rev. Mr. Nevill in a statement made at an Easter meeting, found, on examination, that the tower was in a very dangerous state,—much more dangerous, indeed, than they had had any idea of. He at once requested that some of the plaster might be removed; and, this having been accomplished, a crack was discovered in one of the angles, extending upwards about 30 feet. A part of the tower, which had formerly been cut out, and the masonry removed, had never been replaced. The architects, therefore, directed that the necessary precautions should be taken for mere safety, and that the mortar and plaster should be removed from the rest of the tower. In doing this the workmen came to a crack worse than the first. The churchwardens saw the necessity of prompt exertion, and the result was that he (Mr. Nevill) believed that the tower was now in a firmer and more satisfactory state than it had been, perhaps, for the past one hundred years or more. It was also found, in the examination of the tower, that part of the wall was defective: it was bulged, and there was a serious crack. It would be a question whether, for mere safety's sake, one of the pinnacles would have to come down; and next year they would probably have to remove the roof of the south aisle, which was now in a very defective state.

Sandown (Ryde).—The tender of Messrs. Dashwood & Son, of Ryde, was the lowest of those sent in for the enlargement of the church at Sandown, but the amount is said so far to exceed that contemplated, that fresh tenders are to be called for.

Winchester.—The dean and chapter have decided on completing the restoration of the west front of the cathedral, and Mr. Newman has contracted to do the same for 964*l.*, under the superintendence of Mr. Colson, the architect. This contract will complete the work down to the level of the pavement of the nave, and will include the two niches; but these, according to the Hampshire Advertiser, are to be untenanted for the present. One improvement which will now be effected will be the removal of the clumsy wooden frames and iron-work which hide the foliations of the heads of the lights of the large window.

Newcastle-under-Lyne.—The new Wesleyan

PROVINCIAL NEWS.

Norfolk.—At the recent meeting of Norfolk county magistrates, Mr. Phipson, the county surveyor, reported that he had made a careful and minute examination of the foundations of the Shirehall, with the view of ascertaining the cause of the settlement that had for some time past been taking place in the building. His mode of procedure was to dig down some few feet below the bottom of the present foundations at those to where the fissures in the walls were exposed, and afterwards to bore until the solid stratum was reached. By this means he obtained an exact idea of the nature of the soil upon which the Shirehall stands. He found that the wall is built on the solid chalk, but that the wall stands in the centre of the moat, which is entirely surrounded the castle. He traced the actual shelving down of this moat from the level of 46 feet below the present level; and, as foundations, including the concrete put in in

chapel has been opened. The style is Gothic, with Continental features. The material is red brick, with blue brick introduced into the arches and strings, with stone tracery. The principal entrance is at the north end, by two doors, one on either side, leading through folding doors into the lobbies, in the centre of which are the stairs, ascending to the galleries. The interior is divided into nave and aisles, with iron clustered columns, painted dark blue, and arches of coloured bricks: the roof is of open timber. The clerestory is carried by arches of blue and red bricks, supported by the cast-iron columns necessary for the gallery, and continued upwards above the same to such a height as that the capitals and arches upon them will not interfere with the view. The clerestory is lighted by ten quatrefoil windows on each side. The central ceiling is 49 feet from the floor-line. There are galleries at the sides and at the north end, and at the south end a gallery for an organ and the choir. All the woodwork is stained and varnished. The dimensions of the chapel are 88 feet by 50 feet, and it is calculated to seat 1,000 persons. The amount of the contract was 2,400l.; but there are extras. The architect is Mr. H. Fuller, of Manchester; and the contractor, Mr. E. Matthews, of Hauley.

THE NEW TOWN-HALL, HALIFAX. LAYING THE CHIEF STONE.

ON Tuesday, the 2nd inst., the chief stone of the new town-hall at Halifax was laid by the mayor, at the base of the "Victoria Tower" of the projected edifice.

In the *Halifax Courier*, a full account of the ceremonial is given; and, in a supplement, illustrated with the engraving of the building which appeared in the *Builder*, is an architectural description of it, partly from our columns, and partly from the pen of Mr. Leslie, the superintendent of the works. Mr. Leslie states that in the construction of the building there will be required about 24,000 tons of stone, brick, and slate, upwards of 100 tons of iron, and 150 tons of other material. The works commenced in March, 1860; and proceeded, with occasional interruptions, through the dissatisfaction of the men, until August; when the general strike took place, and brought the works to a complete standstill for many months. The dispute, however, having terminated by mutual arrangement, it is hoped nothing further will intervene to prevent the present activity being continued, in which case the building may be ready for occupation in about twenty months. Meantime what has been done is now well settled and solidified.

The tower, which is situated at the south-west angle of the building, and directly facing Princess-street, is 36 feet square at the base, and rises to a height of 160 feet from the level of the street. In the lower part a niche will be formed, to receive a statue of the Queen.

The hall, though not intended to be used as a concert-room, like those in many of the large provincial towns, is still an important part of the building, the dimensions being 51 feet 6 inches long, 41 feet 6 inches wide, and 42 feet high. There will be a gallery all round, giving access to the various rooms and offices which open on to it. The hall will be lighted from the top, through ornamental glass, constructed to form the cove of the ceiling, the centre part of which will be divided into panels and moulded.

Adjoining the hall is the borough court, 41 feet 6 inches long, 33 feet wide, and 39 feet high, in which every accommodation will be provided for the bench, the public, and the general attendants of courts of justice. A stone staircase communicates direct from the dock to the cells below and the police department. The mode of lighting and the general construction of the ceiling are similar to that of the hall.

The whole of the floors and the roof are formed of wrought-iron girders and joists, with arches turned in cement between each joist, rendering each floor fireproof. The warming of cells, staircases, and all other portions of the building not provided with fireplaces, will be effected by means of hot-water pipes. The ventilation will be in all parts, where practicable, regulated by windows, air flues, or other artificial means, being only adopted in such places where the former mode cannot be made effectual.

The architect, as we have before stated, was the late Sir Charles Barry, R.A., whose last labour was this design. His son, Mr. Edward Barry, is carrying out the work. The superintendent of the works is Mr. John Leslie. The contractors are,—for the masonry and brickwork, Messrs. Whiteley, Brothers, Leeds; joinery, carpentry,

and ironmongery, Mr. Joseph Bedforth, Halifax; slating and plastering, Mr. Alfred Bancroft, Halifax; plumbing and glazing, Mr. George Walsh, Halifax; ironfounders' and smiths' work, Mr. Henry Grissell, London; painting, Mr. James Farrar, King's Cross.

APPOINTMENT OF ASSESSOR, ST. GEORGE'S, HANOVER SQUARE.

AT the meeting of the Vestry, on the 4th inst., Mr. Englefield proposed the following motion:—"That the appointment of assessor to the parish, in the room of the late Mr. Jerrard, be made by this Vestry, at their meeting on the first Thursday in April;" and, in doing so, said that he could not let the opportunity pass without expressing his regret at the loss which the Vestry and the parish had sustained by the death of the late Mr. Jerrard.

This having been seconded, Mr. Westerton did not consider it fair, either to the Vestry or the parish, that the election should take place without advertisements appearing in the public papers; and should therefore move, as an amendment, that the appointment be delayed until the vacancy shall have been made public by advertisements in the newspapers.

Dr. Appleton seconded.

The amendment was put and lost by 26 against 30. The original motion was carried by a majority of 26 to 18.

The Vestry then proceeded, on the motion of Mr. Hall, seconded by Mr. Dunkley, to take the election by ballot, which resulted as follows:—Mr. Sydney Howell, Pimlico, 22; Mr. Lee, Golden-square, 19; Mr. Turner, Wilton-street, 13; Mr. Harris, Charles-street, Berkeley-square, 2. Mr. Howell was therefore elected as assessor, in the room of the late Mr. Jerrard, and on the same terms.

MASTER AND WORKMEN.

MR. W. WEBSTER, the contractor, was presented with a testimonial, on Monday evening, at the Ship Hotel, Woolwich, by the workmen employed by him on the works of the Metropolitan Southern Outfall Main Sewer (about three hundred of whom were present), in appreciation of his kindness to them during the last severe winter. The testimonial consisted of a handsome silver cup, valued at thirty guineas.

Mr. Webster, in acknowledgment, said he had done no more than his duty, and no more than he should on any similar occasion be ready to do again. The good feeling which existed between his workmen and himself had, happily, hitherto kept them free from the evils of the strike, which he regretted to see was again threatening to involve masters and men in a ruinous contention. Should the dreaded crisis come, he would ask his men to continue their good feeling towards him, and abide the issue; and he could assure them that they would have no cause to regret it, for he would not be last nor half-way down the list of masters to agree to any fair arrangement which might be made. For his own part he would say with confidence, that he had never paid less than a day's wages for a day's work to any man, either in winter or summer; and if ever the time came when he could not do so, he would discontinue to take work. He thanked them heartily for their gift, which, however, he should equally have prized if it had cost one-twentieth as much; and he hoped that, in accepting it, he had distressed no man's pocket nor robbed any child of a breakfast.

THE DATE OF AVIGNON CATHEDRAL.

IF all who attempt to write the history of architecture were to bring to the task the same spirit of careful investigation, the same desire accurately to note and faithfully to record, and the same amount of technical knowledge, as distinguish Mr. Waring's paper on the Church Architecture of the South of France, and his communication to you of last week; such crude theories and rash conclusions as characterize the Chapter on the Architecture of Provence in Mr. Ferguson's "Handbook of Architecture" would never see the light. I write this unwillingly; for, in the first place, I have no desire to take part in the discussion which has arisen between these two gentlemen, nor, in the second place, do I wish to run the risk of appearing, unintentionally, to say anything personally displeasing to Mr. Ferguson. But agreeing, as I do, with Mr. Waring, that, to assert that the cathedral of Avignon belongs to the eighth or ninth century, is to antedate the

design of that building by two centuries, and thereby to displace an important link in the chain of evidence which conveys to us the history of the progress of a great art, I cannot, as one who has many years ago carefully studied the architecture of the South of France, and takes a deep interest in the subject, refrain from entering my protest against this attempt, and from recording my entire adherence to Mr. Waring's views as to the real date of the building in question, and the palimpsest character of its western porch.

Nothing in the entire history of architecture is more remarkable than the spirit of Renaissance with which the Mediæval architects of the south of France appear, at one time, to have been inspired. This rage of imitation appears to have reached its height towards the middle and close of the twelfth century. Nevertheless, singular as the first sight, to a student of Northern architecture, of a doorway, every order of whose archivolts is composed of Classical mouldings, resting on attenuated Composite capitals, and light *bandes* shafts; it is not, perhaps, after all, wonderful that surrounded as we know them to have been with numerous buildings of the late Roman period, great elegance and high finish, these builders should, at a time when a certain indecision of style characterised the architecture of the whole of Europe, have contrasted these elegant details, with the cumbersome ornamentation of their Northern neighbours, and contemplated a possible recurrence to that ancient style of building which, six centuries later, became again the current architecture of the day.

Whether it is the fact of the occurrence of the Classical appearances in the main features of the churches of the south of France, or the casual insertion in their walls of fragments of earlier work, or the occasional occurrence of an over-moulding on the soffit of a pointed arch, or the slight personal examination that he has been enabled to give to these buildings, which he mislaid Mr. Ferguson in attributing so high antiquity to this latter feature, and so far from taking the real character and date of Avignon cathedral, I cannot say; but I feel certain that he had studied these buildings with the care and attention that Mr. Waring has evidently bestowed upon them, or if he possessed the amount of internal and external evidence which I happen to have on the subject, he would not have ventured on so rash an assertion, as that the Pointed Arch was used in France in the eighth and ninth centuries, and that Avignon Cathedral belongs to the period.

EDMUND SHARPE.

FEMALE ARCHITECTS.

NOW that sculptors, engineers, painters, &c. are openly assuming the title of architect, without any of the acquirements usually considered hitherto as necessary, it will be no matter of surprise should we hear some day of a lady architect. For undoubtedly there is much that can be done in an office (and in fact is done, in a measure, at least) by females. Drawing, writing, and colouring, are as easy for one sex as for the other. Superintendence of the works can be delegated. If an example be wanted, reference may be made to the daughter of Sir Christopher Wren, who, in your journal for last year (p. 68) is asserted to have been "a skilful architect" and in Vol. X., p. 690, that she "has the credit of having designed several of the City churches." How has this oft-quoted remark arisen? Elmes's "Life of Wren," she is only mentioned (p. 385) as Jane Wren, who died in 1717, aged 26! with her epitaph, copied from a tablet in the crypt of St. Paul's Cathedral. This another instance of "nothing being true."

F. A.

TO UNITE STONE AND GLASS.

MR. BRU, curator of the museum at Narbonne, has discovered that silicate of potash possesses the highest degree, the property of uniting the faces of stone, glass, and pottery.

It is applied with a brush to the surface which it is desired to bring into contact, and a few days acquires a great solidity.

It appears that the same material can also successfully be used in joinery, and for all the purposes to which common glue is applied.

This discovery, which promises to be of considerable importance, was announced by M. Bru. M. Figuier, the editor of *L'Année Scientifique et Industrielle*, the volume of which work for the present year contains, at p. 481, a paper on the subject, and a letter from M. Bru to the editor.

SEN

THE OLD HOUSE IN THE CITY.

An old house with a flight of steps,
And towering gables shining red
Beneath the smile of arching trees,
Whence crafty crooks are born and bred:
Full of quaint cornices of oak,
Flooring and rafters of the same,
Old worm-graw'd substance ably framed,
With antique carvings like to life,
Such work as builder never shamed.

Not so the houses of to-day,
The flimsy fabrics of an hour;
Where season'd timber ne'er was put,
Unstanchion'd with huge limbs of power.
For all the banisters and rails
Are twisted with the guile of art:
No wonder that the mansion stands
The glory of the city heart.

For all the rooms are liberal
In what a courtly home should be;
Not cabin'd into coffin'd cribs,
The tombs for new posterity.
We boast our progress, yet we see
Foul retrogression in the plan,
Because the old house yet remains
The fittest for the "working man."

For it would seem the grudging minds
That plot and build, and strive to kill
With cheerless rooms and ceiling low,
Are licensed but to murder still;
As if it were a sin to breathe
God's blue life-giving atmosphere.
So, looking at new city dens,
I'll prize this old house, never fear.

ALEXANDER HAY.

KING'S COLLEGE CHAPEL, CAMBRIDGE.

MY DEAR MR. EDITOR,—The Cambridge M.A. evidently wants me to enter into a discussion. Now my business at present in this world is to build, and not to argue. I do not see what good such discussions produce, certainly never heard of any one changing his opinion in consequence of their perusal, and we have very ancient authority that *de quibus non est disputandum*. I can, however, suggest how "M.A." may possibly arrive at the same result as myself. Next long vacation let him go to Paris for a fortnight, and there spend every morning studying the Sainte Chapelle, and every afternoon in the same occupation before the windows of Notre Dame. He may then come home with the recollection of those two buildings fresh in his mind, and look at King's College Chapel, Cambridge. Perhaps he will then understand why I do not admire the latter edifice. If, however, he object to the discomfort of crossing the Channel, or should his long vacation be pre-occupied, shall be most happy to endeavour to convert him in the same occupation before the windows of his college chapel, or indeed the chapel of any other college at Cambridge, for here are several which are in great want of it.

W. BARRIS.

P.S. As to the just matter at issue between "M.A." and myself, viz., the misquoting of the Paganus angel, I must refer you to my friend Mr. Seddon's lecture "On the Grotesque."

THE MAIN DRAINAGE WORKS.

METROPOLITAN BOARD OF WORKS.

At the last meeting of the Board, the engineer presented a report on the progress of the main drainage works, which stated that the northern High-Level sewer had progressed more satisfactorily during the past month; and, should no unforeseen delay arise, it would be completed before the next monthly report. The value of the work executed during March was about £7500. On the northern Outfall sewer, work to the value of about £4000, had been executed, the ground having been excavated for the reception of the concrete for a length of about 3 miles, and a tramway laid for about 2½ miles. A shaft had been constructed near to Barking creek for the delivery of materials, and steam engines and machinery had been erected for the mixing of concrete upon a large scale. The total value of the work done upon the Middle-level sewer contract is about £5000; but much time had been occupied in removing defective work, pumping out water which had accumulated during the time the works were stopped, and in completing sections of the sewer in an unfinished state by the late contractor. In the recent storm overflow about 1,570 feet of sewer, 8 feet in diameter, had been constructed by open cutting, and about 750 feet in tunnel; the value of the work done being about £8500. The southern Outfall sewer contract, which was valued at £12,000, had progressed rapidly, works to the value of about £12,000, having been completed; viz., 5,947 feet of sewer in open cutting, and 4,175 feet of tunnel under roadwork. On the southern High-Level sewer the length of the works completed was about 22,000 feet, and its value about £72,000. The Low-Level sewer under the Surrey Consumers' Gas Company's premises had been completed, and the Earl Outfall works were nearly finished. The survey for the fire engines at Deptford pumping station is in a forward state, and the tenders for the engine house would be received at the meeting of the Board on the 12th instant.

REMOVAL OF THE COURTS OF LAW.—The Attorney-General gave notice that on Thursday, 18th instant, he should move for leave to bring a Bill providing for the concentration in one place of all the superior courts of law and equity, including, Probate and Divorce, and Bankruptcy, and all the offices connected therewith; also for the application of certain funds in the Court of Chancery to the above purposes.

Books Received.

Workmen's Earnings, Strikes, and Savings. By SAMUEL SMILES. London: Murray, Albemarle-street, 1861.

This little volume of Murray's "Railway Reading" is a reprint, from the *Quarterly Review*, of an article by the now well-known author of a "Life of George Stephenson" and "Self Help." It is written with Mr. Smiles's usual ability, but displays rather an extreme opinion against strikes, which in some cases may really be said to be the workman's only resource, and to be hence unavoidable. This, however, has by no means been the case with the nine-hours movement strikes, and it is to be wished that such a forcible exposition of the general evils of strikes as this of Mr. Smiles, now that it is attainable in a cheaper form than before, could be put into the hands of many conscientious but wrong-headed agitators of these unhappy movements. The article, as will be seen from the title, treats of other important subjects, of interest to the working classes, besides strikes; and it is altogether one of some importance to the class of whose history, interests, and prospects it so ably treats.

VARIORUM.

"THE Alphabetical Gazette; a permanent Register of Bankrupts, Insolvents, Assignments, Sequestrations, Dividends, Certificates, Partnership Dissolutions, Notable Suspensions, &c. First Quarterly Part, 1861. London: Adams, 59, Fleet-street." The nature of this sixpenny "quarterly" is precisely indicated by its title: it must be of great and continual utility in trade transactions, and ought therefore to be in the hands of all engaged in commerce. But, nevertheless, it is a production capable of doing much damage to unfortunate but honest tradesmen and others, who are here classed together, without the slightest distinction, in "black lists," with all sorts of dishonest and swindling bankrupts and insolvents. The division on "assignments" especially, perhaps, might well have been spared, after the exposure which recently took place as to the mischief to perfectly solvent tradesmen and others whose temporary needs induce them to assign goods, furniture, &c., to others, in security of loans in business, or other pecuniary straits: it has been found that, immediately this is done, the assigner appears on such black lists as this, and is in the hands and at the mercy of all with whom he deals and who may have a balance against him; a run upon him forthwith taking place which but too often precipitates him into hopeless insolvency or bankruptcy. In other respects, as we have said, this "black book" must be extremely useful in trade transactions.

"The North Atlantic Telegraph; *vis* the Farøe Isles, Iceland, and Greenland. London: Stanford, 6, Charing-cross, 1861." The researches of the recent expedition to find out an available route for the projected North Atlantic Telegraph are here given in detail from the Proceedings of the Geographical Society, the Reports of the surveying expedition, &c. The question of landing-places is one of especial interest, from the necessity of guarding against the destroying influence of floating icebergs in shallow seas along shore lines. This question, it will be known to most of our readers, is considered to be settled, by the surveying expeditions, in favour of the perfect practicability of carrying a submarine line of telegraph round by Iceland, Greenland, and Labrador, to the more habitable southern regions of North America. The project, nevertheless, appears to be one of as perilous a nature as that of the more southern route; and it is questionable whether the real difficulty lies in the precise line of route so much as in the line of telegraph itself, as hitherto constructed.

"The Facts and Fallacies of the Turkish Bath Question." By E. Haughton, M.D. Lee & Nightingale, Swift's-court, Castle-street, Liverpool, 1860." In this pamphlet Dr. Haughton enters pretty fully into the question of the merits and the kinds of oriental baths. His chief object, however, is to show the differences which exist between genuine oriental baths and those which have been recently built in various localities under the name of "Improved Turkish Baths." The author is of opinion that "wherever a Turkish bath fails to produce its proper salutary effects, it must be because some wise man (not of the East) has been guilty of an improvement in it." Suspend the "improvements" is the corollary. "A real Turkish bath" he thinks "is not such a bad thing after all; and, although hitherto re-

jected by the builders, shall yet become the 'head of the corner.'" He himself does not class us with these builders, but by some it seems to be forgotten that we were probably the first of late years to bring the subject under public notice. In 1857 (p. 615, vol. xv. *Builder*) a special article on the "Construction and Use of the Turkish Bath" appeared in our columns.

Miscellaneous.

SOUTH KENSINGTON MUSEUM.—During Easter week 24,919 persons visited the Museum.

THEATRE AT MALTA.—Mr. E. M. Barry has been lately in Malta, making arrangements for the erection of a theatre there from his designs. The amount to be expended is comparatively small.

RAILWAY RETURNS.—The traffic returns of railways in the United Kingdom, for the week ending March 23rd, amounted to 487,280 $\frac{1}{2}$, and, for the corresponding week of last year, 465,180 $\frac{1}{2}$, showing an increase of 22,100 $\frac{1}{2}$. The gross receipts of the eight railways having their termini in the metropolis amounted to 212,932 $\frac{1}{2}$, and for the corresponding week of 1860 to 202,814 $\frac{1}{2}$, showing an increase of 10,118 $\frac{1}{2}$.

A CHAPEL FOR WELLINGTON COLLEGE.—Upwards of 1,600 $\frac{1}{2}$ have been subscribed towards building a chapel for the Wellington College, and to increase the college so as to provide accommodation for an additional number of boys. Mr. Scott, to whom the work has been committed, has estimated the cost at 5,500 $\frac{1}{2}$, towards which the governors will contribute 2,500 $\frac{1}{2}$. Her Majesty, the Prince Consort, and the Prince of Wales are among the contributors to the fund.

THE PROPOSED BUILDING FOR THE NOTTINGHAM SCHOOL OF ART.—The design of Mr. Simpson for a School of Art building for Nottingham having been adversely criticised by Mr. Redgrave and Captain Fowke, who have declared it to be both unsuitable and costly, the committee have considered themselves justified in inviting a further competition. Mr. Simpson complains that the reports of Mr. Redgrave and Captain Fowke have not been officially communicated to him, while the local Inclosure Committee, who at present hold the site, consider that the designs should not have been superseded without consulting them.

THE LONDON COAL DUTIES BILL.—The second reading of this bill, the main object of which is to continue for ten years the S. and L. duties, now about to lapse, with the view of paying with these the whole or part of the cost of the Thames Embankment, was moved in the Commons, on the 8th instant, by Sir G. C. Lewis, the Home Secretary. In the course of the discussion which ensued, the Lord Mayor, on an amendment for the adjournment of the debate for six weeks being moved by Mr. Roupell, deprecated the sacrifice of a tax to which the public were so accustomed, and which fell very lightly on the community; and Mr. Tite asked where the 2,000,000 $\frac{1}{2}$ were to be found for the Thames Embankment if the coal-taxes were raised. The numbers for the second reading were 119, and for the amendment 10,—majority 100 in favour of the bill, which was therefore read a second time. We may now hope that the Thames Embankment will be set about in earnest.

KENSINGTON GARDENS.—Our readers are no doubt acquainted by sight with the high brick wall which formed the boundary of the park at the south-western corner, just before entering the old town of Kensington. During the last few weeks we have observed the gradual demolition of this wall for about half its length up to the alcove. It is intended to place iron railings along the boundary instead. The old wall has been an eyesore for many years;—12 or 14 feet high, without a vestige of ornament or finish, completely shutting out the view of the park, and rendering the inner margin cold and damp. It is only to be regretted that the improvement has stopped short half way, and left many rods of the wall still standing on the west of the alcove. A sound reason for this cannot quickly be detected: possibly there was the idea of retaining a screen to Kensington Palace, but as that stands a long way back, with a forest of trees between, and as two paths with great traffic already run much nearer than the main road, great weight cannot be attached to that idea. However, we should be thankful for what we get; and, acting on this principle, the vestry of Kensington has recently passed a motion of thanks to the Hon. W. Cowper, M.P., Chief Commissioner of Works, for the alteration; which certainly, as far as it extends, is a decided improvement to the neighbourhood.

PICTURE BY VERBECKHOVEN.—A fine picture of "Cattle leaving a Farmyard," by Verbeckhoven, is now on view at No. 3, Hanover-square. It is of large size, and includes sheep, horses, and cows, painted in the master's best style.

INSTITUTION OF ENGINEERS IN SCOTLAND.—At a special general meeting of members a paper was read on "Underground Mineral Transit," by Mr. James Ferguson. A discussion ensued. The institution then adjourned, to meet in a fortnight for the further discussion of "Surface Condensers."

ST. MATTHIAS'S CHURCH, RICHMOND-HILL, SURREY.—The tower for the above church, from designs by Mr. Scott, is now about to be completed. The contractor for the same is Mr. James Long. The tender is divided into two parts, the

Contract for the tower being.....	£2,164
" spire.....	995
	£3,099

The total height from the ground is about 100 feet, and it will form an important feature for many miles round the country.

THE PHOTOGRAPHIC SOCIETY.—On Thursday evening, the 4th inst., the President and Council of the Photographic Society of London had a reception at King's College, which was largely attended. Along the walls, and on tables stretching the length of the great hall, were ranged between 600 and 700 specimens of photographic art, produced by the various processes. There were mostly known, having been recently exhibited at the gallery in Pall-mall, but are not the less beautiful. On the d. is some sculpture by Mr. Joseph Durban, especially a child nursing a dog, under the title "Go to Sleep," excited universal admiration.

LARGE STEAM HAMMER.—Messrs. Haink Wyne, engineers, Glasgow, have just finished a large steam hammer on the "moving cylinder" principle of the late Mr. Condie. It is to be erected in one of the iron-works near Birmingham. The framing consists of two square cast-iron columns, having a clear working space of 16 feet between them, and bound together by a massive horizontal cast-iron beam. These two columns are surmounted by a pair of segmental frame pillars, which, conjoined, form a complete semi-circular arch, springing up to a height of 23 feet from the floor line. The hammer cylinder is cast of the strongest cold blast-iron, and weighs upwards of five tons, with a fall or stroke of 6 feet. The valves are wrought by means of a small horizontal steam-cylinder, to which they are connected; and the attendant has merely to touch gently the slide valve of this miniature engine to put the enormous weight in motion. This hammer, with its anvil block and sole-plate, weighs about eighty tons.

BURSTING OF A RESERVOIR AT ST. HELEN'S.—On Thursday last week, the large reservoir, lately formed by the Ravenhead Plate-glass Company, on the north side of their works, and which contained a great quantity of water used for the purposes of the works, burst on the east side, fronting the road leading from the canal to Ravenhead; and in a few minutes made a breach several yards wide; when the immense body of water rushed down the fields, sweeping all before it. Considerable damage was done, more especially to the patent alkali works, which lay directly in its course to the canal. Some of the workmen stated that the water entered the chemical chambers, and several hundred pounds worth of blue vitriol was washed away. Casks, planks, stones, and rubbish were all swept into the canal, the sides of which, being composed of loose materials, were ploughed up, furrowed, and carried with the water into the canal, completely embedding some flats that were stationed there. The fields over which the water passed were also ploughed up and covered with stones carried from the reservoir. The embankments of the reservoir, which were very extensive, appeared to be formed principally of sand—a material not at all suited to confine a great weight of water. Fortunately there was no loss of life, the workmen engaged about it having left work some short time previously.

FORKS AND SPOONS.—The intrinsic value of silver being very great, and the duty paid on all articles manufactured of it, whether for domestic or ornamental purposes, heavy, a cheap substitute for it, of good appearance, is constantly being sought. With this idea, numerous so-called inventions have, from time to time, been brought before the public under a great variety of names, but have failed under the test of wear. We have recently received from Mr. Benson, of Cornhill, specimens of a material used by him, under the title of argentine, which, under a short trial, has certainly improved rather than fallen off in appearance. The effect of time upon it we must wait for time to tell.

DRINKING-FOUNTAIN MOVEMENT.—The time has arrived for the revival of this movement after the lapse of winter. At Spalding a fountain is to be erected by subscription as a memorial of a townsman. The design, by Mr. Wm. Brown, of Spalding, architect, consists of an Ionic portico of four columns upon a base, the whole structure being about 17 feet in height, with a fountain in the centre flowing into three vases and trough below. At Derby a fountain is to be erected on one side of the Corn Exchange in honour of the mayor and high sheriff of the city. Mr. Wilson, architect, has produced a design. The cost will be about 120*l*.

Gas.—The Stamford Gas Company have reduced the price of their gas from 5*s*. 6*d*. to 5*s*. per 1,000 cubic feet. At Wolverhampton, the price of gas has been reduced 10 per cent., or to 3*s*. 9*d*. "This," remarks the local *Chronicle*, "is the fourth reduction during the last five years, and no doubt a large increase in the consumption will follow."—The Dewsbury and Bitley Gas Company have declared a dividend of 10 per cent., and carried a good surplus forward out of the profits of the year (2,760*l*). The surplus already in hand was 3,755*l*. An extension of the works to Thornhill is under consideration.—New gas works have been completed for the Londonderry Gas Company, at the water side, from plans by Mr. H. Ridley, their manager. The contractor was Mr. Denis Docherty.—There appears to have been a very rapid increase of late years in the consumption of gas in Paris. At the general annual meeting last week of the "Compagnie Parisienne d'Eclairage et de Chauffage par le Gaz," the report presented stated that the consumption had been, in 1855, 33,000,000 cubic metres; in 1857, 52,261,000 cubic metres; in 1859, 63,015,000 cubic metres; and in 1860, 70,318,600 cubic metres. The profits of the company in 1860 were 332,200*l*, and the dividends paid during the year were 70*l*. per share, as compared with 60*l*. per share in 1859.

TENDERS

For restoration of Laylan Church, Suffolk.	Mr. G. E. Pritchett, architect.		
Ringham.....	£1,110	7	1
Welham.....	610	0	6
Spooner & Cook.....	890	0	6
Hawkins (accepted).....	791	7	4

For addition to mansion, Overton-park, Northamptonshire, for the Right Hon. Lord Overton. Mr. W. Milford Toulson, architect. Quantities supplied by Mr. C. Balaud.

Kelk.....	£34,337	0	0
Ruddle & Thompson.....	32,890	0	0
Lucas.....	31,065	0	0
Cubitt.....	29,078	0	0
Broadbent (accepted).....	27,129	0	0

For a pair of semi-detached villas, with fencing, for Mr. E. Steel, Buckhurst-hill, Essex. Mr. J. H. Rowley, architect.

Case.....	£95	0	0
Sewell.....	931	0	0
Rivett.....	923	0	0
Brake.....	877	0	0
Pursey.....	709	0	0
Salmon.....	700	0	0

For the erection of a farm-house on the Wimpole Estate, for the Right Hon. the Earl of Harwich. The clerk of the works on the estate, Mr. Erant, architect.

Gimson.....	£1,015	0	0
Bell & Son.....	947	0	0
Thoday & Clayton (too late).....	893	0	0
For erection of a villa at Surbiton, Surrey, for Mr. Thomas Lambert. Mr. G. Elkington, architect.			
Rider.....	£4,330	0	0
Mason.....	4,231	0	0
Clemence.....	4,109	0	0
Wells.....	4,07	0	0
Willson.....	3,975	0	0
Browne & Robinson (accepted).....	3,838	0	0

For engine-house, chimney, engine beds, and other works for Messrs. Lillshaw & Sons, Sculcoates, Hull. Mr. W. Botterill, architect. Quantities not supplied:—

For Barkwark.....	£676	9	4
Jackson.....	£375	10	0
Eeles.....	£375	10	0
For Carpenter's and Joiner's Work.....	£78	12	9
Stephenson & Clark.....	£27	0	0
Harrison.....	£27	0	0
For Slater's Work.....	£15	15	0
Newmarch.....	£15	15	0
For Entire Works.....	£1,176	0	0
Woolley & Son (accepted).....	£1,176	0	0

For restoring two houses at Tottenham, destroyed by fire. Mr. Campbell, architect.

Williams.....	£419	0	0
Chapman.....	390	0	0
Aspland.....	365	0	0
Wood.....	353	0	0
Haradine (accepted).....	333	0	0

For factory chimney at Hoxton:—

Foster.....	£93	0	0
Woodward (accepted).....	88	0	0

For villa residence, at Burton-upon-Stather, Lincolnshire, for Mrs. E. Waterland. Mr. W. Botterill, Hull, architect. Quantities not supplied:—

For Excavator's, Bricklayer's, and Plasterer's Work.....	£323	10	0
Lamley & Son.....	£323	10	0
For Mason's Work.....	£81	10	0
Eeles.....	71	17	0
Boards.....	£324	0	0
For Carpenter's and Joiner's Work.....	269	0	0
Jackson.....	269	0	0
Stanwell.....	259	0	0
Stamp.....	259	0	0
Stubbins.....	259	0	0
For Plumber's and Glazier's Work.....	£51	0	0
Smith (accepted).....	£51	0	0
For Slater's Work.....	£49	10	0
Dawber & Son.....	37	0	0
Newmarch.....	33	0	0
Wildie & Son.....	£18	0	0
Gadson.....	£563	7	0
For Entire Works, except Plumber's and Glazier's.....	£563	7	0
Lumley & Son (accepted).....	£563	7	0

For Wesleyan schools and master's residence, Blackburn, Lancashire. Mr. W. Botterill, Hull, architect. Quantities not supplied:—

For Entire Work.....	£1,855	0	0
Bell.....	1,792	13	0
Dent & Marshall (accepted).....	£537	0	0
For Bricklayer's Work.....	450	0	0
For Mason's Work.....	£559	0	0
A. & J. Spence.....	530	0	0
Dent & Parker.....	530	0	0
Blackburn.....	530	0	0
Atkynghill.....	479	0	0
Sellers.....	452	0	0
For Carpenter's and Joiner's Work.....	£592	0	0
Whalley.....	585	0	0
G. Baron.....	540	0	0
W. Baron.....	530	0	0
Bel.....	525	0	0
Wolstenholme.....	490	0	0
Dent & Marshall.....	£123	5	0
For Plumber's and Glazier's Work.....	89	10	0
Bell.....	85	10	0
Walsh.....	85	10	0
Shaw.....	£129	5	0
For Slater's Work.....	£129	5	0
For Painter's Work.....	£45	0	0
Entwistle.....	31	19	0
Bell.....	31	19	0

For estimates for building new stables for Mr. N. C. at Brighton.

Waden & Ansonmb.....	£2,092	0	0
Lynn.....	1,589	0	0
W. A. & B. Field.....	1,069	0	0
Fabian.....	1,061	0	0
Cheesman & Co. (accepted).....	1,833	0	0

For farm-houses, offices, &c., at Houghton-le-Spring, for the Hon. and Rev. John Grey. Mr. John E. Watson, architect, Newcastle-on-Tyne. Quantities supplied:—

For the whole Work.....	£4,856	8	4
Fairclough & Sons.....	2,895	17	0
Lowes.....	2,959	11	10
Peart & Humble.....	2,942	16	2

A number of tenders were given for separate works, but for these we have no room.

For restoration of Sutton Baptist Church, Northamptonshire. Mr. H. Goddard, architect, Leicester. Quantities supplied:—

Broadbent.....	£115	0	0
Burditt.....	347	0	0
Stanyon (accepted).....	329	0	0
For schools, Irthlingborough, in the county of Northampton. Mr. Joseph Peacock, architect:—			
Watkins.....	£1,779	0	0
Whitney.....	1,748	0	0
Simpson.....	1,501	0	0
Rooksbury.....	1,159	0	0
Aiken.....	1,077	0	0

For German Evangelical Church, Halton-street, Lower, road, Islington, "after enlargement and alteration of original design." Mr. T. W. Constantine, architect. Quantities not supplied:—

Fowler.....	£3,109	0	0
Downs.....	2,230	0	0
Dove, Brothers.....	2,135	0	0
Sargeant.....	1,616	0	0

For chapel at West green, Tottenham, to hold 350 persons. Mr. Campbell, architect.

Myers.....	£1,181	0	0
Rider.....	1,120	0	0
Humphreys.....	881	0	0
Clarke.....	861	0	0
Williams (accepted).....	843	0	0

For rebuilding No. 5, Maddox-street, Regent-street, Mr. C. Eales, architect:—

Howard.....	£1,500	0	0
Aney & Bellingham.....	1,379	0	0
l'Anson.....	1,324	0	0
Clemence.....	1,311	0	0
Lawrence & Sons.....	1,270	0	0
Batterbury.....	1,239	0	0
Saunders.....	1,223	0	0
Hallett.....	1,200	0	0
Brown.....	1,113	0	0

The Builder.

VOL. XIX.—No. 950.

Materials and Processes in
the Architectural Exhibition.

HE collection of building materials, inventions, and processes annually made in the Conduit-street Galleries, as part of the Architectural Exhibition, is a very important feature of the scheme, and admits of considerable extension. As manufacturers and inventors find the advantages

which must ultimately result from bringing good things prominently and often before the public (and the public require to hear of a new thing very often before the notion occurs to them to use it), the Gallery will be found too small to meet all the requisitions for space that will be made. When this is the case the Architectural Union Company will, doubtless, find it to their interest to extend the premises in a way that we believe is open to them. Meanwhile, the directors announce, with full appreciation of the importance of such collections, that they intend to open an Exhibition wholly of building manufactures and inventions in these Galleries,—in the months of July to December in each year,—so that purchasers and architects may immediately become acquainted with all that is newest and best in the various trades and manufactures, and so that the inventors and proprietors of the articles exhibited may find the readiest means of deriving advantage from their productions.

In this kingdom there is always some person who wants exactly what some one else has to dispose of. The great point to be achieved is to make the two known to each other.

Looking to the lobby, we find (No. 1), specimens of Martin's cement; exhibited, we suppose, by Mr. Hart, of Drury-lane, the manufacturer, although his name does not appear. He shows a specimen of the cement "as painted upon in this room, within twenty hours after it was put upon the wall;" a panel executed in 1851 for the Great Exhibition; and a panel inlaid with colours, and which has been exposed to a very great heat for several years, "having been fixed over a steam boiler." It would seem to be evident that under various circumstances this cement may be used to great advantage.

Messrs. Bellman & Ivey, of Buckingham-street, Fitzroy-square, send scagliola marble (No. 2),—very good specimens of their work. In one, a cancellabrum, the cap is in imitation of Sienna marble; the shaft of verd antique: base and plinth are of porphyry.

(3.) Examples of Mediaeval metalwork, including small monumental brass, wrought-iron grille, bar-railing, polished brass hinge, and gas brackets. Messrs. Peard & Jackson, of 159, High Holborn. These are very fair specimens of what number of manufacturers now seem able to do. The negligence of the angel in the small brass should be remedied.

Mr. Ransome exhibits various specimens of his patent imperishable siliceous stone, for

building, monumental, and decorative purposes (No. 4). This composition, which has established its character for endurance, to some extent, consists of a pure siliceous sand, united into a homogeneous mass by the encasement of each particle in a solution of silica, and is subsequently vitrified by heat. It is stated that "two 2-inch cube blocks of this material have been crushed—one by a pressure of twenty tons, the other by twenty-two tons; or, expressing it in other terms and more accurately, one was crushed by 10,780 lbs., the other by 12,184 lbs. on a square inch. These pressures are equivalent to 600 and 780 tons on a square foot." The colour of the material and capability of sharpness in casting are open to improvement. A Corinthian capital and a Norman rose window of this material, being both marked for the palace of the Nawab of Moorsheadabad, E.I., Mr. Vivian, architect, leave us in some doubt as to the style of the structure.

There are also specimens of induration by Ransome's patented process for preserving stone and other building materials, now under trial. By this process the material operated upon is impregnated with a solution of silica. The rationale is thus stated:—

"This solution of silica, i.e. silicate of soda, would remain in a soluble form, and liable to absorption by the humidity of the atmosphere or removal by rain, but for the secondary application, consisting of a solution of chloride of calcium, which decomposes the soda (oxide of sodium), turning it into salt (chloride of sodium). The calcium with the oxygen released from the soda, forms lime (oxide of calcium), which, combining with the silica, constitutes silicate of lime."

The Architectural Pottery Company, Poole, Dorset, have improved in squareness and regularity, and send various ornamental tile pavements in frames (5), constructed of Bale's patent mosaic tiles, and tessellated pavements for entrance-halls, churches, and conservatories, designed by Messrs. R. Brandon, J. M. Lockyer, and others. Also, some tiles for wall linings.

(6.) Models of improvements in zinc-laying, by Mr. J. W. Tyler, Wood-street, Westminster. The object aimed at is to lay each piece, without nails, free for contraction and expansion; and this seems now tolerably well understood.

Wright's patent self-acting water-closet (7) appears to be simple in arrangement, and contrived so that, in situations where water is scarce, the expenditure can be economized.

(8.) William Hood's Manufactures include—stable-fittings, in which "waste from the rack is prevented by a spring rack top which opens back to the wall while the rack is being filled, and descends as the hay is being withdrawn, always so compressing it that the horse is unable to remove it wastefully;" and various bronzed iron castings, such as lamp-posts and garden fountain basins, some of which are very good castings. Mr. Hood also exhibits registered staircase panels, "the advantages of which are that they are cheaper than any others, for the reason that the same pattern, without cutting or alteration, is equally applicable to level landing railing, and to any rake or level of handrail."

Messrs. J. Tylor & Sons' patent regulator valve, pan, and self-acting water-closets, lavatories, high-pressure stop, bib, and ball valves (9), are now well known. We believe them to be of a superior and durable construction.

Under the No. 10 are some drain-pipe balustrades, ridge-tiles, and bricks, from the Reading Abbey Concrete Works, 19, London-street, Reading. The materials of the concrete, if that be the composition, must be small in size. We do not know enough of it yet to recommend it.

(11.) Brown & Green's improved patent kitchen range. This consumes much less fuel than an ordinary range.

"The upper part of the front of the fire is inclosed when cooking with a perforated iron plate, through which jets of air are directed upon the smoke; and by this simple means the greater portion of it is consumed, and the heat of the hot plate, &c., thereby greatly increased."

This plate is in several respects a great improvement upon the usual doors. The range is fitted with two ventilating pipes, which carry off the

odours of cooking, and prevent that oppressive feeling which is an objection with some other close ranges. It has received a good character.

Chantrell and Dutch's patent economic self-acting water-closet and water waste preventor (12) combines a cheap glazed stoneware cistern, with measuring box, and double-action valve.

The Messrs. Mander show specimens of their hard-drying tackless varnish for seats of churches, and their white Coburg varnish, which appears to stand well. It is difficult to ensure good varnish now-a-days.

John Moore & Sons send their patent pressed glass clock dials (14), and their well-known moveable glass ventilators, for every description of public and private building.

The peculiarity in Sharpe's closet pans (15) is, that the rim of the pan is formed into a tube, which conveys the water entirely round the upper edge; and, being there acted upon by the pressure in the supply pipe, it descends vertically (through proper openings) over every part of the surface.

(16.) Specimens of Godwin's encaustic tiles, and self-coloured tesserae for pavements, suitable for churches, entrance-halls, corridors, and conservatories: these seem very good of their kind.

(17.) Wright's patent Gill calorifer, for warming churches, public buildings, and mansions. This we have found effective.

Various locks and lock furnitures are exhibited by Messrs. Bond & Scammell, King-street, Snow-hill (18); and Hobbs, Ashley, & Co. Cheap-side, London (19). The cheap locks of the latter especially deserve notice, also their new mortise lock. "By the application of the double spring it will be observed that the latch is made to work independent of the crank, whereby the necessity of slamming the door is avoided."

Mr. Bridell's Substitute for Marble and Scagliola (20), is set forth by a number of specimens. We had occasion some time since to speak of it, but may repeat that the veins and colours are not merely superficial, like the surfaces of enamelled slate, but are embodied in the substance.

"Slabs of Patent Marble for lining walls are generally made 2 feet 6 inches by 1 foot 6 inches, and 1 foot 6 inches by 1 foot 3 inches, and three-quarters of an inch thick; price in Grotto, Granite, Sienna, Black and Gold, &c. is, 9d. to 2s. per foot super; and in Self-Colours, of all tints, is, 6d. per foot super."

In the Great Gallery we have, on the pilaster (199), Statue of St. John the Evangelist, from stone, on a foliated stone bracket, very well carved by Swales & Grassby.

Near the last, Messrs. Johnston, Brothers, High Holborn (amongst the best of the brass workers), have a stand of specimens of Mediaeval work, standards, coronas, book-stands, &c., fresher in design than usual, the result of calling in good assistance in that respect.

In the same gallery is an eagle lectern by Messrs. Benham & Sons. The pedestal terminates in a crown, in the hollow of which stands the globe supporting the eagle, looking very much as if it ought to roll over. The lectern is well wrought.

In the East Gallery Messrs. Hart, of Wych-street, have a good show (205) of Mediaeval metal work, ecclesiastical and domestic, comprising gas standards, coronas for gas and candles, candlesticks, chalices, flagons, clocks, envelope cases, and other articles. Messrs. Hart have improved year by year: still there is little which is more than imitative; good in proportion as it resembles old work.

(206.) Encaustic and other tiles, manufactured by Messrs. Minton, Hollins, & Co., Stoke, Staffordshire. This includes some admirable arrangements of majolica tiling, and mosaic for mural decorations, and for reredos work; also majolica friezes, encaustic medallions, and letters for naming streets. The Commandments in raised letters may be seen.

Messrs. Maw & Co., Benthall Works, Broseley, Salop, have a very large exhibition of mosaic and encaustic tile pavements (207), and give in the catalogue the prices at which the tiles can be

furnished per square yard. The examples shown are designed by Messrs. Wyatt, Garling, Goldie, Preedy, and others. A white exudescence appears on some of the red tiles, but this probably would wear off. As to string courses in tiles, capable of being adapted to intervals of any length, Messrs. Maw wisely recommend that, if placed near the eye, to ensure greater accuracy in the work, the tiles should be ordered cemented together in large slabs.

Mr. Desachy sends some examples of his patent plaster canvas; and Messrs. G. Jackson & Son, Rathbone-place, London (209), cornices, door, door-cap frieze, enriched with shield and festoons of fruit, executed in carton pierre, for Clothworkers' Hall, under the direction of Mr. S. Angell, with other capital specimens of their papier mâché.

(210.) Specimens of paperhangings for dining and drawing rooms, by Messrs. Scott, Cuthbertson, & Co., Whitelands, Chelsea, including an "Italian pilaster," so printed in flock as to become in *relievo*, upon which two golds are applied, thus producing a raised ornamental design not hitherto executed in paper staining. Also a new process of printing, and of repeating the printing, of *one flock upon another*, capable of producing a very high relief. "It is first hung upon the wall, and then painted of any desired colour, and shows no joint." The patterns of the papers are tasteful and appropriate.

(211.) Pierce's fresh air warming, purifying, and ventilating fire-lump stove-grate, which has for upwards of seven years been constantly used in all the wards of the London Hospital, Mile-end-road, and has been strongly recommended by the Board of Health. "They are fitted together in parts, and made in the strongest and most substantial manner, and can be put up by any ordinary mason or bricklayer, as they are sent prepared for fixing, with suitable air-gratings for the admission of fresh air to the back portions of the grate, and with regulating valves for its distribution."

The book-case and writing-table executed in oak, and inlaid with different kinds of wood, by Mr. James Forsyth, from the designs of Mr. R. Norman Shaw, architect (212), we have illustrated and described on another page.

(213.) Models in plaster, including various groups, executed from the designs of Mr. P. C. Hardwick, Mr. Clutton, and others, by Mr. Theodore Pfyffers, who exhibits them. Some of the figures show good feeling and creditable modelling.

(214.) Davis's patent marmolite (46, Wimpole-street, Cavendish-square). This is the title of an arrangement for "protecting, absolutely, silvered glass and painted design from all atmospheric influence,—heat, cold, or damp,—and rendering them indestructible, except by extreme force." It is applicable to ornamental panels for halls, lobbies or dining-rooms, for cabins of ships, and a variety of similar objects. It is also applied to the names of streets, the numbering of houses, and the indication of addresses, especially in the suburbs, so as to be legible at night as well as by day; and for ornamental fascias to shop fronts.

Messrs. Cox & Son, the Patent Carving Works, Belvedere-road, Lambeth, show, in their stand (227), what they are doing with their machinery, including a Caen stone font, supported by columns of various marbles, including rouge royal, Irish green, and serpentine, with white and mottled alabaster caps and bases. The bowl of the font is surrounded by eight carved angels holding a ribbon. It is spoilt by the vulgar painted and gilt ironwork, oak-leaves and acorns, on the cover.

In the centre of the first room stands a full-sized model of font, now being executed in statuary marble from the design of Mr. S. W. Dawkes, for Witley Church, with carved oak cover, both executed by James Forsyth. Three angels carry the bowl, the outline of which is not very pleasing. The cover includes six trusses reversed, meeting

at the top, and carrying a figure of St. John the Baptist.

With one more subject, treated by two exhibitors, we must close our present notice. Under the Nos. 316, 317, and 318, Lady Mildred Beresford-Hope exhibits specimens of a method of appliqué needle-work, suitable to ecclesiastical and other architectural decoration, comprising a completed specimen, half-completed specimen, and cartoon. This method of needlework, it is stated, was invented for, and applied to, the new choir hangings in Cologne Cathedral, designed by M. Ramboux, and executed by 300 ladies of Cologne, under the direction of Mlle. Martens. The pattern is first drawn. Flat pieces of silk or satin are then laid on, to give the ground colour of the various parts, and these are worked upon.

(323.) Unfinished portion of a banner or standard screen, executed by a lady amateur, from designs by Alfred Bell, is on the same principle, but is more crude than the specimen from Cologne. The method was hit upon, Mr. Bell says, in the study and treatment of glass without knowing that it had been attempted elsewhere. He is somewhat inclined to demur to any kind of shading as such. It seems to him that a perfectly flat treatment would be most suitable, and that the black outlines should be kept so narrow as not to look like the lead in a window, otherwise the appearance would be simply that of a cartoon for glass, which should be carefully avoided. Great things can be done in the way of diaper on dresses and background, by means of stitching; and from the method being susceptible of any amount of boldness, it is suitable for curtains and hangings. We are much mistaken, however, if it have any right to be called a new process.

SMALL HOUSES.

We have lately had conversation with a person who has a family of seven young children. His income is not large, and is at times uncertain. Now his is a case that may be counted by the thousand in the metropolis and large towns, and is, therefore, well worthy of attention; for, under such conditions, where children are to be reared, house accommodation is of the greatest importance; and yet, as matters stand, it is attended with the greatest difficulty. The expenses of a family render it less easy to meet a large amount of rent. As only one instance, our informant, who has kept a regular account of expenses, &c., states that his wife and seven children (the eldest about fourteen years of age) consume between 1,600 and 1,700 half-quartern loaves in each year,—say 1,650. This, at the present price of bread, would amount to 27*l.* 10*s.* It is worth while to mention, before proceeding further, that the addition of 1*d.* a quartern in the price of bread would make the above quantity of bread come to 3*l.* 8*s.* 9*d.* extra. These figures serve to show the vital importance of the price of bread to the great masses of the people, and how thankful we ought to be that recent laws have made the supply of this necessary of life more regular and of more even price. To return, however, to the dwellings, we will give some particulars almost in the words of our informant. He says that the troubles which occur, owing to the present arrangement of the houses generally appointed for the use of families, are great. The taking of an entire house by a man whose income is barely sufficient with economy to meet the expenses of common necessities and a moderate rent is a very great risk. A house in London, to be sublet with any prospect of success, will cost in rent at the least 26*l.* per annum, and in a moderately rated parish the poor-rates and other expenses will come to 6*l.* 10*s.* more: this amounts to 12*s.* 6*d.* a-week, provided the parts which are not needed cannot be let. The failure of letting soon leads to evil consequences: executions for taxes come in, with expenses, and the expenses of such proceedings are great. For house duty, amounting to 7*s.* 6*d.*—this not being promptly met,—the expense for a few hours' possession came to 5*s.* 6*d.*, nearly as much as the original debt (13*s.* in all). Besides, for those who have a number of children, to feed, quarterly payments are mischievous. In the hope of something turning up, or in time of need, the money which should be appropriated to the rent and taxes is meddled with. This, it will be said, is not right; but, unfortunately, it is natural, when pressed, to hope

for the future, and to use the means which are immediately at hand. This often not only causes the persons who rent the houses to have their property sold up; but the property of the lodgers, even if they owe no rent, frequently suffers. Acknowledging the danger there is in risking the undertaking of a whole house, it remains for those situated as above mentioned to take part of a dwelling as the tenant of another. Even this is not an easy matter. In such circumstances long journeys may be taken, and answers to applications given will be something as follows:—"I like you very well; but bless you, man, the children! I have five myself, or else I would never have troubled myself with a house like this: the hand seems to be never out of the pocket; but for the sake of the children I put up with it." It may be noticed, in looking for apartments, that, generally, the person renting the house occupies the lower part of the premises; and it is clear that a number of children on the first floor and a number below must create sad confusion: it is impossible to tie the boys or fasten their tongues. For the sake of quiet the children are sent into the streets, and ten to one some of them get more or less polluted by mixing with boys who have become acquainted with wickedness. From time to time we have referred to this most important subject; mentioned how totally unfitted the houses let in tenements are for the purposes of families; the confusion which must ensue even to those of the most careful and regular habits; and it should not be overlooked that, as things now are, even respectable persons with families and limited means are driven into neighbourhoods and among people whose manners are distasteful to themselves and ruinous to the young. The model lodging-houses for families are all full. At Stratton-street, where we lately inquired, there were eighteen names of applicants on the list for sets of rooms; and this notwithstanding that these buildings are not in the style popular amongst the working classes.

Anxious to find what the modern builders are doing in the way of providing dwellings which would combine privacy, means of proper cooking, washing, &c., for families, so much needed, at a moderate cost, we have glanced at what is going on in the northern part of the metropolis. Near the railway station, in the Caledonian-road, there is a row of small houses, some in course of erection, and others finished. These are plain and unadorned, in exterior appearance, and consist of two stories, two rooms on the ground, and washhouse leading to a yard for clothes drying, in which there are a closet, dust-bin, &c. There are two rooms above the parlours, of a fair size: the interiors are neatly fitted. In the kitchen is a good cooking fireplace, with boiler and oven. These are very convenient: but the rent is 19*l.* 10*s.*, and taxes make the annual amount 24*l.* Further north are some other houses, very neat in external appearance, which are so constructed that a passage and staircase divide the house of seven rooms, as it were, into two parts,—three rooms on one side, all front, and three front on the other, and a back room built over the washhouse. At a first glance it would seem that this plan might be very convenient for two families who could live on friendly terms together; but there are only one kitchen and one washhouse, which projects into the garden behind. One washhouse might be sufficient, but a single cooking apparatus would not answer the purposes of a respectable man's family. Besides, there would be in this case the want of that privacy to which we attach so much importance. The rent of these houses is 30*l.*, the taxes about 6*l.* (36*l.* altogether). If such a building as this could be fitted for the accommodation of two families, the divided rent would amount to 18*l.* a year,—about 7*s.* a-week, an expense which many would gladly incur, knowing that this would be the limit.

It is said that owing to the high ground-rent it is not possible to rear dwellings for the industrial classes which are suitable in appearance and possessed of those other qualities which are necessary. It seems, however, to us that the adhesion to old customs—that routine, which at times does much damage,—is in a great measure to blame for this.

Surely it is not impossible, if judgment be shown in the selection of a site, to make dwellings, adapted to the working multitude of the metropolis and our large towns, a comfort to the dwellers and good speculation for those who would in a business-like way undertake such buildings.

THE ILLUMINATING ART-UNION.—The Exhibition of this Association is now open.

REFLECTIONS IN THE STREETS.

THE wayfarer who passes along the streets of the metropolis with thought and intelligence need never be without objects which are both suggestive and amusing, as well as instructive. In some parts of the country transition goes on slowly but surely in the right direction; and although, to those whose views are a little forward, and who do not think of the difficulties in the way, this advance may seem by far too slow; yet the careful observer will notice that there are at present feelings abroad and works in progress which are destined to make great and beneficial changes in the condition of the dwellers in our chief towns. During the last twenty-five years certain social foundations have been laid which will bring the various grades and masses of the people together, more than has been the case in the history of this nation in anything like the same space of time.

The advancing intelligence has put an end to wholesale executions, which did not check crime but tended to brutalize the ignorant and half-civilized portions of the population who witnessed them. Now, for only one crime is the punishment of death inflicted; and it becomes a matter for consideration if this last lingering remnant of barbarous custom be of so much avail in preventing murder, as would be lengthened penal servitude with severe corporal punishment. Sheep-stealing, horse-stealing, stealing wet clothes from hedges, and very nearly a hundred other offences, would, on proof, send the offender, who might be a young boy or girl of tender years, to the scaffold. By comparison with the times of Dick Turpin and other notorious knights of the road when hanging was in fashion, it is clear that now both life and property are safer than then from violent robbers and murderers, both in Queen Victoria's highways and on the new iron lines of the Stephensons and Brunels. Nor do we hedges, are less secure than formerly; nor that forgery has been committed to the extent anticipated, notwithstanding both population and wealth have been increased and multiplied in inverse proportion to the withdrawal of capital punishment.

These facts, at the present time, require consideration; for, just now, in several quarters, attempts are being made to create a re-action against those advances which have been attended with so much benefit.

In considering the means which, during the last quarter of a century, have been put in opposition to the teaching of the hangman; we find a greatly extended, cheap, good system of education. Men of education, ability, and rank, have considered it a privilege to lecture on subjects of the great towns, libraries, museums, schools of art and design, have been opened, and flourish. We should omit to make mention of the "refuges," which have been the means of curing many who had fallen into vice, and saving a multitude of those who were in danger.

In these days, by means of the steam-press, a working man may buy the same number of excellent books for a few shillings which he could formerly only obtain for about as many pounds. The distant portions of the country have been brought together, by the locomotive engine and the steam-packet, so cheaply, that here, too, billings are equivalent to pounds. With these and other signs of progress, minds of great and good workers see indications that Europe will become a band of united states, strong in the power of civilization, and opposed to the trammelling of thought, or the enslavement of mankind. The facilities of communication between nation and nation are now so great and so continual, that every day words fly from land to land, thus more and more assimilating the languages of the peoples. In Great Britain, in days of yore, the words used by the population in different counties were virtually as different as those of London and Jeddo; but each year the provincialisms and dialect are vanishing, and it may not be long before the guttural of Northumberland, Durham, Yorkshire, Wales, and Scotland; and, though last, not least, in London itself; will come amongst the curiosities of the past. But, notwithstanding all these favourable changes which are going on, there are certainly a neglect of portions of our population, which look all the more dismal in consequence of the bright lights which have shone out in other directions.

Amongst the objects which attract the attention of the wanderer in the metropolis, are the

hospitals devoted to the cure of so many human infirmities; and it is one of the signs of our times, and a matter which we think is in accordance with the advance of our population and knowledge, that hospitals are being founded for the cure of eye diseases, paralysis, consumption, spinal diseases, and other specialties. Such subdivisions have been objected to by some medical authorities; but, as we think, without any sufficient reason.

Amongst suggestions for the improvement of the nursing and medical attention upon the sick, we ought not to omit the idea of the foundation of a Female Medical College, in which ladies may be enabled to fit themselves for attention to the general complaints of women and children. In the olden days women of rank and condition were our most skilled and eminent physicians, and in recent times Miss Nightingale and some other ladies have shown the great advantage which may be derived from well-educated females turning their attention to medical knowledge. In the present fashion of our general education but few men and still fewer women are acquainted with even the simplest rules of health; and thousands of children and others perish in consequence of this want of knowledge on the part of mothers who have received what is considered a fair amount of education. It may be hoped that, in course of time, prejudice on this point will be removed, and that in many families one girl at least will be educated as a doctress; for it is clear that such a qualification would not be useless in the event of her becoming a wife and a mother; and, in the case of the death of a husband, or through misfortune, this ability might be made a source of income.

In our rambles we have often noted the active work of officers for the prevention of cruelty to animals. Their operations prevent the public from witnessing in the streets many painful and disgraceful scenes. An attempt has been made in Islington to form a refuge for dogs of high and low degree. It is proposed to gather lost or distressed dogs from the streets, to endeavour to restore wandering pet dogs to their disconsolate owners, and to furnish a home for houseless dogs of low degree until some philanthropic individual should become willing to take the care of them. A miserable dog is, undoubtedly, a painful object; but, knowing the necessity which exists for the exercise of humanity and charity in much more important directions, few will give this movement much encouragement.

There are many individuals who are not only able but anxious to do a certain amount of good to their fellows, but who are diffident, and think their seemingly small efforts but of little avail: this is a great mistake. An example has been set by the French Protestants in benefiting the poor of their own creed, who, in consequence of their religious opinions, are prevented from obtaining in time of distress the aid of French charities. In Paris, well-to-do and charitable Protestants group themselves into *dizaines*, or tens. Each ten takes one or more poor families in charge. Each member of a ten subscribes to the general fund, and each member has his active duty also. Some tens collect only a few francs weekly; others more wealthy command large sums and extend their usefulness to a greater extent: nurses, medical attendance, clothing, and what is better, in many instances, employment is, by this means given. Such benevolent little societies as these might be usefully formed in our own towns and villages. Persons should not be afraid of small beginnings, for from them have often risen important results.

CONDITION OF OUR TOWNS: OBSTRUCTION TO IMPROVEMENT.

SIR,—Having for many years been a reader of the *Builder*, I am tolerably well up in sanitary matters; but every now and then you throw new light on the subject, or re-direct attention to old objects, and place before local authorities and the general public matters of the utmost importance. "London Shadows" and "Town Swamps" are bearing good fruit, to use this form of metaphor, as may be witnessed in the sanitary reports of Dr. Letheby and the several medical officers of the metropolitan districts. London is now the healthiest metropolis in the world; and, as sanitary works are more fully carried out, health is improved. Your notes on the sanitary condition of our chief towns will also do good. You will anger the ignorant, the prejudiced, and the selfish; you will frighten the timid; but you will strengthen the wise and the benevolent, and, rouse, as with a trumpet-call, all local sanitarians. Your recent strictures on Stafford, and now on Newcastle-upon-Tyne, will shame the authorities into some move; and any movement is better than

apathetic stagnation. Your statements will be impudently denied, and your inferences will be ignorantly disputed; but there will exist the horrible and damning facts,—the swamps and foul ditches at Stafford, and the crowded and ruinous tenements at Newcastle-upon-Tyne, with a total absence of sanitary appliances, even for decency, in the latter case. Denial will only cause a more full inquiry; and this will, of my own knowledge, strengthen even your strongest remarks. There is not one public sewer in the town of Stafford. "The town cannot be sewered, it is so flat and low," say the local Solons. There are, however, cities, towns, and districts effectively sewered, which are quite as flat and more surrounded with water,—as part of Carlisle, and of West Ham, where an area very much larger than Stafford is 10 feet below the level of high water;—in America, the town of Chicago; and then we have the Fens in England, and large areas in Holland embanked and drained. So soon as the local authorities in Stafford make up their minds to spend 6d. in the pound for good sewers and drains, they may have them, and so remove the present reproach from their town; and, by reducing the annual mortality by some 4 in each 1,000 of population, save about 80 lives per year. Local alarmists say, "Sanitary works will ruin the town by their great cost. They will increase local rates from 6s. to 10s. in the pound." Let these people, however, inquire, in such cities and towns as North Shields, Carlisle, Preston, Croydon, Ely, Worksope, Macclesfield, Buxton, or in any other place where good sewers and drains have been executed, as to the sewers rate paid or to be paid for complete works. Two questions may be asked at the same time—"The amount of sewers rate?" and then, "Would the local authorities and the inhabitants in the improved districts save the rate and return to their unsewered state if they could do so?"

The condition of Newcastle-upon-Tyne is well calculated to excite horror;—a wealthy corporation and a money-making community sunk in squalid, sickening filth! The present state of this town, as detailed in your leader of the 13th inst., is a disgrace to our much-vaunted freedom and local self-government. A little wholesome despotism might certainly be exercised in such a case.

What do the members of the wealthy corporation of Newcastle wait for? A warning? They had it in the terrible cholera ravages, from 1839 to 1853. Or, do they stay until the sanitary problem shall have been worked out in other towns? This problem has been so worked out even at their own door; as at North Shields, partially at Gateshead, immediately opposite; and, most fully, in the small town of Alnwick. Newcastle some years ago went building mad when Mr. Grainger pulled down and re-erected whole streets of palace-like shops and houses, "before their time," many of which crumbled, unfinished, to premature decay. If this mad speculation hindered comprehensive sanitary works, the cause no longer remains, as local trade and growth have overtaken the building delirium of former years.

Surely, Mr. *Builder*, your well-deserved castigation will shame the corporation of Newcastle-upon-Tyne into sanitary life. You told the good people of Birmingham some time ago a few unwholesome truths; and a public meeting sanctioned an application to Parliament, and the corporation are up this session to obtain an Improvement Bill, to enable them to form and pave streets and roads, and to complete a system of sewers and drains, as also to execute other necessary sanitary works. All good men must hope that your recent castigation of the Newcastleites may induce similar active results. The present state of Newcastle-upon-Tyne is not only a local disgrace, but it is a national disgrace.

ONE WHO KNOWS FROM INSPECTION THAT YOUR DESCRIPTION IS NOT OVERDRAWN.

SEWER-AIR AND HOUSES.

ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.

At a recent general meeting of the Metropolitan Association of the Medical Officers of Health the following discussion took place "On the best means to be adopted and enforced for preventing the entrance of sewer air into houses, especially those inhabited by the upper classes."

Dr. Sanderson opened the debate. His remarks were founded on the following propositions:—

"1. That among the many falsehoods and fallacies which are current among the public, and even professional persons, as to the causes of disease, there is no fact established on a firmer basis than that of the morbid agency of sewer air, and that this agency is exerted more energetically by the small quantities which find their way fortuitously, but constantly, into houses, than by the large quantities which are disengaged by the gully grates.

2. That the state of our knowledge of the physical condition and movements of the air in sewers and house drains is very defective, but that it is certain that, on the present condition of the drainage in every drain that is not air-tight, a current sets, during at least nine months in the year, towards the house.

3. That the fact is one of much greater sanitary importance than has hitherto been supposed; that it requires experimental investigation; and that, as from its seat it lies between the domain of the surveyor and that of the medical officer of health, it ought to be considered by them conjointly.

Dr. Sanderson supported these propositions by *a priori* reasoning, and by experimental observations and other facts. He exhibited an apparatus which he had contrived to gauge with the greatest accuracy the relative pressure of the air in the sewers and in houses, and the direction of currents of air in sewers.

Mr. Chadwick agreed in the main with Dr. Sanderson, but believed that we should not be satisfied with our sewers being sewers of deposit, as for the most part they now are in London, but that they should be so perfect as to carry off all feculent matters before there was time for decomposition to set in.

Dr. Gibbon and Dr. Chowne followed in the discussion.

Mr. R. Rawlinson believed that traps ought never to be relied on: he maintained that no drain or sewer should enter within the walls of any house. He said, that in many parts of London there were houses whose drains did not communicate with the sewer, although they were believed to do so, and there was a good sewer immediately in front of them. Carlisle was adduced as an instance of good sewerage. No man had entered the sewers to cleanse them since their establishment about six years ago, and Mr. Rawlinson stated that they were still in a clean state. Ventilating shafts were here used, and all the sewers were constructed on a uniform plan, and previously determined scheme.

Mr. Merry, surveyor of Paddington, then spoke, confirming Dr. Sanderson's experimental observations.

Mr. Thomson urged the great importance of the subject. He referred to the fact that sewer air did not usually contain sulphuretted hydrogen, but sulphide of ammonium, and was alkaline, favoring the growth of animal life. The air of dwelling-rooms, on the contrary, was usually acid, and favourable to the growth of low forms of vegetable life. He spoke of all brick drains as means of allowing sewer gases to enter houses. He did not agree with Mr. Rawlinson, but was favorable to good drains under houses, as they kept the basement dry. Dwellings in mews were always charged with sewage gases, unless better ventilated and drained than most of them are at present.

Dr. Lankester spoke of the low forms of fungi produced in air and water which were likely to be injurious to health. He alluded to the bad arrangements for drainage in many modern houses, as sometimes no traps are placed between the sewer and the house; sometimes pipes were put down without cementing the joints properly. He alluded to the experiment being made in the City of ventilating sewers and placing charcoal filters at the outlets of the ventilating shafts. He maintained that we should not rest contented until sewers acted so well as not to require special means of ventilation. He related the case of an eminent literary man whose death was clearly caused by sewer gas entering a house from want of proper traps.

Mr. Burgis, Mr. Lord, and Dr. Aldis followed, and confirmed what Dr. Lankester had said as to the negligence of builders in draining many modern houses, as it appeared to be no one's business to see that the conditions of building contracts were complied with.

Mr. Druitt said that he was informed on good authority that paint became tarnished in London more readily now than a few years ago. Was this due to sulphur or carbon? Probably the former. He alluded to the existence of many old sewers, whose presence was not marked on any maps, nor known until discovered accidentally in excavations. He referred to the importance of spreading information on these topics in schools; also by sanitary tracts and lectures, referring especially with commendation to the labours of the "Ladies' Sanitary Association." He expressed a hope that the labours of the medical officers of health would be directed towards the getting of perfectly-acting sewers, the emanations from which could not be noxious.

Mr. Lovegrove, surveyor of Hackney, made a few remarks, and exhibited his patent trap, constructed with the view of preventing sewer air entering houses at the time water is flowing down

the house-drains. He called attention to the many practical difficulties attending the re-modelling of the entire sewerage of a place drained as London is, on so many different independent plans, and with so many very defective old sewers.

Mr. Chadwick said a few words, and read some propositions embodying his views. They were, however, too comprehensive to be considered by the meeting at a late hour of the discussion.

GIRDERS, BEAMS, AND LINTELS.

THE following remarks on the strength of materials have been deduced by Mr. Charles H. Haswell (for the "Journal of the Franklin Institute") from the experiments of Barlow, Buchanan, Fairbairn, Hodgkinson, Stephenson, Major Wade, and others.

The transverse or lateral strength of any girder, beam, breastsummer, lintel, &c. &c., is in proportion to the product of its breadth and the square of its depth, and also to the area of its cross section.

The best form of section for cast-iron girders or beams, &c., is deduced from the experiments of Mr. E. Hodgkinson, and such as have this form of section (*I*) are known as Hodgkinson's.

The rule deduced from his experiments, directs as follows:—Area of bottom flanch, six times that of the top flanch. Flanches connected by a thin vertical web, only sufficiently thick to have the requisite lateral stiffness, and tapering both upwards and downwards from the neutral axis; and in order to set aside the risk of an imperfect casting, by any great disproportion between the web and the flanches, it should be tapered so as to connect with them with a thickness corresponding to that of the flanch.

When girders are subjected to impulses, and are used to sustain vibrating loads, as in bridges, &c., the best proportion between the top and bottom flanch, is as one to four, as a general rule, they should be as narrow and deep as practicable, and should never be deflected to more than one five-hundredth of their length.

In public halls, churches, and buildings where the weight of people alone is to be provided for, an estimate of 175 pounds per square foot of floor surface is sufficient to provide for the weight of flooring and the load upon it.

In store-houses and factories, the weight to be provided for, should be estimated at that, which may at any time be placed thereon, or which at any time may bear upon any portion of their floors: the usual allowance, however, is for a weight of 280 pounds per square foot of floor surface.

In all uses, such as in buildings and bridges, where the structure is exposed to sudden impulses, the load or stress to be sustained should not exceed from one-fifth to one-sixth of the breaking weight of the material employed, but when the load is uniform or quiescent, it may be increased to one-third and one-fourth of the breaking weight.

An open web girder or beam, &c. is to be estimated in its resistance on the same principle as if it had a solid web. In cast metals, allowance is to be made for the loss of strength due to the unequal contraction in cooling of the web and flanches.

In cast iron, the mean resistance to crushing or compression and extension, are as 5 to 1, and in wrought iron, as 12 to 23; hence the mass of metal below the neutral axis, will be greatest in these proportions, when the stress is intermediate between the ends or supports of the guides, &c.

Wooden girders or beams, when sawed in two or more pieces, and slips are set between them, and the whole bolted together are made stiffer by the operation and are rendered less liable to decay.

Girders cast with a face up are stronger than when cast on a side, in the proportion of 1 to 359, and they are strongest also when cast with the broadest flanch up.

The following results of the resistances of metals will show how the material should be distributed, in order to obtain the maximum of strength with the minimum of material:—

	To Tension.	To Crushing.
Wrought iron	23 tons	12 tons
Copper	10 "	3 "
Cast iron	8 "	51 "
	8 "	37 "

Hence, in a wrought-iron beam, the upper flanch should be as 23 to 12, or 2 to 1.

The best iron has the greatest tensile strength, and the least compressive or crushing.

The relative strength of girders or beams, cast

vertical or horizontal, is as 536 to 514, or as 1 to .96.

The outline of a girder or beam, both in depth and width of bottom flanch, may be reduced from the required dimensions in the middle, or at the end, as the case may be, at points intermediate between the centre and supports, or end and fulcrum, to correspond to the weight or stress to be borne.

When the top flanch, the thickness of the web, the length and the depth are unaltered, the web being thin, the strength of the girder or beam is nearly in proportion to the area of the bottom flanch. (See "Inquiry of Samuel Hughes, C.E. &c." *Artisan*, pp. 148-9.)

The most economical constructions of girders or beams, with reference to attaining the greatest strength with the least material, are as follows:—The outline of their top, bottom, and sides should be a curve of various forms, according as the breadth throughout is equal, or the depth throughout is equal, and as the girder or beam is loaded only at one end, or in the middle, or uniformly throughout.

When the girder or beam is fixed at one end and loaded at the other.

1. When the depth is uniform throughout the entire length.

The depth being uniform: The section at every point must be in proportion to the product of the length, breadth, and square of the depth, and as the square of the depth is in every point the same, the breadth must vary directly as the length; consequently, each side of the beam must be a vertical plane, tapering gradually to the end.

2. When the breadth is uniform throughout the entire length.

The breadth being uniform: The depth must vary as the square root of the length; hence the upper or lower sides, or both, must be determined by a parabolic curve.

3. When the section at every point is similar, that is, a circle, an ellipse, a square, or a rectangle, the sides of which bear a fixed proportion to each other.

The section at every point, being a regular figure: For a circle, the diameter at every point must be as the cube root of the length, and for an ellipse, or a rectangle, the breadth and depth must vary as the cube root of the length.

When the girder or beam is fixed at one end, and loaded uniformly throughout its length.

1. When the depth is uniform throughout its entire length.

The depth being uniform: The breadth must increase as the square of the length.

2. When the breadth is uniform throughout its entire length.

The breadth being uniform: the depth will vary directly as the length.

3. When the section at every point is similar, as a circle, ellipse, square, and rectangle.

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When the girder or beam is supported at both ends.

1. When loaded in the middle.

The constant of the beam, or the product of the breadth and the square of the depth, must be in proportion to the distance from the nearest support; consequently, whether the lines forming the beam are straight or curved, they meet in the centre, and of course the two halves are alike.

The beam, therefore, may be considered as one of half the length, the supported end corresponding with the free end in the case of beams one end being fixed, and the middle of the beams similarly correspond with the fixed end.

1. When the depth is uniform throughout. The depth being equal: the breadth must be in the ratio of the length.

2. When the breadth is uniform throughout. The breadth being uniform: the depth will vary as the square root of the length.

3. When the section at every point is similar, as a circle, ellipse, square, and rectangle.

The section at every point being a regular figure: the cube of the depth will be, as the square of the distance from the supported end.

When the girder or beam is supported at both ends, and loaded uniformly throughout its length.

1. When the depth is uniform.

The depth being uniform: the breadth will be as the product of the length of the beam, and the length of it on one side of the given point, less the square of the length on one side of the given point.

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General deductions from the experiments of Stephenson, Fairbairn, Cubitt, Hughes, &c.

Fairbairn shows in his experiments that with a stress of about 12,320 lbs. per square inch on cast iron, and 28,000 lbs. on wrought iron, the sets and elongations are nearly equal to each other.

A cast-iron beam will be bent to one-third of its breaking weight, if the load is laid on gradually, and one-sixth of it, if laid on at once, will produce the same effect, if the weight of the beam is small compared with the weight laid on.

Hence, Beams of cast iron should be made capable of bearing more than six times the greatest weight which will be laid upon them.

In wrought-iron beams, the upper flanch should be larger than the lower, in the ratio of 2 to 1. The breaking weights in similar beams are to each other as the squares of their like linear dimensions. That is, the breaking weights of beams are found by multiplying together the area of their section, their depth, and a constant, determined from experiment on beams of the particular form under investigation, and dividing the product by the distance between the supports.

Cast and wrought iron beams, having similar resistances, have weights nearly as 2.44 to 1.

The range of the comparative strength of girders, of the same depth, having a top and bottom flanch, and those having bottom flanch alone, is from having but a little area of bottom flanch to a large proportion of it, from less than one-half to one-quarter greater strength.

A box beam, or girder, constructed of plates of wrought-iron, compared to a single rib and flanch beam $\frac{1}{2}$, of equal weights, has a resistance as 100 to 93.

The resistance of beams, or girders, where the depth is greater than their breadth, when supported at top, is much increased. In some cases, the difference is fully one-third.

When a beam is of equal thickness throughout its depth, the curve should be an ellipse, to enable it to support a uniform load with equal resistance in every part; and if the beam is an open one, the curve of equilibrium, for a uniform load, should be that of a parabola. Hence, when the middle portion is not wholly removed, the curve should be a compound of an ellipse and a parabola, approaching nearer to the latter as the middle part is decreased.

Girders of cast iron, up to a span of 40 feet, are cheaper than of wrought iron.

Cast-iron beams and girders should not be loaded to exceed one-fifth of their breaking weight, and when the strain is attended with concussion and vibration, this proportion must be increased, and they should not be subjected to a deflection exceeding the .05ths of their length, or to a test much exceeding the greatest stress to which they are to be subjected.

Simple cast-iron girders may be made 50 feet in length, and the best form is that of Hodgkinson: when subjected to a fixed load, the flanch should be as 1 to 6; and when to a concussion, as 1 to 4.

The forms of girders for spaces exceeding the limit of those of simple cast-iron, are various; the principal ones adopted are those of the straight or arched cast-iron girders in separate pieces and bolted together, the trussed, the bow-string, and the wrought-iron box and tubular.

The straight or arched girder is formed of separate castings, and is entirely dependent upon the bolts of connection for its strength.

The trussed or bow-string girder is made of separate castings on a single piece, and its strength depends, other than upon the depth or area of it, upon the proper adjustment of the tension or initial strain upon the wrought-iron truss.

The box or tubular girders are made of wrought-iron, and are best constructed with cast-iron tops, in order the best to resist compression: this form of girder is best adapted to afford lateral stiffness.

THEATRICAL STAGE ARRANGEMENTS AND MACHINERY.

YOUR late remarks on theatres have chiefly had reference to the *salle* part of the house, and not the stage. True as they were, it is the stage which chiefly concerns us in England. Now it will seem curious; but I simply and plainly state that every single stage in London, old or new, is bad,—utterly bad,—a disgrace to a mechanical nation like the English. It is a miracle how Mr. Beverley gets out his marvellous effects with such wretched machinery. The arrangement, too, is so bad; the dressing-rooms ought all to be around the stage, on a level with it: there ought to be no draughts of wind. Architects must remember singers' throats are tender things. What will your readers say to the dressing-room of the ladies of the ballet being at the top of the house, some hundred steps to go up? This is in a new theatre in London, not far from your office. I should like to see the architect dance a *pas de quatre* after ascending and descending a hundred steps; and this he has made ladies—the weaker sex—do. The tailors' room is at the top of the house, and baskets have to be sent up and down by machinery, which takes some five minutes. This arrangement again is very extraordinary. I should say the architect had not been in the habit of attending rehearsals, or he would have known better. But it is under the stage you see the miserable, contemptible mechanism of an English theatre: it is there you see the filth of an English theatre: it is there you see every kind of incumbrance, instead of clear space. It is really lamentable, sickening, to see an English stage after being accustomed to Germany. In Munich the cellars underneath the stage are as clean as our drawing-rooms, and the lofts above are like a man-of-war in regard to order,—ropes coiled, hatchets hung on numbered pegs, and the whole put me strongly in mind of one of our first-rate ships. In Munich, too, is a machine which tells if the fire watchmen have continually visited the different parts of the house at the stated hours of the day and night. This is of a clock-like form, and kept locked up, only to be looked at by the *regisseur*, but which has wires to different parts of the stage and lofts, &c., and there the watchmen must visit, which ensures regularity. It is no good going to Paris or to Italy to see theatres: you must go to Germany,—go and see Mr. Mühlendorfer at Mannheim, the inventor of flat stages,—see his theatre: he is the most celebrated theatrical machinist in Europe. Go to Hanover, Brunswick, but, above all, study the Victoria Theatre at Berlin. There is an exquisite simplicity and perfection in the stage machinery of this theatre, the extraordinarily few hands required to work it, the largest in Europe, everything being done under the stage, no hands required aloft,—and the excellent arrangement of having, parallel with each wing, shafts with boxes which go from top to bottom of the house, thereby never causing the machinists to go upstairs. I conclude by saying to architects,—Get the plans of this theatre, and study them. There are two sets of plans published; but the large edition does not contain the stage machinery: it is the smaller one they must get, which gives all the details of the stage, and which costs but a few shillings.

ALPHONSE WARINGTON.

THE LABOUR QUESTION.

Maidstone.—A meeting of the United Carpenters' and Joiners' Association has been held here (about 100 present), including deputations from Rochester, Chatham, and Tunbridge. A resolution was passed requesting the Rochester operatives to memorialize their employers to meet a deputation, upon the subject of the rise in wages, which the master builders of Maidstone had consented to give, conditionally on the employers at other places in the county agreeing to the same terms.

Brighton.—At a large meeting of the house-painters, it has been unanimously resolved, in effect, that as they are inadequately paid, they do solicit the master-painters to advance their wages from 4s. to 4s. 6d. per day on and after the 6th May next.

St. Helier's (Jersey).—The house-carpenters here, in five establishments, have struck for an advance of wages from 2s. 6d. to 3s. 6d. a day. At a general meeting of house carpenters it has been resolved, according to the *Jersey Times*, to make the strike general, by all the carpenters (30 to 400) turning out, should the masters struck against refuse the advance. The Jersey carpenters' wages are said to be no higher than they were thirty years since, although living is one-third higher.

One carpenter at the meeting urged that eight hours a-day was long enough to labour.

Birmingham.—The "frying-pan finishers" here have struck against the "introduction of machinery" into their branch of trade.

Chester.—The employers have offered the masons 27s. per week for nine months of the year, and 25s. during the winter months; but they object to conceding the half-hour in the winter. The works at St. John's Church, the Queen's Hotel, and the alterations on the Roodee, have been partially suspended through the strike.

Darlington.—There is a strike at the Albert-hill Ironworks, the puddlers who remain in the town holding out against a reduction in their wages. The only men engaged in the works are a few fitters and millwrights.

Wolverhampton.—The painters, plumbers, and glaziers are upon strike. The men are unable to bring their masters to a decision on the subject of the disputed half-hour. Three of the masters are paying the advance of 1s., and have also granted the application of the men in respect of the ten hours, and as many more are paying the advance; but the rest of the employers decline to pay the advance, or make the required alteration in the time, till they have had an understanding amongst themselves. After waiting on the masters, the men (about fifty) unanimously determined not to resume work till the masters came to a decision on the question of the wages and the half-hour movement. The men deny that they have refused the 1s. a-day advance unless the reduction in time was also conceded.

Newcastle-upon-Tyne.—A crowded meeting of workmen connected with the building trades has been held here, for the purpose of hearing Mr. G. Potter, who maintained that there was more work done now in ten years than was done in twenty, fifty years ago; and that the immense increase in the production of work entitled the men to shorter hours of labour: they were no revolutionists, he urged: they asked for nothing but what the employers could give without interfering with their gains: with the exception of Carlisle, Newcastle was the only town that worked ten hours and a half a day. A resolution was passed, in which it was held that "sixty-one hours of labour a week is no longer necessary, chiefly on account of the introduction of machinery, and the increased skill of the workmen." In another resolution it was decided to "respectfully request the employers to grant a reduction of half an hour per day."

Inverness.—Some of the carpenters of Inverness have struck for an increase of wages. Those on strike chiefly belonged to the shop of Mr. Duff, who has the contract for the carpenter work at the Poor House, now being erected, and cannot at present do without men to carry on his work.

SPRING TIME.

ALREADY, after our long and severe winter, the hopeful and cheering spring is beginning to show its pleasant face. Even in the metropolis trees and shrubs, in the small but neat-looking gardens in front and at the rear of houses, are budding forth. In the great markets,—Covent-garden especially,—the supply of early flowers and plants is immense. In the dark courts of the poorest neighbourhoods primroses, hyacinths, snowdrops, and other flowers, are taken in cartloads, and arranged, by the costermongers and their wives, for sale amongst all classes. Strange is the contrast between these delicately tinted buds and the surrounding dark grey dinginess and general squalor. From these labyrinths of courts and alleys the active "costers" carry their wares into squares and fashionable streets, and also into those of far less note; and, although the voices of the sellers may not be always musical, they are cheering to those who know their purport; and the sweet simple plants which these peripatetic gardens display are most agreeable to the eye.

It is now that those who are fortunate enough to have a bit of garden-ground in some suburban district begin with diligence to consult the floral authorities. This is the harvest of seedsman, and many are the pleasing thoughts which are given in the busy city to these homely but cherished little gardens in the suburbs. It is becoming more than ever the practice, we observe, for clerks and other persons of limited income to seek suburban homes, as at Walworth and other places, not far from the heart of London, but where roses and lilies will still grow. In these neighbourhoods numerous houses, well drained, and at rents from 20l. to 25l. or less per annum, can be had, with neatly laid out plots of ground. These are the kinds of houses which might be so constructed as to be profitable

ART CONVERSATION IN THE CITY.—The Company of Ironmongers have announced a resolution to give a grand *Soirée* early in May, in their magnificent rooms, and to form for that occasion an extensive collection of Works of Art.

2. That the state of our knowledge of the physical condition and movements of the air in sewers and house drains is very defective, but that it is certain that, on the present condition of the drainage in every drain that is not air-tight, a current sets, during at least nine months in the year, towards the house.

3. That the fact is one of much greater sanitary importance than has hitherto been supposed; that it requires experimental investigation; and that, as from its seat it lies between the domain of the surveyor and that of the medical officer of health, it ought to be considered by them conjointly.

Dr. Sanderson supported these propositions by *a priori* reasoning, and by experimental observations and other facts. He exhibited an apparatus which he had contrived to gauge with the greatest accuracy the relative pressure of the air in the sewers and in houses, and the direction of currents of air in sewers.

Mr. Chadwick agreed in the main with Dr. Sanderson, but believed that we should not be satisfied with our sewers being sewers of deposit, as for the most part they now are in London, but that they should be so perfect as to carry off all feculent matters before there was time for decomposition to set in.

Dr. Gibbon and Dr. Chowne followed in the discussion.

Mr. R. Rawlinson believed that traps ought never to be relied on: he maintained that no drain or sewer should enter within the walls of any house. He said, that in many parts of London there were houses whose drains did not communicate with the sewer, although they were believed to do so, and there was a good sewer immediately in front of them. Carlisle was adduced as an instance of good sewerage. No man had entered the sewers to cleanse them since their establishment about six years ago, and Mr. Rawlinson stated that they were still in a clean state. Ventilating shafts were here used, and all the sewers were constructed on a uniform plan, and previously determined scheme.

Mr. Merry, surveyor of Paddington, then spoke, confirming Dr. Sanderson's experimental observations.

Mr. Thomson urged the great importance of the subject. He referred to the fact that sewer air did not usually contain sulphuretted hydrogen, but sulphide of ammonium, and was alkaline, favouring the growth of animal life. The air of dwelling-rooms, on the contrary, was usually acid, and favourable to the growth of low forms of vegetable life. He spoke of all brick drains as means of allowing sewer gases to enter houses. He did not agree with Mr. Rawlinson, but was favourable to good drains under houses, as they kept the basement dry. Dwellings in news were always charged with sewage gases, unless better ventilated and drained than most of them are at present.

Dr. Lankester spoke of the low forms of fungi produced in air and water which were likely to be injurious to health. He alluded to the bad arrangements for drainage in many modern houses, as sometimes no traps are placed between the sewer and the house: sometimes pipes were put down without cementing the joints properly. He alluded to the experiment being made in the City of ventilating sewers and placing charcoal filters at the outlets of the ventilating shafts. He maintained that we should not rest contented until sewers acted so well as not to require special means of ventilation. He related the case of an eminent literary man whose death was clearly caused by sewer gas entering a house from want of proper traps.

Mr. Burge, Mr. Lord, and Dr. Aldis followed, and confirmed what Dr. Lankester had said as to the negligence of builders in draining many modern houses, as it appeared to be no one's business to see that the conditions of building contracts were complied with.

Mr. Drault said that he was informed on good authority that paint became tarnished in London more readily now than a few years ago. Was this due to sulphur or carbon? Probably the former. He alluded to the existence of many old sewers, whose presence was not marked on any maps, nor known until discovered accidentally in excavations. He referred to the importance of spreading information on these topics in schools; also by sanitary tracts and lectures, referring especially with commendation to the labours of the "Ladies' Sanitary Association." He expressed a hope that the labours of the medical officers of health would be directed towards the getting of perfectly-acting sewers, the emanations from which could not be noxious.

Mr. Lovegrove, surveyor of Hackney, made a few remarks, and exhibited his patent traps, constructed with the view of preventing sewer air entering houses at the time water is flowing down

the house-drains. He called attention to the many practical difficulties attending the re-modelling of the entire sewerage of a place drained as London is, on so many different independent plans, and with so many very defective old sewers.

Mr. Chadwick said a few words, and read some propositions embodying his views. They were, however, too comprehensive to be considered by the meeting at a late hour of the discussion.

GIRDERS, BEAMS, AND LINTELS.

THE following remarks on the strength of materials have been deduced by Mr. Charles H. Haswell from the "Journal of the Franklin Institute" from the experiments of Barlow, Buchanan, Fairbairn, Hodgkinson, Stephenson, Major Wade, and others.

The *transverse or lateral strength of any girder, beam, bressummer, lintel, &c.*, is in proportion to the product of its breadth and the square of its depth, and also to the area of its cross section.

The best form of section for cast-iron girders or beams, &c., is deduced from the experiments of Mr. E. Hodgkinson, and such as have this form of section (I.) are known as Hodgkinson's.

The rule deduced from his experiments, directs as follows:—area of bottom flanch, six times that of the top flanch. Flanches connected by a thin vertical web, only sufficiently thick to have the requisite lateral stiffness, and tapering both upwards and downwards from the neutral axis; and in order to set aside the risk of an imperfect casting, by any great disproportion between the web and the flanches, it should be tapered so as to connect with them with a thickness corresponding to that of the flanch.

When girders are subjected to impulses, and are used to sustain vibrating loads, as in bridges, &c., the best proportion between the top and bottom flanch, is as one to four, as a general rule, they should be as narrow and deep as practicable, and should never be deflected to more than one five-hundredth of their length.

In public halls, churches, and buildings where the weight of people alone is to be provided for, an estimate of 175 pounds per square foot of floor surface is sufficient to provide for the weight of flooring and the load upon it.

In store-houses and factories, the weight to be provided for, should be estimated at that, which may at any time be placed thereon, or which at any time may bear upon any portion of their floors: the usual allowance, however, is for a weight of 280 pounds per square foot of floor surface.

In all uses, such as in buildings and bridges, where the structure is exposed to sudden impulses, the load or stress to be sustained should not exceed from one-fifth to one-sixth of the breaking weight of the material employed, but when the load is uniform or quiescent, it may be increased to one-third and one-fourth of the breaking weight.

An open web girder or beam, &c. is to be estimated in its resistance on the same principle as if it had a solid web. In cast metals, allowance is to be made for the loss of strength due to the unequal contraction in cooling of the web and flanches.

In cast iron, the mean resistance to crushing or compression and extension, are as 5.5 to 1, and in wrought iron, as 12 to 23; hence the mass of metal below the neutral axis, will be greatest in these proportions, when the stress is intermediate between the ends or supports of the guides, &c.

Wooden girders or beams, when sawed in two or more pieces, and slips are set between them, and the whole bolted together are made stiffer by the operation and are rendered less liable to decay.

Girders cast with a face up are stronger than when cast on a side, in the proportion of 1 to .959, and they are strongest also when cast with the broadest flanch up.

The following results of the resistances of metals will show how the material should be distributed, in order to obtain the maximum of strength with the minimum of material:—

	To Tension.	To Crushing.
Wrought iron	23 tons	12 tons
Copper	16 "	3 "
Cast iron	8 "	51 "
	8 "	37 "

Hence, in a wrought-iron beam, the upper flanch should be as 23 to 12, or 2 to 1.

The best iron has the greatest tensile strength, and the least compressive or crushing.

The relative strength of girders or beams, cast

vertical or horizontal, is as 536 to 514, or as 1 to .96.

The outline of a girder or beam, both in depth and width of bottom flanch, may be reduced from the required dimensions in the middle, or at the end, as the case may be, at points intermediate between the centre and supports, or end and fulcrum, to correspond to the weight or stress to be borne.

When the top flanch, the thickness of the web, the length and the depth are unaltered, the web being thin, the strength of the girder or beam is nearly in proportion to the area of the bottom flanch. (See "Inquiry of Samuel Hughes, C.E. &c." *Artisan*, pp. 148-9.)

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The outline of their top, bottom, and sides should be a curve of various forms, according as the breadth throughout is equal, or the depth throughout is equal, and as the girder or beam is loaded only at one end, or in the middle, or uniformly throughout.

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The depth being uniform: The section at every point must be in proportion to the product of the length, breadth, and square of the depth, and as the square of the depth is in every point the same, the breadth must vary directly as the length; consequently, each side of the beam must be a vertical plane, tapering gradually to the end.

2. When the breadth is uniform throughout the entire length.

The breadth being uniform: The depth must vary as the square root of the length; hence the upper or lower sides, or both, must be determined by a parabolic curve.

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The beam, therefore, may be considered as one of half the length, the supported end corresponding with the free end in the case of beams one end being fixed, and the middle of the beams similarly correspond with the fixed end.

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The depth being equal: the breadth must be in the ratio of the length.

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When the girder or beam is supported at both ends, and loaded uniformly throughout its length.

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The depth being uniform: the breadth will be as the product of the length of the beam, and the length of it on one side of the given point, less the square of the length on one side of the given point.

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Fairbairn shows in his experiments that with a stress of about 12,320 lbs. per square inch on cast iron, and 28,000 lbs. on wrought iron, the sets and elongations are nearly equal to each other.

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Hence, Beams of cast iron should be made capable of bearing more than six times the greatest weight which will be laid upon them.

In wrought-iron beams, the upper flanch should be larger than the lower, in the ratio of 2 to 1. The breaking weights in similar beams are to each other as the squares of their like linear dimensions. That is, the breaking weights of beams are found by multiplying together the area of their section, their depth, and a constant, determined from experiment on beams of the particular form under investigation, and dividing the product by the distance between the supports.

Cast and wrought iron beams, having similar resistances, have weights nearly as 2-4-4 to 1.

The range of the comparative strength of girders, of the same depth, having a top and bottom flanch, and those having bottom flanch alone, is from having but a little area of bottom flanch to a large proportion of it, from less than one-half to one-quarter greater strength.

A box beam, or girder, constructed of plates of wrought-iron, compared to a single rib and flanch beam \square , of equal weights, has a resistance as 100 to 93.

The resistance of beams, or girders, where the depth is greater than their breadth, when supported at top, is much increased. In some cases, the difference is fully one-third.

When a beam is of equal thickness throughout its depth, the curve should be an ellipse, to enable it to support a uniform load with equal resistance in every part; and if the beam is an open one, the curve of equilibrium, for a uniform load, should be that of a parabola. Hence, when the middle portion is not wholly removed, the curve should be a compound of an ellipse and a parabola, approaching nearer to the latter as the middle part is decreased.

Girders of cast iron, up to a span of 40 feet, are cheaper than of wrought iron.

Cast-iron beams and girders should not be loaded to exceed one-fifth of their breaking weight, and when the strain is attended with concussion and vibration, this proportion must be increased, and they should not be subjected to a deflection exceeding the 150ths of their length, or to a test much exceeding the greatest stress to which they are to be subjected.

Simple cast-iron girders may be made 50 feet in length, and the best form is that of Hodgkinson: when subjected to a fixed load, the flanch should be as 1 to 6; and when to a concussion, &c., as 1 to 4.

The forms of girders for spaces exceeding the limit of those of simple cast-iron, are various; the principal ones adopted are those of the straight or arched cast-iron girders in separate pieces and bolted together, the trussed, the bow-string, and the wrought-iron box and tubular.

The straight or arched girder is formed of separate castings, and is entirely dependent upon the bolts of connection for its strength.

The trussed or bow-string girder is made of separate castings on a single piece, and its strength depends, other than upon the depth or area of it, upon the proper adjustment of the tension or initial strain upon the wrought-iron truss.

The box or tubular girders are made of wrought-iron, and are best constructed with cast-iron tops, in order the best to resist compression: this form of girder is best adapted to afford lateral stiffness.

ART CONVERSATION IN THE CITY.—The Company of Ironmongers have announced a resolution to give a grand *Souée* early in May, in their magnificent rooms, and to form for that occasion an extensive collection of Works of Art.

THEATRICAL STAGE ARRANGEMENTS AND MACHINERY.

YOUR late remarks on theatres have chiefly had reference to the *salle* part of the house, and not the stage. True as they were, it is the stage which chiefly concerns us in England. Now it will seem curious; but I simply and plainly state that every single stage in London, old or new, is bad,—utterly bad,—a disgrace to a mechanical nation like the English. It is a miracle how Mr. Beverley gets out his marvellous effects with such wretched machinery. The arrangement, too, is so bad: the dressing-rooms ought all to be around the stage, on a level with it: there ought to be no draughts of wind. Architects must remember singers' throats are tender things. What will your readers say to the dressing-room of the ladies of the ballet being at the top of the house, some hundred steps to go up? This is in a new theatre in London, not far from your office. I should like to see the architect dance a *pas de quatre* after ascending and descending a hundred steps; and this he has made ladies—the weaker sex—do. The tailors' room is at the top of the house, and baskets have to be sent up and down by machinery, which takes some five minutes. This arrangement again is very extraordinary. I should say the architect had not been in the habit of attending rehearsals, or he would have known better. But it is under the stage you see the miserable, contemptible mechanism of an English theatre: it is there you see the filth of an English theatre: it is there you see every kind of incumbrance, instead of clear space. It is really lamentable, sickening, to see an English stage after being accustomed to Germany. In Munich the cellars underneath the stage are as clean as our drawing-rooms, and the lofts above are like a man-of-war in regard to order,—ropes coiled, hatchets hung on numbered pegs, and the whole put me strongly in mind of one of our first-rate ships. In Munich, too, is a machine which tells if the fire watchmen have continually visited the different parts of the house at the stated hours of the day and night. This is of a clock-like form, and kept locked up, only to be looked at by the *regisseur*, but which has wires to different parts of the stage and lofts, &c., and there the watchmen must visit, which ensures regularity. It is no good going to Paris or to Italy to see theatres: you must go to Germany,—go and see Mr. Mühlendorfer at Mannheim, the inventor of flat stages,—see his theatre: he is the most celebrated theatrical machinist in Europe. Go to Hanover, Brunswick, but, above all, study the Victoria Theatre at Berlin. There is an exquisite simplicity and perfection in the stage machinery of this theatre, the extraordinarily few hands required to work it, the largest in Europe, everything being done under the stage, no hands required aloft,—and the excellent arrangement of having, parallel with each wing, shafts with boxes which go from top to bottom of the house, thereby never causing the machinists to go upstairs. I conclude by saying to architects,—Get the plans of this theatre, and study them. There are two sets of plans published; but the large edition does not contain the stage machinery: it is the smaller one they must get, which gives all the details of the stage, and which costs but a few shillings.

ALPHONSE WARINGTON.

THE LABOUR QUESTION.

Maidstone.—A meeting of the United Carpenters' and Joiners' Association has been held here (about 100 present), including deputations from Rochester, Chatham, and Tunbridge. A resolution was passed requesting the Rochester operatives to memorialize their employers to meet a deputation, upon the subject of the rise in wages, which the master builders of Maidstone had consented to give, conditionally on the employers at other places in the county agreeing to the same terms.

Brighton.—At a large meeting of the house-painters, it has been unanimously resolved, in effect, that as they are inadequately paid, they do solicit the master-painters to advance their wages from 4s. to 4s. 6d. per day on and after the 6th May next.

St. Helier's (Jersey).—The house-carpenters here, in five establishments, have struck for an advance of wages from 2s. 6d. to 3s. 6d. a day. At a general meeting of house-carpenters it has been resolved, according to the *Jersey Times*, to make the strike general, by all the carpenters (30 to 400) turning out, should the masters struck against refuse the advance. The Jersey carpenters' wages are said to be no higher than they were thirty years since, although living is one-third higher.

One carpenter at the meeting urged that eight hours a-day was long enough to labour.

Birmingham.—The "frying-pan finishers" here have struck against the "introduction of machinery" into their branch of trade.

Chester.—The employers have offered the masons 27s. per week for nine months of the year, and 25s. during the winter months; but they object to conceding the half-hour in the winter. The works at St. John's Church, the Queen's Hotel, and the alterations on the Roddee, have been partially suspended through the strike.

Dartington.—There is a strike at the Albert-hill Ironworks, the puddlers who remain in the town holding out against a reduction in their wages. The only men engaged in the works are a few fitters and millwrights.

Wolverhampton.—The painters, plumbers, and glaziers are upon strike. The men are unable to bring their masters to a decision on the subject of the disputed half-hour. Three of the masters are paying the advance of 1s., and have also granted the application of the men in respect of the ten hours, and as many more are paying the advance; but the rest of the employers decline to pay the advance, or make the required alteration in the time, till they have had an understanding amongst themselves. After waiting on the masters, the men (about fifty) unanimously determined not to resume work till the masters came to a decision on the question of the wages and the half-hour movement. The men deny that they have refused the 1s. a-day advance unless the reduction in time was also conceded.

Newcastle-upon-Tyne.—A crowded meeting of workmen connected with the building trades has been held here, for the purpose of hearing Mr. G. Potter, who maintained that there was more work done now in ten years than was done in twenty, fifty years ago; and that the immense increase in the production of work entitled the men to shorter hours of labour: they were no revolutionists, he urged: they asked for nothing but what the employers could give without interfering with their gains: with the exception of Carlisle, Newcastle was the only town that worked ten hours and a half a day. A resolution was passed, in which it was held that "sixty-one hours of labour a week is no longer necessary, chiefly on account of the introduction of machinery, and the increased skill of the workmen." In another resolution it was decided to "respectfully request the employers to grant a reduction of half an hour per day."

Inverness.—Some of the carpenters of Inverness have struck for an increase of wages. Those on strike chiefly belonged to the shop of Mr. Duff, who has the contract for the carpenter work at the Poor House, now being erected, and cannot at present do without men to carry on his work.

SPRING TIME.

ALREADY, after our long and severe winter, the hopeful and cheering spring is beginning to show its pleasant face. Even in the metropolis trees and shrubs, in the small but neat-looking gardens in front and at the rear of houses, are budding forth. In the great markets,—Covent-garden especially,—the supply of early flowers and plants is immense. In the dark courts of the poorest neighbourhoods primroses, hyacinths, snowdrops, and other flowers, are taken in cartloads, and arranged, by the costermongers and their wives, for sale amongst all classes. Strange is the contrast between these delicately tinted buds and the surrounding dark grey dinginess and general squalor. From these labyrinths of courts and alleys the active "costers" carry their wares into squares and fashionable streets, and also into those of far less note; and, although the voices of the sellers may not be always musical, they are cheering to those who know their purport; and the sweet simple plants which these peripatetic gardens display are most agreeable to the eye.

It is now that those who are fortunate enough to have a bit of garden-ground in some suburban district begin with diligence to consult the floral authorities. This is the harvest of seedsmen, and many are the pleasing thoughts which are given in the busy city to these homely but cherished little gardens in the suburbs. It is becoming more than ever the practice, we observe, for clerks and other persons of limited income to seek suburban homes, as at Walworth and other places, not far from the heart of London, but where roses and lilies will still grow. In these neighbourhoods numerous houses, well drained, and at rents from 20l. to 25l. or less per annum, can be had, with neatly laid out plots of ground. These are the kinds of houses which might be so constructed as to be profitable

to many of the working class of the community; and there are thousands of those in the metropolis who would gladly pay at the rate of from 12s. to 15s. per annum for decent accommodation in them for families. In such districts we are glad to hear of local flower shows and gardening clubs.

In the centres of the squares, in the Temple and Inns-of-law gardens, and the parks, those in care of them are actively engaged; and already bright green blades are beginning to change the smoky withered tint of the metropolitan grass plots into vivid green.

Here and there, in various localities, picturesque but ragged figures may be seen loaded with young shoots of ivy and other creeping plants and flowers gathered from the woods and hedge-rows which surround London. So artistic sometimes are the attitudes of these rural wanderers and the arrangements of their simple merchandise, that one cannot but think that, but for circumstances, they might have been likely occasionally to have distinguished themselves amongst the contributors to the Royal Academy and other similar exhibitions.

In the dark and dismal courts, and in all poor neighbourhoods, the bright glimpses of sunshine cause the children to swarm out like bees; and now is the time for those who wonder at, but cannot yet understand, the causes of the vast mortality amongst the poor, to look around and see the density of the population which a spring day tempts from dark rooms and dilapidated tenements. Dying as is the general aspect of these living pictures, however, we are glad to note that there are a greater number of cleanly-faced and cleanly-clad children to be met with than in years past; and that, in places where no such sounds formerly reached the ear, groups of little boys and girls may be heard merrily singing the ragged-school songs and marching and dancing with glee, notwithstanding the dismal blackish-red and smoky walls and broken patched windows, the unpleasant gutters and roadways, and other neglects. It is saddening, however, to think that in the crowded portions of the metropolis so little opportunity is available for the healthful recreation of those pent-up children within the precincts of the City. From the back slums, in spite of the terrors of beadsles, children and those in care of them, venture into the open spaces which surround the greenery of Lincoln's Inn-fields and Gray's Inn; but we have long wished that the green parts themselves of these Inns should be thrown open to the public at certain times of the day and evening during the summer months. The Temple Gardens have for some time past been accessible on the week days during both winter and summer; and in summer, during the Sunday afternoons and evenings, thousands of persons have visited them, and no complaints, so far as we learn, have been made by students or other dwellers in the precincts of the Temple. Indeed we are assured, both from personal observation and from the report of Mr. Broome, the gardener, that the greatest order has been observed, and not the least damage done in any way.

In the course of a few weeks the chief parts of London themselves will be gay with native as well as peripatetic flowers and greenery. Trees will burst into bloom about Cheapside, St. Paul's Churchyard, the Bank of England; and, in many an out-of-the-way nook,—on house-tops,—at windows of various heights,—and under other and still more desperate circumstances, attempts are made to rear and cherish glimpses, however fleeting, of floral and vegetable life.

The past year, moist and unsunned as was the summer, has been remarkable for the excellence of the health of the population, not only of this but of several other countries. This circumstance, however, should not induce us to neglect using the most vigorous sanitary exertions: on the contrary, such another year is not perhaps to be expected; and it is now well known that the real cause of the improved health in towns was the diminished effluvia from decaying organic matter not exposed so much to heat and sunshine as usual, and washed away more freely by the perpetual rains. Now is the time for seeing to various sanitary improvements: drains should be examined, for great damage has been done to many by the late severe frosts: all unwholesome accumulations, so far as this can be managed, should be removed, both from towns and villages; and if the sanitary inspectors of metropolitan districts would look actively about just now, great advantage to the public health would be experienced during the approaching summer. We know that in many parts the dust contractors require to be looked after, and made to perform their duty pro-

perly. It would be found on inquiry that, in some parishes, there are streets which have not been visited by the dustmen for six weeks or two months; and the neglected localities are precisely those which require the greatest care. The aggrieved in most cases say that it is of no use speaking to the dustmen, and that generally a civil request for them to attend when necessary is only met by coarse and abusive language, unless a bribe for "beer" be offered. Those streets in which what the men call "money for a drop of beer" is collected in the greatest quantities, are well scavenged, to the neglect of those occupied by less prosperous or free-handed persons. Our readers know that this is the result of the bad plan of allowing the dustmen to be paid chiefly by the pence gathered as "beer money" instead of by a sufficient price per load for the collection and deposit of the ashes to be removed. For the neglect, neither the dust contractors nor their men are so blameable as parish boards of management are for suffering such a system to continue. The additional expense of a better one to the inhabitants would be comparatively a trifle. At any rate, in the present circumstances, the parish authorities should see that the dustmen do what is necessary in the poorest localities; and men refusing to do their duty, or guilty of the use of abusive language, should be at once dismissed.

The budding trees causes many thousands of Londoners to direct their thoughts to various seaside and rural summer haunts; and the dwellers in these places are looking anxiously for visitors. Let us hint to the latter that the most sure means of attracting visitors and obtaining profit, is to set their towns, villages, and houses in order. Sanitary knowledge is rapidly advancing; and those places which are best arranged for the purposes of health will be sure now to attract the greatest numbers. In such places, the present month of spring is a good time in which to do much useful work.

WORKHOUSE CHILDREN.

ONE would expect that where thousands of orphan and other children are reared by the Poor-law guardians, one of the most prominent principles, carefully and sedulously instilled into their young and plastic minds, would be a spirit of industrious self-dependence and moral rectitude, which would lead them in after life to do their utmost to earn an honest and honourable livelihood for themselves and their families, so as to relieve the public and the workhouses of an otherwise perpetual burden. The Poor-law authorities are ready enough to rid themselves of clamorous candidates for a night's lodging in the workhouses, or a loaf of bread at their doors, by brutal repulsion; but have they ever tried this very obvious and effectual, legitimate and proper, mode of ridding the country of the burden of sustaining the children and the children's children of the disabled and deceased poor? or are the education and the moral training of pauper children such as to produce and keep up a self-generating system of pauperism? The report of the Education Commission virtually settles this question, in the sad account which it gives of the condition of the workhouse children. From this report it is but too evident that workhouse influences have a very marked tendency to produce, promote, and establish a feeling of helplessness, and to utterly prevent the growth of independence of character. An assistant-commissioner remarks that it is difficult to convey a definite idea of a child brought up from its infancy in the workhouse. Listless and subservient in manner, they seem to be broken down by misfortune before they have entered upon life. Such a child is content to spend its days in a workhouse. The commissioner says:—"Some of the tradesmen who had taken union boys as apprentices told me that it took several years before they acquired [under the tradesmen's training] be it noted,—not under that of the workhouse], the desire for independence—the wish to earn their own bread." Boys who have never been accustomed to handle a spade, and girls who have never had to scrub the floors, rebel when they are put to such work. On the other hand, association with older paupers for industrial training tends the more to corrupt them. "It seems impossible to exaggerate the spirit of lying, low cunning, laziness, insubordination, and profligacy which characterizes the pauper-class in workhouses; and this spirit naturally infects the mass of poor children who are bred up in so pestilential an atmosphere." The case is even more hopeless with the girls than with the boys. A good schoolmistress said, "She felt she was training up girls for a life of

vice and infamy." Now, there is a known remedy for this sad state of things,—the establishment of district or separate schools at a distance from the workhouses, withdrawing the children entirely from the adults, and from bad parental influence. Such schools, where established, have had the most remarkable and striking success. The object kept in view is to emancipate the children from pauperism, teach them not to become paupers themselves, and open a better life to them; and these schools offer the best prospect of a permanent diminution of pauperism and crime. But the guardians seem to be unwilling to establish them: in 1859 there were only 7,000 children in them, and 37,000 in the workhouses. There seems to be no resource but by the Legislature interposing to close this fountain of evil.

CHAPEL BUILDING AT IPSWICH.

THERE are few towns in England which have done so much towards a reconstruction of their public buildings as has been done by the capital town of the agricultural county of Suffolk. It has considerably more than doubled its population in the present century, and such an increase has of course been followed by great changes in the outward appearance of the town. In some places, street after street now occupies ground that within a quarter of a century was under the plough; and on all sides of the town there are whole colonies of suburban villas, representing every shade of architectural taste, and in some cases displaying in no slight degree the want of it, where within the recollection of even young men, nothing but the green fields, the stacks, and other characteristics of an agricultural neighbourhood met the eye. At one point a wet dock has been constructed which encloses a superficial area of some thirty acres of water. At another, some green marshy pasture lands have been raised some three or four feet and built upon. The new railway station occupies a site that twenty years ago afforded to the melancholy hypochondriac the most secluded, not to say the most solitary, walk in the neighbourhood of Ipswich. In other directions, a new market-place, a cemetery, an estate allotted under the auspices of the Freehold Land Society and built upon by the different allottees, together with the works and manufactories of private speculators, have so thoroughly changed the appearance of the outskirts of the town, that a man who has lived all his life upon the spot can hardly recognize the places that were most familiar to him as a boy. Side by side with this external changing and extension there has been a steady work of reconstruction going on in the town. There is hardly a public building which has not been pulled down and rebuilt within a period of fifteen or sixteen years. We cannot say that this remodelling has always been conducted in such a manner as to make the new building an improvement upon the old one which it displaced; but a step in the right direction has certainly been taken by the Dissenters during the last three or four years, and Ipswich can now boast of one or two handsome chapels. It is not more than three years since that the principal Independent congregation in the town pulled down their ugly old square box of a chapel, which was built at a time when Nonconformists had enough to do to hold themselves together and raise a place of worship at all, and replaced it with a handsome building in the style of architecture which prevailed in the time of Edward III. The Wesleyans and the Roman Catholics followed this example; and two chapels for the use of these denominations have been in course of construction during the last few months. The Wesleyans opened their chapel a few days ago. It is, like most provincial buildings, rather low; and it is so situated that only one front is to be seen from the street. Upon this one front a good deal of ornament has been laid; and it breaks the prime line of white-bricked fronts in the street effectively. In style it is rather more than half a century earlier than the Independent Chapel, and it is wrought in Kentish rag with Caen stone dressings. The galleries are reached from the outside, and the stone staircases are prominent and effective features. The Roman Catholic Chapel is not yet opened, but it is nearly completed, and the opening services will be celebrated in the course of a few weeks. It is a building of more stately proportions than either of the others we have mentioned. It does not possess a commanding site; and that is, perhaps, fortunate, for it will not bear a very close scrutiny. There is a great show of dead wall about the building, and the large, heavy wheel windows of the earlier Transition period from Early English to Decorated, placed high up in the walls, give the whole

building a sombre appearance. The roof is of a deep pitch, and slated; but the intolerable monotony of the broad smooth surface is broken by a spiral of no great altitude, and certainly by no means proportioned to the huge, barn-like building beneath it. In addition to these chapels, another was opened on Wednesday for the use of a new congregation of Baptists. This, however, is after the old "Ebenezer" pattern, so much approved by the Dissenters of half a century since; and, except in one respect, has none of the more modern architectural heresies about it. This exception is a portico, which is dabbled against the building without much regard for congruity; as if the building committee, finding that the funds at their disposal were not quite exhausted when the plain building was finished, had resolved to expend a few pounds upon a Greek portico. On the whole, however, the Dissenters of Ipswich deserve the thanks of their townsmen, for what they have done in this respect.

KING'S COLLEGE CHAPEL.

THE oak roof on this building is much decayed. Under the direction of Mr. G. G. Scott, workmen have been employed for some time past in restoring it. As further examination gets made by ripping up the lead covering, the decay in the plates and principal timbers is found to be of such a serious nature, that a restoration, almost amounting to a renewal, is deemed necessary. Mr. Scott proposes to make the new work a *fac-simile* of the old, with some few modifications that will give increased strength.

Although the dead weight of this massive roof upon the walls is of great structural value, by acting as a counterpoise to the thrust of the vaulting; one of the fellows of the college has urged the construction of an iron roof, such as is used upon railway stations, or similar to that now figuring the Royal Exchange.

PROTESTANT HALL, CORK.

A BUILDING under this title has been opened in Cork. The body of the hall is 100 feet in length, by 45 feet in breadth, and 36 feet in height. It is lighted by fifteen windows, six being at each side, and three at the northern end. These windows are each 15 feet in height and 6 feet in width, semicircular headed, with a moulded transom, supported by a slender column with carved capital, which divides the window into two. The centre of the ceiling is flat, with a cove all round. The decoration of the walls consists of fluted Corinthian pilasters resting upon pedestals. These pilasters are coupled, and support an entablature, which is continued all round the building.

At the southern end is placed the orchestra or platform,—for it is designed to answer both purposes. It is 25 feet in depth, and runs the entire breadth of the hall. The centre of it projects in a segmental sweep into the body of the building. This portion of it is flat. The remainder consists of tiers of seats, curved, and rising one over another, and affording ample accommodation for a large number of performers as an orchestra, or can be occupied by the audience during lectures and meetings.

The principal approach to the building will be from the South Mall, the present arrangement being but of a temporary nature.

Between the South Mall and the hall as it now stands there is an open space; and the plans of the architect, Mr. R. R. Brash, embrace the erection on it of a block of buildings with a front facing the Mall, and having a reading-room, a lecture-room, 50 feet by 20 feet, and committee-rooms for the various religious associations.

The works have been executed by Mr. John Harty, builder.

ARCHITECTURAL INSTITUTE OF SCOTLAND.

A MEETING of the Architectural Institute of Scotland was held in the Institute's Rooms, George-street, Edinburgh, on the evening of Monday, the 8th; Mr. Peddie, architect, in the chair. A communication was read from the Architectural Association, London, regarding the Exhibition of 1862, which set forth the benefits to be derived from having the architectural branch of art fully represented at the Exhibition. The subject was remitted to the council, with a recommendation to take what steps seemed to them right to promote this object. Mr. John Lessels, architect, read a paper entitled, "An Inquiry as to the true Principles for our Guidance in the Restoration of Old Buildings." The general

views of Mr. Lessels, as set forth in his paper, were, that if one would be an honest restorer, he should be content to follow closely the steps of the original designer, not only in the spirit but in the letter; preserving its architectural character as closely as possible; adding nothing and taking nothing away. Mr. Lessels remarked that much discussion had lately taken place regarding the restoration of the Old Cross of Edinburgh; but, if we might form a correct idea of this structure from the description and engraving given by Arnott, he thought we might be grateful that we were spared the trouble of its removal, for a greater piece of barbarism could hardly be conceived to have existed. If we were to have a cross, there could not be any reasonable objection to taking the shaft and placing it on a few steps to raise it sufficiently above the street, as, in so doing, we would not be violating any principle; but to restore anything more would be a perfect degradation. If the wants of the town really demanded a cross, with a gallery for proclamations, let it be done, and have the rest entirely new; but they should not trammel architecture with old materials which are unfit for the purpose.

WESTMINSTER STREET RAILWAY.

ON Monday last Mr. G. F. Train opened his second instalment of a line, running from Victoria Station to Westminster Abbey, a length of about a mile. In a few days another line will be commenced from Westminster-bridge to Kennington-oval; and as it will probably not be difficult to take the Westminster cars across Westminster-bridge, where tramways already exist, the public will then get a useful line of some length. The vestry of Islington we are glad to see, have given Mr. Train permission to lay down his railway from the end of King-street, Lower-road, to the bridge in New North-road. The stage-coach proprietors are organizing an opposition. It would be much wiser if they were to aid the improvement. By increasing the facilities for riding, the number of riders will be increased.

THE INDUSTRIAL SCHOOL IN TITCHBORNE COURT.

THE first report of the West Central Day Industrial School in Titchborne Court, near Great Turnstile, Lincoln's Inn Fields, has been issued in a printed form. From this report it appears that forty-two boys have been already more or less benefited by this institution, and that sixteen are at work in the school, which does not occupy the place of either a reformatory or a refuge, being merely a day industrial school, and a supplement to the various ragged schools in its neighbourhood. It is a pity that one of the greatest difficulties which the managers of this useful institution have had to encounter has been that of obtaining instructive and profitable work for the boys. As it is, various things have been tried; but, for some time, the mere making of paper bags for grocers, bakers, and other tradesmen, seems to have been the staple manufacture of the school; and though useful in its own humble way, such work cannot be very profitable or self-supporting. The managers are naturally urgent in their solicitations for aid from the public, and we hope that they will be successful both in this and in their own charitable endeavours.

IRELAND.

ON the 16th of last month (March), the foundations of a new church were laid at Tullylish, co. Down. The style is to be that of the thirteenth century. The building is to be 90 feet by 40 feet, with a chancel 24 feet by 16 feet, with a north transept and north and south entrance-porches. There is also to be a tower, having a handsome slated roof, with ornamented ridge and finials. It is to stand at the south-west angle of the building, and to contain the stairs to the gallery of the church. The entrance to the bell-ringers' loft will be by an octagonal turret projected from the tower. The church will be finished with an open roof. All the woodwork is to be executed in Memel, stained and varnished. Messrs. Welland & Gillespie are the architects; and Mr. James Henry, of Belfast, the builder.

The Messrs. Fulton, builders, claim the sum of 16,709*l.* for the erection, &c., of the new Ulster Bank in Belfast. The directors admit 13,261*l.*, objecting to the difference, 3,448*l.* The disputed claim was brought into the Court of Common Pleas, and Judge Keogh sent the whole matter to be decided by arbitration. The arbitrators ap-

pointed are Messrs. Baird & Lanyon, architects, and Mr. Crawford, barrister, as legal arbitrator, who have now been engaged several weeks in investigating the claims of the Messrs. Fulton.

Iron Ship-building in Belfast.—Mr. E. J. Harland, of Queen's Island ship-building Yard, has built and launched during the last two years seven screw steamers, all for the Messrs. John Belby & Sons, Liverpool. The aggregate registered tonnage of these is 8,500 tons, with a steam power of 1,250 horses. He has also launched an iron sailing-vessel for the Messrs. Corry & Co., of Belfast. Mr. Harland employs at present 1,450 persons. 1,000 of them are skilled workmen: about 100 are apprentices; and the remainder labourers. Three powerful steam engines give their aid in the various operations of punching, drilling, shearing, plate-bending, forge-blowing, sawing, &c.

GAS.

THE Committee of the Oxford Gas-light and Coke Company have announced that, from and after the 25th of March last, the price of gas will be reduced to 4*s.* 6*d.* per thousand cubic feet. The directors of the Sheffield United Gas-light Company have issued their report, recommending the usual maximum dividend, with surplus to reserve fund. The profits for the half-year (not affected by the reduction in price which came into operation last January) are 13,634*l.* 2*s.*, and the dividend, after the rate of 10 per cent. per annum on 135,000*l.*, class A stock, is 6,750*l.*; dividend, after the rate of 8 per cent. per annum on the remaining stock, 3,514*l.*, making 10,264*l.*, and leaving a surplus of 3,099*l.*, raising the reserve fund (with interest) to 10,168*l.*—Tenders for excavating a tank, building piers, boundary walls, &c., for the Doncaster Gas-works, have been opened. Offers, says a local paper, were made by highly respectable contractors from Leeds, Dewsbury, Hull, Scarborough, Doncaster, &c.; and, with one exception, the tenders were satisfactory. Between the highest estimate and the lowest there was a difference of 2,070*l.* 0*s.* 2*d.* The choice fell upon Mr. W. Cawood, of Scarborough. The committee, considering that the unsuccessful competitors had been put to much inconvenience, unanimously awarded towards their expense the sum of three guineas.—The gas companies in Glasgow have informed the Lord Provost that they are prepared to reduce the price of gas to the citizens from 5*s.* to 4*s.* 7*d.* per 1,000 cubic feet. The gas companies have taken this step in consequence of some members of the Council advocating the propriety of having a new company.—The use of gas is now becoming general in the river and bay steamers at New York. The Commonwealth, on the Stoning and Boston line, has had 260 burners fitted up. The cost of so many lights for the voyage is about 16*s.*; the quantity of gas used 1,400 feet.

CHURCH-BUILDING NEWS.

Horncastle.—St. Mary's Church, Horncastle, Lincolnshire, has been restored and re-opened. The chancel has been nearly all rebuilt, and the internal fittings are new, the expense being defrayed by the lay rector, J. B. Stanhope, esq., M.P. The exterior stonework has also been restored throughout, a portion of the tower being pulled down and rebuilt, and the whole has been pricked up and re-pointed. The north porch has been rebuilt. The galleries which filled the aisles have all been removed, as well as the old high-sided square pews, and the nave and aisles have been covered with open oak benches. In the tower, a framework of wood, upon which the bells were supported, has been removed, and a chamber erected above, in which the bells are rung. The space in the tower is now raised about two steps above the level of the floor of the nave, and is filled with benches, which will hold about sixty. The lancet windows in the west side of the tower have been lengthened. The roof of the nave, which is of oak, and was formerly hidden by a flat ceiling, has been opened out and restored: the roofs of the aisles have also been restored. The windows in the north aisle of the nave are new, in the Perpendicular style, those on the north side being filled with opaque glass. The chancel has, if possible, been more completely transformed than the rest of the building; and various other and minor alterations have been effected. The total cost of the works has been 3,800*l.* The church will seat 650 persons. Mr. E. Christian was the architect employed; and the contractors were Messrs. Lee & Ashton, of Retford.

Topcroft (Norfolk).—The church of St. Margaret, Topcroft, was re-opened on the 11th inst.

A new chancel arch has been put in, and a new window in the north of nave. The plaster has been scraped off the old stonework, which has been repaired throughout. The roof of the nave, aisle, and south porch are entirely new, open timbered and stained. The old box-pews have been removed, and the area filled with low open benches, giving fifty-two additional sittings. The windows have been replaced with Hartley's rough cathedral glass. This church is peculiar in having diminishing walls. At the chancel arch, too, the old building is 16 inches wider than at the west end of the nave. The works have been carried out by Messrs. Godbolt & Sons, of Brockdish, Norfolk, under the directions of Messrs. Benest & Newson, Norwich, architects. The cost of the restoration has been between 600*l.* and 700*l.*

Nevenodon (Essex).—The little village church of Nevenodon has been restored. By removing the plaster, the old roof has been thrown open. The gallery has been removed, and the church entirely new seated, and all the windows restored in new stone. The four windows in the sides of the chancel and the east window are filled with stained glass, and the other windows in the nave have stained glass borders. Some further works remain to complete the whole, externally, which it is hoped will be done. The restoration has been chiefly at the expense of the Rector, and under the direction of Mr. Peacock, architect, and has been done gradually.

Takeley (Chelmsford).—The interior of the parish church has been restored. Old pews have been replaced by benches. The floor is laid with encaustic tiles. The pillars have been cleaned, cleared, and restored, and the walls cleaned and renovated with stucco. A solid oak door has been placed between the nave and the porch: the windows in the latter are restored; the porch repaired, and the rafters stained. The east stained-glass window has been renovated as a memorial to the late Mrs. G. C. Tufnell. The centre compartment has the Ascension, below it the Crucifixion; the north compartment the Agony, below it the Nativity; the south compartment the Burial, below it the Scourging. The other window on the south side of the chancel is a memorial to two children of the Rev. Sir Charles Clarke, formerly vicar of Takeley. It is a Gothic one, in two lancet compartments. The east compartment is Christ raising the daughter of Jairus; the west compartment Christ blessing little children. The artist was Mr. O'Connor, of London. A window, corresponding with the last mentioned, but of plain glass, has been inserted on the north side of the chancel by Mr. Tadman, of Dunmow, mason; and other improvements and restorations externally are in progress.

Ryde.—The foundation-stone of a new church was laid on the 3rd instant, at a suburb of Ryde, called Swanmore, by Sir Augustus Clifford, bart. 1,500*l.* are required to complete the building. Mr. Jones, of Ryde, is the architect, and Messrs. T. & J. Dashwood are the builders. The name of the church is to be "St. Michael and All Angels."

Wednesfield.—The Independents have opened a place of worship as an introductory chapel, at Wadnesfield-heath, adjoining the high road from Wolverhampton. The building is intended ultimately for schools, being used only as a chapel until funds have been collected for the erection of a larger structure, and for which the trustees have secured sufficient land. The dimensions are 40 feet by 24 feet, and class-rooms, now appropriated as a vestry, 11 feet 6 inches by 7 feet 6 inches. The cost is about 400*l.* Mr. Bidlake was the architect, and Mr. Burkitt the contractor.

Layworth (Warwick).—The church here has undergone a restoration. The works done consist of the re-opening of the east window, the rebuilding of the south aisle, and the erection of carved reading-desks, with stalls for the choir. A stone pulpit has also been placed in the church, and the chancel and nave have been separated by pillars of Irish stone, much resembling malachite, supporting a plain balustrade of Bath stone. As special offerings, two stained-glass windows have been presented. The first, a memorial window, represents the Nativity in the centre light, and the Adoration of the Magi and the Shepherds in the two side lights. The other represents the Baptism of Our Lord. These windows were executed by Messrs. Clayton & Bell. The whole work has been carried out under the direction of Mr. Street, and the stone and woodwork executed by Messrs. Clark & Son, of Wootton Waven.

Cheadle (near Manchester).—A Congregational Chapel was opened here on Friday, the 12th inst. From the brief financial statement read on the occasion, it appears that the entire cost of the church and school, with the purchase of the land, amounted to 2,750*l.*, of which nearly 2,000*l.* had

been contributed before the opening of the edifice. The remaining 800*l.* have been cancelled. The style of the church is the early decorated Gothic: it was designed by Messrs. Poulton & Woodman, of Reading. The contractor is Mr. John Hughes, of Cheadle. The interior dimensions are as follow: Length, 67 feet from front wall to apse, which recedes an additional 16 feet; width, 35 feet 6 inches; height, 44 feet to the ridge piece. The large front window is filled with stained glass, which is the gift of a friend; and the remaining windows have obscured church glass in the middle, and stained glass borders. The apex of the apse is also filled with stained glass. The accommodation is for 400 persons. At the sides of the apse are the vestries of the minister and deacons. Behind the church is the school-room, 48 feet 6 inches by 25 feet.

York.—The dean intends to light up the Minster at night by running lines of gas in the interior, and an experiment has been made which the *Leeds Intelligencer* says was quite successful. It is proposed to run a series of gaslights on both sides of the choir, immediately over the arcades and under the clerestory. The centre bay on the north side was lighted with fifty-four jet lights. There are eight bays on either side from the organ to the altar-screen, and these are all to be surmounted by gaslights (perhaps 800 in number).—For some time past Christ Church, King's-square, in this city, has been in such a dilapidated condition that fears have been entertained for its safety. Meetings of the parishioners were held, and a complete restoration of the church was finally determined upon. Mr. Rawlins Gould, architect, was entrusted with the making of the plans. Some of the outer walls will be replaced by new ones, and there will be a new tower, as well as three new roofs. There will be an alteration in the elevation of the centre roof, and also in the interior arrangements, including a vestry, which will be built on the Shambles side of the church. The estimated cost of the restoration is about 1,500*l.*, towards which between 800*l.* and 900*l.* have been promised.

Micklefield.—A new church or chapel-of-ease, at Micklefield, in the parish of Sherburn, and dedicated to St. Mary the Virgin, has been consecrated by the Archbishop of York. The church is situate in the same place as the former one, about midway between old and new Micklefield. It is a plain structure in the Early English style, and built of stone quarried in the neighbourhood. The cost is about 1,100*l.* The architect was Mr. H. H. Bacon, of London; and the following contractors were engaged:—Stonemasonry, Mr. Wm. Watson, Micklefield; joiners' work, Mr. Joseph Lambert, Micklefield; plumbers' work, Mr. Wilson, Castleford. The interior of the edifice will accommodate about 200 persons, and consists of a nave and chancel simply. The seats are all open, and are made of pitch pine, the pulpit, lectern, and reading-desk being of the same material. The east window is of stained glass. It is a triple lancet window, the centre representing the Crucifixion, and a figure of the Virgin Mary and of St. John the Evangelist being on each side. It has been executed by Mr. Wailes, of Newcastle, and is the gift of Mr. W. Milbank Bland, brother of the gentleman who has erected the church.

Scarborough.—The church on the South Cliff, Scarborough, is about to be proceeded with, Miss Mary Craven, the patron of the church, having made herself responsible for the contract beyond the money already in hand. The edifice will be built entirely of Whitty stone; and the style will be that of the latter part of thirteenth century. The plan will comprise nave and aisles, chancel and its aisles, tower, and vestry. The amount of the contract is upwards of 6,000*l.* The architect is Mr. G. H. Bodley, of London; and Mr. James Kirby, of Scarborough, is the contractor.

Bootle (Cumberland).—The new United Presbyterian church, Derby-road, Bootle, has been opened. The church consists of a nave 78 feet long, with north and south aisles, the entire width being 57 feet. The clerestory is supported by octagonal shafts, with spayed arches over, forming six bays. The roof is open timbered, carried by arched laminated ribs springing from moulded corbels, the apex of which is 65 feet above the floor. The main entrance is within a porch, 22½ feet by 12 feet, communicating directly with each side aisle. At the west end is a gallery carried over the latter; which, together with the ground floor, will afford accommodation for over 900 persons. The seats are open, having moulded bent ends; and the whole of the wood-work, including roof timbers, &c., is stained and varnished.

The exterior is faced with coursed Yorkshire parapets and white Stourton stone dressings; and the style is Early English, verging on the Decorated period. The architect was Mr. W. H. Gee, of Liverpool; and the contractors were Messrs. Nicholson & Ayre. The church forms the south side of a quadrangle, the north being occupied by the dwelling of the keeper, lecture-room, and day schools. The east contains library, session or class room, and vestry, and the west opens to the Derby-road. The total cost of the edifice, site, &c., was about 6,500*l.*

Newcastle-upon-Tyne.—The spire which has been some time in course of erection in connection with the church of St. Peter, in this town, is now completed, according to the local *Courant*. Mr. Dobson was the architect, and Mr. Dunlop, the contractor.

Gateshead.—The foundation-stone of a new Primitive Methodist Chapel has been laid in Crawshaw-street, New Gateshead. The dimensions will be 37 feet by 25 feet, and the style of architecture Decorated Gothic. The building will be erected of brick, and partly of stone, and will accommodate 260 persons. The builder is Mr. Thomas Gowland, and the architect Mr. Thomas Stokoe, both of Gateshead. The cost of the chapel will be about 220*l.*

North Shields.—The new Primitive Methodist Chapel erected in Saville-street West, North Shields, was opened on Good Friday. The chapel is of stone, with dressed stone facings. It contains about 812 sittings. The ground-floor is appropriated to Sunday schools, and there is a residence for the chapel-keeper. The contractors were Messrs. J. & M. Robson, of North Shields.

Bothwell.—The new Free Church here has been opened, according to the *Hamilton Advertiser*. The building, the style of which is Geometric Gothic, is erected on the old site, from the designs of Messrs. J. W. & J. Hay, of Liverpool, and under the superintendence of Mr. Joseph Pepper of that town. The spire, which is an octagonal one, with pinnacles at the four angles, rises to a height of 130 feet. The church is 82 feet long, by 52 wide, and it will accommodate about 1,000 sitters. The roof is supported by five principals, which rest on iron columns. The east window is filled in with stained glass, by Mr. Ballantyne, of Edinburgh—the gift of P. Rintoul, esq., of Bothwell Bank. The pulpit is octagonal, surrounded by a rail filled in with tracery. The acoustic qualities of the church have received attention from the architects, who have placed the central portion of the ceiling much below the roof. This, we understand has also been done by the same architects in a church recently built by them at Berwick-on-Tweed. The mason work has been executed by Mr. R. McCord, of Glasgow; and the joiner work by Mr. J. Scott. The total cost of the edifice, we believe, will not exceed 3,000*l.* The church is heated by a hot-water apparatus supplied by Messrs. Combe & Son, Glasgow.

STAINED GLASS.

Manchester Cathedral.—A stained glass memorial window has been placed in Brown's chapel, on the south side of the nave. It was designed and executed by Messrs. Hardman & Co., and presented by Mrs. Margaret Clowes, of Hawford House, Worcestershire. The window, which is of the Perpendicular style, consists of four lights, illustrating different incidents in the history of John the Baptist. The first light represents the appearance of the Angel to Zacharias in the Temple; the second the naming of the infant Baptist, where Zacharias writes upon a tablet, "His name is John;" the third portrays the Baptist preaching in the wilderness; and the fourth represents the baptism of our Saviour by St. John.

Malby Church.—A stained-glass memorial window has been placed in Malby Church by Mr. Fretwell W. Hoyle, solicitor, of Rotherham. The subject represented is that of Hannah presenting her son Samuel to the high-priest Eli in the Temple. On the top is a representation of the ark of the covenant, underneath which is a censer with burning incense. At the bottom of the window runs the inscription. The subject of the window was designed, we believe, by Mr. Fretwell Hoyle himself, and the work has been executed by Mr. Wailes, of Newcastle. It was fixed by Mr. Bennett, plumber, Rotherham.

St. Thomas's, Newport.—The amount of subscriptions in aid of filling the chancel window with stained glass is said to be sufficient to enable the promoters to fill the circle and side lights. This part of the work will therefore be carried out forthwith. Considerable additions have been made to the window fund.

DOINGS OF THE METROPOLITAN BOARD OF WORKS.

METROPOLITAN DRAINAGE, &c.

The following is the Return made to an Address of the Honourable the House of Commons, dated 21st March, 1861:—

The date of the Act of Parliament authorising the execution by the Metropolitan Board of the Main Drainage—2nd August, 1858.
The total amount authorised to be raised for that purpose—3,000,000l.
The amount borrowed for the Main Drainage, and the rate of interest paid for the same—The Board have contracted for a loan of 3,000,000l., at 32 per cent., of which 600,000l. have been received.
The total length of Sewers intended—130,223 yards = 73 miles 1,743 yards.

	Southwark and Westminster Communication.	Covent-garden Approach.	Victoria-park Approach.
The dates of the Acts of Parliament authorizing the carrying out the Southwark and Westminster new Street and Covent-garden and Victoria-park Approaches.	10th August, 1857	10th August, 1857	14th June, 1858.
Total length of the streets and	1,124 yards	140 yards	1,682 yards.
The estimated cost thereof	519,424l.	91,890l.	38,660l.
The total number and amount of the claims received for property required.	179 claims. Of this number 48 are under negotiation, the total amount of which cannot be ascertained.	91 claims; 187,961l. 13s. 1d.	41 claims; 34,943l. 15s. 11d.
The total number and amount of those settled.	131 claims; 554,532l. 9s. 9d. settled at 387,517l. 9s. 8d.	38 claims; 164,887l. 15s. 1d. settled at 96,887l. 19s. 8d.	41 claims; 34,943l. 15s. 11d. settled at 27,814l. 12s. 3d.
The number of claims not received, and their probable amount.	7; amount not known.	None.	None: there is a dispute respecting a portion of the land in the line of street, which was proposed to be given up for the purposes of the road, which will probably, with other expenses, amount to 1,000l.
The amount of contributions from any source towards the improvements.	89,100l. Exchequer Bills, and 755l. 4s. cash balance provided by the Act as a contribution towards the improvement.	35,000l. from the surplus of the London-bridge Approaches Fund, and 15,000l. contributed by the Duke of Bedford.	Mr. William Cotton gave up so much of his land as would be required for the new street, and undertook to form carriage and foot ways, construct fences, &c.

And He also contributed 1,800l. towards the improvement. Messrs. Baggalley, Butler, Wilson, Condit, and Pigott, also gave up lands required for the purpose of the improvement. The Board of Works for the Lambeth District agreed to fence, make up, and maintain the carriage and foot ways of the street within their district. The Vestry of Mile End Old Town agreed to pay the sum of 1,000l. on the completion of the street.

The rent and term of the lease for the new offices in Spring Gardens—500l. per annum ground-rent until the 10th October, 1871, when the present lease expires, and 350l. per annum for the remainder of ninety-nine years from the 5th April, 1859.
The amount of premium paid, and the value of the old materials sold—500l. was paid to the executors of the Earl Fitzhardinge for the assignment of the existing lease: 799l. 3s. were received for the old materials sold.
The amount of the contract for the building, and the name of the contractor—14,829l.; George Myers, of Lambeth, contractor.

MEMORIAL TO THE LATE SIR CHARLES BARRY.

This proposition to erect a marble statue of Sir Charles Barry, in the New Palace at Westminster, made some time ago, has now taken shape, and there is reason to believe that the requested permission will be granted for the execution of the work, under the direction of the Royal Commission of Fine Arts, as soon as the requisite funds are provided. Those who may desire to do honour to the memory of the late eminent architect of that building are now, therefore, invited to forward their subscriptions to Messrs. Drummond, the bankers. Mr. M. D. Wyatt, and Mr. Charles C. Nelson, are acting as honorary secretaries.

GLASGOW ARCHEOLOGICAL SOCIETY.

The concluding meeting of the fifth session of this society was held in the Bedford Hotel, St. George's Place. In the absence of the President, Mr. Sheriff Strathern, Vice President of the society, occupied the chair. Mr. John Buchanan read portions of "MS. Notes of a Tour in the Highlands, Sixty Years ago, by 'Senex'."

The members afterwards sat down to dinner, Sheriff Strathern presiding.
The Chairman, in proposing "The Archaeological Society of Glasgow," said he knew of no pursuit more elevating or more desirable than the study of antiquities. It was of use in testing the truth of story by the upspringing to the surface of matters long gone past, and by the discovery of facts by which theories were formed, and by which circumstances were often established that were formerly doubted; and in many instances the pursuits of archaeologists disclosed sources of intellectual enjoyment thought to be buried in the dust in which the relics discovered had so long remained. A similar society in Glasgow had died away; but, thanks to the spirit of a young gentleman of excellent tastes, a fresh society, having kindred pursuits, was originated; and they found in their secretary, Mr. Honeyman, the very spirit necessary to resuscitate or reform an institution

of their own. They had now a considerable number of archaeologists enrolled, and he thought they had reason to anticipate still further success. They had an opportunity of publishing among themselves a portion of the transactions of the society, and they had no reason to be ashamed of them. He hoped to see their society rank among many similar societies in the country. Their venerable president had long been a man of note, and was a kind of ligature to bind them together. There were also around the table those who, he was quite satisfied, would be able still further to make their association respectable, both for number and talents.

AMERICAN IMPLEMENTS.

An interesting paper, giving "Some Account of American Implements and Economic Contrivances," by C. W. Eddy, M.A., formerly travelling fellow of the University of Oxford, was read on the 3rd inst., at the Society of Arts, Adelphi. The paper was illustrated by diagrams and sketches of various American inventions and appliances, such as floating docks, derricks, unloading gear for shipping, railway engines and carriages, tramways and tramway cars, canal slides, canal boats built in sections, steam boats and pilot boats, modes of house-warming for cold climates, &c. Dr. Eddy described numerous American implements and appliances for facilitating labour, such as stump extractors, steam tree-fellers and cutters, steam ploughs, threshers, straw elevators, potato diggers and purers, and other agricultural steam machines and various other farmers' implements and appliances; woodworking machinery for turning out legs of chairs, gun stocks, shoemakers' lasts, and for carving, sawing, and various other purposes; Yankee clocks; caloric engines, &c. Corduroy bridges, were also described; as well as steam ferry bridges, and many other interesting inventions. The workmanship of many of the implements, &c., was described as not so highly finished as in those of English manufacture, but frequently of stronger

or better make; and a variety of them Dr. Eddy pointed out as exceedingly well adapted for use in our colonies.

A discussion ensued, in which Mr. E. Chadwick, C.B., Mr. S. Sidney, Mr. Dennis, Mr. W. Hawes, Mr. John Cassell, Mr. John Anderson, Dr. Eddy, and the chairman, Mr. Thomas Webster, F.R.S., took part.

MEMORIAL CHURCH

TO GEORGE HERBERT, OF BEMERTON.

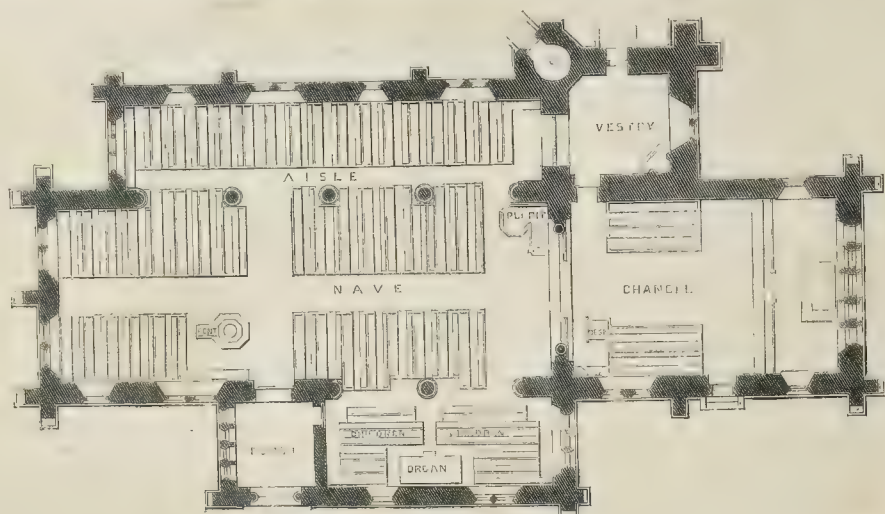
The old church at Bemerton, Wilts, is intimately associated with George Herbert, the sweet singer of "the Temple;" and pilgrims from all parts constantly visited it. It had fallen into utter decay; and, being quite insufficient to meet the wants of the existing population, in the year 1855 some persons who revered the name of George Herbert proposed to raise a worthy and most appropriate monument in his own parish, to the memory of so good a man, by erecting a new church on a site near the existing small building, which it is not intended to remove.

The new church, which is built in the style of the thirteenth century, and stands a little higher to Wilton than the old one, consists of a nave, north aisle, south porch and aisle, and a large chancel; the tower, a portion of which forms the vestry, or robing room, and is approached from the chancel, having also an external door. The materials of which this edifice is built are brick and stone. The walls externally are faced with stone of various tints laid in random courses. Internally the walls are lined with Bath stone ashlar; and, as the roofs are entirely covered with boarding, there is not a particle of plaster used. The interior of the church is fitted up with open stained deal benches, to accommodate 365 persons. The church is entered by the south porch, over the door of which, in a quatrefoil panel, is the monogram G. H. (for George Herbert). At the west end of the nave are two windows of early character, above which, in a quatrefoil, are the Royal arms in stained glass. Below these windows is the following inscription, cut in the walls of the church:—"Beloved, let us love one another; for love is of God, and every one that loveth is born of God, and knoweth God."

Over the arcade on each side of the church are four small clerestory windows, inserted in trefoils and sexfoils alternately. The eastern window of the chancel has been filled by Mr. O'Connor with painted glass, at a cost of 200l.; being the generous gift of the Earl of Powis. This window contains ten medallions, most of them representing events in our Saviour's life. In the centre light is a representation of the Crucifixion, with the women at the cross; and beneath is the Last Supper. In the left hand light are the Two Marys, the entrance to the Sepulchre, Christ walking on the Water, and Christ healing Jairus's Daughter. In the right hand light are the Miraculous Draught of Fishes, the Transfiguration, the Vision of St. John, and the Agony in the Garden. The rest of the chancel windows are filled with glass slightly tinted, in low tone; the subjects being drawn in outline, without colour, resembling in character the early Dutch engravings. They were executed by Messrs. Lavers & Barrard.

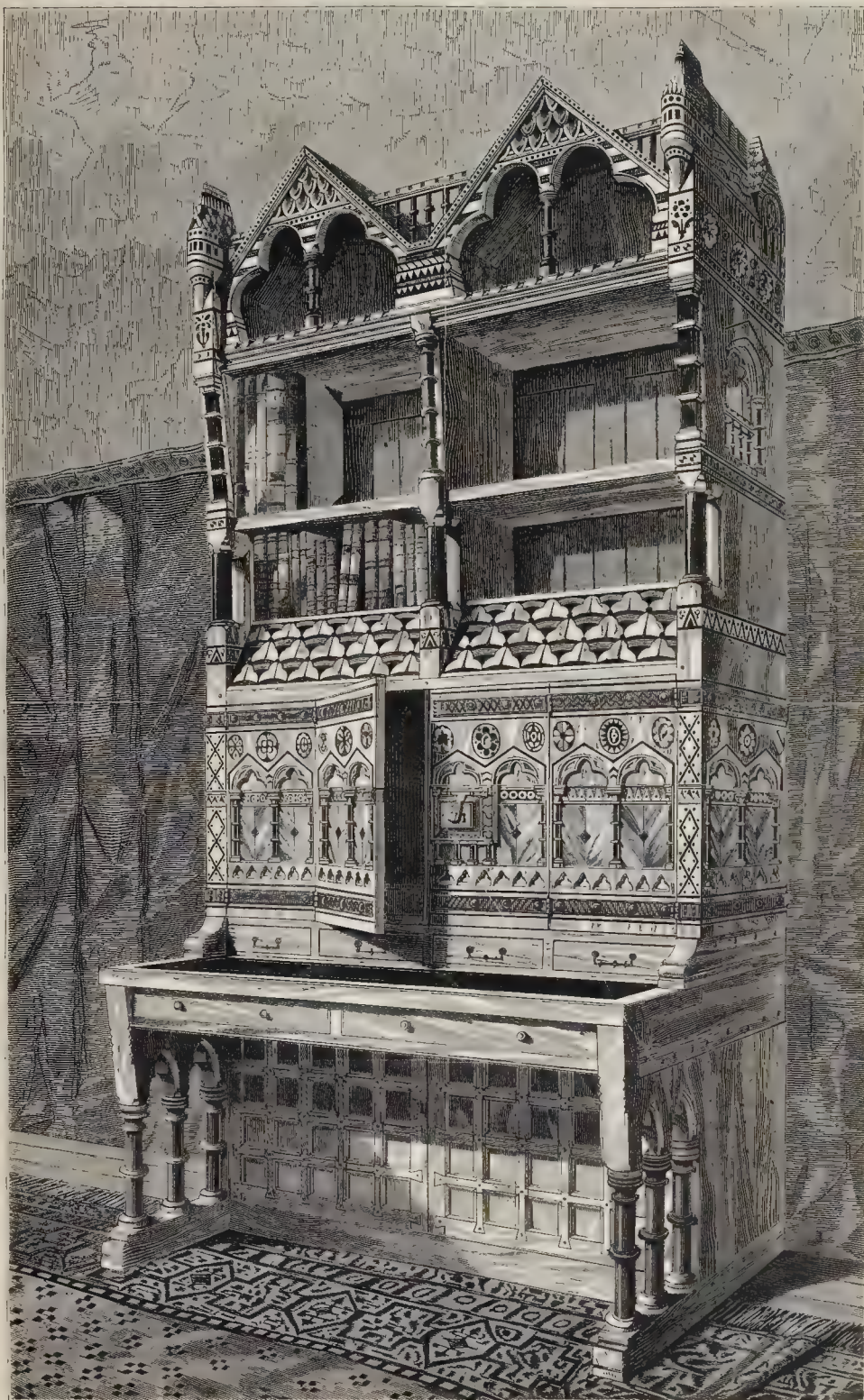
The chancel roof is panelled with carved bosses. The church is heated throughout with hot air, by an apparatus furnished by Mr. Haden, of Frowbridge. Many kind and magnificent presents have been made to the church, amongst which we may note:—The eastern window, by Lord Powis; the holy table, by the Bishop of the Diocese; the communion plate, by subscriptions, collected by the Bishop's wife, Mrs. Hamilton; the lectern and altar cloth, by Lady Herbert; the linen for the communion table, by Miss Parodi; the font, by subscription from children exclusively; the pulpit, by the architect; the font cover, by the builder; the wrought iron gates at the entrance of the porch, by J. H. Markland, Esq., of Bath; the poor box and the richly carved stone bracket on which it stands, by Sunday School teachers; and the prayer desk, by the Rector. The works have been well executed by Mr. T. B. Miles, of Shaftesbury (during one of the most trying seasons ever known for building operations), from the designs of Mr. T. H. Wyatt, the diocesan architect. Mr. William Howitt, of Wilton, acted throughout as clerk of the works, and executed almost all the carving; having been assisted towards the close of the work by his brother, Mr. George Howitt, who executed the carving in Wilton Church. The carving of the pulpit, font, and bracket for the poor box, was done by Mr. H. T. Margeson, of Bristol. The iron railing and gates of the churchyard were executed by Mr. Wilton, ironmonger, of Salisbury.

MEMORIAL CHURCH TO GEORGE HERBERT, OF BEMERTON, WILTS.—MR. T. H. WYATT, ARCHITECT.



SCALE OF FEET

Plan.



WRITING-TABLE AND BOOK-CASE, IN THE ARCHITECTURAL EXHIBITION.
EXECUTED BY MR. JAMES FORSYTH, FROM THE DESIGN OF MR. R. NORMAN SHAW, ARCHITECT.

WRITING-TABLE AND BOOK-CASE IN THE ARCHITECTURAL EXHIBITION.

The cabinet which we have selected for our illustration forms part of the executed works, materials, and processes, in connection with the Architectural Exhibition, now open at the galleries in Conduit-street.

The lower portion forms a writing-table; and, for this purpose, the part covered with leather draws out about 8 inches; thus making a table 4 feet 8 inches long by 2 feet wide: in front are cases for letters and papers, closed by the doors shown, which open in four leaves: beneath them are four small drawers; and, above, a series of pigeon-holes, closed by the sloping roof, hinged on the upper edge, and made to throw up: above are shelves for books: below the table there are also drawers; and the lower part is inclosed with doors, forming another closet with shelves.

The material is principally foreign oak, framed together with the greatest care and solidity, the ends being 2½ inches thick, inlaid with strips of very old English oak, and bands of marqueterie, formed principally of satin and rose woods, walnut, and old oak. The whole of the shafts throughout are also of old oak, which has acquired by age a beautiful colour, those that are polished closely resembling marble in density of texture. The ground of the lower part of the panels of the small doors is of bird's-eye maple, the cusped arches of old oak, and the parts inclosed under the gables of satinwood.

The woodwork throughout has been rubbed with a little oil to prevent finger-marks from showing; the whole of the marqueterie being highly polished.

The upper part is further enriched with gold and colour. The metalwork has been made by Mr. Leaver, of Maidenhead, and is very creditable, the lock especially is a clever piece of work.

The cabinet has been executed in the workshops of Mr. Forsyth, from the designs of Mr. R. Norman Shaw, architect, and will in every part stand examination. Mr. Shaw is thoroughly imbued with the Mediæval spirit.

We shall be glad to hear that Mr. Forsyth has found a purchaser to reward him for his enterprise and outlay of labour.

PROVINCIAL NEWS.

Shornmeade and Coalhouse Point.—The contract for the erection of two large batteries, which the Government has decided on building at Shornmeade, on the Kentish coast, and at Coalhouse Point, on the Essex shore, for the protection of that part of the entrance to the river Thames, in the place of the two small batteries formerly placed on these points, has been taken by Messrs. Brassey & Betts, who are to commence the works forthwith.

Granton (near Edinburgh).—Messrs. Smith & Hardie, architects, some time since obtained the first premium for the plan of a new town at Granton, projected by the Duke of Buccleuch, who is the proprietor of the place, and where he some years since erected an important harbour. The laying out of the roads for a town stretching from Wardie, on the east, to Caroline Park, on the west side, has been begun. The principal feature of the new town is a long terrace on the heights fronting the sea, and extending east and west from the pier. On the same elevation there is to be a church, opposite the pier, and which will serve as a landmark for vessels making the harbour. The new town of Granton is designed to provide house accommodation for all classes. The eastern breakwater is nearly completed, and the harbour will therefore soon be fully sheltered. There are also to be a custom-house and a marketplace near the pier.

SCHOOL-BUILDING NEWS.

Ipwich.—The foundation-stone of the new schools about to be built in connection with Tacket-street Chapel, Ipwich, has been laid. The site of the schools is at the back of the chapel, adjoining the old burial-ground. The building is to be of red brick, with a high-pitched roof of plain tiles, with sundry gables. The extreme length will be 92 feet, and the building is to contain a principal school-room, 60 feet by 35 feet; class-rooms, 14 feet 6 inches by 8 feet 6 inches; and an infant class-room, 24 feet by 14 feet 6 inches. The architect is Mr. Barnes, and the builder, Mr. Pells, whose contract amounts to 727l.

Brightlingsea.—The foundation-stone of new day-schools, in connection with the Wesleyan Methodist denomination at Brightlingsea, was

laid on Easter Monday. The site of the building is at the back of the Wesleyan Chapel yard. The ground was given by Mr. Ebenezer Root, of Brightlingsea Lodge. The buildings, which will be of red brick, in plain Gothic style, presents an entire frontage of 69 feet to the road. The centre of the schools will comprise the mixed or principal school-room, 42 feet by 22 feet; with mixed class-room, 14 feet by 18 feet, in the rear; infant school, 30 feet by 20 feet; infant class-room, 14 feet by 20 feet. The schools will accommodate 200 children. There is to be a residence for the master and mistress, with chambers above and domestic offices below. A playground of nearly a quarter of an acre will be formed for the children. Messrs. Elden & Orrin, of Colchester, are the builders. The cost is estimated to be about 1,200l.

Winchester.—The foundation of a new diocesan training college has been laid at Winchester. The school is to accommodate fifty-six students, with residences for principal, vice-principal, and matron. The accommodation for the students consists of a lecture-hall, 45 feet by 22 feet; two class-rooms, 25 feet by 22 feet each; dining-hall, 41 feet by 22 feet; these rooms are 14 feet high. There will also be on the ground-floor a waiting-room, students' sitting-room, master's private room, lavatory, kitchen, stores, and offices, with cellars under. On the first floor are dormitories for the students, 16 feet high in the centre, on the stall system, and two sick rooms. The building is in the English style, of latter end of fourteenth century, the tower giving it somewhat of a Continental character. Viewing it from the south we see the principal's house on the right-hand side, and the vice-principal's apartments on the left, while the centre is occupied by the students' rooms. Over the students' entrance is a tower, the height of which to the vane is 73 feet. The walls will be faced with Swange stone, set in cement, with Bath stone windows, doorways, copings, and other dressings. The roof will be covered with tiles, in bands of red and grey. The several gables and ventilating turrets will be surmounted with twelve gilded vanes. The site is on elevated ground, commanding a view of the vale of Itchen. The architect is Mr. John Colson, of Winchester. The contract has been taken by Mr. Alfred Watts, of Southampton, at 7,500l.

Trent (Somerset).—The foundation stone of a new school-room has been laid here. The building is to be erected from a design by Mr. Pocklington, architect. The school-room is to be 40 feet long, and 20 feet wide, built with Compton stone and Ham-hill dressings, covered with ornamented tiles and crested ridge, with bell-turret in gable: the roof will be open and the whole stained and varnished. The cost will be about 450l. The building is the gift of the Rev. W. H. Turner, the rector of the parish. Messrs. Hall & Ridout are the contractors.

Stogursey.—The *West Somerset Free Press* reports the opening of new schools at Stogursey, which have recently been erected by the gift of Sir Peregrine Palmer Fuller Palmer Acland, Bart. The building was designed by Mr. Norton, of London, architect, and is in the Lancet style. It stands on a prominent spot of land at the entrance to the town, on the right-hand side of the road from Williton. It is approached by two porches, for boys and girls, over which is carved in stone the words, "A thank-offering, by Sir P. P. F. Acland, Bart., 1860." The porches are connected with a cloak-room for girls and boys, divided by a screen, a fireplace being in each division. The school-room is 65 feet by 20 feet; the roof of open stained timber; and a wainscoting of stained wood surrounds the walls, which are stuccoed. The class-room adjoins, and is approached by three Gothic arches, on frescoed columns. This room is 25 feet by 16 feet; and at the back has a rising gallery. Connected with these by a long corridor are the apartments for the master and mistress. In the centre of the building there is a tower, 60 feet high, having four open tracered windows, resting on slate columns: the roof is pyramidal, and covered with lead. There is also an octagonal ventilating tower over the school-room, covered with lead, and surmounted by an ornamental cross, with gilded fleur-de-lis terminations; and on each of the gables there are crosses of the same description. The building is erected with red sandstone, chiselled, the windows and dressings being of Combe-down stone. It is roofed with Bridgewater tiles, in bands, of two colours. The windows are glazed with cathedral glass, and foliated borders, made by Powell, of Whitefriars. The school and class-rooms are heated with hot-water apparatus, and the entire cost is said to be about 7,000l.

Ashton (Lancashire).—The foundation-stone of new Sunday-schools has been laid here. The site adjoins Katharine-street, Cricket's-lane, and Arlington-street. The principal front will be in Katharine-street. On the ground-floor will be a lecture-room, 52 feet long and 45 feet average width, with seats in form of an amphitheatre, for 450 adults: there will also be ten class-rooms, each lighted by windows in the external walls, 14 feet high. The school-room on the upper floor will be 100 feet by 50 feet, clear dimensions, exclusive of a large recess on each side. Attached to the main building, at the north-east end, and in communication with the ground-floor corridors, will be a class-room, 36 feet by 23 feet, fitted up with a gallery for 200 infants; and above this room will be class-rooms for adults. The school library will occupy the recess on the south-east side of the school-room, 33 feet by 10 feet; and above the library will be a gallery for use in case of public assemblies. The entire building will accommodate about 1,500 scholars, exclusive of the lecture-room. The exterior will be simple, and the material brick, with stone dressings. The architects are Messrs. Paull & Ayliffe, of Burnley. Mr. T. W. Gill is clerk of the works. The contract for the foundations has been taken by Messrs. Longson, of Stockport, whose tender was the lowest.

UNION CHURCH, PUTNEY.

THE "Memorial" Stone of this building, now in course of erection near the railway station, Putney, was laid on the 26th ult. by Sir S. Morton Peto, Bart., M.P.

The want of additional accommodation for worship has long been felt by Nonconformists at Putney. There is only an Independent chapel and that, being extremely small, situate in an undesirable neighbourhood, and difficult of access from the upper part of the town, is wholly inadequate to the wants of the growing population.

This enterprise has been commenced by some friends of the Independent and Baptist bodies, who two years since erected a temporary iron chapel adjoining the site of the new edifice, which latter is in the Decorated Style of Mediæval architecture, occupying a commanding site with a frontage towards the Upper Richmond-road of 152 feet, and a frontage to the New-road of 80 feet. The church is 73 feet long by 41 feet wide, in clear of walls, besides a deep recess at the west end for an organ, and two vestries in the rear, with a large lecture-hall capable of seating 200 persons. The tower and spire will rise to the height of 130 feet. The church will seat 500 adults on the ground-floor, and galleries can be added hereafter to accommodate 300 more. The walls are faced with Kentish rag, and Boxhill Bathstone dressings. The roof will be open-celled below rafters, and across collar-beams about 50 feet high, with arched principals and hammer-beams springing from stone corbels and marble shafts. The estimated cost is upwards of 4,000l. Mr. S. W. Aries is the contractor, and Mr. Charles R. Gribble, of Putney, is the architect.

"ADVICE TO WORKMEN FOR PROLONGING LIFE."

UNDER this title a correspondent, Mr. James Bruce, offers the following, among other nostrums; for the efficacy of which, in all cases, however, we should not like to make ourselves responsible.

Stonemasons, bricklayers, &c., should use muriatic lemonade to dissolve the calcareous earths. Cutlers, &c., should use nitric acid lemonade to dissolve the steel, iron, &c., in the blood. Those engaged in the looking-glass trades should make use of a milk diet, iodide of potassium, and milk of sulphur. To those engaged in lead and arsenic works, producing symptoms of slow poisoning, a mixture of diluted phosphoric acid and honey is most proper: it doubles the muscular power, and prolongs life: it prevents venous plethora; the ossification of the blood vessels, the cause of apoplexy and of sudden death: it is of great service in affections of the heart and other organs. [Phosphorus is certainly curiously associated with some of the highest functions of life; but these wholesale assurances savour rather too strongly of the old dispensaries of the seventeenth and eighteenth centuries.—Salmon's, for example.] Carpenters and others complaining of pains in the chest and spitting of blood should take a teaspoonful every hour of raspberry vinegar, without the addition of water. One pint of this agreeable vinegar is worth a hoghead of cod-liver-oil! Tobacconists and smokers, to steady the hand, should make use of lemon juice, and of iron

ful examination having been made at Chichester, the same may be done at Salisbury; and that it may be shown that, as the stone of the former was capable of sustaining a weight represented by A when first put up, but only a weight B after so many centuries at the level of caps, and only a weight C at the base, and that the tower then fell—so, at Salisbury, as the stone taken from where there is no weight, and at the caps and base, shows how it has lost its power, we may expect that tower and spire to fall to the ground in about ——— years from the present time. Gorn.

COERCION OF BRITISH WORKMEN.

SIR,—It is of great importance that the public should be fully informed upon the working of those institutions which are at this time occupying so much attention; and with this view, as also through your columns, which are extensively used by them, to say a word to workmen, and more especially to the very intelligent body (the masons) from whom the following document emanates,—I forward to you a copy of the "London Lock-out Black List," together with the wood block on which I have had cut a copy of the effigy with which this list is headed.

Over and above the internal evidence of its authenticity, this paper has been identified as official by the printer at Bristol; who, on being applied to for copies, stated that it had been printed by order of the secretary to the Masons' Society.

This list has on its first page this effigy. Then



[Facsimile.]

follows an address, in which the masters are denounced as "designing," "rapacious," "self-interested," and "mindful of none but their own immediate interest;" while the workmen who accepted the "declaration" are called "dupes," "blind allies to their birthright," "servile," "in bondage," and concludes, "it now remains only to show them up," &c. Then follows a copy of the "declaration;" after which this passage occurs:—

"For such a desperate act of abject servility, the following parties have subjected themselves to a fine of 2l. each; and it is to be hoped, whenever any of them come within the pale of the society, members will use their discretionary influence over them."

Then follows a list of thirty-three firms in which it is stated the "document" was enforced; and, after that, lists of workmen's names who accepted the "declaration;" viz., 7 at Aspinall's; 1, Baker & Wardle's; 4, Bird & McLennan's; 5, Batterbury's; 7, Brass & Sons; 15, Cubitt's, Gray's Inn-road; 4, Cubitt's, Westminster; 8, Down's; 26, Freak's; 8, Freeman's; 22, Holland's; 22, Higge's; 3, l'Anson's; 46, Kell's; 16, Kirk & Parry's; 20, Lucas's; 3, Lee & Lavers's; 2, Lawrence & Son's; 6, Moxon's; 4, Martyr's; 23, Myers's; 10, Mansfield's; 6, Peto, Brassey, & Betts's; 116, Piper's; 2, Rigby's; 4, Smith's; 25, Trollope's; 12, Wells's; 29, Wilson's; 5, Walker's, making a total of above 450 men thus denounced; and, against several of the names, in addition to the 2l. recorded above, still further fines are registered; in one case, to the extent of 5l. additional.

Now, as to this "document" itself, apart from the violence of its language, which, for an official paper, is sufficiently objectionable, as pandering to bad feelings, there is an assertion, thrice repeated, that the "document" has been signed.

Now there is conclusive evidence to prove that the parties who issued this paper were well aware that this assertion is untrue. No man was called upon to "sign." It may be said that, having been accepted by the workmen, its acceptance was equally binding on honourable minds. This is at once conceded; but all who are familiar with the habits of working men know how reluctant they are to affix a signature to any engagement,—how stringent they think the obligation,—and how, with almost a superstitious dread, they shrink from this use of the pen; and hence it seems impossible to escape from the inference that this misrepresentation is intentional, and made for the purpose of giving additional force to the denunciation.

Then, sir, let me to the workmen themselves say, Is it *manly* thus to denounce in secret your fellow-workmen,—thus to copy the worst feature of the justly execrated Inquisition?

Is it *reasonable* thus to attempt to crush your fellows by fines so heavy and oppressive? It has been stated that some of our wealthiest men have an income of about 1,000l. per diem: what would be thought of a fine inflicted by his peers on one of them of the sum of 25,000l., and enforced, not as of old, by imprisonment, but by the more terrible alternative of an absolute deprivation of the bread of himself and his family? This is no fancy picture: the fine demanded on this list is equal to twenty-five days' income of the man against whom it is assessed; and instances are well authenticated where the workman, though desirous to meet a fine thus levied; and having, at immense sacrifice, met it more than half-way; but then becoming unable to continue his payment in consequence of his own and his family's illness, has been hunted from place to place by the "discretionary influence" of this society till positive starvation stared him in the face.

Is it *wise* thus to intrust your interests to those who forbid you to forward your own interests and improve your position in society by taking the benefit of your skill—in task work (Masons' Laws, class v., rule iii.), and of your industry—by working overtime (Masons' Laws, class ii., rule x.)?

Let me not be misunderstood. I do not ask you to abandon your union: keep it by all means, as a most legitimate resource of sickness and want; but purge it from the legislation which would reduce the best to the standard of the worst; and, while you take the benefit of association for its proper ends, vindicate your own individual freedom of action, and accept the proposition now made with a view of meeting the present question. Take an adjusted price per hour as the basis of calculation, with no change in the ordinary terms of engagement or hours of labour, unless you yourselves choose so to arrange; and which, if you so please, will give you the Saturday's half-holiday, without the loss of a fraction of your present earnings; for, though those interested in the continuance of strife have said this would reduce you to the condition of dock labourers, engaged by the hour, no such effect was ever intended, or is likely to follow; the obvious convenience and interest of the employers being to continue, as far as possible, existing arrangements, for the sake of the full occupation of their invested capital.

I speak to men among whom I know there are many thoughtful and considerate; and I feel well assured that they will not misunderstand the motives which have induced me thus to address them.

A CONTRACTOR.

THE "BUILDER'S" LAW-NOTES.

Contrivances to defeat Creditors.—A deed is void as against creditors when the debtor is in a state of insolvency, or when the effect of the deed is to leave the debtor without the means of paying his present debts. If this be the consequence of his act, it is not sufficient to render a deed valid that it should be made upon good consideration.—*Corlett v. Radcliffe.*

Maritime Passengers' Assurance Company.—This Company entered into an agreement with a person that, if he should sustain any personal injury from an accident on any ocean, sea, river, or lake, they would pay a reasonable compensation; and, if he should die from the effects of the injury, they would pay 100l. to his executors. He died from the effects of a sunstroke on the Cochín river, and it has been held by the Court of Queen's Bench that, as this was not accidental death, the Company were not liable.—*Sinclair v. Maritime Passengers' Assurance Company.*

Shareholder advancing Money to Company.—A shareholder in a Joint-stock Company advancing money for the purposes of the Company is entitled to prove against the Company, on its being

wound up in bankruptcy, in respect of such advances, even though one of the notes given by him as part of such advances was not yet paid.—*Re The Maresfield Gunpowder Company.*

Buildings erected by Mortgagee.—Certain lands were mortgaged; and the interest having fallen into arrear, the mortgagee took possession, and put up the lands for sale by auction. There being no bidders, he entered into receipt of the rents, and expended money in repairs and in the erection of new buildings. In his accounts he claimed for this money, and the mortgagor stated that the money was not expended with his consent, and ought not to be allowed. It was decided, however, that as the mortgagor had not alleged, in his bill to redeem, that the expenses were unnecessarily incurred, the mortgagee should be allowed for all necessary repairs and lasting improvements.—*Powell v. Trotter.*

INTIMIDATING WORKMEN.

At Worship-street, Thomas Burton, a bricklayer, aged thirty-two, was charged, under the 6th of George IV., cap. 139, commonly called the Combination Act, of the terms of the third section of which, under part of which the prisoner was charged, being, that any person who shall by threats or intimidation endeavour to force another to belong to any club or association, to contribute to any common fund, or pay any fine or penalty for not having complied with any rules of such association made to oblige an advance or reduction in the rate of wages, or lessen or alter the hours of working, or decrease the quantity of work, or regulate the mode of carrying it on, or force any manufacturer or employer to alter his mode of carrying on his business, or alter the nature or description of his workmen, shall and may for every such offence, upon being convicted thereof, be imprisoned and kept to hard labour for any term not exceeding three calendar months.

Mr. Beard, who conducted the prosecution, after stating the nature of the case against the prisoner, said that this was undoubtedly a case of much importance both as affecting the masters in this kind of business and the workmen themselves, inasmuch as it must be manifest that no master could conduct his business with safety, or enter into contracts of any kind if he was liable to be dictated to in the manner the prisoner would be proved to have done, while it was an equal hardship upon seclusive and industrious workmen to be deprived of the means of supporting their wives and families by the violence and threats of others who were less honest and less conscientious.

Evidence having been given, the prisoner in a cavalier tone replied—if Mr. Jones had given 5s. 6d. a day to his men, as other master builders do, I should not have struck off work.

Mr. Leigh.—The defence you set up shows that you even now consider yourself in the right, but I would not have you deceive yourself, for the law is very express upon this subject; and, while it allows workmen to stipulate for any wages they think their labour worth, and to peaceably advise others in that respect, that should be done after the hours of business, and separate from it, for any intimidation or threat is strictly prohibited and punished. It is proved that you were actually intimidated upon one of these occasions, but I cannot accept that as an excuse for openly threatening men so that they are compelled to quit their employment. Other men must know the wants of themselves and families much better than you can: they have a right to exercise their discretion as to what terms they will or will not work for; and, though there may be no harm so long as you confine yourself to advice only, you are not allowed to resort to violence and threats, depriving such men of their discretion, and so constraining them that they cannot provide for their families without feeling that they go in danger of their lives. It is not permitted that you should so tyrannize over others to their disadvantage, and it is my duty to protect them against such unjustifiable conduct. You neither express regret now, nor have you done so, and I can see nothing in your case to call for leniency or mitigation.

Prisoner.—I have a wife and four children.

Mr. Leigh.—Those you should have thought of before, and now you expect me to consider them, when you yourself have not. I should not be acting justly or mercifully to other men who are not so disposed as you are, and who are willing to work industriously and peaceably, if I did not sentence you to the full amount of punishment imposed by the Act, and that is, that you be committed to the House of Correction for three calendar months, with hard labour.

Books Received.

Hints on Church Windows, Plain and Decorated. By SEBASTIAN EVANS, M.A. Printed and sold by W. J. Sackett, Bull-street, Birmingham.

THE purpose of this pamphlet is to supply some practical information on the various styles of painted glass, such as may enable those engaged in the erection or restoration of church windows to lay out the funds at their disposal to the best advantage. A brief description, therefore, is given of the various kinds of glass suitable for ecclesiastical purposes, together with a few suggestions which Mr. Evans considers that his experience entitles him to hope will be found generally useful. As a fair example of his views we may quote the following passage, a little abbreviated:—

"In these two points, transparency, and architectural character, criticism on stained glass differs from criticism on painting in general; but, in all other respects, the principles of both arts are identical. Correctness of drawing, beauty of outline, and truthfulness of expression, are as requisite in one as the other; and no work in stained glass which does not possess these requisites can be considered as artistic, however brilliant in colour or careful in execution. Goggle eyes, splay feet, distorted hands, and impossible drapery, are quite as offensive to

A correct taste in stained glass as elsewhere; and service imitation and exaggeration of Mediaeval shortcomings in draughtsmanship are a charge less than an insult to the percept on and taste of our forefathers and ourselves; for, after all, the best old paintings on glass display no such grotesqueness: they are correct in drawing and delicate in manipulation; the expression is almost invariably admirable, and the arrangement of the figures masterly. Whatever faults there may be, they are never those of wilful incorrectness. They are executed with the nearest approach to perfection which could be achieved by the resources of the art as then known and practised. It is high time that a little common-sense practical criticism should be brought to bear on this point, and that glass-painters should no longer be allowed to conceal a shameful ignorance of the principles of correct drawing under the cloak of affected archaism."

We do not agree with the author, however, in the following remark:—

"I believe it would be found that those windows which have received the largest general approbation have almost always been those filled with single figures under canopies—a treatment which carries out to the utmost the architectural idea."

We are tired of "figures under canopies."

VARIORUM.

"THE FOOT and its Covering; comprising a full Translation of Dr. Camper's Work on 'The best Form of Shoe.' By James Dowie. London: Hardwicke, 192, Piccadilly, 1861." This is a very sensible treatise by one who takes an artistic and scientific interest in his subject, and who has evidently well studied the mechanical structure and action, as well as the anatomy and physiology, of that wonderful concatenation of bones, sinews, and muscles,—the human foot. Mr. Dowie is clearly an enthusiast in his business, and one who is quite able to urge his own ideas and experience, in book-form, on the public attention in what is really everybody's question, namely, how best to form boots and shoes so as to be both comfortable and slightly, while not impeding the action of the foot or distorting its construction. By army contractors, military officers, volunteers of all ranks, and the walking public at large, this little volume is really well worthy of a perusal. In its careful consideration is given to the sanitary state of the foot, and an elasticated leather is recommended, on twenty years' experience, for insertion in the waist, as it is called, of the foot covering, or elsewhere, so as to allow of the free expansibility of the foot, which, in fact, is itself an elastic, self-elevating lever, as Mr. Dowie rightly remarks; and hence, for free action, demands elasticity as well as a proper shape-ness in its covering. To soldiers on the march how important must attention to such a principle be! The fate of battles and of nations in forced marches might depend upon the fact of attention or inattention to such an apparently minor and trifling, but really very important point in military tactics.—Here, apropos, we may notice two small publications on military matters. One is a pamphlet, by Sir Duncan Macdougall, On "The History of the Volunteer Movement; its Promoters; and the means of greatly increasing its Force, and insuring its Stability." (Phipps, Ranelagh-street, Eaton-square, publisher). It is earnestly to be hoped that the scientific strife, the preparatory war, if we may so call it, of mechanical and other powers, which the two or three nations at the head of our restless little world are now waging, will very soon, so far from plunging us into actual war, render all such unprofitable, and destructive warfare impossible,—that the tremendous engines in shape of Armstrong guns, to destroy ships of war, and iron-plated steam rams and ship destroyers, to resist such guns, and Armstrong guns still, to destroy these dread steam rams and ships in armour, will all very shortly neutralise each other, and bring war and its alarms to a dead lock, from which they are never more to be dis-entangled. In the meantime, however, and till the auspicious advent of this golden age of peace, perhaps nothing has as yet been done by Britain so likely to cool the invading ardour of our eager French neighbours, as the vision which must now disturb their imaginations of conquest, of forests of volunteer rifles bristling up over all the coveted region. Towards the sprouting up of these iron rods for the punishment of invaders, Sir Duncan Macdougall himself did good service; and, in the pamphlet under notice, he records what he has been able to ascertain as to the efforts of others in the same good cause; and amongst his suggestions for the future is that of the enrolment of a sedentary militia, composed of all not serving as Volunteers, or in some other military employment, and to form a part of our national system of defence.—In another tract on military affairs, namely, on "Military Education in connection with the Universities. By James Baker (of Magdalene College, Cambridge) Lieutenant-Colonel, Cambridge University Volunteers, Macmillan & Co.,

Cambridge," a suggestion which must be rather startling to the Cambridge and Oxford Professors, is made,—that military education should form a branch of the general instruction given at the Universities, so that a young man, we suppose, might take out his military degree, just as he would his civil; and we should hear of bachelors and masters of military arts, as B.M.A.s and M.M.A.s, and so on.

Miscellaneous.

MR. LEA'S LECTURE ON THE HISTORY OF MUSIC.—There have been so many lectures "On Music" that a new candidate who takes that for his subject has a chance of being neglected. Mr. Lea, however, showed, on the 11th, in Horbury schoolroom, Notting-hill, that he has superior capabilities for the task, and deserves to be listened to. His matter was interesting, his delivery good; and many of his songs were so exceedingly well sung as to lead the audience to enforce the repetition of them.

A VICTIM TO ROUTINE.—A certain society lately gave a grant to build a parsonage-house. Among other things a well was to be dug, and the society had a regulation depth for their wells. Long before the depth was reached, a perpetual spring of excellent water was found, but found in vain. The regulation depth must be reached, and was reached. The water was not very good, but the unhappy parson was obliged to drink it. After a time he became seriously unwell, when it was discovered that the well-sinkers had dug into a spring of mineral water, and the poor man had been drinking a tonic every day of his life, because his benefactors were too conservative.—*National Review*.

ELEVATION OF THE HAVELock STATUE AT SUNDERLAND.—The statue, by Mr. Behnes, of Sir Henry Havelock, for Sunderland, having been forwarded by railway, reached Sunderland in time enough for placing on or before the late general's birth-day, the 5th of April; but it seems to have been either lost sight of or impounded for the carriage (12*l*. 15*s*. for 2 tons 11 cwt. from London to Sunderland); for it was not till about noon of the 5th that a member of the committee informed the contractor for placing it (Mr. John Hirst) that it had been at the railway station from the 1st inst. Mr. Hirst, being anxious, as others were, to honour the birth-day of the renowned soldier, by placing his statue on its pedestal on that day, instantly "knocked off" from all other business, his horses, waggons, labourers, and himself, and set to work with a will; so that before 8 p.m. the object was fairly and fully accomplished, in the midst of a cheering and gratified crowd of people. Brass cannon, taken from the Indian rebels, have been used in casting the statue from the model. Its height is 10 feet. The metal plinth is 6 inches high. The granite pedestal is 12 feet, and the freestone basement two feet six inches. The total elevation is 25 feet. The statue looks westward, towards Ford Hall, the place of the general's birth. In the right hand is a sword, and in the left hand a field telescope. An exhausted shell, and the stem of an Oriental tree, are introduced. It is understood that the pedestal will be surrounded by a railing of slight elevation.

UNHEALTHY ROOMS IN FROSTY WEATHER.—I wish (writes a correspondent) to bring under your notice (owing to the excessive mortality this last winter) the plan of having double windows to all hospitals, barracks, and workhouses. In Russia the common people are frequently deprived of sensation by vapours arising from the following cause. Persons of rank in that country have double windows to their houses in winter, but those of the poorer classes are only single. During frosty weather an incrustation is formed on the inside of the windows, from a condensation of the breath, perspiration, &c. of a number of persons living together in the same room. The mephitic crust is mixed with the noxious fumes of candles and lamps, and of the stove with which the chamber is heated. When a thaw succeeds, and this plate of ice is converted into water, a deleterious principle is disengaged, which produces effects similar to those arising from charcoal. (It is one of the laws of nature that heated bodies should give out part of their free caloric to neighbouring bodies at a lower temperature.) Hence the valuable properties of ice in cooling rooms in summer, and in the fever room. Ice absorbs all the caloric with which it comes in contact, as well as all mephitic gases, and communicates no part of its heat to the surrounding bodies till the whole of the ice is melted, when it gives out deleterious gases.

OXFORD SANITARY SOCIETY.—A series of popular lectures will shortly be delivered in connection with this Association. The first will be given by Dr. Acland in the Townhall on the evening of the 24th inst.

THE NATIONAL POST BANKS.—Government appears to be in earnest as to the establishment of a national system of savings banks in connection with the Post-office. The only question of any great moment dwelt on in the discussion on this subject in the Commons is precisely that which we started in first announcing the project; namely, the question as to how the system will affect the Post-office authorities and officials as regards trouble and cost. Mr. Gladstone candidly admits that he does not know and cannot estimate the result of the experiment in these respects; but one cannot help according a hearty approval of the principle and of the experimental endeavour to carry it out. In the Post-office establishment we not only have the only Government officials engaged in conducting a profitable system of accounting, in receipt and expenditure as carriers, or goods transmitting agents; but also, in fact, already as bankers, so far as transmission of money is concerned; and the Government savings-bank scheme, therefore, is merely the expansion of a system already in working order, and in general favour with the people, who are thus brought into direct relationship with the Government itself; and, by entrusting their savings to Government care, will become more and more interested in its stability. In this respect it resembles the sagacious scheme of borrowing small money loans from the working classes, instituted by the French Emperor. Should it eventually require a metropolitan establishment like the Bank of England, or larger still, to carry on its multifarious transactions, as has been imagined, let it be so; for then the very enormity and popularity of its dealings with the public will go far to prove its vast utility and its general desirability. Of course, if the project be successful, it will at length supersede the present savings-bank system; which, though, to a certain extent, connected with the Government, is defective in its construction, and by no means an unmixed good.

SALES OF ART-WORKS.—High prices have been paid for many of the works of art belonging to the Uzelli collection, sold at auction by Messrs. Christie, Manson, & Wood. Among the more noteworthy articles may be mentioned the following:—107. Plate with wide border and deep sunk centre, early Faenza ware; circumference, 15 15-20; attributed to the manufactory of Casa Pirotta. This exquisite plate is a specimen of the best time and most refined technique of the Majolica. The colours, especially the blue and orange, are of the most vivid and beautiful tints; reverse richly decorated with an entwined or knot pattern in blue and orange; diameter, 9½ inches—51*l*. (Whitehead). Sculpture in Marble.—116. A Boy with a Bird; statuette, 30 inches, in scagliola pedestal; and (117) A Girl with a Bird's Nest—57*l*. (Lord St. Leonard's). 140. Venus; life-sized statue in marble, by John Gibson, R.A. (this celebrated work was commissioned from the artist in 1853, in Rome, by the late possessor)—747*l*. 12*s*. (Rhodes). 205. Henry Leys, of Antwerp; "Mary of Burgundy giving Alms to the Poor;" commissioned from the artist by Mr. Uzelli—1,050*l*. (Parkinson). 235. J. M. W. Turner, R.A.; the Bass Rock, painted at Abbotsford, for Sir Walter Scott, 1851. 11*s*. (Vokins).—At the first day's sale of Prince Solikoff's famous collection (M. Pilot, auctioneer), at the Hotel des Ventes, Paris, the following, among others, according to the *Times*, were sold, after a stiff competition:—No. 70. "Rémontance," in gilt brass, richly ornamented with Gothic architecture; 16th century—3,100*l*. No. 73. Dove from the Eucharist; brass-gilt and enamelled; Limoges workmanship of the thirteenth century—3,100*l*. No. 94. Cross of cedar wood, coated with gold, containing a piece of the true cross, ornamented with the richest workmanship; eleventh century—3,000*l*. No. 233. Piece of ivory carving, Venetian, thirteenth century—7,700*l*. The second day's sale brought even higher prices. No. 274. Large carved oak cabinet, sixteenth century—16,500*l*. No. 275. Another, bearing the date of 1580—12,500*l*, both of the Lyons school. No. 332. Magnificent toilette of iron, damasked with gold and silver, end of sixteenth century, Lyons school—30,500*l*. No. 472. Ewer in Limoges enamel—16,200*l*. No. 473. Basin to match—21,000*l*. No. 500. Large enamelled basin, by P. Cortois, of Limoges, middle of sixteenth century—18,000*l*. No. 539. Round dish of Bernard de Palissy—10,000*l*. The whole proceeds of the day's sale amounted to something over 300,000*l*.

NELSON'S MONUMENT.—In the Commons, last week, Admiral Walcott called attention to the incomplete state of the Nelson monument in Trafalgar-square, and remarked that the vote to complete the monument had been granted in 1855. Mr. Cowper, in reply, acknowledged that there had been very great delay in the completion of the Nelson monument. But it should be remembered that worse things than delay might be apprehended with regard to the statues in Trafalgar-square. The Government had done what they best could by placing the composition of the lions in the hands of Sir Edward Landseer, and that gentleman, he believed, was now carefully occupied in modelling these lions. He felt quite sure that Sir Edward Landseer would be stimulated by the sentiments of the hon. and gallant gentleman who so well represented the British Lion in that House.

PLACING POSTS.—In the *North British Agriculturist*, Mr. Gray, of Dilton, says,—Larch posts (and those of Scotch fir I do not consider worth the labour of making and setting) will last much longer when driven with the thick end into the ground than otherwise. The reasons are obvious enough; for in that case there is much less of a flat top to receive and admit rain, as well as a greater substance and a more durable portion of wood within the ground, where it is most liable to decay. Besides which, all wood lasts longer when placed in the position in which it grows than by reversing it; which seems to be quite natural, when we consider, that, as the tree tapers upwards, the cells and tissues, or veins, in which the sap moves, become smaller and less calculated to admit and convey external moisture than when the position of the tree is reversed. Larch lasts much longer when peeled than when used in the bark.

A SELF-ACTING FAN.—A correspondent, Mr. James Bruce, asks some other correspondent of the *Builder* to inform him how to construct a self-acting fan for small apartments at a cheap cost. Such a ventilator of close rooms, he rightly remarks, would be a great blessing, and its successful inventor would merit a place in the Great Exhibition, and ample remuneration were his apparatus so simple and cheap as to be within reach of the poorest. Passing on the suggestion, to those for whom it was intended; we may merely suggest that a roasting-jack, small or large, such as are wound up with a key, might readily have a circular fan mounted on it when requisite, and be made to work as well, perhaps, as any special apparatus, without any injury to it as regards its usual purpose. A self-acting fan in a close room during summer would certainly be not only a luxury but also a useful sanitary agent.

THE AMERICAN OIL SPRINGS.—Appended to a printed report on the prospects and progress of the Atlantic and Great Western Railway, by the Engineer-in-Chief, Mr. T. W. Kennard, are some documents confirmatory of several of the extraordinary accounts of oil springs and wells in the West, which of late have reached this country. One is a report on the wells by a director of the Atlantic and Great Western Railway in Pennsylvania, dated 9th March, 1861, in which it is stated that one of the directors has two very fine wells himself on Oil-creek; and he appends extracts from the *Oil-creek Reporter* of Titusville, containing many particulars, which show, however, that the "very fine wells" are only a few prizes among a great many blanks: ten, fifteen, and twenty barrels a day, nevertheless, seem to be a very ordinary run for average wells. The *New York Tribune* gives a long article, also confirmatory of the reality of "the oil fever" in the West; and it states that oil has been discovered in Canada West, not far from London.

RAILING AT RAILS.—Sir: I am surprised you do not discountenance in your excellent journal the placing of rails to public buildings, statues, &c., injuring the effect by withdrawing the eye from the building to the mere enclosure. One reason why buildings generally produce a better effect on the Continent than with us is the more usual absence of rails, or certainly of unnecessarily conspicuous ones. Most of the cathedrals abroad have this advantage. Our British Museum is almost buried in rails, on looking from the outside; and what an incredible improvement would be the result of removing that heavy dirty enclosure at St. Paul's! By the bye, why are the bronze figures in Berlin so beautifully polished, unlike our dull metals? Perhaps some of your readers can answer.—A TRAVELLER.

* * If "A Traveller" were a reader of the *Builder*, he would know that we do discountenance the placing of rails.

A FOLK-LORE PREVENTIVE AGAINST INFECTION.—An old cottager told me, says a correspondent of "*Notes and Queries*," that the best way to prevent small-pox from spreading was, to open the window of the sick room at sunset, in order to admit the gnats, who would load themselves with the infection, and then fly forth and die. "Smoking, and white-wash, and tar-water, are fools to them gnats," said the old cottager. Perhaps he was right, too, so far we may remark on this anecdote, since the gnats required open windows to prevent infection.

THE FEMALE SCHOOL OF ART.—At the Female School of Art in connection with the Science and Art Department of the Committee of Council on Education, 43, Queen's-square, Bloomsbury, the students' drawings, executed in competition for the medals during the session 1860-61, are now on view. The statement, that while, in 1860, the medals awarded were twenty-six, of which were forwarded, for national competition for medallions, seventeen,—in 1861 the medals awarded were (the full number) thirty, of which were forwarded, for national competition for medallions, twenty-two,—shows that the school is not merely holding its own, but is making progress. Funds are still wanted to ensure its permanency.

EXPENDITURE ON THE BIRKENHEAD DOCK WORKS.—At a recent meeting of the Mersey Docks and Harbour Board, it was stated, in a report by the engineers, that the total sum expended on these works, since they came into the hands of the Board, had been 838,962. 14s. 3d. up to the present time. It was also stated that the works themselves were being rapidly proceeded with. A very considerable portion of the hydraulic apparatus for working the sluicing runs has been received, and is in course of being permanently fixed; and for the coal trade accommodation two of the three hydraulic hoists have been erected, and the third is in course of erection, as well as a large crane capable of lifting sixty tons, on the side of the great float.

THE SEARCH FOR A HOUSE.—Taking a house is not so very easily accomplished: you have first to find one. "Nonsense," you say: "houses are plentiful enough in London." That may be true enough; but give a look round, say from Charing-cross, in a direction east, west, or north, and how many miles must you walk ere you find a small house suited to a working man? You either find mansions of the aristocracy of a former time, now let out as barracks, in which you may obtain an allotment, and lose all chance of that self-respect which an Englishman is supposed to cherish in the privacy of his castle; or you may secure a house in some dark, ill-ventilated street, whose very aspect is sufficient to deter your venturing to look at it, even though the rent be not a speculation to be seriously considered as well. What house to buy, rent, and avoid, might form a useful theme for a guide-book of London. Search though I did,—devoting all the time I could spare for months,—for a convenient small house within half an hour's walk of my place of employment near the Strand, nothing at all eligible was to be obtained. How I did walk! morning, noon, and night; but the experience I gained was sufficient to make me desire not to have such an errand again.—*Bate's Recollections of a Working Man.*

TOWN TELEGRAPHING IN BIRMINGHAM.—During the last few days, a number of workmen have been engaged in affixing lines of telegraphic wire to posts and conductors erected on the house-tops and roofs of buildings in this town. The works are intended for the use of the United Kingdom Electric Telegraphic Company, who are carrying out the cheap system of telegraph communication throughout the United Kingdom. By this company, as we think we have before mentioned, a message not exceeding twenty words will be conveyed to or from any part of the kingdom at the uniform rate of one shilling, irrespective of distance. The first part of the line, between Birmingham and London, is expected to be ready for opening by the 1st of May. The engineer engaged on behalf of the company is Mr. John Robinson, of London; and the works from Long Itchington, near Leamington, to Birmingham, are in the hands of Messrs. Reid & Co., of London, contractors. The wires are laid along the whole line of the Warwick and Birmingham Canal, through Knowle, to Birmingham. It is intended to carry the line on to Liverpool, *via* Wednesbury, Bilston, and Wolverhampton, over the tops of the houses along the route. For the use of the roofs of premises, the company guarantee a certain annual rent, and undertake to remove the wires within a given time after notice to do so. The line between Birmingham and Liverpool will probably be complete in about three months.

THAMES EMBANKMENT.—A large number of plans for the embankment and improvement of the River Thames have been sent in to the Commissioners appointed to inquire into this important subject; and it is understood that they will commence their labours forthwith.

MRS. BODICHON'S DRAWINGS AT THE FRENCH GALLERY.—Mrs. Bodichon is exhibiting 43 drawings in Pall Mall which deserve a visit. To show the character of the subjects, we may mention, as amongst the best specimens; (22) View of the Hydra Marabout after Sunset; (24) Cypress Trees in the Plain of the Metidja, and Storks; and (35) A Bean Field in Sussex at Sunset.

NORTHAMPTON TOWN-HALL.—An announcement has been made of a meeting of the Council to receive and consider the report of Mr. Tite upon the three designs for the Town-hall, &c. selected by him, and to make an order thereon. The designs, with Mr. Tite's report, it appears, have been exhibited for the inspection of the members of the Council.

INAUGURATION OF THE PELLY MEMORIAL SCHOOLS, AT WEST HAM.—The schools, at West Ham, erected in memory of the late Sir John Pelly, bart., have been inaugurated by Earl Granville, the Lord President of the Council. The buildings, which comprise school accommodation and class-rooms for 320 boys, with master's residence, are in the Italian Gothic style, of the thirteenth century. The whole of the buildings are of brick, with varied colours, arranged so as to avoid monotony. The dressings to the windows, entrances, and bell-gable, are of stone. The plan of the school, without class-rooms, nearly approaches the T form, and the depth is respectively 85 feet and 59 feet, by 15 feet wide. The master's residence is attached to the school, but has a distinct entrance. The school is fronted by a playground. The buildings have been erected from designs by and under the superintendence of Mr. J. Johnson, architect; the builders being Messrs. Sanders. The cost of the buildings is 3,800.

STAMPING NEATS' SKINS INTO HOGS' SKINS.—At the Police-court, Bow-street, last week, Mr. J. H. Banks, of Ely-court, Holborn, engraver, was charged, under a summons, by Mr. Essex, currier, Stanhope-street, Clare-market, with obtaining 81s. by representing certain electrotyped plates to be engraved plates. From the evidence adduced it appeared that the currier wanted a large plate engraved to print on neat's leather, to imitate the grain of hog's skin, and that the engraver supplied an electrotyped one instead. The work was admitted to be well done; only it was not so good and durable as engraving. The defendant was expected to keep the matter a secret. This, however, he had not done; and, on the contrary, had offered to get them up for others very cheaply, so that every saddler would have one. Mr. Corrie thought there was evidence of a false pretence in the meaning of the statute. He should commit defendant for trial, but admit him to bail in two sureties of 20l. each.

EXPERIMENTS WITH THE INDUCTION COIL.—At the London Mechanics' Institution, on 17th April, Mr. E. Wheeler, C.E., lectured on the induction coil, the apparatus used by him being of his own design and construction. In the course of his experiments he showed that, in common coal gas of moderate density, the spark passed in zig-zag lines of emerald green. Through pure hydrogen it resembled forked lightning of the deepest crimson. Atmospheric air reduced to a vacuum showed a broad ribbon of genuine mauve, a yard long. A similar line, of light made to pass over a wine decanter of Uranium glass, in an exhausted receiver, exhibited upon the decanter tints of extreme richness. A hock wine glass *in vacuo* was made the recipient of a current from the coil; and the electricity, streaming over the edges of the wine-glass with roseate tints, seemed like a material liquid flowing from some invisible source, and changing into a brilliant electric cascade. A line of sky-blue light, being caused to traverse an electro-magnet, was seen to revolve round its poles; an illustration of the close relations between light, electricity, and magnetism. An example of the stratified form which the light occasionally assumes was supplied in a large glass tube of rarefied carbonic acid gas. In hermetically sealed glass tubes of fantastic shapes, nitrogen gas exhibited pink and carmine tints; sulphurous acid gas, an azure blue; hydrogen, a deep crimson; carbonic oxide, green. Phosphoric acid gas was visible in the tube by a faint green light for some seconds after the discharge had ceased. A chromatic star, in rapid rotation, and with striking contrasts and endless combinations of colour and light, formed the concluding experiment.

MANCHESTER SCHOOL OF ART.—The annual meeting of the subscribers to this school has been recently held. The report stated that the total receipts of the year amounted to 1,437l. 14s. 2d., and the expenditure to 1,509l. 15s. 3d. and the balance owing last year was 60l. 15s. 5d.; and the balance left in the bank at the end of the present year was 7l. 6s. 6d. The report of the committee alluded with satisfaction to the fact that, owing partly to a handsome donation from the president, and partly to economy in the management, the Institution was now out of debt. The Head Master Mr. Hammersley's report stated that the school continued to be extensively used by the Manchester calico printers and others engaged in decorative manufactures: the demand for pupils from the Institute was, in fact, in excess of the supply. The school had last year gained the maximum number of medals which any school could obtain. Nine of the most promising artists of the day had their hands and minds disciplined within the walls of the Manchester School of Art. Mr. R. Rumney in moving the adoption of the report, said there were 462 pupils in constant attendance, who must convey home a beneficial influence from art studies to 2,000 persons; and, reckoning the connected schools, the number would be at least 5,000 who, through this school, received a moral influence from the education of the eye, the hand, and the taste.

SANITARY IMPROVEMENT OF SUNDERLAND.—The last quarter's returns, says the local *Times*, afford gratifying evidence of the health-condition of the borough. In the corresponding quarter for 1860, the deaths were—

	1860.	1861.	Less in 1861.
Sunderland Parish....	150	134	26
Bishopwearmouth.....	275	468	7
Monkwearmouth.....	119	95	24
Totals.....	544	497	57

The quarter ending March, 1860, was certainly in excess of the usual mortality of the season, while the deaths in the quarter just ended are below the average. Sunderland parish in particular exhibits a steady improvement in its sanitary condition. The shocking state of things which existed in many densely-populated lanes, previously to the provision of such means of decency and comfort, and which are now said to have been supplied to almost every dwelling, may be imagined, but dare hardly be described. The abominable condition of the district called New Hendon, which is beyond the boundaries of the municipal borough, undrained and unpaved, and where fever is now ripe, is evidence of the need of sanitary laws and of the power to enforce them.

EDINBURGH.—Nearly three years ago an important addition to the Royal Bank Building, St. Andrew's-square, was commenced from designs prepared by Messrs. Peddie & Kinnear, architects. The work is now almost completed. A new telling-room, library, rooms for book-saves, plate-saves, &c., are provided by this extension. The new building is at the back of the original bank edifice. The telling-room, the most prominent feature in the design (and illustrated by us some time ago), is directly opposite, and on a level with, the main entrance to the bank. The room is in plan a square of about 60 feet, with recesses about 30 feet by 15 feet deep, at the entrance side and at the side opposite. These recesses are crowned by semi-circular arches which spring from pilasters. The room is surmounted by a large dome. The details of the telling-room are in style a modification of Greek and Renaissance. The prevailing colours on the walls are white with gold, grey, salmon tints, and pinkish browns. A deep blue forms the ground-work of the dome, and the mouldings of the starlights and also of the centre sunlight are done in white, with gilt enrichments. The centre light is surrounded with ornamental rays of plaster-work. The doors are of oak, carved and dressed with architraves and cornices. The floor space is laid with encaustic tiles of a square pattern. The library is 72 feet long, and upwards of 20 feet broad. The roof is supported by iron-arched ribs: the wood is stained; and the slight decorations introduced are open scroll-work. The interior of the approach to the bank is undergoing an alteration. A colonnade and vestibule are being formed as an approach to the new telling-room. The painting was executed by Messrs. C. & J. Moxon; the joiner-work by Mr. T. Fullerton; and the plaster-work (including the figures), by Mr. James Steele, modeller, Glasgow, who has realized the designs of Messrs. Peddie & Kinnear. The superintendent of works was Mr. Stalker. Arrangements have been made to commence the building of Chalmers's Hospital for the sick and hurt, on the site of Lauriston House.

THE WORKS OF THE LATE MR. H. H. PICKERSGILL.—Messrs. Christie & Manson advertise for sale on the 24th, the works in oil and water-colours of the late Mr. Henry H. Pickersgill. The private view is fixed for the 22nd. The collection includes some of the artist's best productions.

GLASTONBURY.—Sir: I regret to inform you that Glastonbury, especially the ruin of Joseph of Arimathea's Chapel, has suffered considerably from the severity of last winter, the crypt vaulting, of which little remained, especially, and any parts which were damp. I beg to call the attention of all local archaeologists to the very great injury done to all ruins by the elder-tree—worse than the fig-tree of warm climates: it thrusts itself between the joints of the stones; and, unlike ivy, destroys them.—**SOMERSET.**

BITUMENIZED PIPES.—The directors of the Patent Bitumenized Water, Gas, and Drainage Pipe Company, at their general meeting held the other day, stated that they had set up a second machine (with considerable improvements on the first); and that they had been obliged to enter into a contract for the erection of an addition to the manufactory at Bow, which addition will be 80 feet long by 30 feet wide, together with new washing and coating houses, at a cost of 3,000l. It appears that the demand for the pipes is becoming considerable.

TOWNSHIP SURVEYORSHIP OF BELFAST.—For this office there were, we learn from the *News Letter*, thirty-eight candidates; and the town council, having had two meetings for the consideration of testimonials, have reduced the list of candidates to the four following gentlemen, among whom the contest will lie:—Mr. James Fraser, an assistant surveyor of this county, and son of John Fraser, county surveyor of Donegal; Mr. John Archer, of Dunadry, who has been for some time connected with Sir John Macneill's staff; Mr. J. J. Montgomery, of Bradford; and Mr. Percott, of Bath. The election will take place on the 24th instant.

NEW PUBLIC BUILDINGS IN WOLVERHAMPTON, FOR THE MAGISTRATES AND POLICE.—The Public Works Committee of this borough have received eighteen replies to their advertisement for designs for the above-named buildings, which comprise magistrates' room with its appurtenances, chief constable's offices and residence, office for inspector of weights and measures, barracks for the police force, cells for prisoners, &c., which the Town Council propose to erect in connection with the Town Hall in North-street. The committee have met for the purpose of examining and considering the plans, but have not yet proceeded so far as to enable them to make their recommendations on the subject to the Council.

WORKMEN IN ROME.—The author of "Rome in 1860" says:—"I now turn to the third cause that eats up the wages of the working man at Rome—a curse even greater, I think, than the 'festas' or the malaria: I mean the universality of the middle-man system. If you require any work done, from stone-carving to digging, you seldom or never deal with the actual workman. If you are a farmer and want your harvest got in, you contract months beforehand with an agent, who agrees to supply you with harvestmen in certain numbers at a certain price, out of which price he pockets as large a percentage as he can, and has probably commissions to pay himself to some sub-contractor. If you are a sculptor and wish a block of marble chiselled in the rough, the man you contract with to hew the block at certain day-wages brings a boy to do the work at half the above amount or less, and only looks in from time to time to see how the work is proceeding. It is the same in every branch of trade or business. If you wish to make a purchase, or effect a sale, or hire a servant, you have whole series of commissions or brokerages to pay before you come into contact with the principals. If you inquire why this system is not broken through—why the employer does not deal directly with his workmen—you are told that the custom of the country is against any other method; that amongst the workmen themselves there is so much terrorism and intimidation and espionage, that any single employer or labourer who contracted for work independently would run a risk of annoyance or actual injury; of having, for example, his block of marble split 'by a slip of the hand,' or his tools destroyed, or a knife stuck in him as he went home at night; and, more than all that, without the actual overseer, your workmen would cheat you right and left, no matter what wages you paid. After all it is better to be cheated by one man than by a dozen; and being at Rome you must do as the Romans do.

IRON CHURCH, SOUTHPORT.—This church, erected for temporary use whilst the proposed new church is being prepared, has been opened for divine service. Three months since the edifice was standing at Birkenhead: it was afterwards taken to pieces, and transported by railway to its present site, where it has since been re-erected. On the 12th of March the first brick was laid of the sleeper walls, so that it has taken one month only to erect the structure ready for use. Messrs. Edward T. Bellhouse & Co., of Manchester, have executed the removal and re-erection of the church at a contract sum below 200l. The structure is Ecclesiastical in design; the exterior being of iron galvanized sheets, with buttresses of iron and wood, and the interior being lined with wood covered with canvas and paper on the walls. The internal pillars and arched spandrels of the roof are of woodwork. The gaslights are upon brackets projecting from the pillars. The building was originally made by a Liverpool firm, and has for several years been used at Birkenhead, as a place of worship in connection with the Established Church.

TENDERS

For taking down and rebuilding the "Sailor's Return" inn, at Grays, Essex, for Mr. B. Suezdam. Quantities supplied by Mr. R. L. Curtis, after deducting value of old materials:—

Hedges.....	£1,337 0 0
Raby.....	1,197 0 0
Placie.....	1,125 0 0
Page.....	1,084 0 0
Raynam.....	1,084 0 0
Stevenson (accepted).....	1,022 0 0

For three houses, Commercial-place, Hackney. Mr. George Low, architect.—

Tully & Son.....	2,404 0 0
Macdonald.....	2,387 0 0
East.....	2,199 0 0
Beton.....	2,103 0 0
Walker (accepted).....	2,132 0 0

For a new house for the Sheffield Club. Mr. M. E. Hadfield, architect. Quantities supplied. For the whole:—

Larder.....	£5,255 0 0
Mycock.....	4,390 0 0
Wade.....	4,040 0 0
Carr.....	4,717 0 0
Bradbury.....	4,686 0 0
Powell.....	4,450 0 0
Chadwick & Son.....	4,400 0 0
Craven, J. & A.....	4,294 10 0

For works at a school and school-house at Red Hill, Surrey, for Lady Mostyn, under Mr. D. C. Nicholls, architect, by whom the quantities were supplied:—

	Schools.	House.	Total.
Brown & Robinson.....	£702	£243	£945
Fisher.....	685	299	894
Caunters.....	670	215	885
Batterbury.....	650	209	859
Nash.....	674	175	849
Glasgow.....	630	205	835

For the Boys' Orphanage, Liverpool, for the Orphanage committee, Mr. E. Welby Pugin, architect. The quantities supplied by Mr. Marples:—

Glaister.....	£3,300 0 0
Farrell & Lodge.....	3,195 0 0
Yates (accepted).....	3,630 14 6

For the formation of roads and laying down 2,260 feet of Creeke's patent capped drain pipes, on the Hemett Park estate, Blackheath. Mr. John Ashdown, architect and surveyor.—

Tottle.....	£1,340 0 0
Wilson.....	1,060 0 0
Lee.....	974 0 0
Cook.....	910 0 0
Horne.....	802 0 0
Aswell.....	795 0 0
Belton & Clark.....	793 0 0
Duwell.....	792 0 0
Pound.....	784 0 0
Cole.....	711 0 0
Hartland & Bloomfield.....	616 0 0
Lanvier.....	615 0 0
Aird.....	556 0 0
Sharon.....	539 0 0
Symes.....	387 0 0
E. & J. Fraser (accepted).....	385 0 0

For laying down 740 feet of 12-inch Creeke's patent capped drain pipes, with gullies and junctions, in Ruman-row, Bow, for the Poplar Board of Works. Mr. Robert Parker, surveyor.—

Finck.....	£164 0 0
Pound.....	145 0 0
Stewart.....	145 0 0
Payson.....	139 0 0
Deming.....	133 0 0
Salt.....	130 0 0
Cole.....	129 0 0
Wilson (accepted).....	103 10 0

For a new Vestry-hall, for the parish of St. James, Westminster, to be erected in Piccadilly, adjoining the church-yard. Brick with Portland Stone Dressings. Less for Cement. Instead of Stone.

Lawrence.....	£2,383 0 0
Abbott.....	3,375 0 0
Bird.....	3,359 0 0
Patrick.....	3,145 0 0
Cubit.....	3,120 0 0
Myers.....	3,749 0 0
Mansfield.....	3,990 0 0

* Accepted, and the Vestry has sanctioned the immediate proceeding with the work.

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The Builder.

VOL. XIX.—No. 951.

Population: Houses; and Improvements: Paris.

HE reasons which induced the Government of France and the Prefecture of the Seine to undertake and carry forward the works now in progress in Paris; the vastness of the design, followed by activity in execution,—forming an example to which it is difficult, if not impossible, to find a parallel; and the interest which there must be for the inhabitants of overcrowded London, in the several measures taken, in the financial questions arising, and in the comprehensive sanitary, social, and moral, financial, political, and architectural result; all have been spoken of or alluded to in recent articles in the



Builder, but still without furnishing the full particulars necessary to apprehension of facts and estimation of consequences. Since our article was published, wherein we described some of the principal new lines of street in Paris, the fact that there are circumstances in either capital which are similar to those in the other,—that is, alike demanding the formation of ample routes of communication, and alike involving the question of immediate effects on the occupants of dwellings interfered with, has been very pointedly shown by the debate in the House of Lords relative to the projected railways, and by that in the Corps Législatif lately mentioned, wherein the manner of conducting the improvements in Paris was made the ground of accusation of the Municipal Council and the Government, and the effects such as have just been referred to, having really accrued to a most serious extent, were prominently advanced. Whether the like circumstances or effects, are avoidable in great cities, or whether they will continue the inevitable difficulty in measures which are necessary for the people themselves, is a question which we do not attempt to answer in this place: we merely say that we have long urged the provision of new routes and more bridges for London, on the evidence that thus, whilst only thus to a great extent, would be made obtainable the residences demanded in, or in immediate relation with, the central district, and thus made available quarters even centrally situated which we showed as existent.

The incidence of the evil to be corrected, and of that which may have to be temporarily endured, must be considerably greater in Paris than in London. The large open spaces, valuable as they are, like "the lungs of London" or our squares; and the quantity of ground occupied by public buildings, the influx of strangers, and the tendency of fashion; and the ordinary circumstances in capitals; result in producing an exceeding density of the population in the central quarters. We have not indeed the data for a precise comparison

with London: without such comparison our figures may be not of the entire value; and those which we have in the valuable "Recherches Statistiques sur la Ville de Paris," &c., are not brought down to a later period than the year 1856. The results of this year's census in France, and those of the census in England, as soon as published, will doubtless afford materials of the kind needed; and we wait for these with deep interest. The inquiry as to the density of the population, even taking the figures as they were in 1856, would be complicated by the difficulty or labour of making the deduction, for unoccupied areas, which is necessary to our object. But we apprehend that as soon as the new statistics appear, not only will it be found that the population of the French capital has greatly increased, but that the majority of the houses inhabited by the industrious classes are more densely packed. It is the object of the improvements to alleviate this condition; but so long as it exists, it produces and entails evils such as are obvious to those in England who have studied these subjects, and further evils, of which it requires a residence in Paris and special observation of the condition of the people, to comprehend the extent, the peculiarity, and the eventual tendencies and consequences. Meanwhile, however, we may state some facts collected from the authentic sources; and of which the significance will be felt. The progress from 1817 to 1856, of the population of the area of the capital, lying within the old octroi wall, or external boulevards, is shown by the following figures:—

In 1817 there were	713,966 persons.
" 1831	" 785,862 "
" 1836	" 868,438 "
" 1841	" 935,261 "
" 1846	" 1,053,897 "
" 1851	" 1,053,262 "
" 1856	" 1,174,346 "

It will be observed that there was no increase in the five years ending with 1851, a circumstance which is attributed to the effects of the revolution of 1848, and other causes. The total increase in the period comprised by the above dates, is 460,380 persons; of this, only 90,000 being due to the excess of births over deaths; the augmentation from other sources had been, say 370,000 inhabitants up to 1856. As regards the districts beyond the octroi wall, there was a much more rapid increase; whilst the freedom for expansion allowed, as we shall see in this or a future article, large unoccupied areas to be left. Looking at the communes in which the augmentation has been most remarkable, we find that in Belleville, the number of inhabitants in 1831, was 8,109; in 1836, 10,705; in 1841, 19,515; in 1846, 27,556; in 1851, 34,730, and in 1856, 57,699: in the Batignolles, for the same years of census return, the numbers were 6,826, 11,571, 14,073, 19,864, 23,762, and 44,094: in the district adjoining the last, Montmartre, of which we shall again have to speak, they were 4,571, 6,847, 7,802, 14,710, 23,112, and 36,450; and in La Chapelle, which is next, east, they were 2,440, 4,182, 8,664, 14,398, 18,700, and 33,355. The population of La Villette, which was 18,651 in 1851, was 30,287 in 1856. The numbers are not so large on the other side of the river, but the rate of augmentation is hardly less remarkable. Vaugirard, with 26,223 inhabitants; Gentilly, 20,721; and Montrouge, 19,910, were the most populous quarters at the date 1856.

But, keeping attention to the twelve arrondissements of the old division as in the year 1856, we have some figures which may be usefully given, though, as already said, they do not, taken alone, give a sufficiently exact picture. The number of inhabitants per house, the average of these arrondissements, was 40 in 1856: it had been 36 in 1851. The highest figure for a "quartier," which we find in the same table for 1856 in the "Recherches Statistiques," is 56, for the Faubourg St. Denis. The lowest in the same year was 25, in what appears a peculiar case, the Palais de Justice; and the next lowest 27, for the Champs

Elysées. The highest figure in the table for 1851 is found attached to the same quarter, Faubourg St. Denis, the number of inhabitants per house having been 53. Thus, there was an increase from 1851 to 1856 in the density of the population in this quarter amounting to three persons per house. It was caused partly by the destruction of seventeen houses. The number of inhabitants per house in the quarter of the Palais de Justice, in 1851, was 21, and in that of the Champs Elysées, 24: thus there was in these quarters also, in the five years, an increasing density. Three or four persons for a Parisian house may not seem large as increase; but for five years it is considerable enough; and, moreover, it is for a period before the present improvements had fairly commenced. There were 10,222 *ménages* or households in the Faubourg St. Denis in 1851; whilst there were 10,962 *loations* (which may be taken as implying the same as the other designation) in 1856. In the Quartier du Marais we find that the number for the corresponding item increased, in the same five years, from 9,825 to 11,143; and in the adjoining quarter of the Faubourg St. Antoine, from 7,091 to 8,309. In the Champs Elysées the increase was from 7,571 to 9,798. The worst of the cases just mentioned however, appears favourable in comparison with certain quarters, when we find what was the number of square mètres of ground for each inhabitant. Whilst in the Marais this was 14, and in the Faubourg St. Antoine as much as 43; in the Porte Saint-Denis, and some other quarters, it was as little as 8; the numbers for quarters otherwise circumstanced running up to 100, which is the figure for the Invalides. The general average was 28. These figures, which have perhaps not before been so pointedly contrasted, are, we say, very significant. We should find more evidence, of corresponding importance, in the volume before us, which is a work most creditable to the Statistical Department of the Prefecture of the Seine. According to the report in the *Moniteur* of the speech of the minister, Mr. Billault, there have arrived in Paris in ten years an additional number of 500,000 inhabitants; whilst to lodge such a number, the houses required would be not less than 16,500 additional. In 1851, he said, there were in Paris 1,268,904 inhabitants, and 40,723 houses; whilst at present Paris contained 1,737,983 inhabitants, and 56,050 houses: which would show that 15,327 houses have been built,—the number demolished in the same time being stated as only 2,494. The figures appear to have been doubted, but were maintained by the minister as existing in official returns: we cannot question them; but we have not seen the returns. The number of *logements* vacant at present was set down by Mr. Billault at about 10,000. There should be, he said, 20,000 to 25,000 in that position, to ensure a favourable state of the market; but there had been at one time hardly more than a few hundreds. On the same authority, there has been an improvement in the number of the small *logements*. This is the real question. The minister says that the number of *logements* at 250 to 500 francs, which was in 1860, 123,434, is, in 1861, 129,434. That may prove, as he says, one of two things, that the rents are falling, or that the number of small *logements* augments; but we think it has yet to be shown that the French artisan can pay 250 francs, or can easily meet with the residence which his circumstances permit him to demand. It may be recollected that, whilst it was stated in the Report of the Prefect of the Seine that there should be 25,000 to 40,000 *logements* vacant, it was said in the same document that there had been a gain of 2,815 houses and 14,325 *logements* in the single year 1860, such gain being almost entirely in the populous arrondissements where the houses were not generally of the class called *hôtels*. These statements are unquestioned by the French journals; yet are not considered as sufficient. In *La Patrie*, even, a Government paper, Mr. Louis Bellet asks if the diminution in price spoken of

by Mr. Billault can benefit the classes in the lower ranks, and says—

"The *appartements* will be multiplied,—be it so: they will inevitably lower the price again,—be it so: but is there exactly there, what concerns a number so considerable of the inhabitants of Paris? What is necessary for them is, that the simple *logements* which they need, and which alone they can occupy, should not tend to disappear more and more, and become, as they are indeed at present, veritable rarities."

And, he continues, the view thus circumscribed, of the question of rents, "reveals a state of hardship which weighs heavily upon the Parisian population." But the pressure of that weight is even more grievous than here disclosed. If not taken off soon, it will permanently demoralize and disorganize French society. The question of the financial calculations and measures which continues to be urged in the *Opinion Nationale*, we must leave for the present.

The gain in health is great, if correctly stated. According to the ministerial authority already named, there was 1 decrease for 38 inhabitants in 1851 and 1852; in 1856, 1 for 39; and in 1860, 1 for 40; which he said was a reduction in ten years of more than 6 per cent. in the mortality.*

The suffering amongst the middle and upper classes, if not the consequences in the moral and social point of view, are scarcely less, for the moment, than those which have been spoken of. Towards the end of last year it was found that rents of ordinary apartments had doubled or trebled within a short period; and several pamphlets appeared on the subject. The author of two of these, "*Qu'est-ce que le Propriétaire d'une Maison à Paris?*" and "*Paris Inhabitable*," Mr. A. Weill, in a subsequent rejoinder to an interested party, said, according to the correspondent of the *Times*:—

"I am not speaking of new houses, or of houses purchased within the last year, which, nevertheless, although bought at fabulous prices, yield 6 or 7 per cent. I speak of old houses, that is to say, of seven-eighths of the houses of Paris. Now, here is what I find on investigation, and I am ready to designate the houses I refer to:—Properties in the centre of Paris, purchased under the restoration for 100,000, capital, now yield 100,000 interest. There are some at 300,000 which bring in 300,000 a year, and which, made the most of, that is to say, depriving the inhabitants of air and light, as to all the architects of the present day, would certainly yield 100 per cent. Houses purchased in Louis Philippe's time yield, with old leases, 30 per cent, and without old leases, 40 to 50 per cent. Close to me a house bought in 1847 for 100,000, brings in 20,000, a year, with a shop let on lease at 2,500, and which, when the lease is out, will not be let for less than 7,000. Another house purchased for 240,000, is for sale. The price demanded is 1,000,000. The ground of the court-yard alone is worth 400,000; but, besides that, the house as it stands brings 50,000 a year, and is worth about 120,000, at present prices. I do not speak of houses bought in 1818." When payment of rent was refused by tenants, and property was frequently deprecatized. "It is fabulous. All the houses bought from 1841 to 1855 bring in 20 to 25 per cent in the centre of Paris, and even in the Faubourg St. Germain."

It was said about the same time that Paris had become the dearest place in Europe for all necessities, and that great numbers of English families had left. The statements of Mr. Guérout in the pamphlet which we mentioned in a recent article, the reports continually appearing, and our own knowledge, show that the gravity of the position is not yet lessened; and if the financial calculations be generally erroneous, as the amounts which have to be allotted to persons expropriated are enormous, we should dread the result.

But to form an opinion of the actual condition of the population, the quarters themselves must be examined street by street, and the proportions of width of street, height of buildings, and superficies of occupied ground, must be sought to be arrived at. Throughout the central parts of Paris, the streets, deducting the boulevards, and the Rue de Rivoli and the Rue de la Paix, are very narrow in comparison with those of London; whilst the houses are exceedingly lofty. The number of streets to houses is relatively great. And here it is worthy of remark that the principal works now completed, as it is asserted is generally the case, were undertaken to some extent without due consideration of points involved,—matters of plan and items of cost. There is much matter for admiration in the street-planning of the

French capital, as we have lately and always said. The lines of the streets and the sites of the buildings are chosen with reference to one another. But the mere prolongation of straight lines, which is the dominant principle in Paris, we hold is not favourable even to effect. The result is a curiosity, and a surprise for the first moment of view: but length, beyond a certain distance, unless very cleverly broken by recesses and projections, and therefore counteractive rather than favourable to the beauty of street architecture intended. There is not such relief as we have referred to, in the more recent architecture in Paris: the merit of what is to be seen there is to be sought in other elements of the works designed. We will not seek to show that some of the most admired effects in cities result where the streets happen to be not in right lines, or lines greatly prolonged; or that something may be learned from the analogy of the effect, well understood by the ancients, it is said, produced by buildings placed to be seen from fixed points, rather than gradually approached, as are the Pyramids, and never out of view. And we would never be misunderstood as to the importance of the beautiful as a primary object of design, as now, for instance, if we say that other objects of the improvements in Paris may have suffered through momentary forgetfulness of their co-equal claims. So dangerous is it always, to the one and the other, to separate the aims of art and utility. It is asserted, as in the *Opinion Nationale*, that the Boulevard de Sébastopol was a result of the excessive desire to produce the straight line, the commencement having been made in the Boulevard de Strasbourg, or northward portion of the present line; and that the same dominant desire has led to the formation of the line which is called by the same name on the Rive Gauche. The junction involved the reconstruction of a bridge, the Pont au Change, which was a few feet out of the desired place; though the result still was not the continuation, in the same line, of that of the Rive Droite. The measure last referred to, has been made the subject of many comments, as recently in the *Corps Législatif*; but we refer to it chiefly as a good illustration of the principle which dominates in Paris, and which hesitates nothing at the removal of any building that stands in the way. We are not able to say what was the condition of the old bridge in the case mentioned; and in London, we certainly often err in the opposite direction, where street improvements are in question. The bad arrangement which was left, of the roadways past the theatres, does not appear to have attracted attention since we spoke of it. The main point raised is whether such a new line as that of the Boulevard de Sébastopol, was favourable to the amelioration of the condition of density of the population in the quarter through which it penetrates. It is evident that the immediate effects, considering the difficulty of moving persons of the class interfered with, could not have been so, favourable; and it is argued that from the line chosen, the work is to be condemned in itself as an example. Parallel all the way, with the present Boulevard de Sébastopol of the right bank, are the two well-known streets, the Rue Saint Denis and the Rue Saint Martin. They are narrow, and unsuited to the height of the houses, or the traffic which even now passes along them. They are distant from one another 200 English yards or less. To put the case of complainants against the municipality in the most emphatic terms, it may be said that to drive a new street parallel and between, instead of widening one or both the old streets,—the new street running so close to the Rue St. Denis, that it is or blocks, of about 130 feet only, or sometimes by reason of its immediate streets, not 50 feet in depth, are left,—was a sacrifice of economical and sanitary objects, to those of supposed effect. There is sufficient in the objections to deserve notice, and if attention be paid to them, evils in future from

the formation of wide streets may be avoided. Not only is it complained that the trading occupations of inhabitants of the old quarters were sacrificed to new comers, but that the area of the ground which could be allotted to the new houses, and the necessity which arose for covering the whole of it to get return compensatory for cost, has reduced the air space of the houses individually, and negated the intention of sanitary improvement. It is obvious to those who can look at the plans of the houses in the Boulevard, and many of those in the Rue de Rivoli, that the tendency to the suppression or diminution of internal courts, which are insufficient at all times, exists, and goes far to counteract the advantage of new and widened streets. It is a question how far it might be well to suppress some of the many narrow streets in certain quarters.

Whilst there is the density of population, of which we have spoken, however, in the central quarters, a very different condition exists, within a moderate distance. The difference is perceived as well in the character of the ground and property as in the architectural character of houses. Thus, beyond the so-called external boulevards, that is, in the old Banlieu now annexed for octroi purposes, and forming the *arrondissements* (some of which we have named) immediately within the fortifications, there are, notwithstanding the population, large areas which either are occupied by buildings of a very inferior description, or can hardly be considered as occupied at all. Except in the western part or suburb, if not even there, the strangest contrasts may be noticed; and the impression which is left is often resembling that of an Irish village rather than of a part of the same capital that presents so many fine buildings and points of view. Occasionally, the main lines of streets, houses as lofty as those of central Paris, may be met with—many of them, judging from a certain character of elaboration in ornament, being recent erections,—but such structures are adjoined by buildings of very different character, sometimes of two stories, or in a bad state of repair, and sometimes by a mere shed or a store of materials. True, an appearance which is scarcely that we have endeavoured to describe, might coincide as it does in many parts of London, with a certain value of the ground for the purposes of wharfage and storage; and such value probably exists in the north-eastern and south-eastern districts, where, near the Docks Napoleon and the canal, and on the Seine, is distributed the bulk of the commercial agency of the port of Paris. The railway companies' works and stations also absorb large areas. Considerable tracts of ground, however, near to and at a distance from these interferences, are left, which are not invaded by stores or houses, or seemingly wait only the hands of enlightened speculation to be turned to account in the amelioration of the condition of a large number of the residents of Paris. Such is the character of a large district behind Montmartre. In the thirteenth *arrondissement*, which is at the south-east, there is, both within and without the line of boulevard, much ground of this kind, or which is not occupied by buildings. A large area is here absorbed by a single institution,—the hospital, or hospice, La Salpêtrière. There are forty-five different structures forming the hospital, of which the oldest portion was built by Cardinal Mazarin. The dome of the church and the mansard roofs are picturesque objects from a distance. The number of *hospices* and other buildings for charitable purposes on the same side of the water is considerable, and some of them, interesting though they are to antiquaries, and serviceable in many respects to those for whom they were intended, could with advantage be removed to the outskirts of Paris. The *abattoirs*, which were at the outskirts when first built, after the decree of Napoleon I., dating in 1809, will probably be removed. Those on the north side—the *Abattoirs du Roule*, de Montmartre, and de Popincourt,—occupying a considerable space that is wanted for

* In a former article, by quoting from another source, a misprint, we gave the words of the minister more favourably, or 10 instead of 6 per cent.

houses, are even nuisances where they exist. The largest abattoir—de Popincourt, or de Menilmontant—fills an area measuring 645 feet by 570 feet. There are some establishments on a smaller scale besides those named; they include abattoirs for pork-butchers. It is now argued that there should be one abattoir for Paris, in connection with one general cattle-market, in lieu of the markets at Sceaux and Poissy. The combined site would be within the fortifications; indeed, a site had been decided upon at La Villette, though the intention may now be changed; and objections are now made to the centralization of the abattoirs.

The case of the cemeteries is not dissimilar. There are at present ten cemeteries, besides that of Picpus, which is closed, and another which we shall name. Of these, at least eight must be within the fortifications. The principal are the cemeteries of Père-Lachaise ("de l'Est"); Montmartre ("du Nord") and Mont-Parnasse ("du Sud"). The position of such cemeteries is inconsistent with the law which prohibits burials in towns; and the common graves, or *fosses communes*, though evidently better arranged than those which are retained contrary to the intention of the law in some of the London cemeteries, appear still much too crowded. M. Delamarre, in *La Patrie*, has recently proposed the formation of what he calls *forts sacrées*, distant 20 or 30 kilometres from Paris on the lines of railway; we suppose somewhat after the model of Woking Cemetery. The municipality appear to be taking steps towards closing the cemeteries above referred to, and have indeed sought to acquire ground for the extension of one differently circumstanced, or without the walls, at Bicêtre.

We have put together some further particulars of quarters of the French capital, and of the means which are taken with the view of remedying evils, and towards architectural adornment and general improvement. In publishing such particulars,—be the matter that we take note of, an error made, or a subject for admiration,—we hope not merely to satisfy the interest of our readers in the progress of works the most important of the time, but to gather points of experience, or reap the benefit of example. Whenever that thorough improvement of the London streets and *routes* is commenced, which the mere necessities of locomotion will shortly compel, there will be found as much that is instructive in the progress of the French capital, as there is now in English towns, that may be taken advantage of by the French, and which we are inclined to think will be.

PRESENTATION OF THE ROYAL MEDAL OF ARCHITECTURE.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The ordinary general meeting of members was held on Monday evening last, at the house in Conduit-street.

The President (Mr. Cockerell) occupied the chair. More than ordinary interest attached to the proceedings, owing to the circumstance that her Majesty's Gold Medal, the prizes in books (awarded at the special general meeting on the 25th of February last), and the 50*l.* prize, claimed by the successful competitor for the Soane medallion in 1859, would be presented by the President.

The President announced with deep regret the death of General Sir C. W. Pasley, a member of the Institute, who died on Friday, the 19th inst.

Professor Donaldson observed that the late distinguished Engineer officer had devoted a good deal of attention to the science of construction, and that he had applied himself particularly to the composition of mortar and cement. During his lifetime he had taken a great interest in the Institute, which in its turn felt honoured by enrolling among its members a gentleman who had studied a particular branch of their profession.

Mr. Bell (hon. secretary) announced the receipt of a number of donations, some of them of an important and interesting character, including a likeness of Sir Christopher Wren, carved in box-wood by Grinling Gibbons, from the collection of

the late James Wyatt; a piece of flexible sandstone from Cawnpore; the continuation numbers of M. Cesar Daly's work on "The Architecture of Paris;" "The Cathedral of the Nineteenth Century," by Mr. Hope, &c.

Mr. Godwin, V.P., said, that through the kind interference of Mr. Henry Stevens, lately of Vermont, but now a well-known resident in this country, with the Government of the United States, he was enabled to present to the Institute a remarkable set of documents. These were the complete working drawings of various public buildings, marine hospitals, custom-houses, post-offices, and court-rooms, executed in different States of the Union for the Secretary to the Treasury, or under his direction. The drawings and plans were lithographed, and the specifications were printed. These were in fact the whole of the documents upon which the builders had made their tenders, or in the terms of the specifications, their "bids." He might remark, in reference to the buildings, that the designs were not very various; the construction seemed good, the floors arched with brick with iron girders, and that some few of the designs were very tasteful. He was sure the meeting would agree with him in voting their thanks to the Government of the United States and to Mr. Henry Stevens, and in the expression of that hope which animated all Englishmen, that the great republic might continue to be the United States in the fullest acceptance of the word.

Mr. Digby Wyatt observed, that he wished to correct an erroneous impression which had crept into the papers, namely, that the series of photographic illustrations of the architecture and sculptured details of Steelley Church, Derbyshire, which he had been the medium of presenting to the Institute at the last meeting, were his own gift. They were presented by Mr. Theophilus Smith, who had drawn and measured the plans and sections.

A vote of thanks to the various donors having been passed,

Mr. Bell read the announcement that it was in contemplation to erect a suitable statue to the late Sir Charles Barry, R.A., in the new Palace at Westminster, as mentioned by us last week.

Mr. C. C. Nelson, referring to the subject, observed that although but a very few weeks had elapsed since the proposition had been made, a sum of more than 600*l.* had been subscribed, while one letter had been received by him guaranteeing any sum that might be required for the proposed memorial. With regard to the subscriptions of architects proper, they ranged from one guinea to five guineas; but he had reason to believe that smaller sums would be received, as many working men had expressed a desire to be allowed to participate in the work. The great object in view was, not to secure a large money subscription, for that was a matter of comparative indifference, but to obtain the names of as many persons as possible who desired to do honour to the memory of a great architect.

The successful candidates for the book prizes were then introduced to the president, who, in presenting them with the rewards of their ability, addressed a few words of encouragement to each, and expressed on behalf of the Institute the gratification which it felt in being the means of animating to distinction the junior members of the profession.

The prizes were awarded in the following order:—

To Mr. Walter Paris, Ferguson's "Hand-book of Architecture," for the best design for a literary and scientific institution.

To Mr. Richard C. Carpenter, Petit's "France," for the second-best design for ditto.

To Mr. Edward Tarver, Gwilt's "Encyclopædia," for the best set of monthly sketches.

To Mr. Walter Paris, "Parker's Glossary," for the second-best ditto.

The 50*l.* prize claimed by Mr. Thomas Vaughan, jun., of Stoke Newington, the successful competitor for the Soane Medallion in 1859, was awarded. This gentleman being abroad, his father attended for him and received the prize, the president requesting him to convey to his son the congratulations of the Institute.

Mr. Vaughan, in returning thanks on behalf of the prizeman, said that his son, who was in Naples, was completely bound up in his profession, and that it would always be a source of pride to him to refer to the distinction which had been so liberally conferred upon him that evening.

[Mr. Vaughan, to substantiate his claim, had sent a very large number of drawings made abroad, of remarkable excellence.]

The president then, addressing Mr. J. B. Le Sueur, to whom her Majesty's gold medal had

been awarded, said the Institute had great pleasure in recording the name of that gentleman among its most illustrious members. The profession in England were well acquainted with his works, and they had no doubt he would continue to maintain that reputation which had placed him in the foremost rank among the architects of the age. The gold medal which he had now the honour of presenting had been awarded to him by her Majesty, on the recommendation of the Institute. Its presentation was significant of the high regard which her Majesty entertained for the art of architecture. He trusted that Mr. Le Sueur would do the Institute the honour of wearing it, and that they would have the pleasure of seeing him in this country as often as it was consistent with his pleasure and convenience to come amongst them.

Mr. Le Sueur, after excusing himself for not answering in English, spoke in French to the following effect:—

Mr. President, Gentlemen, and dear Colleagues,—I am extremely flattered by the signal honour that you confer on me, and I am the prouder inasmuch as I receive here a mark of distinction that is unique. This is not a question, in fact, of one of those decorations awarded, and often even lavished, by men in high places, and without doubt generally of uncontested worth, but not always possessing the aptitude necessary for judging works of art. Your Institution, on the contrary, possessing all the knowledge necessary for the thorough appreciation of monumental productions, its approbation has an incomparable value, which I appreciate with heartfelt conscience, and which fills me with the liveliest gratitude. It has been said that the arts are cosmopolitan. Thanks to the facility of communication, the truth will become daily more evident, and artists of all countries may form, perhaps, ere long, but one immense academy. Living in an age of eclecticism,—feeling one's way, as it were, we have a great task to fulfil,—that of giving to art a character peculiar to our times. This task is difficult; yet let us not be discouraged. Numerous publications enable us to become better acquainted with the monuments of all ages, and all countries; they are precious documents which our predecessors very imperfectly possessed. Let us hope that the comparative study of these fertile elements may produce at last, not a new architecture, the hope of which is utopian, but a new shade of style, which will become the seal of the architecture of the latter half of the nineteenth century. London and Paris, being not only the largest capitals in Europe, but the nearest to each other, it belongs to us to give the impulse, and I am proud of being a link in the chain which will unite indissolubly the two countries. The recollection of this day will be precious to me, as consecrating between us those intimate relations which must extend and become general in the future. For myself, gentlemen and dear colleagues, I shall co-operate with all my heart, urged by feelings of the deepest gratitude.

Mr. F. Pepps Cockerell then read a paper "On the Architectural Accessories of Monumental Sculpture," to which we shall return. Mr. Cockerell brought together examples belonging to various countries and periods, and deduced what he believed to be the principles on which they had been executed.

At the conclusion,

The President said he thought they were indebted to the lecturer for the hints which he had thrown out on the subject of monumental sculpture, for, undoubtedly, most extraordinary liberties had been taken for years with that department of art. Now-a-days, in designing pedestals there appeared to be little or no reference to the human figure,—no corresponding scale to work by, and, in fact, no regard to those canons of art which made the statuary of the ancients renowned for all time. He thought it would be well if the sculptors and the architects could form an alliance, so that the latter might impart to the former some knowledge of the antique. The sculptors, on the other hand, might possibly rebuke this presumption by telling the architects that they could give them better ideas for their buildings. For his own part he could only say that he would be very much obliged to the sculptors if they would do so. The lecturer had pointed out in appropriate terms the direction in which they were to look for their examples, but he regretted that he had not been able to supply them with a greater number of drawings.

Professor Donaldson wished to offer a few observations upon the careful and judicious manner in which Mr. Cockerell had introduced his subject. It was pleasant to find so young an architect so thoughtful in a portion of his profession which, in

many instances, was neglected or overlooked. He thought, however, that Mr. Cockerell had hardly done justice to the architects when he said that they held, as it were, aloof from the sculptors, while in ancient times architecture and sculpture went hand in hand. He (Professor Donaldson) believed, on the contrary, that the architect and the sculptor were on the most friendly terms, but that in practice it would be found that, whenever the architect made provision for the works of the sculptor, the first thing the patron or the employer did was to wipe out sculpture as a piece of extravagance, which it was perfectly idle to dwell upon. As an illustration of this remark he might state that he had accompanied his friend M. Le Sueur to the British Museum, where it at once struck them, in looking at the façade, that the idea of the architect had not been carried out. There were at either side great pedestals empty, upon which our Shakespeares, our Miltons, or our Newtons ought to stand. If a similar building had been constructed in France, this important feature would not have been neglected; but, in England, the fact was that the architect was invariably over-ruled. Were it not for this drawback, architecture and sculpture would both be vindicated in our public buildings. Another subject referred to by Mr. Cockerell attracted his attention: it was the observation which he made to the effect that, in his opinion, the laws of architecture and sculpture could not be reconciled. In this opinion he (Professor Donaldson) could not agree, because he believed that all the arts could be reconciled. Look, for instance, at one of the photographs exhibited that evening, the fountain at Nismes. He had seen it, and he had always regarded it with the greatest admiration. It was a most beautiful work, and he had merely to point to the photograph of it, to ask whether there were not mathematical points and lines about it which showed that it was subject to the laws which governed architecture. There would be found in it the same triangular form, as was found in architecture, and it was, he submitted, an illustration of the truth of the dictum, that the same laws which applied to architecture also applied to sculpture. This was especially evident in the works of the Medieval architects, who introduced sculpture with such power and propriety of feeling, that it combined with, and seemed to be a part of, the architecture itself. If they looked to the canopies and pedestals of Medieval sculpture, they might find the statue to overhang the pedestal, but they would harmonize well with the whole composition. Whether the pedestal of a statue were large or small, would depend not so much upon the statue itself, but upon its position, and the surrounding objects. Thus, they would find that the statue of Marcus Aurelius would require a pedestal under the pedestal if it were placed in another position. The statue of Frederick the Great, at Berlin (a photograph of which was before them), required a large pedestal to set it off, and give it dignity and importance. So with the Statue of Charles I. at Charing-cross, if the pedestal were not high, the figure would be among the cabs and omnibuses, and nobody would see it. While he was upon this subject, he might remark, that upon going up Portland-place, the other day, he could not but express his regret to see the statue of the Duke of Kent placed as it was. It was erected to the memory of a prince whom the English people loved, and it was dearer to them now that it represented the father of their Queen; but it was a disgrace both to the public and to the Board of Works (responsible as they were for the national monuments), that a proper pedestal was not provided for it. The statue of George III., which was a very fine one, might look small in its present position, but if it had been placed on the pedestal where the statue of George IV. stood, it would not have done at all. He held it to be a maxim in these matters, that in selecting a pedestal, it was less important to consider the statue itself than the position which it was to occupy. Care, however, should be taken that the statue should not crush the pedestal, nor the pedestal be too heavy for the statue. Mr. Cockerell had not referred in his interesting paper to the statue at the foot of the Acropolis, at Athens, in the drawing of the restoration of which made for the Royal Academy by Sir Robert Smirke, that gentleman had introduced another pedestal at the other side. With regard to the colossal statues at Athens and other places, his impression was that the idea had been taken from the colossal statues in Egypt. The Greeks, it was well known, sent their ambassadors,

their students, and their great men to Egypt. There the mighty statues struck them, and they determined to introduce them into their own sculpture. This might account for the remains of colossal statues in Athens and other parts of Greece. Mr. Cockerell had referred to the practice, in some cases, of putting blocks under pedestals. It always occurred to him, that a pedestal without a moulding always looked unsatisfactory, as it presented a monotony of outline displeasing to the educated eye. In his opinion, too, a pedestal without a cornice was an impropriety. It was necessary, however, to draw a distinction between a plinth and a pedestal. He believed that the ancient sculptors did not wish to design anything in the shape of a pedestal which could in any way vie in interest with the figure itself. Mr. Cockerell had referred to bronze pedestals, and there could be no doubt that they were introduced with the view of giving greater effect by their burnished surface and fine edges. When he was in Vienna in January last, he observed an equestrian statue of the Archduke Charles, which in his opinion was one of the finest productions of modern art. He had also seen two statues at Berne, in Switzerland, where an Englishman was lately killed in a bear-pit; the one, equestrian, which struck him as very fine and well composed. The ancients made it an invariable rule to gild their bronze statues. He did not know of a single instance in which this had not been done. If they examined the collection of bronzes at the British Museum presented to the nation by Lord Palmerston's brother, it would be found that the whole of them had been gilt. The statues at Berne and that of the Archduke Charles at Vienna, to which he referred, were of a bright and brassy colour, and the effect was admirable, contrasted agreeably with the smoke-begrimed statues with which we were acquainted in London. He begged, in conclusion, to propose a vote of thanks to Mr. Cockerell for his extremely interesting and erudite communication.

Mr. Godwin, in seconding the motion, observed that Mr. Cockerell appeared to think it invidious to refer to contemporary art. No doubt it might be so: it was not pleasant either to say or hear hard words, but really it behoved some one to speak out, because under present circumstances it would soon be impossible for an educated eye to walk through the streets of the metropolis without being pained. To use the mildest possible expression, much that had been done of late years in the way of public sculpture was unfortunate. Take, for instance, the Crimean monument in Pall Mall, designed by Mr. Bell, who was a sculptor whom they all respected for his abilities, and who was an artist to the backbone, working in all ways to advance his art. Nevertheless, it must be admitted that the aspect of the monument was not satisfactory. The great mass of granite which formed the pedestal was an eye-sore, and the effect of the upper figure seen from behind was anything but agreeable. The monument in question was an illustration of want of proper care in the selection of a position. Had it been placed like that to Molière, in Paris, for example, in an alcove, or against a building, and if the huge pile of granite had been cut up with bronze or other decoration, it might have been converted into an object worthy of the purpose intended and creditable to the artist. But at present it was neither the one nor the other. He felt persuaded that, if Mr. Bell had been allowed to carry out his own idea, and give expression to his own conception of propriety, there would have been no necessity to speak in disparagement of the monument. Indeed, it was not impossible that some public comment on this monument might lead the Committee to take some further steps. In the statue lately put up, in Trafalgar-square, to the memory of Sir Henry Havelock, no care appeared to have been taken in reference to the pedestal; and the result was a very unsatisfactory whole. The paper which they had heard that evening was most opportune: he trusted that the suggestions which Mr. Cockerell had thrown out would germinate in the proper quarter; and he hoped that, when a subscription was next made for a memorial of departed greatness, it would be for "a statue and a pedestal," and that some artistic consideration would be given to the object as a whole.*

* It has been suggested that, if the monument were placed on rollers and taken to the other side of the way, the front looking up Waterloo-place, it would be a great improvement, and we think so too. At present the greater number of persons who see it do so in walking down Waterloo-place; and those who go for the express purpose of viewing the front must run the risk of being run over in doing so. At any rate, even if it remain where it is, and we hope this will not be the case, something must be done with the lumpy pedestal.

Mr. Hayward said he thought it right, in justice to Mr. Bell, to remind the meeting that a letter had been published from that gentleman, in which he stated how unfortunate it was that the Crimean monument had been put up in its nakedness, as he had designed a good deal of ornament which had not been introduced. There was one class of pedestal which had not been referred to that evening, but to which he wished to allude,—he meant that represented by the column of Trajan, a view of which was in the room. It had been constructed at a period when the arts were considered to be flourishing; and, as the idea had been copied in modern times, he would like to know from those calculated to pronounce an opinion whether a statue on a column was appropriate. For his own part he did not object to it, but he was unable to refer to any authority as to whether it was conformable with the canons of art or not. In his opinion the Nelson column in Trafalgar-square was an ornament; but he would like to hear some authoritative opinion on the subject, as writers on art were constantly sneering at a statue on a column. What he wanted to know was, whether it was or was not such an absurdity as some people imagined it to be.

Mr. F. P. Cockerell said there were numbers of instances in Greek vases of statues on columns, but that they were very small statues, and very small columns.

Mr. Papworth, referring to the column on Fishgate-hill, erected by Sir Christopher Wren to commemorate the Great Fire of London, said that nothing but the termination (in pot of flames) had been censured; still that, in his opinion, was the most homogeneous and appropriate object that could have been set upon it. The base too was, he thought, all that could be desired in such a monument. A small truncated column (such as that which supported the bust of Michelangelo in the room in which they were then assembled) was, to his thinking, the most appropriate for a bust. With regard to gilding bronze pedestals and statues, he considered it a great anomaly, and, until the time of Nero, the practice was unknown. (Mr. Papworth explained, by means of the black-board, the principles which he believed should govern the relations between a statue and a pedestal.)

Mr. C. H. Smith observed that there was one pedestal and statue which had not been referred to in the discussion, and which on that account he ventured to allude to, namely, the statue of William IV., at the junction of King William and Gracechurch streets, in front of London-bridge. This statue was remarkable in this respect, that it was the only one in London in which the pedestal and the statue were of granite. He deprecated the use of bronze in public monuments, because in troublesome times it became the object of destruction for its intrinsic value. Depend upon it there would be no Elgin marbles in the British Museum, if they had been made of bronze. In his opinion no public statue or monument ought to be made of any substance which was of use, except for that particular object. No one, for instance, would ever dream of knocking down the statue and pedestal of William IV. for the purpose of macadamizing London-bridge. The statue was designed by Mr. Kelsey, who was a competent artist, and whose knowledge of the human figure was especially good. He believed the temptation to make away with bronze accounted for the destruction of many ancient statues; and that the statue of the Colossus at Rhodes, which in all probability have remained until this day, were it not that it was made of bronze. Look, for instance, at the desecration of bronzes in our village churches and cathedrals. Why, the only way to preserve them, would be to put silver alongside of them, and renew the silver whenever it was stolen.

Mr. Horace Jones said it occurred to him that the use of a high column for a statue was occasionally desirable, as it put the statue out of sight. With respect to gilt statues, there was that of Milton at Hull, which was beautifully gilt, and looked like a brazen calf! He fancied that the statues referred to in Venice (and which could not have been raised higher up in order to keep them out of the way of the cabs and omnibuses), were put on lofty pedestals in order that the persons in whose honour they were raised, might be supposed to overlook the great Republic with whose fame their deeds were associated.

The President in putting the vote of thanks to Mr. F. P. Cockerell, expressed his satisfaction that the paper read by that gentleman had given rise to an interesting, practical, and he hoped would prove a suggestive consideration of the subject. It was quite clear that reform in the matter of public statues was required, and he

hoped that something would be done to lead to the substitution of a better style of art. The motion was agreed to unanimously.

NEW WATER COLOUR SOCIETY.

A MORE agreeable exhibition than that now opened by the "New Water Colour Society," and which includes 339 pictures, we have rarely seen. One of "the forty" inquired at the private view where they had "put their bad 'uns?" There is scarcely a drawing amongst them that has not a certain amount of merit, and there is a considerable number of great excellence. We can speak only of a few. The president, Mr. H. Warren, has taken a new road with success. His Wrestling Match on the Wengern Alp, with the upper part of the Jungfrau in the distance (46), displays a large number of figures full of character and animation. Mr. Louis Hagbe has a noble interior of Milan Cathedral (76), a priest addressing an audience from the pulpit-encircled column. "The Artist's Studio," by the same (63), is a piece of elaborate representation; the artist himself at work with the left hand, as usual, to supply an easy subject for criticism to all who do not know the fact. Mr. Edward Corbould has painted a picture from one of the outlines illustrative of the "Idylls" submitted by him to the Art Union of London; a commission, indeed, in consequence of sending the outlines. It represents the Lily Maid of Astolat, on her "chariot-bier," in the barge "pulled all its length with blackest samite;" the dumb old servitor guiding. The "clear-featured face was lovely," says the poet, and so the painter has made it; but the colour of "her bright hair streaming down" is scarcely the right thing. The position of the bier in the barge might be improved, and should be; for the picture is in so many respects admirable, that it will repay the slight revision needed. Mr. Corbould also exhibits two very charming pictures from "Adam Bede"—"Hetty" (206), and "Dinah" (218), painted for her Majesty the Queen. Mr. Carl Werner is a successful exhibitor, and sends proof of industry as well as of ability. His architecture is more thoroughly satisfactory than his figures, so that we care less for his principal work, "Venice in her Pride and Power" (189), with the secret tribunal of three sitting in judgment, though an able work, than for some of the smaller pictures sent by him, such as the "Duomo at Spalatro" (142), and "The Fair Worshupper" (254).

Mr. Edmund Warren sends the most important landscape in the gallery, "Rest in the Cool and Shady Wood" (212), wherein, while he shows in the foreground his power over body colour and asphaltum, he gives us in the distance some pure painting full of grace. It is unquestionably a remarkable work. Amongst other landscapes we should select (81), "Lerici, Gulf of Spezia," T. Rowbotham; (82), "Cathedral of St. George, Linburg," Edward Richardson; (144), "The Valley of the Lieder," J. C. Reed (a new member); and (223), "Mill on the Willon Beck, Eekdale," D. H. McKewan. Mr. James Fahy, the excellent secretary of the Society, exhibits a considerable number of transcripts from nature, smelling of the mountain air and early morning. Mr. Bennett, Mr. H. C. Pidgeon, Mr. Telbin, Mr. Whympier, all demand a word. Mr. C. Vacher sends a bright drawing, amongst others, of "Vesuvius" (70), showing the ruined palace of Donna Anna, which all who have visited Naples will remember. Mr. Tiley is a man of promise; he is not afraid of difficulties, and deserves praise for more than good intention. His "Dædalus" (238), has a misty grandeur that suggests Ossian; but the head, too small for the limbs, has scarcely the expressions demanded—heroic dismay, disdain, and bodily pain. With a word for Mr. Lee's "Long Sermon" (25), Mr. Absolon's pictures in the "Lago Maggiore" (232 and 242) and Mr. Mole's "Hopeful Parting" (201), we must close our notice of this very satisfactory collection.

EASTER AT ROME.*

Palm Sunday.—The same grand ceremonial as on Christmas-day. At half-past nine, the Pope was borne into St. Peter's; all the cardinals habited in violet robes. After consecrating the palms, he distributed them to all the great people, and General Goyon was walking about all day with a tremendous one. Then the cardinals change for scarlet, and mass is performed.

March 27.—The first *Miserere*, and the best. One is obliged to go in full evening dress. We went down to the foot of the Grand Staircase

at two o'clock, though the service did not begin till half-past four. By this superb approach do we mount up to the Sistine. At last, we have struggled into Michaelangelo's Chapel; a heated, battling, overpowering mass, frantic with excitement, to hear the famous world-renowned *Miserere* strain of Allegri. From the Grand Stair into this grander hall, all pannelled round, even higher than the doorways, and thence upwards, flowered over and peopled with coloured figures, and life and action, but all toned down and blended with age;—solemn ante-chamber to the Chapel Sistine. At last, the great curtain is lifted, and there is before me the whole Rembrandt-like scene, framed into the tall oaken doorway. It almost startles me, the great mass of indistinct figures, seated close, veiled and black-robed, and those other awful figures gathered for the terrible last judgment, starting out of the gloom, and showing their powerful limbs up and down on the great wall facing us at the other end; awful groupings of Michaelangelo, that live and look out mistily from the cold, blue background, which seems like atmosphere; and with the melancholy yellow candles flaring high up on the screen top: to see this, is to see a picture that touches on the sublime. Indescribable is the hushed stillness of that scene, with a strange, weary sense of its being protracted through many, many hours.

At last all the candles are extinguished except one, each on the conclusion of a different Psalm. This is now carried behind the altar. Then hush—the *Miserere*! Thin and airy at first, borne on light treble wing it comes forth, very *Eolian* in measure, very mournful, softly praying mercy. Up and down, rising and falling; that soft strain flows. Suddenly, crowds of voices burst in with a cry, struggling with each other, contending, rising to greater force almost shouting, praying for, demanding mercy with a wild importunity; then subsiding, turns to sweetest supplication, and sad wail of despair, growing weaker and thinner, until at last the first *Eolian* measure flutters in, and swells and falls calmly repeating itself. Thus alternate, now soft and airy, now fierce and overpowering, the wild *Allgri* chant winds through many verses. Very wild, very pathetic and sad, bursting at times into the richest breath of harmony, it dies out. Then follows a chilling silence,—and then a general knocking with a stick takes place. It is finished—the veils and scarfs, the evening ties and coats come out, all much heated, and with a wearied look. The stark figures who have been waiting judgment on the great wall, together with the prophets overhead, will have the domain presently to themselves. We seem to have watched through a long night. I never knew what singing in chorus was before—magnificent!

Thursday 28th. Saw the Pope wash the feet of the apostles in one of the chapels of St. Peter's. They looked particularly uncomfortable with so many eyes upon them, and naked feet. When the cold water was poured on their naked feet. They were robed in white, with a stiff white cap on their heads. Each had a large nosebag, like a caniffowey. St. Peter was a grave-looking old gentleman, with a flowing beard; and Judas was an enormous hypocrite: they always select an ugly one to perform that part. If he had gone away and hanged himself no one would have regretted it. Then everybody hurried off headlong, as for life or death, to see them served by the Pope in the gallery over the portico. The crowd was immense, the heat very great, and the pressure sometimes frightful. Some of the ladies, it is said, improved their positions by sticking pins into the people before them. The table was set out like a ball-supper: grace being said by the Pope: Peter in the chair. The courses were presented to the Pope by the cardinals on their knees, and were by him handed to the thirteen. The dinner looked very good. Peter went in "to win," eating everything that was given him. He had the best, being first in the row, and saying "nothing to nobody." It was a great farce, and good fun.

Good Friday.—St. Paul's elder sister mourns. Gaunt shadows hang between the arches, the great pillars and arches stand out bare and unadorned. There is a sense of desertion, and the footsteps echo hollowly as I walk up the great nave. Went down at five o'clock to hear the last *Miserere*. Afar off, as it were out of dark caves, lights glimmer, and the great four-pillared canopy rises stark and solemn, like a gloomy catafalque. On the left, packed closely in a great archway, is a crowd of dark figures, looking in at the great chapel (elsewhere it would be of itself a great church), whence proceeds the sad and solemn chanting. There are long files of canons in their fur caps, sitting round in black oak stalls, some fifty or sixty in number. Hours go by, and the

files of singing canons have been giving out the sad refrain, never flagging; hours go by, and the dark figures remain and listen, and never move. Then, at twilight, the Pope comes in procession to pray before the tomb of the apostle. It is at this hour that the architecture of the pile is unsurpassed. One knows there are faults in it, the hands of man unconsciously inscribe upon ALL his works, the sentence of imperfection, which the finger of the Invisible Hand wrote upon the walls of Belshazzar, but at this hour it is capable of producing only the loftiest emotions of the beautiful and sublime. The immediate focus of glory,—all the gradations of light and darkness,—the fine or the fantastic accidents of this chiaroscuro,—the projection of fixed or moving shadows,—the sombre of the deep perspectives,—the multitude kneeling round the Pope,—the groups in the distant aisles,—what a world of pictures for men of art to copy or combine!

Easter Sunday.—The grandest festival of the Roman Catholic Church. Daybreak is ushered in by the cannon of St. Angelo. At half-past nine o'clock is High Mass, the Pope himself officiating. Before him are carried two fans of ostrich feathers, in which the eyes of peacocks' feathers are set, and he wears the triple tiara. A throne is erected for him at the end of the choir. At the offertory is sung "Christus Resurgens," with the beautiful music of Anerio, considered one of the finest concerted pieces of the papal choir. "The music and poetry of the church for this day are the most beautiful in the whole range of sacred music." Then is sung the sequence, "Victime Paschali," to the music of Simonelli. This partakes of the dramatic, introducing, as interlocutors, Mary, who returns from the sepulchre, and the disciples, who question as to what she has seen. It concludes with a kind of chorus, which swells into a noble strain, after a confession of faith in the resurrection. Then is sung, as preparatory to the consecration, the form which offers up the praises of the Eternal, with those of angels, archangels, thrones, and dominations. After, a dead silence follows, to be interrupted by that burst of the silver trumpets at the consummation of the Sacrifice, the effect of which can never be forgotten. Sounding high up in the lofty dome, it seems as if it were Heaven itself signifying its acceptance of the prayers of the congregation, and ratifying with its approval the whole service.

At a little after twelve o'clock the Pope pronounces his benediction from the balcony of St. Peter's. I saw it from the top of the colonnade close by. The people came out in their gayest dresses, and every coach in Rome was put in requisition for the Great Piazza. I am afraid to say how many people were there, 100,000 perhaps, yet there was ample room. How many carriages were there I don't know, yet there was room for them, too, and to spare. The great steps of the church were densely crowded. Below the steps the troops were ranged, Goyon at their head, uncovered, with a brilliant staff, and nearly all the French army, I believe. In the magnificent proportions of the Piazza they looked like a bed of flowers. A bright carpet was hung over the balcony, and the sides of the great window were decked with crimson drapery. An awning was stretched, too, over the top to screen the old man from the sun. In due time the chair was seen approaching to the front, with the gigantic fans close behind. The apparent doll within it (for the balcony is very high) then rose up and stretched out its tiny arms, while everybody uncovered, and the troops and many others, knelt down. The guns upon the Castle proclaimed next moment that the benediction was given, the military bands and the bells of St. Peter's raised their chorus as final to the celebration of the resurrection.

But the next night, without a cloud to dim the full moon, what a sight it was to see the great square full once more, and the whole church, from the cross to the ground, lighted with innumerable lanterns, tracing out the architecture, and winking and shining all round the colonnade of the Piazza! And what a sense of exultation and delight it was, when the great bell struck eight, on the instant to behold one bright red mass of fire soar gallantly from the top of the cupola to the extremest summit of the cross; and, the moment it leaped into its place, become the signal for the bursting out of countless lights, as great and red, and blazing as itself, from every part of the gigantic church; so that every cornice, capital, and smallest ornament of stone, expressed itself in fire, and the black solid groundwork of the enormous dome seemed to grow transparent as an eggshell. A train of gunpowder, or electric

* The following are Extracts from the Journal of an Architectural Student now in Italy.

well chosen. The "Handbook of Architecture," by Mr. Fergusson, was a work which no architect could dispense with. The author, although, as they were aware, not engaged in the active prosecution of his profession, had brought an amount of learning and research to the preparation of his book which proved that he was in every way qualified to be a teacher of his art. The other book (Shaw's Illustrated Series), was, in a certain sense, of a series, and illustrated that branch of architecture which had become so fashionable in the present day,—he meant the re-introduction of Mediæval architecture, or the architecture of the Middle Ages. It might, no doubt, be found to contain a great deal that was inconsistent with our general form and the character of English architecture. It was, however, desirable that the student should be acquainted with all styles of architecture, and it would be impossible to speak too highly of the great ability exhibited in the drawing of the series in question. The drawings contributed by Mr. Tarver were, he thought, entitled to considerable praise. The designs for hinges showed fancy and variety (where variety was extremely difficult to obtain), and he hoped that the taste and elegance which he had exhibited in these sketches would be developed hereafter in more important works.

The President said it now became his pleasant duty to ask the meeting to join him in according a vote of thanks to Mr. Tite for placing the prizes at their disposal, and for his kindness in adding to the obligation by postponing pressing engagements to be present on that evening. Prizes similar to those which were awarded that evening were coveted by the student to a greater extent than was perhaps supposed—not for their intrinsic value, but as an honourable object of ambition. The prizes which the Association had given at the commencement of the session served as a stimulant to their younger members, and the proficiency which they exhibited showed how useful they were as auxiliaries in the work of education. He begged to move that the best thanks of the meeting be accorded to Mr. Tite for giving the prizes and attending that evening to present them.

Mr. Kerr observed that he had great pleasure in seconding the motion, although he scarcely knew what he could say in addition to what the president had said, as they all knew who Mr. Tite was, and what he had done in the profession in past years. And in referring to those labours, it was pleasant to think that a gentleman in the position which Mr. Tite had achieved, was not un mindful of the bridge which had carried him over, but that, on the contrary, he was ever anxious to support institutions, the object of which was to raise the standard of their common art. He (Mr. Kerr) was persuaded that Mr. Tite was the last man in the world who would like to be eulogized in his presence, so he would not further enlarge upon his merits, but pass to the object which had brought them together that evening. For his own part he was bound to say, that he had examined the drawings with great satisfaction,—the drawings of former years, and the unsuccessful drawings of the present year. Here remembered when no such drawings could be produced by the same class of contributors, and he believed that the Association, in giving the prizes, had done great service to the architectural profession. The sketches had improved, year by year, and some of them were so good, that he feared there could not be much improvement in time to come. He was very much pleased to see so large an assemblage that evening, to find the Association progressing, and to see it approved of so highly by those for whose welfare it was instituted. He hoped that it would continue to prosper, and he was sure that under the presidency of his friend, Mr. Smith, and of the gentlemen associated with him, in the management, the younger members of the profession would rally round it in still larger numbers.

The motion having been put from the chair, and carried unanimously.

Mr. Tite, in acknowledging the compliment, said that he felt extremely indebted to the meeting for the hearty and unanimous manner in which they were pleased to sanction it, and to his friends, the president, and Mr. Kerr, for the kind observations with which they had recommended it. He was friendly to Architectural Associations, because he remembered, when opportunities for studying their profession were few, that he owed something, and that something not a little, to an Association somewhat similar to that which he had now the honour of addressing. At that period (and he was afraid to say how long that was ago), he was a student, and he joined with a few of his fellow students in getting up an association for mutual

instruction, and meetings were held, when subjects were suggested, and sketches made on the spot. There were, he regretted to say, but few now living who belonged to that Society, but he might mention that Professor Donaldson and himself were amongst the number. They were there introduced to a style of composition and drawings which he confessed was to his thinking as near perfection as possible. They had amongst them Thomas Lee, a most accomplished architect and the best draughtsman he had ever met. He died twenty years ago, but not before he had erected many important works, amongst them the Wellington column, at Wellington. He was the brother of one of the first painters of the pure school of English art in modern times. The difficulties of "getting on" in the architectural profession, when he was a young man, were very great. They had few works of reference, and few facilities for study. The only books they had were the "Archæologia," Stuart's "Athens," and one or two others, of a rare and costly description, while the library of the Royal Academy was the only one to which they had access. To that library, however, he admitted that he himself was under many obligations. Now, however, owing to the extraordinary progress made in lithographing, drawing on wood, and printing, books of reference were comparatively numerous and inexpensive, while a greater number of libraries and collections of professional works were thrown open to the student. All these advantages were little known when he was young, but notwithstanding the difficulties to be encountered, there were men "when George III. was king," who had risen to great eminence in their profession, and whose names would go down to posterity associated with noble monuments of art. Among those he might mention Thomas Lee, to whom he had already referred, the elder Smirke, and Dance, all of whom had designed and carried out works of great national importance. It had always afforded him much pleasure to promote the study of architecture among the younger members of the profession. To those around him who answered to that description, he would venture to say that talent alone was not sufficient to command success. Old Soane used to say, and to say well, that "architecture was too coy a mistress not to be won without great attention." The information necessary for the knowledge of many styles could not be acquired without great labour and industry; and that labour and that industry were in many cases superadded to the other difficulties which often lay in the way of the youthful student. The success of the Architectural Association was, he thought, extremely creditable to those gentlemen who, like his friend the president, had associated themselves for its promotion. Its object was mutual instruction; and that could not be acquired without diligence and hard work. They might depend upon it, that success in architecture, like success in other liberal professions, could never be obtained by genius alone. Sir Joshua Reynolds had well said in one of his admirable discourses, that "excellence was never granted to man except as the reward of labour." Knowledge—the knowledge to be acquired by patient industry—was essential to the pursuit of the architect; and elegance of thought and design could only be acquired by an attentive study of the works of those who have gone before them. The gallery in which they were then met, and the exhibition of works of art and decorative objects by which they were surrounded, was a good illustration of the progress which had been made of late years. He saw around him many good drawings and praiseworthy designs; but he feared there was rather too great a leaning towards what he might term prettiness, and a want of knowledge of particular styles. He did not mean to say that the student ought to make a slavish copy of a church or other building, but what he meant was, that, by a careful study of existing buildings, the student might arrive at a knowledge of those principles which had guided the great architects of Europe in their most important works. These were considerations the truth of which forced themselves upon his mind after a professional career of forty years. And, in referring to modern architectural drawings, he must say that he missed the magnificent drawings of the Gandys, which, to his thinking, were unapproachable. A great deal in this way might be learned from the French, as the drawings of many of their architects were almost unequalled. German architectural drawing was also very fine, and he remembered having been shown some specimens at Berlin by the architect of the late King of Prussia which were most accurate and beautiful. In France and in Germany the architect, the sculptor, and the painter worked harmoniously

together. Not so, however, in England, where the decorations and enrichments were too often handed over to the house-painter and the paper-hanger. Nothing, in his opinion, exhibited greater ignorance than the pedestals of our public statues. Surely there was no reason why base mouldings and the like should not be as well understood in England as in France or Germany. Look, for instance, at the statue of Frederick the Great at Berlin. There the greatest architects of the day were employed to design the pedestal, which was justly considered to be but one remove in importance from the statue itself, as it would be impossible to make the latter effective unless due attention were paid to the former. At Paris, too, the pedestal to the statue of the Duke of Orleans was an architectural work of great merit and beauty. What a contrast was presented by those examples when compared with the pedestals of our own statues. The base of the equestrian statue of the Duke of Wellington in front of the Royal Exchange was an illustration in point. There it would be found that the mouldings were actually upside-down—the top at the bottom and the bottom at the top. But, although he had offered (in the interests of the public taste) to pay the expense of correcting the error, he was told, that Mr. Mackenzie or somebody else at Aberdeen, who had prepared the stone, did it right, and that he (Mr. Tite) knew nothing about it. Mr. Tite then proceeded to refer to the importance of studying the details of existing buildings. Such, for instance, as the "Morning Chapel" at St. Paul's Cathedral, which he described as one of Sir Christopher Wren's choicest works. The details and enrichments of that chapel were, in his opinion, quite a model. To attain excellence as an architect, it was absolutely necessary to draw carefully. There were in the room in which they were then met some fine specimens of architectural drawing, to which he invited their attention, as he considered they were quite equal to any French examples which had come under his notice. In drawing to a close the observations which the experience of a long life devoted to the profession had dictated, he felt he would be doing injustice to his feelings if he were not to ask the meeting to pass a vote of thanks to the president of the Association. Of course, with the president he coupled the committee. He felt that this compliment was eminently due to those gentlemen, and especially to the president; for, to find an architect with many professional engagements, devoting so much of his time to promote the interests of the profession of which he was a member, was as creditable to him as it must be beneficial to the Association. With these feelings he begged to move, that their cordial thanks be given to the president and the committee.

The motion having been carried *nem. con.*

The President returned thanks, and observed, that it was extremely gratifying to him, as he was sure it was also to the members of the committee, to hear their exertions spoken of in so handsome a manner by their friend Mr. Tite. He assured the meeting that it afforded them great pleasure to devote their leisure to the interests of an association to which they felt they owed so much. He was persuaded that the Association offered an opportunity to young men for self-improvement, and that it afforded them many facilities which they might not otherwise obtain for acquiring a practical knowledge of their profession. It was also calculated to inspire them with confidence, and to prepare them for the public engagements which it might be their lot to hold in future life. For his own part he could truly say, that it had afforded him the utmost gratification during his year of office to exert himself as much as possible to promote the interests of the Association. The president concluded by reminding the meeting that long speeches were out of place at a *conversazione*, and that he hoped they would enjoy themselves by the contemplation of the many interesting objects around them.

THE PROGRESS OF MUSICAL TASTE.

It is pleasant to notice the rapid increase of this delightful study, and to note that, besides the workmen's instrumental bands which have become so common, many schools now organize them, partly by the subscriptions of the boys and their friends, and by others who take interest in the schools. Drums, fife, &c., are purchased; and, in surprisingly short time, the young performers are able to discourse very fair music. A similar movement has been made in several divisions of the police, and already have the police bands become a pleasure to others as well as a great source of amusement to the men.



CORBELS AND CAPITAL, CHURCH OF ST. ANDRÉ, CHARTRES.

DOORWAY OF THE CHURCH OF SAINT-ANDRÉ, CHARTRES.

The church of Saint-André was founded about the middle of the twelfth century upon the site of former churches dedicated to the saint, the earliest of which, some ancient historians believed, was reared towards the end of the second century, the church, like the cathedral, had suffered more than once by fire, but was always rebuilt by the pious exertions of the people.

In 1108, as shown by a charter, Yves, bishop of Chartres, erected this church into a collegiate church as well as parochial, its clergy being composed of a dean, twelve canons, a perpetual curate, and sacristan. Shortly after this constitution, it was destroyed by fire amidst the great conflagration that consumed the cathedral and nearly the whole town in 1134. It was recommenced and finished by the year 1185; the greater portion as it now stands being of this date, additions having been made in succeeding centuries. This ancient edifice is one of the most curious to be met with in the department of Eur-et-Loire, owing to the necessary enlargements required as the parish increased, showing great skill and design;—a new choir, for example, having been sustained on an arch over the river Eur, which runs at the east end or back of the church, built by Jehan de Beaucourt at the end of the fifteenth century, which from its singular and admirable construction attracted the attention of the engineer Vauban, when charged by Louis XIV. to examine the principal buildings of France.

Another important addition was made in 1612, by the dedication of a chapel to the Blessed Virgin, also ingeniously constructed over the river. The events of 1793 have swept away the greater part of those later erections, and the church has been desecrated since then, being presently the property of the Imperial Government, under the special care of the Minister of War, and used as a great hay store for the regiment of cavalry always quartered in the town. The interior of the church contains some interesting features, such as the twelfth century carved capitals, and some slight remains of painting of that date; but it is difficult to see anything owing to the hay being stowed often as high as the roof.

The west front presents a most remarkable continuation of work, of different periods, the lower stage containing the doorway as shown in illustration, being of the twelfth century; the stage above, containing a bold, triplet window, now built up (to keep in the hay of course), being transitional, and the upper or gable stage having a semi-circular slightly pointed Flamboyant window.

The capitals of the doorway have some resemblance to the Corinthian acanthus. Amidst the foliage and bands are carved heads of men and youths, singing and laughing; some appear to be fighting, one having a cudgel, another is pruning with a knife. These are all admirably sculptured, and in wonderful preservation. Casts of them, and all the curious corbels under string course, also of the twelfth century iron hinges, are preserved in the great east chamber of the cathedral. The doors still retain their ancient hinges. A flight of nine steps formerly led up to the entrance, and there seems to have been

a projecting wooden porch in front, of which the wall beam rested on the three plain corbels. The drawing is to a scale of a quarter of an inch to 1 foot.

METROPOLITAN RAILWAYS.

TRAVELLING frequently on the North London Line, we constantly observe persons, who are not accustomed to it, getting into the wrong carriages, or taken beyond their intended destination. It is true that the names are painted on the stations; but it frequently happens that the carriages stop in parts where these are not visible. Besides, there are persons appointed to call the name of the place at which the train has arrived; and this arrangement would be most useful if the men spoke more slowly and distinctly; but generally, so rapid is their utterance, that few strangers can from their cry make out the name of the places. At Islington, the sound is—ton—ton, Is—ton Bury, for Islington and Highbury. At Bow it is Bo—Bo—Bo—Bo; and at other stations the sounds are still more unintelligible. Nor is this want of distinction confined to the North London Railway, for it may be noticed in hundreds of other instances. On the Crystal Palace west-end line, for example, the Gipsy-hill outery is, very distinctly, Yell—Yell—Yell; and the Streatham one, Tam—Tam—Tam. It is doubtless wearisome for the attendants to be for ever crying out the same thing. It reminds one of what Coleridge tells us of his vain endeavour to induce an old clothes-man to amend his perpetual cry of—Ow! clow,—Ow! clow; the peripatetic Jew's retort being, that if Coleridge were ever reduced to the like he would cry "Ow! clow" too. The evil in the case of railway stations, however, is a serious one, and frequently leads persons unwittingly into expense they can ill spare, and loss of time they can ill afford; because no allowance is usually made for such misleading. The evil might be palliated, at least, if not entirely remedied, by the superintendents of the lines from time to time directing the attention of the men to their imperfections.

As regards the North London line, those travelling from Camden-town, Islington, &c., to Blackwall, or the West-India Docks, have to change carriages at Stepney. Many do not know this; and, in consequence of the instructions not being clearly given, are waded away to London, much to their inconvenience. Trains pass through here to Epping Forest, and elsewhere; and persons actually accustomed to the line get into them instead of Camden-town carriages. This might be avoided in a great measure if those carriages were distinctly marked "The Epping Forest train," "The Camden-town train." The London train: passengers to Limehouse, West-India Docks, Poplar and Blackwall, to change carriages at Stepney." Those engaged on the railways, from long custom, think that it is not possible to make a mistake. This is not the case; and now that railways are likely to come into general use in the metropolis, the greatest care should be taken to make all the arrangements complete.

The junction of the Hampstead Railway at the Camden-road station is often a scene of great confusion, the mere slip of platform not being at all adapted for the changing of carriages to which the passengers are there subjected.

On the evening of Easter Monday, owing to a block at this station, the journey occupied nearly three hours from Fenchurch-street to the Camden-road station, the delay at Highbury and Newington-road stations being so great that many of the passengers set off to walk to their respective homes. The inconvenience to servants, especially, who were bound to be home by a certain hour, was very great: one poor girl whom we saw crying and in much trouble, was afraid she would not be admitted when she did arrive, as her mistress would doubt her statement of the train being two hours behind time. On such a line as the North London, where the stations are almost within a stone's-throw of each other, passengers ought to be able to depend on punctuality of arrival and departure.

The irregularity of time in connection with Stepney and Blackwall is remarkable, and we seldom travel that way without dread of a crash.

THE LONDON PAINTER STAINERS' EXHIBITION.

IN a supplement to the announcement as to an annual exhibition for the improvement of operative painters, and the promotion of the decorative arts generally, the Painter Stainers' Company now intimate to the public that they have made a very satisfactory arrangement with the Council of the Society of Arts, who have, in compliance with a request by the company, nominated three gentlemen to act with the other five judges at the forthcoming Exhibition in Painters' Hall, Trinity-lane, City, on 1st June next. The gentlemen selected by the Council of the Society of Arts are Mr. Dyce, Mr. Grace, and Mr. P. Graham, who have consented to give their valuable aid in the way indicated, and who are also authorized to select and recommend two or three specimens from the Exhibition for special recognition by the Society of Arts. The Council have, moreover, voted ten guineas as a contribution to the company's prize fund.

It has been resolved that the following prizes be awarded to the successful competitors at the ensuing Exhibition:—

First Class.—Silver medal and the freedom of the company, to four competitors.

Second Class.—Bronze medal, to four competitors.

Third Class.—Certificate of merit, to four competitors.

The trade committee of the company report that the progress of the effort has been satisfactory, there having been a considerable correspondence carried on with a variety of persons of all classes, and a universal feeling manifested in favour of the movement.

ASSESSMENT OF PROPERTY IN PADDINGTON.

ON Tuesday, the Representative Vestry of the parish of Paddington took into consideration the best means of settling the disputed question of assessing all land laid out or occupied for building purposes, and unfinished and unoccupied houses.

After a protracted discussion, it was resolved,—

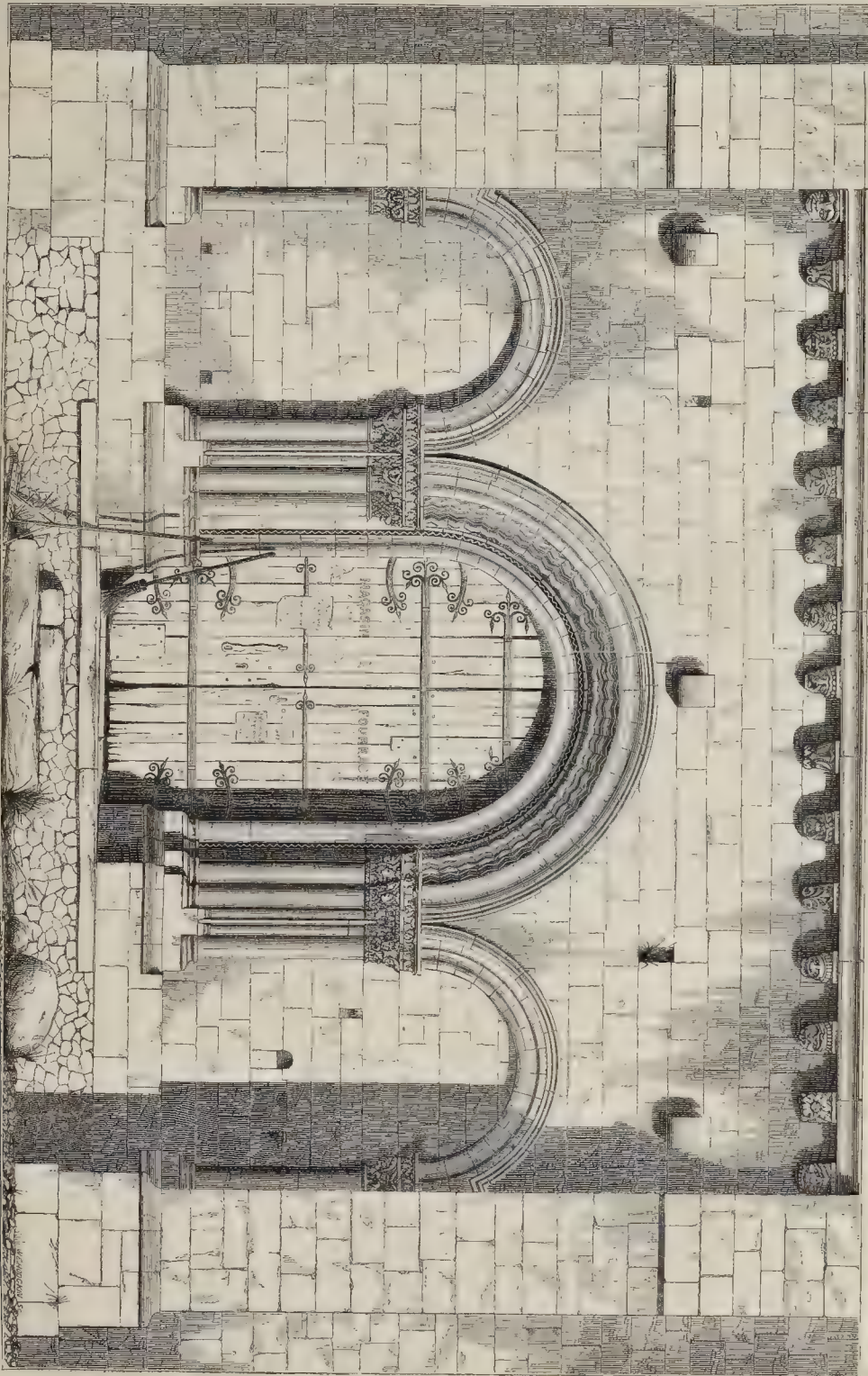
"That, in the opinion of this Vestry, unfinished property is not lettable at any rent from year to year; therefore it cannot be assessed; there being no measure of annual value, on the principle laid down in the Parochial Assessment Act, 6 & 7 Wm. IV. cap. 95; but that, with regard to land occupied for building purposes, this Vestry is of opinion that it is highly desirable to adhere to the principle that land should not go out of rating; and this Vestry therefore resolve that all land laid out or occupied for building purposes shall be assessed and rated on an estimate of the rent at which the same might reasonably be expected to let from year to year as gardens and for agricultural purposes, free of all usual tenant's rates and taxes, and the commutation rent charge, if any."

It was then further resolved,—

"That all houses and premises heretofore occupied, but which at the time of making the rates shall be empty or unoccupied, shall be rated at only one-half of the parochial sewers, lighting, and general rates; that the rates made on the unfinished and unoccupied property, the collection of which was suspended by resolution of Vestry of the 21st June, 1859, be not collected; and that the resolution of this day relative to the rating of land and unoccupied houses do take effect prospectively, commencing with the rate to be made in October, 1861. And that a copy of the foregoing resolutions be forwarded to the vestry solicitor, and to ascertain whether, under these circumstances, Messrs. Rigby intend to proceed with their suit."

The settlement of the question is looked upon as of importance by builders.

SOUTH KENSINGTON MUSEUM.—During the week ending 20th April, the visitors have been 12,997 in number.



DOORWAY OF THE CHURCH OF ST. ANDRE, CHARTRES.
[Twelfth Century.]

art independent marble statues were ever painted, nor indeed any highly-wrought statues at all painted, except for purposes of idolatry. And this brings me at once to one proposition I have to put before you. It is this—that the ancient Greek statues were not painted when they were idols, and when they were intended to be worshipped; and thus, when these statues were painted, in Greece, that it was priest-craft, and not art-craft, that painted them.

Having laid this distinct proposition before you, for you to consider whether it is right or wrong, I will proceed now more in detail. Doubtless, there were many ancient Greek statues that, at any rate, were not in monochrome, but on the other hand, of various colours, and in many cases, I believe, painted up to the tips. These, however, were not, I conceive, usually in marble, but their chief examples came under the head of the Chryselephantine art of the Greeks used in the temples. These Greeks, like the Egyptians, made gigantic statues of their gods, Jupiter, Juno, Minerva, Apollo, &c.; not, however, in granite, but sometimes in marble. Usually, these very large figures were made in metal, either cast or beat in work, or in ivory and gold; that is, with a surface of thin veneers of ivory and plates of gold laid over a framework of wood, so fashioned as just to allow their thickness to make up the substance, form, and surface required. This seems, no doubt, a strange patchwork way of making up a god, like a piece of upholstery, and vastly inferior in dignity to hewing him out of granite or marble; and, indeed, had we not reliable data for the practice, we could hardly have believed that such a people as the Greeks would have so wrought. However, as my audience are not, perhaps, conversant with *Quatrecent de Quincy's* or *Miller's* account of these proceedings, I will give a few sentences to the subject drawn from what they say. First, I would premise that these Chryselephantine, or gold and ivory, statues, were not uncommon in Greece and the Grecian islands; and, indeed, that it was a received way of making a god in those days; and that, moreover, they were not infrequently of great size. The Jupiter of Elis, although seated, was 60 feet high; and the Minerva of the Parthenon, standing, 40 feet. Both of these were by Phidias. Among various other large examples of this art were the Juno of Argos, by Polyctetus; the Esculapius at Epidaurus, by Thasymedes; and the "Great Goddesses" at Megalopolis, by Damophilus.

The first thing to be done in making these giant works, after the model was prepared, was to put together a great framework of wood as a core, yet hollow within, so that the workmen could get inside to adjust the work and rivet the veneers of ivory and gold which were to form the surface; and, no doubt for convenience, they had stages and staircases within these great statues, the wooden framework of which was, as Müller informs us, strengthened across with rods of metal. But he shall speak for himself. In division 312 of his elaborate work on ancient art, this author says:—"The ancients received from India, but especially from Africa, elephants' teeth of considerable size, by the splitting and bending of which,"—"a lost art," he says, but one which certainly existed in antiquity,—they could obtain plates of ivory from 12 to 20 inches in breadth." I may here be allowed to remark that, in the Exhibition of 1851, this "lost art," so called by Müller, seemed to have been revived, and carried even further than by the Greeks. A prize medal on that occasion was awarded to Messrs. J. Pratt & Co., Meriden, Connecticut, United States, for specimens of ivory veneers cut by machinery. "These veneers were exceedingly delicate,"—I am quoting the official report,— "one piece alone being 12 inches in breadth and 10 feet in length, and having been sawn from a single tusk." Perhaps some of the present may remember this remarkable example of the ingenuity of our brothers over the water, pendant spirally, like a carpenter's great shaving. But, to return to these great Greek statues. "In executing one of these," says Müller, "after the surface of the model was distributed in such a way as could best be reproduced in these plates, the individual portions were accurately represented by sawing, planing, and filing the ivory; and afterwards joined together, especially by the use of isinglass, over a kernel of wood and metal rods. The holding together, however," he adds, "of the pieces, required incessant care;" as, indeed, we may well conceive; as ivory is apt to expand, and contract, and warp, and curl, in changes of moisture and temperature. Indeed, it must be acknowledged that the whole process and sham nature of the work thus described im-

presses with want of dignity, lack of permanence, and the necessity of repair. From a passage in Valerius Maximus, it appears that Phidias desired to make this figure of Minerva for the Parthenon, not after this fashion, but in marble; but he was overruled. Had the sculptor had his way, we should, probably, have had now existing some grand and noble remains of it, in addition to those invaluable fragments of some of the subordinate statues which we possess in the British Museum. But the priests had their way. Idolatry had its way instead of art; and in consequence—oh, just retribution—not a pinch of dust remains of their daughter of Jove. Now, *ceteris paribus*, the priests must, we may suppose, have derived permanence for their god, and must have been well aware that this upholstery-manufacture mode of making it was not likely to last like marble. Also, this mode could not have been selected, as has been suggested, merely because of its superior costliness; because the introduction to a greater degree of gems with the gold—as was sometimes done, would easily have made the marble work as costly, or more so, than the ivory. Also, the untouched surface of ivory is by no means more beautiful as a representation of flesh than marble,—much less so, indeed, as regards permanence, as it gets yellow and discoloured. But then, on the other hand, it is highly suitable for receiving the most delicate and pure tints. It is, therefore, much used by miniature painters. Most of the beautiful works exhibited last year, in this room, of the late Sir William Ross, were painted on this material. It is probable, however, that the ivory surfaces of those colossal statues were rather stained than painted; and ivory takes these stains evenly and with facility, which marble does not. The examples, indeed, which I have seen, of colouring marble, especially with tinted wax, have been singularly unfortunate. Marble is apt to be unequal in its grain, and takes the colouring matter capriciously. In the imitation of flesh a greasy unpleasant effect is the result; and, where the grain of the marble shows coarsely, what is vulgarly called "goose flesh" appearance is produced, which is certainly neither agreeable nor divine.

Doubtless the Greeks considered that their gods had pure complexions as well as beautiful features. The Egyptian arts of heaven might well be supposed to imbue this with an exquisite delicacy not to be imitated by the permanent treatment of any surface less capable of refined tints than ivory. I am well aware that in the few last sentences I have been hazarding a somewhat novel theory in this special reason I have submitted for the use of ivory in the colossal idol art of the Greeks; but pray accept my explanation that I do not do this dogmatically, but only for discussion.*

INSTITUTION OF CIVIL ENGINEERS.

At the meeting, April 16, Mr. G. P. Bidder, president, in the chair, the paper read was "On the floating Railway across the Forth and Tay Ferries," by Mr. William Hall.

The works described in this paper were undertaken in connection with the Edinburgh, Perth, and Dundee Railway, for the purpose of establishing an unbroken communication between Edinburgh and the country north of the Tay, by which goods (and even passengers, if required) could be conveyed across the Ferries, without removal from the waggons.

One of the chief difficulties which had to be overcome arose from the difference in the levels of low and high water, averaging 16 feet at spring tides. Several plans were proposed; among others hydraulic and steam cranes to lift or lower the waggons; but it was considered that this would be too slow a process, as well as be liable to damage the waggons. Another design proposed girders 100 feet in length, having one end binged on shore, and the other attached to a floating caisson, to rise and fall with the tide; but, owing to the exposed situation, this would have rendered necessary the construction of costly protecting piers and jetties.

The works actually carried out at the Forth Ferry consisted, on the east or sea-side of the piers at Granton, and at Burntisland, of a slipway, having an inclination of 1 in 6, and constructed of solid masonry. Rails were laid upon this slipway, on which traversed a heavy platform, of a wedge shape, the upper surface being always horizontal. This platform was 65 feet in length, and 21 feet in breadth, and was formed of a wooden framework, having four main longitudinal timbers, into which rails were sunk. The platform rested

upon twenty-four cast-iron wheels, each 30 inches in diameter, with a flange cast on the middle of the rim, so as to allow the wheels to bear evenly on both sides of the rails. To the sea-end of this travelling platform were attached, by means of universal joints, four wrought-iron trough girders, for spanning the distance between the platform and the stern of the vessel. The girders were raised or lowered, as required, by two powerful winch crabs, placed on a staging elevated above the platform, at about the middle of its length. The two chains, one on each side, for lifting the girders, were passed round the barrels of the crabs, and then over two derricks to the ends of the girders; counterbalance weights being attached to the other ends of the chains. To provide for the safety of the platform, in the event of the fracture of the hauling chain, two lines of racks were laid along the surface of the slipway, into which worked ralls, attached to the axes of the wheels. Steel points, turning on hinges, were attached to the ends of the girders, and also to the pier-ends of the main timbers of the platform, to prevent an abrupt transition of the waggons to or from the vessel. Each of the universal joints, by which the girders were attached to the platform, consisted of a bolt, or pivot, 3½ inches in diameter, the middle of which was ball shaped, and worked in a corresponding portion of a cup, or socket. This socket was circular, and was made in two parts, having a projecting collar and flanges, which were clipped by, and were bolted to, the plates fixed to the main timbers of the platform. The socket was shaped in a radial form, to allow the pivot full play, and to permit of the ends of the girders moving 3 feet on each side. By these means a range of position was obtained to the extent of 6 feet, to compensate for the pitching or rolling of the vessel.

A stationary steam engine of 30-horse power, similar to a locomotive with the wheels removed, was fixed on the quay, for raising or lowering the platform, and for drawing the waggons off the vessel. On the crank-shaft of the engine was fixed a pinion working into a wheel, on the shaft of which were three winding drums, one placed in the middle of each line of rails, and one in the centre of the intermediate space. The winding drums were 2 feet 10 inches in diameter, with flanges, on the periphery of which wood was bolted, and round which there was a wrought-iron friction-band acting as a brake. The speed of the engine was decreased by toothed wheels and pinions; seventy strokes of the engine giving thirty-five revolutions to the drums; and, by other intermediate wheels and pinions, three revolutions and one-fifth to the chain wheel. The weight of the platform was about 70 tons, and it was moved up and down the incline at a velocity of 18 feet per minute.

The steam vessel, named the *Leviathan*, for conveying the goods traffic across the Forth, was built by Mr. R. Napier. It was constructed of iron, 172 feet long, 54½ feet in breadth over, and 34 feet between the paddle-wheels, with 11 feet depth of hold. The draught of water when loaded was 6½ feet, and when unloaded 1½ feet. The vessel was propelled by two steeple engines, each working its own paddle, of the collective nominal power of 210 horses. On the deck there was stanchion for three lines of waggons, the end ones on each line being "scotched." The description of rail used throughout was the inverted bridge-rail, weighing 53 lbs. to the yard, the same as on the Granton Pier; and they were sunk into the longitudinal timbers, so as to be flush with the surface of the deck.

The works at Granton and Burntisland, on the Forth, including the slipways, platforms, stationary engines and gearing, cost 10,000; and the *Leviathan*, complete, 16,226. The working expenses for six months ending July last were 768. for the stationary engines and machinery, and 1,305. for the vessel.

The *Leviathan* generally made from four to five double trips—a distance each way of 5½ miles—in the day of twenty-four hours, and could take from thirty to thirty-five waggons at a time. During the last six months, 37,618 trucks had been so conveyed across the Forth. The time occupied in making a single trip was 26 minutes, and the operations of loading and unloading were performed in from 5 to 8 minutes.

At the Tay Ferry some modifications, suggested by experience, were made. The inclination of the slipway was 1 in 8, and it was formed of timbers resting upon wooden piles. The length of the ferry was only seven-eighths of a mile. The vessel the *Napier* was 110 feet in length, 10 feet in breadth over, and 22 feet clear between the paddle-wheels; and she was propelled by a pair of oscillating en-

* To be continued.

gines of 112 horse-power. There were two lines of rails on the deck, with standage for fifteen waggons. The vessel made from six to seven double trips, and carried, on an average, one hundred and eighty waggons per day. The works cost, including the slipways, platforms, stationary engines and gearing, £8,000, and the vessel *Napier*, complete, 9,182.

These works were designed by Mr. Bouch, and were executed under his directions by the author; Messrs. Anderson being the contractors for working the Ferries.

In conclusion, the author remarked that the "Floating Railway" might be adopted with advantage in all places where the expense of a bridge or a tunnel offered an insurmountable obstacle, or where the navigation would not admit of interruption by the erection of a bridge, as at the Mersey and Bristol Channels, and across the Straits of Dover.

LIVERPOOL ARCHITECTURAL SOCIETY.

The fifteenth meeting of the session was held on Wednesday evening, the 17th instant.

Mr. J. M. Hay, president, in the chair, said,—I have great pleasure in informing you that our officers and council were the honoured guests of his Worship the Mayor, to a banquet at the Town-hall, last Thursday evening. It is only right that every member should know this, as we consider it a most gracious and respectful recognition of this Society by his worship. He is the first gentleman occupying the high position he does in this large and important commercial city who has entertained us in the same manner; and we esteem the compliment the more, considering the variety and multiplicity of duties and engagements necessarily appertaining to that position, and also the circumstance that the pursuits of his every-day life are not naturally allied to those which we represent. The Chairman then proceeded to bring under the notice of the meeting the mode of plastering that had been adopted in the old rectory at Woodchurch, where, under the joisting, there was a series of bog reeds, held up under the sides of the joists by split lathes, and upon that was the plaster. It was the first time he had seen bog-reeds used in this country for such a purpose.

Mr. Edward Haughton, M.D., read the paper for the evening, entitled, "Notes on the Ancient Roman Baths of England." The author of the paper, in reference to the mode of bathing, said,—It does not appear that it was their practice to indulge in that kind of "roasting" which is now so fashionable, nor do we find mentioned by any author any such thing as the modern practice of drinking immense quantities of water in the bath. On the contrary, we actually find Celsus warning his patients against remaining too long in the bath, on the ground that vapour baths were debilitating when indulged in to excess. He might have said the same of any bath; but it is the use made of anything which determines its influence on society. When luxury was rampant, and decency not inculcated by the prevailing form of religious belief, it was not to be expected that the Romans would have made any better use of the bath than they did, when an unbalanced civilization had reached its climax, and the city of abominations was living at its ease, and enjoying the spoils of many conquered countries. In Britain, however, the case was different. The hardy soldiers who ventured so far were not the men to spend their days in idle luxury, but they used the bath as a means of invigoration during the most arduous achievements; and it seems to me that (inasmuch as an Englishman is neither a Roman nor a Turk) the use of the bath will neither be accompanied by the laziness of the one nor the sensuality of the other. On the contrary, I congratulate myself on whatever part I have taken in its introduction into the country; and I believe that every man who has aided the cause may justly boast that he has assisted in giving the people a harmless enjoyment, which is capable of curing disease, preserving health, and giving new capacity for labour.

MANCHESTER ARCHITECTURAL ASSOCIATION.

A MEETING of this association was held on the 17th instant, Mr. Lawrence Booth in the chair. Mr. Aitken, vice-president, read the paper for the evening, on "The Limits of Truth in relation to Architecture."

The subject of Italian architecture having necessarily been introduced, the writer referred to its alleged shortcomings; "its want of adaptability to the various requirements of comfort and convenience in the internal arrangements of a build-

ing; the deceptive and unsound construction necessarily connected with it; and the necessity of applying unnatural and false decoration to it." These allegations were then severally adverted to in detail, and evidence adduced with regard to the first to prove the adaptability of Italian architecture to all conceivable structures, combining all possible effects between the picturesque and the symmetrical. The subtlety and beauty of symmetry in contrast with picturesqueness was then advanced, and supported by a reference to the harmonic laws of proportion.

Adverting thereafter to the salient points of objection to the construction in Italian architecture, and endeavouring to show their inconclusiveness, reference was made in the following terms to the faults of the style:—

"That there is much that is reprehensible in the practice of Italian architecture we at once admit: deception and mal-construction exist in almost interminable instances; but is this the fault of the style? Most emphatically we say, no. The abuse of a thing is no argument against its worth. Rightly used, the Italian style becomes divested of sham design and false construction: apply to it the principles of truth, and it will be pure architecture. It is no fault of the style that it has been perverted from its legitimate purpose by those who, not able to comprehend it or enter into its spirit, have departed from its truthful use."

After discussion, the thanks of the association having been presented to Mr. Aitken for his paper, the meeting was concluded by the announcement of the following subjects for ensuing evenings:—May 1, Mr. Henry Fisher on "Chemistry in Relation to Building;" May 15th, Mr. Lawrence Booth on "Architects and Builders;" May 29th, Mr. R. Knill Freeman on "Domestic Architecture."

THE FEMALE SCHOOL OF ART, QUEEN'S SQUARE.

WE are glad to hear that the private view of the students' drawings, on Friday and Saturday, the 12th and 13th, and Monday, the 15th instant, was well attended. Thirty medals, as we mentioned last week, have been awarded, the highest number which any one school is allowed to take. Seventeen obtained honourable mention, proving that more drawings might have had the distinction of a medal had not the number been limited; but this limitation has a good effect, as it necessarily tends to raise the standard of excellence in the school; and it is of great importance that the art-student should aim high.

Between 500 and 600 visitors viewed the drawings, above 300 of these coming on the last day. The Countess of Shelburne, Lady Eastlake, Lady Hawes, Mrs. Milner Gibson, Mrs. Henry Cole, and many others of the lady patronesses, were among the visitors.

There was a decided improvement in the drawings from the figure upon last year. Two careful copies from one of Mulready's studies, marked for national competition, deserved attention. The elementary stages of instruction were also well represented, and there were some careful studies from natural foliage and flowers, in outline and in colour, and one in light and shade, in chalk, of fern, clever and spirited, by Miss Bryant. The compositions in colour of fruit and flowers were few, and these far below what has been produced by this school in former years. The bold groupings in tempera which the school used to be famed for were wanting. This is to be regretted, as tempera painting is not only the most useful medium for the designer, but is also a capital preparation for the young artist, who may afterwards pass on to oil colours, as it imparts freedom of handling. There were many heads from the life, some of them in chalk, good, and one time sketch in two hours from the life, by Miss Le Breton, now a probationary student at the Royal Academy, was very clever. More than one visitor noticed the entire absence of any careful studies of antique drapery. Some of the studies from the life were spoiled by the execution of the drapery, showing that sufficient study had not been devoted to it.

The students deserve to be congratulated on their success this year; evincing, as it does, not more the excellence of the instruction afforded as the good and kindly feelings of sympathy with their superintendent, Miss Gann, which has, in no small measure, we believe, prompted this extra striving for medal distinction for the general good of the school.

The exhibition in aid of the funds, by the kind permission of the council of the Society of Arts, will be opened on the 1st of June, at their rooms, John-street, Adelphi, for one fortnight only; and

from the promises of friends the committee hope to be enabled to render it very attractive. The greater number of the paintings will be from private collections, not accessible to the public, and will illustrate in water-colour the history of the art in England.

The following is a list of the young ladies whose drawings are forwarded for National Competition: Miss Eliza Bryant, Miss Rosa Le Breton, Miss Margaretta Clarke, Miss Susannah Fryer, Miss Laura Hertford, Miss Charlotte James, Miss Emily Knapp, Miss Anne Molyneux, Miss Isabella Pigott, Miss Isabella Fox Smith, Miss Theresa Smith, Miss Emily Snelgrove, Miss Frances von Stürmer, and Miss Augusta Wells.

THE NOTTINGHAM SCHOOL OF ART DESIGNS.

AT a recent meeting of the town council, a report from the Committee of the School of Art was read, detailing the procedure as to Mr. Simpson's designs, taken upon the resolution of the council, of 27th March, 1861, not to entertain plans by another architect without urgent reason; and intimating the result at which the committee have arrived. The committee on this report state, that the Science and Art Department had promised 25 per cent. towards the cost of erecting the new school buildings, on condition that the plans were submitted for their approval and the buildings erected in accordance with their regulations; that the funds could not be otherwise realized; that Mr. Simpson had been invited to alter his plans in accordance with the regulations referred to, and had altered them; that Mr. Redgrave and Captain Fowke had disapproved of them; that the committee, finding it impracticable to proceed with Mr. Simpson's plans, offered him compensation, which he declined, and invited him to compete with other architects, which he also declined to do; that the committee invited four of the town architects, selected by ballot, to send in plans, six of which were received and sent to the Government Department, on 23rd November, 1860, with names; and that the plans marked F, had been selected by the Department. The committee had, therefore, adopted these plans, subject to the approval of the town council, and had themselves every reason to be satisfied with them. The elevation was in the same style as the Minton School of Art at Stoke, and the Clifton School of Art.

The adoption of the committee's report was moved by Alderman Heymann, and an amendment, referring it to the Inclosure Committee, was moved by Mr. Page, and carried, after a good deal of discussion, by a majority of five.

In course of the discussion some letters by Mr. Simpson in defence of his plans were read. From one of these, addressed to Captain Fowke, we may quote Mr. Simpson's remarks on a chief question at issue between him and the gentlemen of the Government Department; but first we had better quote Captain Fowke's objection to which Mr. Simpson's remarks are a reply.

In his addendum to Mr. Redgrave's adverse criticism on the plans, of date 28th June, 1860, Captain Fowke says:—

"I concur in the foregoing report, and would remark, in addition, that the large room, called on plan 'Antique Rotunda,' appears unsuitably lighted for the purpose of an exhibition room. The area of the sky-light is only one-eighth of that of the floor, while experience has shown that for rooms in which pictures or objects requiring special light (are exhibited), one-half of the floor area is not too much to be given to the skylight: this evil is increased by the distance to which the light is removed. To secure the necessary amount of light, the skylight would have to be increased to within 8 feet of the radius of the room."

In his reply Mr. Simpson says:—

"I hope it will not be deemed ridiculous if, in justification of my own dome height, I quote one example. The dome of the Pantheon at Rome, quoted by Gwilt in his Encyclopedia, is 142.6 diam., i.e., between its columns, independent of the recesses beyond, and 145.9 high from the floor to the eye of the dome, which is 27.6 diam. The area of the eye would then be 572.3, and the cubical quantity of the dome to be lighted would be 1,934,496 feet, so that it would follow that, each superficial foot of the eye-lights would occupy the amazing quantity of 3,359.9 cubic feet of the whole. Then, as to the relation of the eye to the floor, the latter in round numbers contains 15,948 superficial feet, and the eye (as I have already stated) 572 feet, so that the eye is little more than 1-28th of the floor. Contrasting the top light of my circular dome with this quotation, which is 15.6 diam., and the floor 54 feet diam., the superficial quantity of the eye in round numbers would be 138, while that of the floor would be about 2,399 superficial feet; so that it would follow that the eye of my rotunda is about 1-12th of the floor, while that quoted by the above authority is 1-28th."

Mr. Simpson personally also entered into a long explanation at the council meeting, in course of which it was stated that it was an injustice to him

to say that the rotunda was intended for pictures, and that the committee, of whose alleged misrepresentations he complained, ought to have explained the matter to the Government Department.

THE CENSUS AMONGST THE LABOURING CLASSES AND THE POOR.

It is gratifying to find, from the enumerators themselves, that they experienced little or no delay at the houses of the working classes, and that the way in which the schedules were filled up was, for the most part, very satisfactory.

It is very important that correct statistics should be obtained in respect of the poor and industrious classes of the population.

Statements have been made, descriptions have been given, of overcrowded tenements, in which multitudes are poisoned: notwithstanding, it is necessary that all the accounts which have been given should be corroborated by the census returns. We fear, however, that in this respect, in spite of all the care which has been taken, even in 1861 we have not, in the official reports, got quite at the truth. In order to show good grounds for doubt, we will give one instance without mentioning the locality: it is one, however, notorious for the dilapidation of the dwellings, and the enormous population of the miserable place. In such positions it becomes the duty of the enumerator to take the greatest care; and to these spots, men who have time to sufficiently do their duty, and who may feel well disposed to the work, should be appointed.

In one of these localities it was the lot of the writer to see how the census was taken. The enumerator was a gentleman of intelligence, who was engaged in business in the neighbourhood, and who was well acquainted with the locality. To him the 11. paid for the work was not an object, but he undertook the task to oblige his friend, the registrar: in fact, the sum paid to the enumerators is too small to ensure, in all instances, the right men for the purpose; for it is not only the delivery and gathering in of the householders' schedules at the appointed time that he has to see to, but inquiries have also to be made before the census day arrives; and after the returns are got in, they have to be averaged, tested, and entered into books for the registrar, and other labour has to be completed.

In the instance mentioned,—and we have reason to fear that similar mismanagement has been the case elsewhere,—for the purpose of taking the census, the enumerator gave his power to those who were the collectors of rent, in those houses sublet into many tenements. It may be necessary to remind our readers, that these abominable homes, to which we have so often felt it a duty to direct attention, are managed in this way. A person of fortune buys up large districts of shameful property: most of these gentlemen would be ashamed to be seen near it: the houses are therefore put into the hands of an agent, who sublets them to the best bidders, in lots: those who take them again sublet; and then the houses are sub-sublet into rooms, and often the rooms are again sublet.

In such cases as these, it is clear that each of the parties engaged has a profit, and this raises the price of the homes of the very poorest to a shameful extent. In these courts and alleys the houses come into the possession of collectors—hard, grasping men and women—who keep small chandlers' shops, for the sale of the necessities of life, and who sell the worst articles at enormous prices: some of these persons have the sub-rental of three, four, five, six, and perhaps twenty houses; which, except on the interference of the medical officers of the neighbourhood, the sanitary inspectors, or those portions of the press which take an interest in assisting those left without care, would be even worse than they are at present. It is to the interest of the under-agents of this kind of houses, to incur as little expense as possible: it is therefore their plan to prevent the exhibition of imperfections: it is to their interest to hide defects; and not to report rightly on the numbers who actually lodge in these rooms. Notwithstanding, in the taking of the census in certain overcrowded districts of London, the enumerators, neglecting a chief portion of their duty, instead of examining all these tenements, and gathering the statistics personally, engaged the collectors or holders of these houses to get the papers filled up, without troubling themselves in the matter. Experience of the peculiarities of the dwellers in these places,

and of the habits of the rent collectors alluded to, assures us that returns gathered in this way cannot be depended upon.

DWELLINGS FOR THE WORKING-CLASSES IN LEEDS.

WE may hope that the observations we felt it our duty recently to make on the condition of Leeds will not be without effect in the long run. A committee of gentlemen, well known for their interest in the working-classes, and connected with the building and provident societies of the town, have originated and inaugurated a scheme which, it is hoped, will supply a want which has been so long felt, and, at the same time, enable working-men to become the owners of their own dwelling-houses, at an outlay very slightly exceeding the rent usually given by the better paid of the artisan class. It has been decided to erect a block of ten houses, each having a five yards enclosed frontage for a garden, and a separate yard and outbuildings at the back. The foundation-stone was laid on Saturday by Mr. R. M. Carter. The designs have been prepared by Mr. Ambler. The style chosen is the Elizabethan, with ornamental gables, slated roofs, and slightly decorated window-heads. The houses are to be two stories high, separated by a 10-inch wall, and having a pantry and coal cellar on the basement at the back. On the ground floor there will be a parlour, entered from the street, 15 feet 2 inches by 11 feet 6 inches, and a kitchen 15 feet 2 inches by 12 feet, both 9 feet in height. On the upper floor there are to be three bed-rooms: the front room being the same size as the parlour, and the other two being respectively 12 feet by 7 feet 4 inches, and 9 feet 2 inches by 7 feet 6 inches. They will be the same height as the rooms below, and are to have ceilings. The staircases run from the kitchens, and the rooms have separate entrances. The cost, including land and mortgage, is not to exceed 150*l.* for each house; and working-men will be put into possession on paying the amount down, or 25*l.* to 30*l.*, and taking shares in a building society for the balance. By paying down say 31*l.* odd, on obtaining possession, and taking 1-4-5th share in a building society, the occupier would become the owner in thirteen years and six months, by a weekly payment of 4*s.* 6*d.*, or a few pence per week more than the estimated rental of the houses, exclusive of rates and taxes.

This seems a good step. The funds for carrying out the project are advanced by a gentleman in the town. The security is no doubt the houses themselves. This business-like method of destroying dens of filth and fever, and giving each man an independent property, and a reward for sobriety and perseverance, is a good way to remedy evils we are seeking to expose.

THE LABOUR QUESTION.

London.—It is difficult to state positively to what extent payment by the hour, with the half-holiday on Saturday without loss, will be adopted, the statements we receive being very contradictory. This, however, appears certain, that the firms who commenced it have as many men as they want, and could have many more if necessary. That a large number of independent workmen approve of the proposition, and will gladly avail themselves of it, seems clear. We continue to receive letters to that effect from workmen. The following is the close of one of them:—

"In reference to payment by the hour, there is but one plausible objection anticipated, and this objection is more imaginary than real, viz., that masters may feel disposed to discharge at the end of any hour. When an employer has men fully initiated to the duties required of them he cannot make a sudden change without injury to his own interest. I cannot, therefore, conclude so easily of employers generally, as that they would demean themselves to make use of such petty spite to their own disadvantage; but let the worst take place—let a man be discharged at the end of any hour—his work still remaining to be done, another must take his place. Men as individuals might feel those sudden changes inconvenient; but, taken in the mass, they would reap the advantage, and not the employers. As I am in want of employment, and I can use the mallet and tools better than the pen, I shall certainly close with the liberal offers held out; or, to use the vulgar term, I shall 'go in black.'"

JOHN GUPPIN, Stonemason."

It would be a good thing if workmen would wipe this ugly word "black" out of their vocabulary.

Wolverhampton.—The strike of painters, glaziers, and plumbers, is not yet at an end. The employers, in turn, have resorted to a lock-out. They agreed to pay one shilling a week more wages, and consented to the application of the men that the time at which the latter might leave work should be the same as in the case of the

builders' operatives; but they required in future that the men should observe certain rules, which they drew up as the proper basis for an adjustment. The chief difference appears to be that the masters require the men, instead of being at the respective shops by six in the morning, and walking in their masters' time to their places of work, to be two miles on the road at that hour in long distances, and at the building in short distances; while the journeymen, on the other hand, contend they should be one mile only on the road at the stipulated hour. The shops are now closed against all the men.

Hereford.—The brickmakers working at the several brickyards in the neighbourhood of Hereford have struck, demanding an increase of pay of 3*d.* per thousand. Their masters are not inclined to comply with their demands.

Chester.—The operative masons have published the following in the local *Chronicle*, as the rules drawn up by them:—

Rules and Regulations for the Masters and Stonemasons of Chester.

1. The hours of labour shall be from six a.m. to half-past five p.m. so long as there is sufficient light, except on Monday, to start at seven a.m., and on Saturday to leave off at four o'clock p.m., throughout the year; during the winter months from daylight until dark; and in no case later than half-past five p.m. for a day's work.
2. One half-hour to be allowed for breakfast, and one hour for dinner, throughout the year; and for country jobs walking time to be allowed, or lodgings paid.
3. The wages, from the second Monday in February to the third Monday in November inclusive, shall be 4*s.* 8*d.* per day; and during the remaining portion of the year, 4*s.* 4*d.* per day; the employer to commence paying at four o'clock, and on no account later than half-past.
4. If any alterations are required in the foregoing rules, six months' notice thereof shall be given by either party to the other for that purpose, stating the nature of such alterations. The notice to expire between the 1st of May and the 1st of August.

Liverpool.—A crowded meeting of operative painters was held on Saturday evening, to consider a resolution passed at a meeting of the masters on the previous evening, adopting the hour system, and fixing the rate of wages at 5*d.* per hour for ten hours per day, allowing the men the privilege of working six hours and a half on Saturday, beginning at six o'clock in the morning and leaving off at one o'clock in the afternoon. The chairman explained that the proposition was an advance in money upon the ten ordinary working hours of the day of 1*s.* 1*d.* per week, and a greater relaxation on Saturday than the men had asked for; but, upon overtime, it was a decided reduction; the present wages for overtime being 6*d.* per hour; and it was also a reduction upon the winter wages; for, assuming that they worked eight hours a day, Saturday included, they would only earn 23*s.* per week; the wages they had been in the habit of receiving being 4*s.* a day, or 24*s.* a week. It was proposed that they should accept the offer on condition that the masters would give them a guarantee not to discharge them at an hour's notice, and that they would agree to pay price and quarter for overtime up to ten o'clock, and price and half after that hour. The proposer urged those present to enrol themselves members of the society and raise a good fund, so that, at some future time, they might be able to concoct a scheme on a Saturday night, and retaliate upon the employers with a vengeance. Mr. M'Arthur moved an amendment to the effect that they still adhere to the terms of their memorial, unless the masters agree to pay 6*d.* per hour; which, after a long discussion, was carried by a large majority. The masters are said to have since conceded an advance of wages and shorter hours of labour.

Manchester.—The masons' labourers of Manchester and Salford have been asking for an advance of wages; and, this having been refused, they have struck.

Edinburgh.—At a meeting of the directors of the local association of employers in the building trades on Monday night, a sub-committee was appointed to prepare rules for a National Association, embracing employers in all parts of Scotland. The sub-committee appointed at last meeting to obtain information and designs for machinery for sawing and planing stones, produced several designs, which were considered by the meeting, and they again remitted the matter to the sub-committee to prepare a prospectus of the projected company, and submit it to the next meeting. The operative builders meanwhile still continue on strike for the nine-hours movement, having now been out for six weeks, the demand being resisted by the employers on the ground that, though the men offered to accept nine hours' pay, the practical object was to receive the ten hours' pay for nine hours' labour. The men lately offered to engage to ask no increase in their pay per hour for twelve months, but to this proposal the employers did not accede. The joiners, who came out shortly

after the masons, have since given in, not having funds or organization to enable them to carry on the struggle. Owing to the large number of masons who have left town and found work elsewhere, and to a considerable body having obtained work on the nine-hours system, the unemployed masons in Edinburgh have been reduced to about 200. We understand that at the last meeting of the directors of the Master Builders' Association, it was agreed, in order to bring the present strike to a termination, and prevent further inconvenience to the public, that they should recommend to a general meeting of the Association, to be held on the evening of Wednesday, first, that it be proposed to the operatives to compromise the matter by the hewers working nine hours, and the builders ten hours per day, or the alternative of submitting the whole case to an arbiter, to be mutually chosen.

Jersey.—At a meeting of the master builders on April 11th, it was unanimously resolved that the wages be paid at 8s., British, per day, for ordinary good workmen, and all others according to their ability; and that the day's labour shall consist of ten hours all the year round. The men who asked 3s. 6d. on the 8th, met after the master builders' meeting, and it was decided after the decision of the masters had appeared in the papers, that another meeting should be called.

PROVINCIAL NEWS.

Northampton.—The new schools for the parish of St. Giles are progressing rapidly. The buildings are to be faced with Duxton stone above the plinth, which is of blue bricks. Bath stone windows, doorways, and copings are introduced, with a bell-turret 50 feet from the ground line. The contract is about 2,000l. Mr. R. Cosford is the builder, and Mr. E. F. Law, architect.

Rochester.—The new county court building will be at once commenced on the piece of land opposite St. Margaret's Bank, by Mr. Spicer, of Strood, who has taken the contract.

Sheerness.—The new barrack buildings (Mr. Naylar, of Rochester, contractor, at 9,300l.), are to consist of quarters for seventy married soldiers, together with washing, drying, and ironing rooms, besides ablution-rooms and baths, and everything necessary for the health and comfort of the soldiers' families stationed at Sheerness garrison.

Cirencester.—Messrs. Medland & Maberley have submitted their designs for a corn exchange, and these have been approved. The hall will be of larger dimensions than at first contemplated, namely, 15 feet wide by 50 feet long. The gallery or corridor will be lighted from above for its whole length.

SCHOOL-BUILDING NEWS.

Rochester.—Plans for the proposed enlargement of the Free Mathematical School, have been prepared by Mr. M. Bulmer, architect. The governors have recently purchased three houses in High-street, adjoining the school, two of which are to be taken down, and the additional school building erected on their site. The plans prepared include the erection of an additional school-room for a portion of the scholars, together with a classroom, retiring-room for the boys, rooms for the boarders, and other apartments.

Bedford.—The new Grammar School has been opened. The want of accommodation in the grammar school, says the local *Times*, has long been felt, and the trustees at last decided upon erecting additional rooms on the north side of the old building, extending over Horne-lane and the site of the house occupied by Mrs. Bass. The new buildings were erected from designs by Mr. Horsford, surveyor to the trustees of the estate at Bedford, and consist of a large room forming the northern boundary of the building, 58 feet by 30 feet: on the south side of this there are two rooms, one below and another above, each 22 feet by 24 feet; between which and the old building there is the entrance-hall and staircase, surmounted by a tower. The two old school-rooms have been converted into class-rooms. The new erection is in character with the old, and therefore presents no architectural display, but is simply a plain stone building. Messrs. Thompson & Fryer, of Derby, were the contractors.

Shrewsbury.—Schools have been erected and opened in connection with the parish church, at the village of Meole Brace. The style of the architecture, according to the *Shrewsbury Chronicle*, is "Victorian Gothic." The boys' school measures 40 feet by 20 feet; the girls', 20 feet by 18 feet, each having a porch. The roofs are open

timbers, and stained in oak. There is a spirelet, visible from a considerable distance, and surmounted by a wrought-iron terminal. The total cost was 900l. The architect was Mr. Christian, of London; and the builders were Messrs. T. & J. Groves, of Shrewsbury.

IMPROVEMENT IN THE CONSTRUCTION OF SMALL HOUSES.

SIR,—There are, as you are well aware, a large number of small houses erected in London, as well as in country towns, upon a plan which is one of great inconvenience and loss of room; I mean that mode of building by which the staircase is taken out of the back parlour, and the back upper rooms of the house; whereby the back rooms in small houses (and, indeed, in a large number of houses which let at 40l. or 50l. a year) are rendered almost useless, either as bed-rooms or sitting-rooms.

To remedy this evil would be a great blessing to the poor, who occupy houses from 12 feet to 15 feet frontage, as well as to a large class of persons who are compelled to live in houses of much greater value, but of similar inconvenient construction.

I beg to suggest a mode of building which would remedy this great defect at a small expense; namely, to build the staircase in the yard, immediately adjoining the rear of the house, whereby the back parlour and the back kitchen, and all the rooms over them, would be of the same useful size as the front parlour.

There would be a long passage of the usual width, which would pass under the stairs into the washhouse and yard, which passage would communicate with the basement by a door and staircase adjoining the washhouse door.

The passage may be open to the staircase, or shut off by an arched (or, in large houses, an ornamental) doorway.

In small houses, the staircase may be square, lighted from without; and in those of larger dimensions, a circular, or well-stair, either lighted from without, or by a skylight from above, would add much to the ornamental appearance of the inside.

The staircase will open alike to the passage leading to the upper rooms, as to the room over the washhouse.

The above suggestions, if carried out, would not increase the expense of building small houses more than about 6l. or 8l. (as, according to the present plan, they must have staircases), whilst the increased size of the rooms would command an additional rental of 2l. or 3l. year; and in houses of rather larger dimensions, the remunerative rental would be considerable. I rent a house at 40l. a year, which I shall be obliged to leave on account of the smallness of the back rooms; but if it were constructed on the principle I have shown, I would gladly pay an additional 10l. a year for it.

T. H.

FURNITURE AT THE ARCHITECTURAL EXHIBITION.

SIR,—All visitors must admire the work of Messrs. Shaw & Forsyth, now exhibiting, and of which you gave a view in your last. It is not my intention to find fault with that work, but to show that it is not absolutely true design; that it is rather antiquarian than modern. The whole structure has the appearance of a miniature stone building, which is surely not desirable in furniture of wood. The idea is Medieval, and every designer must acknowledge that this part of Medieval design is the least successful. It is curious to observe that in the early Middle Ages very much work indeed partook of an architectural design: thus we find reliquaries in the form of a chapel; monstrances, with buttresses and the general features of a Gothic tower; cupboards of wood, built up in the form of a castle of stone; and many other misapplications of stone construction to other materials. Mr. Shaw has here designed a beautiful Medieval bookcase, but which is essentially archaic in treatment, and perpetuates all the faults of a Medieval design. I am not finding fault with Gothic ornament or carving, for I admire it above all others; but with the misapplied construction so common in Medieval work, as also in another line in the Cinque-cento and Renaissance. In the bookcase alluded to, what is the sense of the two small painted castles at the top? And would not an elegant symmetrical pattern or border, painted on gold, look better than the archaic scale pattern, which is excessively harsh to the eye? The arches of the upper tier are quite stone-like in construc-

tion, and take away all idea of wood. Then the sloping sort of penthouse roof between the bookshelves and cupboard is not elegant; the pattern is so laid as to give an idea of relief,—certainly a "sham" in mosaic, and which is wanting in repose. It is most unpleasant to the eye by its conspicuous position and want of apparent flatness. Next and last, the doors of the upper cupboard are in an "arcading of wood." Mr. Shaw, you are not building a cathedral façade. Wood, every child in furniture design knows, ought to be vertical and horizontal in construction on account of the grain. How much better these doors would have looked in it mosaic or in panels of painting, or figure or animal carving in relief, surrounded by their natural projecting constructional framework, the latter inlaid or elegantly decorated with a coloured border!

I have simply written this to explain that in woodwork, architecture is a mistake; architects designing furniture too often forget this, as did their brethren of the thirteenth and sixteenth centuries also. Mr. Shaw has produced a design of the thirteenth century with all the faults architects of that age made when they were only architects and not upholsterers. It is a stone design, and not wood.

ALPHONSE WASHINGTON.

IN THE MATTER OF THE METROPOLITAN RAILWAY.

SIR,—This company are inflicting, under cover of their Act, a great amount of wrong and injury on private individuals and property. If passing, please look at a house even so far off as 2, Great 14th-street, and the pavement thence to the Workhouse, fissures and cracks and settlements in every direction. I fully expect to hear of accidents.

They attempt to shore up after all the mischief is done. As for the shoring at the Workhouse this is of no use; they have nothing to shore to; the shoring came clean away; ground having given way underneath; better had it been shored up internally.

A neighbour, Mr. Croucher, a large dealer in old materials, cannot get a drawer in and out of his premises; and, from the hindrance, stoppage, and loss of business consequent on his premises being hoarded in, the entire roadway being blocked up, puts his weekly loss down at 10l. Surely the Legislature can never have intended this.

A HOUSEHOLDER.

A FOREMAN'S FUNERAL.

SIR,—I was led by a true feeling of respect to Finchley Cemetery, on Sunday afternoon, the 15th instant, to witness the interment of the head foreman of Messrs. Holland & Hawen, builders, of Bloomsbury, and was delighted to notice a very great number of men of each branch in the building line, all looking respectfully attired, and appearing most serious and attentive. I was moved to notice the tears rolling down the cheeks of some of the hard-working men as they watched the lowering of their foreman into the grave, and no doubt, as they cast a thought on his children, some of tender years, who are left to mourn the loss of their parent. Some of these men, sir, had come a long distance to attend the burial of their once foreman. I was more delighted to see the head of the firm there also, to behold the last of his valued servant, although suffering from continued indisposition.

These facts prove, I conceive, that builders' workmen have hearts to feel for the troubles and afflictions of others, and can respect and value those who are placed above them, notwithstanding circumstances that have recently tended to lower workmen in the opinion of the public.

It demonstrates, also, that there is nothing so conducive to the interests of the employer and employed as the rightly cultivating that which may be denominated a tree, namely, the social tree, nothing so likely to produce happiness among the working classes as the enjoying the fruits of this tree; nothing more likely to heal the wounds, to settle the divers disputes which at times will arise, as a proper application of the leaves of this glorious tree.

I do think, sir, if you had seen the employer, clerks, foremen, labourers, boys, tradesmen, all mingling together, having on that solemn occasion flung away to the four winds of heaven those class distinctions so necessary in every-day life,—I say I do think you would have agreed with me that sociality had done its good work in this firm.

J. A. P., a Joiner.

Books Received.

The Royal Gallery of Art. Edited by S. C. HALL, F.S.A. London: P. & D. Colnaghi & Co., 1861; Agnew & Son, Manchester.

This fine work is now nearly completed, having reached the forty-seventh part. This, which is now before us, contains "The Royal Sisters" engraved by Desvachez, after J. Sent (portraits of the Princess Helena and the Princess Louise); "The Cottage Home," by S. Smith, after I. V. Gibson, of Manchester; and "The Gipsy," very well engraved by Sherratt, Jun., after J. Phillip, R.A. Mr. Hall has well kept his promises, and has produced a beautiful work, which should be in the hands of all who love pictures.

Miscellaneous.

TRAMWAYS IN IRELAND.—The corporation of Dublin have granted Mr. Train leave to lay down experimental lines on two of the roads leading from the city of Dublin to the suburbs, and a company has been started at Wicklow, entitled the Wicklow Tramway Company. Its capital is to be raised in 2,000 shares of 20s. each, one half of which have already been subscribed for. The Wicklow commissioners have, in consideration of the importance of the project, granted the entire ground for the tramway at the nominal yearly rent of 1s.

THE SANITARY CONDITION OF CARDIFF.—From the eighth annual report on the sanitary state of Cardiff, by the officer of health for the town, (Mr. H. J. Paine, M.R.C.S.), it appears that the rate of its mortality is favourable as compared with that of previous years, or even as compared with the mortality ruling in many other towns during the year 1860. According to the reports of the registrar-general for that year, the average rate of mortality in 125 districts, and 23 sub-districts, comprising the chief towns, was 22.57 per thousand; in the remaining districts and sub-districts, comprising chiefly small towns and country parishes, the death-rate was 19.67: the average death-rate of the whole kingdom was 21.13. In Cardiff, the estimated population being 35,000, and the deaths registered 662, the rate of mortality was 19.91 per thousand. Dr. Simon, in his report on the sanitary condition of the kingdom, makes this remark: "Those places where infants are most apt to die, are necessarily the places where the survivors are most apt to be sickly." It is, therefore, even in this respect, so far satisfactory to find that last year the relative rate of mortality under five years of age to total deaths, at Cardiff, was only 41 per cent.; while, in the previous year, it was 47 per cent.; although in the metropolis, by the way, it was only 43 per cent. That there is still much to do at Cardiff also appears from this report, which gives a list of various streets as being in a very offensive state, and draws attention to an ill-drained locality, named Grangetown, the sewerage of which seems to be itself an abominable nuisance, requiring immediate amendment.

COURT OF COMMON COUNCIL: NEW ASYLUM.—**COURT OF ST. PAUL'S.**—At a recent court of common council, Mr. Alderman Dakin brought up the report of the special committee of which he was chairman, recommending the erection of a Pauper Lunatic Asylum for the City of London, at an expense of 135,000*l.*, for the accommodation of 250 patients, on plans which had been approved by the Commissioners in Lunacy. Originally it was proposed by the committee to build an asylum capable of accommodating upwards of 320 patients, including the imbecile as well as the lunatic poor; but resolutions having been passed by the City of London Union and the East and West London Unions, to the effect that it was not desirable to remove the imbeciles; the commissioners sanctioned the erection of a building for the admission only of pauper lunatics to the number of 250. The report was agreed to, and referred back to the committee to be carried into execution, with a reference at the same time to the Coal, Corn, and Finance Committee, to consider the mode of providing the necessary funds for the erection of the proposed asylum. Mr. Lawley, chairman of the Coal, Corn, and Finance Committee, brought up a report from that body, recommending, amongst other grants by the court, one of 750*l.* towards the gilding and ornamentation of St. Paul's Cathedral. The report was adopted, though that part of it which referred to the decoration of St. Paul's gave rise to a discussion and two hostile amendments, based mainly on the allegation that the ornamentation of the metropolitan cathedral was a duty which devolved on the Dean and Chapter and the Ecclesiastical Commissioners. The proposed expenditure was defended on the ground that legislation of recent years had left the Dean and Chapter without funds for the execution of such a work; that the sustentation and decoration of the cathedral, located as it was in the heart of the City of London, were objects especially worthy of the regard of the corporation; and that even if it were true that the Dean and Chapter of the Ecclesiastical Commissioners had failed in their duty towards the edifice, that was no reason why the Court of Common Council should neglect theirs. Both amendments were negatived by large majorities, and 750*l.* was voted for the purpose in question—which was stated to be the gilding of the roof of the cathedral, from the screen to the nave.

GLASGOW ARCHITECTURAL SOCIETY.—The seventh meeting of the third session of this society was held on Monday night, 15th, in the Scottish Exhibition Rooms, Bath-street, Mr. Charles Wilson presiding. Mr. David Haire read a paper upon "Decorative Art," which was followed by some conversational remarks by the members present; and after the transaction of some other business the meeting separated.

STATE OF CLERKENWELL WORKHOUSE, COPPICEROW.—In an application for an injunction made by the Board of Guardians against the Metropolitan Railway Company, the district-surveyor, Mr. Sibley, states, in an affidavit, that "having duly surveyed the workhouse, Coppicerow, he is of opinion that its stability has been seriously affected by the railway works of the Metropolitan Railway, and that the further prosecution of such works will be at the imminent peril of the lives of the inmates."

CONVERTIBLE SCHOOL DESKS.—In our notice of the completion and opening of St. Giles's National Schools, Bloomsbury, we mentioned that Mr. E. Barry's clerk of works had invented a method of converting the school desks into tables, &c., by means of joints or hinges. Mr. Benet, of Norwich, at the time sent us in a claim of his own to a similar invention, but without anything to show the precise nature of his plan. This we have since had sent us; and the diagrams show clearly the method of an invention by means of which school desks may be either joined two and two, or by a series of such arrangements, in a horizontal plane, so as to form tables set before the seats; or turned down almost perpendicularly, so as to form backs to the seats; the usual slope as desks being, of course, also provided for by the joints and fastenings; which, with the stands, are of iron, while the flats of the desk and seat are of wood.

BRICK MACHINES—ECOLE'S PATENT.—In this form of the numerous brick machines which of late years have been coming into use, the clay is taken from the embankment and placed into waggons, which run on a tram-road on a slight incline to the hopper, fixed so as to dispense with hoisting machinery. In the hopper are two sets of knives or agitators, working transversely, and cutting the clay into small pieces for the three crushing rollers, whence it passes into a horizontal cylinder, with pug-mill shaft and blades, working on the screw principle, and is then forced by a side knife or wiper through the dies, on to tables fitted with rollers, where the mass is divided by wire cutters in the required size for bricks. They are then removed on trays to the drying shed, where they remain until ready for the kiln. The machine is about 12 feet long by 9 feet broad. The drying sheds are heated by the exhaust steam from the engine, and hot-air pipes inserted in the boiler flue, without interfering with the working of the boiler, and without extra fuel. The hot air is driven by a fan into the sheds through the pipes, which, in the sheds, are perforated, allowing the heat to be equally diffused amongst the bricks.

SUBURBAN DWELLINGS FOR THE METROPOLITAN WORKING-CLASSES.—In their quarterly report, which they usually send us, the Conservative Land Society refer, as follows, to this question:—"The great extension of the Metropolitan Railroad system, and the large removal of houses required for the various companies are attracting the attention of the legislature. Building land in the suburban districts will be more than ever in demand. The Executive Committee, in the acquisition of property in and near the Metropolis, considered that the increasing disposition evinced by all classes of the community to abandon the crowded streets, in order to live in healthy localities at a convenient distance from town, would eventually exercise a powerful influence in the development of the Society's Estate. It is now the time for the allottees to turn to account their freehold land." The Committee invite attention to the Society's Estates in the Six Home Counties, as presenting peculiar advantages of prompt omnibus, river, and railroad communication with the Metropolis. "On some of the estates," continues the report, "railroad companies offer strong inducements for building, either by granting free-passes for a certain number of years to the owner of a house, or by a reduction of fares; and there is little doubt, after the patriotic appeals made by Lord Derby and Lord Shaftesbury, who have so earnestly and eloquently advocated the claims of the displaced working-classes, that further concessions for the accommodation of the public will be made by the Metropolitan Railway Boards, whose interest and policy must be to promote building operations at or near every station within an easy distance of London."

MAYALL'S PORTRAITS OF EMINENT MEN.*—Mr. Mayall has commenced the issue of a series of photographs of eminent men with one of Lord Derby; and will give, in succession, Lord Brougham, Lord Lyndhurst, and others. This of Lord Derby is an admirable likeness, and a very good picture.

ASHTON AND DUKINFIELD MECHANICS' INSTITUTION COMPETITION.—A special meeting of the committee for the selection of plans was held on Monday evening. The plans selected were those marked "Finem Respice," the architects being Messrs. Starkey & Cuffley, of Manchester. Twenty-one designs were submitted.

ROYAL ITALIAN OPERA.—Mr. Gye's new tenor, Signor Tiberini, has proved very successful in the "Puritani." Without possessing a very great voice, what he has is well trained, flexible, and delicate,—capable, too, of forcible expression when need be. Madame Tiberini was the Elvira; and, in the face of all recollections, more than satisfied her audience. Aided by Ronconi and Formes, the opera, a bouquet of flowers,—was throughout well performed. On Thursday evening Rossini's "Gulielmo Tell," was revived, with a strong cast and new scenery, of which we must speak hereafter.

ROOFING THE ROYAL EXCHANGE.—We hear that the Gresham Committee, convened to consider the ultimate mode in which the quadrangle of the Royal Exchange shall be covered, have passed a resolution empowering the Lord Mayor and Mr. Farrington, the Master of the Mercers' Company, to confer with the Committee of Lloyd's, with the view, if possible, to prevail upon them, in deference to what appears to be the weight of public opinion, so far as it has been elicited, to waive the objections they have hitherto felt it their duty to urge against roofing the building at the higher level, on the ground that it would interfere with light and air. The Lord Mayor and the Master are to be at liberty, if they think fit, to avail themselves of the advice and assistance of Mr. Tito, the architect of the Exchange, and Mr. Smith, the surveyor to the Mercers' Company, in the interview. It may be hoped that the threatened mistake may yet be prevented.

LADIES' SANITARY ASSOCIATION.—The anniversary of this Association was held on Tuesday last, at the Hanover-square Rooms, the Bishop of Oxford presiding. The bishop advocated the claims of the Association upon the several grounds of religion, humanity, and self-interest; showing the effect of its operations in making it possible for the poor to become religious and respectable; reducing the amount of disease and death; and lowering the taxation of the country. Mr. Thomas Hughes proposed the first resolution, which was seconded by Dr. Lankaster. The Earl of Shaftesbury advocated strongly the cause of the Association, and referred to its tracis upon domestic subjects as some of the most interesting he had ever read. The Bishop of London said there was no doubt a great want of sanitary knowledge, but there was a greater want of sanitary belief. The meeting was also addressed by the Rev. Baldwin Brown, Dr. Lewis, Sir Harry Verney, and Mr. Slaney. The report was read by the Hon. W. Cowper. The Association is calculated to do much good, and deserves a larger amount of support than it has yet received.

REDUCTION OF THE DOCKYARD LABOURERS' WAGES.—Mr. Angerstein, in the Commons last week, called the attention of the Secretary of the Admiralty to the wages of the dockyard labourers, and asked under what circumstances they had been recently reduced from 14s. to 13s. The price of bread was now again high, and house-rent had been raised immensely; he believed a single room in that district could not be had for less than 2s. 9d. or 3s. a week. The wages now given by the Admiralty were below the average in that district, for the labourers employed in the main drainage works had 21s. a week, the builders' labourers had 18s., and no field labourer was paid less than 15s. a week, if the labour was not permanent, or 14s. if it was. Lord C. Paget stated, in his reply, that in January last the Admiralty decided that the task and job system should cease; and all branches having reverted to day pay, the labourers also reverted to the ordinary pay which they had before. Mr. Angerstein remarked that they still had to work the same number of hours. Lord C. Paget admitted that it was so. But the pay of the established labourers, he said, had not been reduced: they still got 14s. a week, and the superannuation system was a great boon to them. It was only the junior class who were reduced to 13s., and they were eligible, by good conduct and steadiness, to be put on the established list.

* Marian & Co., 159, Regent-street.

SUBMARINE TELEGRAPH CABLE.—In the Commons, the other day, in reply to Mr. G. Langton, Mr. M. Gibson said the cause of the delay in the publication of the report of the commission on submarine telegraph cables was owing to the revision of the appendix, which was now under final revision.

COURTS OF JUSTICE.—Mr. Cowper has obtained leave in the Commons to bring in a Bill to enable the Commissioners of Her Majesty's Works to acquire a site for the erection of courts of justice and of various offices belonging to the same. The Bill was subsequently brought in and read a first time.

CONSECRATION OF ST. STEPHEN'S CHURCH, CLAPHAM ROAD.—The Bishop of Winchester consecrated, on the 23rd inst., with the usual formalities, the new church of St. Stephen's, South Lambeth, illustrated by us not long ago. The new building is situated at the back of Albert square, in the Clapham-road, and has been erected from the designs of Mr. John Barnet, at the sole expense of the Rev. Charles Kemble, M.A. By the side of the church is a new parsonage-house. The incumbent designate is the Rev. J. H. Titcombe, M.A., of St. Peter's College, Cambridge.

DWELLINGS FOR THE WORKING-CLASSES.—Mr. Slaney has moved for leave in the Commons to bring in a Bill to facilitate the grant or sale of small portions of entailed lands near great towns as sites for dwellings for the working-classes, and for other purposes of a like beneficial or charitable nature. The Bill, he said, would be one to enable the trustees of entailed properties near large towns to sell plots of land for dwellings for the working-classes, provided that such sales should be approved of by the Inclosure Commissioners, or by two magistrates. It was merely a permissive Bill. Leave was given.

NORTHERN ARCHITECTURAL ASSOCIATION.—The quarterly meeting of this association was held on Tuesday evening, 16th inst., in the Old Castle; Mr. John Dobson, senior, president, in the chair. The society proceeded to consider a letter from the Architectural Association of London, respecting the Great Exhibition of 1862. The document was referred to the committee; the secretary (Mr. T. Oliver) being instructed in the mean time to acknowledge the receipt thereof, and to express the willingness of the society he represented to co-operate with the London committee in carrying out the object. In accordance with a previous notice, on the motion of Mr. Pritchett, the following new rule was added to the code of the association:—"That local secretaries be appointed for different districts in the northern counties, to be elected by ballot, and be *ex-officio* members of the association." Mr. R. J. Johnson, of London, gave some notes explanatory of a series of elaborate sketches of early French architecture, the drawings having been made by himself during a professional tour in the latter part of the year 1860.

CRYSTAL PALACE SCHOOL OF ART, SCIENCE, AND LITERATURE.—The Committee of Directors lately arrived at an important decision in respect of the admission fee to the courses of scientific lectures which have lately been given by Dr. Dresser and Dr. Lankester in the Private Lecture Theatre of this school. The fee has been wisely reduced to a minimum; and with the unrivalled educational facilities possessed in the collections of the Palace, these lectures will become not only an important adjunct to the various classes, but a recognised element in public education. For the remainder of the term, which closes here in July, Dr. Dresser is announced to give a summer course of Botany, the lectures to be illustrated from the great collections of growing plants belonging to this company, as well as from the Technological Museum. He is also to instruct in the dissection of flowers, and to give demonstrations on the common road London.

Such advantages as these are not possessed, we believe, in any other botanical school in the kingdom. The fee for the course is to be only 10s. 6d. The programme of the Eighth Season of the Crystal Palace has just been published. There are already fourteen appointments made for days on which the price of admission will be 7s. 6d., viz., the Festival Performance of the "Creation," on the 1st of May, the Great Flower Show, on the 18th May, and Twelve Opera Concerts, commencing on Friday, 3rd May, for the whole series of which Madlle. Titiens and Sig. Giuglini are engaged. Other very important engagements are also pending, which will give these concerts an interest far beyond those of former seasons. The opening day of the season, the Great Festival Performance of the "Creation," on Wednesday, 1st May, excites much interest.

THE WALLACE MONUMENT.—The contractor, Mr. Harvey, has commenced operations for the purpose of testing the quality of the stone at the new quarry to be opened near the site of the Wallace Monument at Stirling. The Earl of Elgin, it is expected, will lay the foundation-stone.

Gas.—The Romford Gas Company have resolved to reduce the price of their gas from 6s. to 5s. 6d. per 1,000 cubic feet. The Oxford Gas Light and Coke Company have announced a reduction of price from 5s. to 4s. 6d. The gas consumers of Swansea have invited a committee, who obtained a reduction in the price of gas from 6s. 10d. to 4s., to a public dinner, in acknowledgment of their obligations to them.

TENDERS FOR INVERNESS AND ROSS-SHIRE RAILWAY.—The tender of Messrs. Macdonald and Grieve has been accepted for the construction of the Inverness and Ross-shire Railway, and is at the rate of 3,850l. per mile. The offers were as follows:—Messrs. Macdonald and Grieve, 45,952l. 13s.; Alex. and Ken. Macdonald, Glasgow, 49,320l.; George Menkin, Inverness, 59,576l. 10s.; McNaughton and Waddell, Ayr, 50,958l.; Rosser and Smith, Shields, 51,500l.

TENDERS

For restoring and re-seating Haultbois Church, Norfolk. Mr. Thomas Jekell, architect:—

Seated with Deal.	With Oak.
Cork	£540 3 0
King	497 4 0
Ray	493 5 0
Lloyd	485 18 0
Pestle	441 18 0
Burrell	399 15 0

For shop and premises in Aldgate, for Messrs. Moses & Son. Mr. D. A. Cobbett, architect:—

Mansfield	£10,975 0 0
Dove, Brothers	10,875 0 0
Corder	10,160 0 0
Myers	10,083 0 0
Wilson	9,850 0 0
Hedges	9,850 0 0
King	9,490 0 0
Hill	9,383 0 0
Ashby & Horner	9,340 0 0

For rebuilding the Old Cheshire Cheese, Mount Pleasant, Clerkenwell, Messrs. Finch Hill & Paraire, architects:—

Dove, Brothers	£2,075 0 0
Matthews	2,050 0 0
Collis & Co.	1,927 0 0
Brass & Co.	1,885 0 0
Turner	1,885 0 0
Patrick	1,843 0 0
Langmead	1,621 0 0

For premises, 140, High-street, Camden-town. Mr. M. P. Manning, architect:—

Dove, Brothers	£805 0 0
Matthews	849 0 0
Walton	797 0 0

For mansion and offices at Upper Norwood. Mr. Shaw, architect:—

Lucas	£7,950 0 0
Patrick	7,284 0 0
Ryder	7,048 0 0
Dove, Brothers	6,930 0 0
Myers	6,884 0 0

For the erection of a new building in Old Broad-street, for the Ocean Marine Insurance Company. Mr. Richard Bell, architect. Quantities supplied by Mr. E. J. Austin:—

Taylor	£10,370 0 0
Patrick	10,300 0 0
Wilson	10,284 0 0
Hill	10,267 0 0
Adamson & Son	10,247 0 0
Coleman	9,888 0 0
Myers	9,783 0 0
Trotter	9,769 0 0
Corder	9,420 0 0
Little (accepted)	9,367 0 0

For works at the Bull's Head, Wellington-street, Goswell-street, for Mr. Smith. Mr. Wm. Barrett, architect:—

Dawson	£259 0 0
Carter	152 0 0
Martin	135 15 0
Brake	114 10 0

For additions and alterations to house and premises, No. 22, Clapham Rise, for Mr. James Barclay. Messrs. Lander & Bedells, architects. Quantities supplied:—

Hill & Son	£729 0 0
Notley	719 0 0
Dove, Brothers	715 0 0
Nixon	697 0 0
Patman	675 0 0
Child, Son, & Martin	630 0 0

For the erection of new farm buildings, bailiff's houses, labourers' cottages, and repairs, on an estate, Essex, the property of Mr. A. Z. Cox. Messrs. Hannell & Robb, St. Ives, Hunts, architects:—

Naylor	£5,375 0 0
Stephenson	5,327 0 0
Smith	4,962 0 0
Sharpington & Cole	4,503 0 0

Several other tenders were delivered for separate contracts; but not for the whole of the works.

For additions and alterations at the Wesleyan chapel Holbeck, Leeds. Mr. William Hill, architect, Leeds:—

Bedford	£1,430 0 0
Boothman	1,339 0 0
Woolley & Son (accepted)	1,280 0 0

Tenders accepted for the erection of a Methodist New Connection chapel, Dewsbury-road, Leeds. Mr. William Hill, architect, Leeds:—

Swallow, for bricklayer's work	£325 10 0
Pounder, for mason's work	215 0 0
Oakes, for carpenter's and joiner's work	609 0 0
Wilson	63 18 0
R. Heaps, for plumber's and glazier's work	48 0 0
Watson, for slater's work	52 3 6
J. & C. Heaps, for ironfounder's work	125 5 0
Leach, for painter's work	39 16 0
Total	£1,484 12 6

For gas-fittings for the Potteries Mechanics' Institute, Hanley. Mr. R. Scrivener, architect:—

Kilby & Son	£118 10 0
Woods & Davis	117 0 0
Spence	98 10 0
Scaratt	94 0 0

For reinstating the Queen-street Chapel, Ratcliff, burnt by fire. Mr. Charles Dunch, architect. Quantities supplied by Mr. R. L. Curtis. After allowing for materials on the spot:—

King	£1,350 0 0
Hill	1,342 0 0
Hedges	1,337 0 0
Hack	1,300 0 0
Rivett	1,293 0 0
Perry	1,270 0 0
Blackburn	1,239 0 0
Wood	1,237 0 0
Emor	1,193 0 0
Brown	1,022 0 0

For additions and alterations to the Congregational Schools, Lewisham, Kent. Messrs. Lander & Bedells, architects. Quantities supplied:—

Child, Son, & Martin	£1,200 0 0
Coleman	1,187 0 0
Hill & Son	1,175 0 0
Dove, Brothers	1,175 0 0
Patman	1,150 0 0
Pritchard	1,093 0 0

For repairs and alterations of premises, 42, Great Ormond-street, Bloomsbury, the freehold property of the Royal Standard Benefit Society:—

Lacy	£320 0 0
Greenbridge & Co.	178 10 0
Cornish	185 10 0
Quennell	180 11 0
Clark & Co.	177 0 0
Eustace	176 10 0
Hatchman & Son	170 0 0
Simmonds	170 0 0
James	151 18 6
London Building Company (accepted)	120 10 0

For the restoration of West Torrington Church, Lincolnshire. Mr. R. J. Withers, architect:—

Clarke	£344 10 0
Kendall	748 0 0
Fox	760 0 0
Smith	695 0 0

For plunging baths at the Royal Medical Benevolent College, Epson. Mr. George Elkington, architect:—

Lawrence & Sons	£1,248 0 0
Brown & Robinson	1,227 0 0
Andrews	1,160 0 0
Corder	1,059 0 0
Haynes (accepted)	994 0 0

For alterations and repairs to be done to the George and Dragon public house, Cleveland-street, Fitzroy-square:—

Roper	£510 0 0
Duncan & Moultrie	797 0 0
Tracy	767 0 0
Hyde	632 0 0

For rebuilding Messrs. Parkin & Co.'s tea warehouse, Bedford-street, Covent-garden. Quantities supplied by Mr. Grimthorpe:—

Bunkell	£7,870 0 0
Bird	7,248 0 0
Fish	7,980 0 0
Wilson	6,720 0 0
Nicholson	6,670 0 0
Patman & Fotheringham	6,575 0 0
Sawyer	6,491 0 0
Robinson	6,274 0 0
Clemence	6,105 0 0
Howard	5,987 0 0

For rebuilding premises corner of Bedford-street and Maiden-lane, Covent-garden, and the adjoining house in Bedford-street, for Mr. Berrall. Mr. Charles Gray, architect:—

Premises.	House.	Total.
Bunkell	£5,980 0 0	£1,890 0 0
Bird	5,479 0 0	1,769 0 0
Fish	5,335 0 0	1,676 0 0
Wilson	5,138 0 0	1,582 0 0
Nicholson	5,085 0 0	1,584 0 0
Patman & Fotheringham	5,045 0 0	1,530 0 0
Sawyer	5,011 15 0	1,479 9 0
Robinson	4,727 0 0	1,547 0 0
Clemence	4,655 0 0	1,450 0 0
Howard (accepted)	4,587 0 0	1,460 0 0

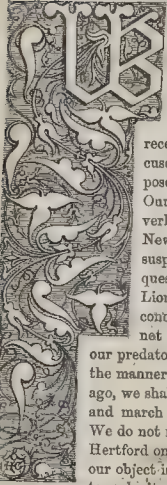
TO CORRESPONDENTS.

"Print without oil, to withstand atmospheric influences" is a recipe for a composition on this title appeared quite recently in the *Builder*. With any of our readers, who have tried the same, inform us where it has been used, as a correspondent wishes to make a personal inspection. Thos. A. Retford Surveyor—J. J. (what would preserve one from serving the client, B. A. R. Carter, Esq., 15, Whitehall place).—T. H. Mr. M.—Rev. A. B.—W. R.—J. W. & Sons.—"Architectural Student."—A Workman (next week).—B. N.—A. F. F. H. B.—G. D.—Tenders (architects who complain of the omission of their names should prevent this by forwarding the correct list themselves).—J. P. S.—H. W. S. (not received).—A. T.

The Builder.

VOL. XIX.—No. 592.

Condition of Edinburgh.



E are by no means certain when we cross the Tweed and begin to illustrate the social and sanitary condition of our northern neighbours that we shall meet with an agreeable reception. We may be accused of malice. Our purpose may be misunderstood. Our motives, which at Wolverhampton, or Stafford, or Newcastle are beyond all suspicion, may be called in question by the Scottish Lion. Nevertheless, we have conceived it to be our duty not to neglect Scotland in our predatory excursions; and after the manner of our countrymen long ago, we shall concentrate our troops and march at once on the capital. We do not mean to set it on fire, as Hertford once did; but we confess our object is not the less calculated to make its inhabitants unite for the

common defence. The enemies we shall make visible to them are more fatal than the English archers were at Flodden; and the battle, we suspect, is still as deadly, although it wears a different aspect.

Edinburgh has been pronounced by all the travellers from Grecian Williams to Dr. Carus to be one of the most beautiful cities of modern Europe. We can have no hesitation in saying this is quite true. Romantically situate on the southern shores of the Frith of Forth, upon the slopes and ridges of a congeries of rugged hills, it bears a singular and well-known resemblance to the site of Athens, as seen from the Ægean Sea. In other respects the modern may well be compared to the ancient city, for it has been appropriately styled "a city of monuments:" we are almost tempted to add, a city of tombs. It has no specific trade. Its commerce, compared with that of a third-rate manufacturing town in Lancashire, sinks into insignificance. The first impression, indeed, which the traveller forms of Edinburgh is, that its whole character and interest belong to the past. No sooner does he emerge from its commodious railway station, than the elegant spire erected to the memory of Sir Walter Scott bursts into view. In the next street are two bronze statues, by Chantrey, of George IV. and William Pitt.

In the adjoining square is a Trajan's pillar, 130 feet high, supporting a colossal statue of Lord Melville. Here and there throughout the city are planted a number of equestrian statues to the customary heroes. But the Calton hill is the great necropolis. Here we have the celebrated national monument, intended to be a literal reproduction of the Parthenon, and to commemorate the victory of Waterloo; but its gigantic columns and broken entablature have more the appearance of a ruin than a recent erection; and it remains a monument indeed, but only of a magnificent and impracticable design. Another conspicuous erection, on the very summit of the hill, is a sort of Irish round-tower, 108 feet high, which serves the purpose of a monument to Nelson, and also to support a time-ball and a flag-staff. Two Choragic structures of an early Greek type are dedicated to the ashes of Playfair and Dugald Stewart,—the one a mathematician, the other a metaphysician of some eminence. On the opposite side, in the Calton burying-ground,

risers an obelisk to the memory of political martyrs. Not far from this rest the remains of David Hume, the historian; and on the high road to Holyrood Palace stands another Doric monument, to the memory of Robert Burns, the poet.

Holyrood Palace, with its ruined chapel (beautiful even in its ruins), is itself nothing more than a monument of departed greatness. Here, in truth, we have associated all that is interesting and romantic in the history of Edinburgh:—the brilliant but unfortunate career of James II.; the turbulence of the great nobles; the intrigues of France and Lorraine; the sins and sorrows of Queen Mary; and the stern iconoclasm of Knox.

Edinburgh, we all know, is divided into two natural and well-marked divisions,—the old town and the new. The former is chiefly built on the slope of a rising ground which commences at Holyrood and terminates about a mile off in that huge pile of basaltic rock, 450 feet from the level of the sea, upon which the grey castle is perched like an eagle's nest. The centre of this remarkable ridge is traversed in their order by the Cannongate, the High-street, the Lawn Market, and the Castle-hill; and on each side of this still stately line of street are grouped those ancient and gigantic masses of building which excite the wonder and astonishment of all who for the first time behold them. Once the principal residence of the old nobility and the *élite* of the city, this quarter is now abandoned to the poorest and most miserable of the inhabitants. *Sic transit gloria mundi!*

It is seldom we can contemplate a stage of human transition so complete. The northern gorge of this ascending rock, once the celebrated north loch, is now drained, and intersected by lines of railway and by public gardens; and beyond this gorge, upon the commencement of the gradual slope, which extends northward to the sea, are planted the most magnificent of the streets and squares which constitute the new town of Edinburgh. Between the foundations of these two cities have elapsed the period of at least three centuries; and the contrast between them, as far as we know, has no parallel. There is no adequate resemblance, we think, to our own St. Giles's and Grosvenor-square, as some of their local topographers have insisted; and to compare the conjoined cities of Edinburgh with the squalid *rues* of St. Martin and St. Denis, on the one hand, and with the Place Vendôme, or the Faubourg St. Germain on the other, would, in both respects, be a gross exaggeration. The fact is, the antique grandeur of the old town, and the subdued cold, classical beauty of the new town of Edinburgh, constitute an aspect, *sui generis*, so striking and picturesque, that we have nothing to compare it with. "Whoever," says Charlotte Brontë, "have once seen Edinburgh, with its couchant crag-lion, will see it again in their dreams."

But it is not our present intention to enter upon a criticism of the æsthetical qualities of Edinburgh. These, indeed, may be briefly stated. There can be no question but the picturesque effect is due to three principal causes: first, to the space the city covers, which is greater than that of any other town of equal population in the kingdom; secondly, to the undulations and contrasts of this ground; and, lastly, to the intermixture of fine landscape, with its architecture. Its proximity to the sea may be mentioned. But we cannot go into this subject. Some further notes on its architecture, in connection with what we must regard as an improved taste, we shall for the present reserve, leaving the reader to form his impression of our ideas from our recent illustrations. In the meantime we have other work to do. When the patient is suffering from a disease of the lungs, we may reasonably pass by an eruption of the skin. Accordingly we shall turn our attention to that part in the condition of Edinburgh respecting which we conceive our observations will prove of more immediate value.

We begin with the population. The population

of Edinburgh within its boundary, as defined by the Reform Bill, according to the census of 1851, was 160,302, and we have reason to fear the increase has not been very great.

The proportion of births, marriages, and deaths in this population does not vary much from that of any other large town in the empire, with two remarkable and fatal exceptions. The mortality of infants is extraordinary; and the mortality of aged persons is most extraordinary. Of this we shall speak again.

Dr. W. T. Gardiner, in a letter to the town council, and read at their meeting on the 5th of March of the present year, showed the possibility of ascertaining the death-rate of particular streets, squares, wynds, and closes.* He suggested that instructive lessons might be drawn from such local mortality bills; and he showed from the last census that while some parts of the New Town had a death rate of 5 per cent., some parts of the Old Town had a death rate of 17 per cent. These statements involve a very grave and, to us, unexpected consequence. Edinburgh, although the most beautiful, is one of the most unhealthy cities in the empire. Is it not a sad reflection, that so much beauty must be compared to the syren of the ancient mythology, which charmed but to destroy?

To account for this extraordinary mortality, we have looked into the nature of its climate. But we think it cannot be this. The mean annual temperature is only 3 degrees less than that of London. The fall of rain is only 24 inches, something like 25 per cent. less than that of Glasgow. From its altitude and isolated position, it is indeed much exposed to the influence of the north and east winds. The east winds in particular, which prevail more than one-third of the whole year, have been described to us by the natives as peculiarly cold and piercing, surcharged with moisture, and impregnated with chlorine. This may originate, and, in fact, does originate diseases of the lungs and chest, as the medical reports from the barracks of Edinburgh Castle too clearly prove. But it can scarcely be a proximate cause of malignant fever.

Nor is it possible to find a sufficient cause in its water-supply. For Edinburgh, compared with London, with Liverpool, or even with Glasgow, occupies a position eminently satisfactory. The Pentland Hills—a picturesque range of distant hills to the southward—are the source of numerous springs and rivers, which in the course of years have been skillfully and economically applied to the supply of the city by a joint-stock company. Reports are made every week by this company to the Town Council, and we observe by a recent return that it is 650 cubic feet per minute. If we suppose this supply to be continued for only twelve hours a day, it would give upwards of twenty gallons per head to the population. The quality of this Edinburgh water is also superior to ours. It contains but a small proportion of mineral salts in solution; and, according to Dr. Clark's scale of hardness, its average is about 5 degrees, the New River water being 12 degrees, and the Chelsea 16 degrees. Moreover, it just contains that quantity of carbonates which render its passage innocuous through leaden pipes,—a circumstance, among others, which shows how richly Edinburgh is gifted by nature. Nor is the cost of this water extravagant. Edinburgh pays only at the rate of 10d. per pound on four-fifths of the rental. There is, indeed, a conspicuous want of public wells in the old town, compared with its population, and the fountains which have been recently erected by the exertions of private individuals, in particular by Miss Catherine Sinclair, whose rational benevolence is beyond all praise, are situate chiefly in the new town, where they are least required.

Since, then, we cannot attribute this sad mortality to either of these causes, we must seek for

* See *The Scotsman's* report.

others. We have made inquiries concerning intramural burying-grounds, but we find Edinburgh as well supplied with cemeteries as ancient Etruria. Spacious and well-regulated *obolitoirs* exist in the city. There are no iron works at Stafford,—no potteries, as in Lambeth,—no disgusting manufactures, as in Bermondsey. All that public companies can do for the support of the common good and the public amenity seems to be well done. All the printing-offices consume their own smoke. The tall chimney of the Edinburgh gas-works, rising from the obscure regions of the Cannongate, towers high above Nelson's monument, with which, indeed, it may well be compared in artistic value. The public charities, from the Royal Infirmary to the House of Refuge, are, next to our own, probably the best regulated and most useful in the kingdom. The Volunteers have turned out well: coats are cheap: provisions are plentiful: wages are high. In truth, after exhausting our catalogue, we have arrived at the conclusion that the abnormal and unhealthy condition of Edinburgh is due to three primary and persistent causes,—the overcrowding of the population in certain districts, a general deficiency of drainage, and an extraordinary degree of drunkenness.

In our next article we shall lay before our readers our reasons for these opinions, and the facts upon which they are based.

THE ART-UNION OF LONDON.

The annual general meeting of the Art-Union of London was held on Tuesday last, on the Stage of the new Adelphi Theatre, Henry Thomas Hope, esq., presiding. The theatre was full, and the proceedings passed off most satisfactorily.

The Chairman having apologised for the absence of Lord Montagu, the president, who had promised to attend,

Mr. Galtwin, honorary secretary, read the following

REPORT.

The Council proceed to lay before the Art-Union of London their annual Report in this twenty-fifth year of its establishment. Various circumstances have concurred to render the subscription for the present year less than it has been on some previous occasions: it amounts, however, to the sum of 10,892. 4s. A general depression in trade, disasters in India, and disruption in America, Council, moreover, cannot overlook the fact, that a very large number of projects, all professing to have the same end in view, now bid for the patronage of the public. The Council do not of necessity regard these schemes in any inimical spirit. Where the end proposed is good, and the means employed judicious and legitimate, they can only be glad to see others exerting themselves to forward the same cause in which they have long and it may be said successfully, laboured; but they cannot but feel how much it must tend to damage the credit of such associations in general, when their management is characterised by ill-considered or reckless expenditure of the funds placed under their control, or where speculators assume the name of Art-Union merely to puff their own wares and to mystify the mind of the public by putting forward, like a fraudulent trade-mark, the title of legitimate associations, from which their schemes should be carefully distinguished, differing altogether as they do in principle and object.

The Council continue to receive evidence in favour of the wisdom of that part of the plan of the Art-Union of London which leaves to prizeholders the right of selecting for themselves works of art from the current public exhibition, notwithstanding some objections that may attach to it. Societies in both the Sister Kingdoms, founded on the principle of confining the right of selection to the managing committee, have abandoned this after trial, in favour of the plan of the Art-Union of London. The prizeholder values more highly what he has selected in accordance with his own views and partialities than would otherwise be the case, and the desire to have this right is so general, that the number of subscribers—a result not to be overlooked, since without subscribers even a better plan would of course be useless. The effort of judging, moreover, is a valuable one, and, in many known instances, has proved the commencement of an education beneficial to the individual and to the arts of the country. It may be that the works of our chief painters are not found in great numbers amongst subscribers, but this would probably be the case under any arrangement, the demand for their productions the result of that increasing love of art which the operations of this Association have greatly contributed to induce, leaving few of their works, but the general public, Art has amongst its professors various shades and degrees of merit, and many of high capabilities labour ill-paid all their lives, never attaining, perhaps for want of opportunity, the position which deserves to be theirs. To aid such as these is a privilege and advantage. To get a man's best out of him we must encourage and cheer. Without such encouragement talent may be lost. The early efforts of some of our greatest men in many walks have been failures. But the power was in them, and the opportunity offering, they learnt to succeed.

Again, as leading to the expenditure of larger sums on art, by additions to the present list, the purchase of the plan pursued is undeniable. As an instance, the act of Mr. F. W. Strugnell, a subscriber in the last distribution, may be mentioned, who, having a prize of 20l.,

added to it the sum of 242l. 10s., to purchase a picture by Mr. A. P. Newton.

This, with the various other selected prizes, in the whole of 15 works of art, were exhibited in the galleries of the Society of British Artists, with their kind permission, and were visited, as usual, by a large number of persons, part of the time without any restriction as to tickets.

These works were purchased from the current exhibitions to the following amounts—

From the Royal Academy	£1,554	0	0
British Institution	438	10	0
Society of British Artists	1,295	4	0
Institution of Fine Arts	450	12	0
Royal Scottish Academy	50	0	0
Water Colour Society	510	10	0
New Water Colour Society	508	10	0
	£4,812	11	0

Every subscriber of the current year has received a copy of the engraving after Turner's picture of "Italy." Each guinea paid for the ensuing year will entitle the subscriber to an engraving by Mr. G. W. Sharpe, from the picture by Mr. F. Goodall, A.R.A., called "Raising the Maypole." The painting represents what was to be seen on the 1st of May in every town and village of the kingdom, during some centuries, when the whole people sang, with the spirit of Milton, though with other words

"Hail, bounteous May, that dost inspire
Mirth and youth, and warm desire;
Woods and groves are of thy dress'd,
Hill and dale doth boast thy blessing.
Thus we salute thee with our early song,
And welcome thee and wish thee long."

The strong men of the village are raising the Maypole just without the park gates, the owner of the domain and his children looking on, at a time when the celebration of Charles II. had brought back the accustomed sports,—sports of which a poet in the previous reign had written,—

"Happy the age, and harmless were the days
(For then true love and amity were found),
When every village did a Maypole raise,
And Whitsun-ales and May-games were abound."

The shaft is adorned with wreaths of flowers, a child marks the period of the year by holding up a bunch of flowering hawthorn, and bachelors and maidens, husbands and wives, of all ages and conditions, including the gaffer of the village, are gathered round to welcome with song and dance the advent of Spring, and to repeat a festival which had been common even in Pagan times.

The painter has expressed his entire satisfaction with the work of the engraver, in which the Council concur, and they have no doubt that the public will ratify their judgment. The plate is now at press, so that there will be no delay in the issue of the impressions.

For coming years the Council have placed several fine works in the hands of engravers.

The Council, always anxious to aid in facilitating the enjoyment afforded by the treasures of art, have presented a memorial to Government, praying for the adoption in the several galleries and museums of the nation of the uniform plan of opening them to the general public every day in the week except Sunday; but with a charge of 1s. for each person (except students) on Thursday and Friday. They hope that this proposal may be entertained, and the plan fully adopted by the time of the opening of the International Exhibition of 1862, so that the visitors to London, both native and foreign, may have the benefit of the removal of the uncertainty now caused by the conflicting rules for admission observed at the different national collections.

In reply to the offer of a premium of 100 guineas for the best series of designs in outline, illustrative of the "Idylls of the King," forty three sets were submitted, consisting of 540 drawings, and were exhibited publicly for five weeks after the close of the exhibition. After due examination, the Council awarded the premium to a set which proved to be the work of Mr. Paolo Piolo, resident in Edinburgh. The artist has undertaken to engrave them in outline, and copies will be distributed to all subscribers of the future year, to the expenses of which year the amount of the premium will be charged. The council, to show their appreciation of the very satisfactory response made to the advertisement, awarded honorary premiums of twenty guineas each to two other sets, which were found to be by Mr. Edward Corbould and Mr. Alexander Rowan. In reply to the offer of two premiums of seventy guineas and thirty guineas for the best and second best statuettes to be submitted under certain conditions, eleven models were sent in, but were not found to justify the award of the first premium. The premium of thirty guineas was adjudged to a group, "Alfred in the Camp of the Danes," afterwards found to be by Mr. Thomas Duckett.

Vacancies have been caused in the council by the retirement of General Derville and W. H. Carpenter, Esq., and the lamented death of Matthew Whittell, esq., whose remarkable collection of works of art has been consequently dispersed, and of Sir Charles Barry, R.A., the architect of the Westminster Palace. This illustrious man, to whom the architecture of this country is indebted to a greater extent than is at present generally understood, was a member of the original committee that founded the association. His death was deplored far and wide, and Westminster Abbey was opened to receive his remains.

The Council, in continuation of our medallist series illustrative of British artists, has commissioned Mr. Wiener, of Berlin, to execute a medal commemorative of their colleagues, with a view of the Houses of Parliament on the reverse. The production of a medal commemorative of the late Sir Richard Westmacott, R.A., has also been determined on, but the price of one not yet selected. The number of complete medals engravers in this country is still very small, the demand for their services, unfortunately, being very limited.

To fill two of the vacancies in the council just now alluded to, R. Westmacott, esq., R.A., and Charles Barry, esq., have been elected.

Revising the list of agents and local honorary secretaries, it was found that ninety-nine of these had sent in their resignations, and that during the last three years as to render it undesirable to incur the expense of specimens and other charges on their account, and their names were accordingly removed from it. Others have since been appointed, and the council will gladly receive the names of additional gentlemen willing to serve. To the great body of honorary secretaries throughout the United Kingdom, and to be found also in Australia, California, Canada,

Cape of Good Hope, China, East Indies, Egypt, France, Holland, Natal, New Brunswick, New Zealand, Nova Scotia, Portugal, Prussia, Russia, Spain, Tuscany, Turkey, the United States, Venezuela, and the West Indies, a cordial of good feeling exists all round the earth,—an organization of harmonising agencies,—the council, for you, offer their best thanks. They would also record the thanks they have already conveyed to Mr. J. M. Donaldson, esq., who, having acted for many years as the efficient honorary solicitor of the association, has recently resigned the appointment.

In connection with our honorary assistants, at home and abroad, it may be mentioned that on a suggestion of the Society, it has been resolved that any subscriber bringing ten new subscribers to the Society, shall be entitled to receive an India paper proof of the plate of the year, in lieu of the ordinary print for his own subscription.

The Council have had under consideration the desire constantly expressed by members to be able to become possessed by subscription of bronzes and statuettes produced by the Society, and have made an arrangement by which this can be effected. Thus, a subscriber of two guineas for two chances may have a small iron tazza in lieu of the prints to which he would be entitled. For each guinea the subscriber has two chances, the Parian statuette of Innocence, the Dancing-girl, or Narcissus, with four chances; and so on through the catalogue, including the bronze. In extreme case, if only one chance in the distribution of prizes be desired, the subscription required is less. In making this arrangement, the mere cost of producing the several works at this time have not been considered without including any part of the large sums originally paid for the models and designs.

From an early date in the history of the Art Union the Council have expressed their anxiety to assist in the production of fine art, and applied to manufactures; desiring, in an educational point of view, that all articles in daily use should have the forms of beauty which art can give. Following out this policy, with special reference to the article in connection with the Science and Art Department of the Committee of Council on Education, premiums of 10l. each and of 5l. each, to the extent of 100l. have been offered to the pupils of those schools on certain conditions, which conditions have since been directed to the value of the study of the human and animal forms, and a variety of subjects for design, such as a bronze candelabrum, a garden flower vase, a maiolica dish, an ornamental lamp, and a pedestal for the bust of Glycis or the Belvedere Apollo, have been named. The expenditure will be charged to the year in which the designs are made use of.

The bust of the Apollo alluded to is intended to form a companion to the Clytie, and has been executed in Parian in accordance with the announcement in the last report. A certain number of copies will be distributed on the present occasion.

The statue of "Caractacus," by Mr. Foley, R.A., has been produced in bronze by Mr. Hatfield and by Messrs. Elkington. A certain number of these will also be distributed.

The following is a general statement of the receipts and disbursements:—

Amount of subscriptions	£10,892	4	0
Amount set apart for purchase of pictures, bronzes, and other prizes	5,540	0	0
Cost of engraving of the year	2,101	14	7
Printing report, almanac, and other publications	10	0	0
Advertising agents' commission, exhibition, &c., &c., including reserve of 24 per cent.	3,240	9	5

The accounts have been audited by two members of the general body of subscribers, Mr. J. Jones, and Mr. A. Jago, and three members of the Finance Committee. The reserve fund now amounts to the sum of 10,892. The sum of 5,540l. has been set apart for prizes under the following arrangements, viz., for works to be selected by the prizeholders themselves:—

34 at	£10	each.
24	20	"
20	20	"
20	25	"
10	30	"
7	40	"
7	60	"
4	70	"
3	100	"
3	150	"
1	200	"

and 20 Bronzes, "Caractacus,"
250 Porcelain Busts of "Apollo,"
30 Silver Medals of Wilkie,
10 Chromolithographs,
150 Sets of Photographs of Rome,
and 210 Volumes of 12 Photographs,
making in all 840 prizes.

The mode of allotting the porcelain busts, medals, &c., will be somewhat modified, with a view to producing a more equitable distribution of them. The picture prizes and bronzes of "Caractacus," will be drawn from the wheel as heretofore. A cardinal number will then be drawn from the large wheel, and every seventeenth name drawn from the small wheel, reckoning both forwards and backwards from that number, will be entitled to one of the minor prizes, in order as the names stand, with this proviso only, that if any name so determined have already gained a picture prize or bronze, the next name will pass to the next succeeding name. Those who become possessors of the bronze "Caractacus," will have good reason to congratulate themselves.

The full statement of the year, as was stated last year, was executed for the corporation of the City of London, and is placed in the Mansion House, with others commissioned in accordance with a wise order of the council, made in 1850, for the purpose of having the art of the decoration of the Egyptian Hall in that building. For this step in aid of a noble art, the corporation of the City of London and their architect, Mr. Bunning, a member of your council, are entitled to the warm thanks of all who are interested in its cultivation and desire to see our public buildings fittingly adorned.

The art of the sculptor, as at present practised, has scarcely taken such a hold of the public mind as the painter. The Press would seem to offer to sculptors a domain as yet but partially adjudged by them. They who size and appreciate it will find in it the most powerful means of appealing to the feelings of the people, and of making

their art to be regarded as a refining, joy-giving, household friend. Longfellow saw this when he wrote,—

"Oh, thou sculptor, painter, poet,
Take this lesson to thy heart:
That is best which lieth nearest,
Shaped from that thy work of art."

Art should not be viewed as a mere accomplishment, but as essential to the well-being of the state. It is not to be cultivated solely as a luxury for the few, but made to enter into, cheer, adorn, and elevate the whole life of the whole people; and, as such, it should be forwarded in a grave and serious spirit, as a matter of the utmost and widest consequence. Such pursuits interpose a wholesome safeguard against entire absorption in money-making—the danger of our day; and, in a country like this, cannot be too highly valued. A material progress is no compensation for a moral decadence. Man, we have been told, is not "to live by bread alone."

Efforts are being made throughout the country to promote the study of art and extend its enjoyment, but these proceed but slowly.

It is to be regretted that the proposition to provide a free Art-Gallery in Manchester, mentioned in the last report, has been abandoned; the stipulated amount not having been raised. A large sum, however, was promised, and it might be urged that the projectors should somewhat circumscribe their views and commence the undertaking on a smaller basis. Every endeavour should be made to provide collections of fine works in our large towns. Again: too little is being done to induce the study of drawing by the youth of the middle classes. If art education were made general, advantages would result, not only to the individual, but to the country at large. An artistic public would drive bad taste out of the market, improve the manufactures, and enable our artists to take higher rank in the midst of the world. Accidents and eccentricities do not afford the best subjects for illustration and enforcement, but that which is universal and complete. "Perpetual modernness," says Emerson, "is the measure of merit in every work of art; since the author of it was not misled by anything short-lived or local, but abode by real and abiding truths." The artist must be poet as well as mechanic. With noble sentiment, and right judgment, we also require in a picture proper representation and technical skill. But mere representation, however perfect, will not suffice. Imitation is not art. The artist has higher mission to delineate. He must rightly select and make obvious,—originate and convey, to be worthy of the name. A picture demands alike head, hand, and heart. More especially it is the province of the artist to extend and set forth beauty. Every part of the universe is full of it; we find it alike in a stone and a flower. A salt cannot crystallize, but we have it in a form defying imitation, while the spider and the bee produce it instinctively in their work. It haunts a ruin, creeps out of the bells of the forge, floods the mountain, and may be seen sailing away, a cloud in the gorgeous sky. Instinct bids us welcome and honour it when recognized. But, though it is everywhere, it must be sought for. Multitudes live in the midst of it blind, losing it in the night. To teach others to see this beauty is not a small mission: to discover and make it evident to all was the great duty confided to art at its birth.

The approaching year is fraught with interest, and promises results of great importance. In the proposed International Exhibition, now being organized and prepared for, such a display of modern art-works will, probably, be included as has never before been witnessed. We shall there see what has been done during the last hundred years by various nations,—what progress we ourselves are making. By comparison and friendly strife all will be incited to exertion, and all may be gainers. Unless interfered with by wars abroad or other disasters, the proposed Exhibition of 1862 can scarcely fail to be successful in the highest acceptance of the word. Your council look forward to it as full of promise, and will anxiously report with the expression of an earnest hope.—May peace be preserved, and the fine-arts flourish.

The Chairman then moved the adoption of the report, and in doing so said he was relieved from making any very lengthy remarks upon it by its being so very elaborate in itself. It had put them in possession of the state of their affairs, and had given them every information with regard to their future prospects. As one of the earliest members of the society present, he could speak in strong terms of the able manner in which it had been conducted. He had heard it said by some artists, that sufficient encouragement had not been given to them; but the object of that society, as he understood it, was not merely for the encouragement of artists, but for the encouragement of art itself. The advantages the Art-Union offered to artists was that they obtained a market for their works by the cultivation of a taste in buyers for such works. Looking at their operations, he thought they might consider they had made very great progress. It was felt, as Mr. Godwin had said in his report, that the system of self-selection, though it might not at first lead always to the selection of the best works, led to the improvement of the taste of the people, and he believed that the high prices now given to artists for their pictures was greatly due to the means afforded by that society for drawing attention to the works of artists and leading to the improvement of taste.

Mr. H. L. Foley, R.A., seconded the resolution, which was carried unanimously.

Professor Westmacott, R.A.,—as an artist no longer practising his profession—bore testimony to the excellence of the management, and he did so with the greatest pleasure, as he had to forego certain prejudices with regard to the effect which these societies would have in educating the taste of the people in the selection of works of art. He then alluded to the efforts of the Royal Academy

to educate the taste of the people, and also artists, and expressed it to be his opinion that it was a disgrace to the nation that the Academy had to depend for support on the shillings of the public without any Government aid—never having received anything from the Government excepting 5,000*l.* from the private purse of George III. He thought that the present system of selection in reference to our public works needed amendment. Committees to decide on competitions were formed of those who knew nothing of art, and many superior artists would not send in designs in consequence. In gem engraving they had been for years depending upon foreigners. This was discreditable to English artists. Complaints were sometimes made of the decline of art. He did not think it was declining, but the contrary. He would conclude with moving,—

That the best thanks of the meeting be offered to the council for their services during the past year, and particularly to Mr. George Godwin and Mr. Lewis Pocock, for their unvarying exertions to advance, as honorary secretaries, the interests of the society.

Dr. Clark seconded the motion, which was carried unanimously.

Mr. Godwin returned thanks for his colleague, the council, and himself, and, after some general observations, proposed a vote of thanks to Mr. Benjamin Webster for his kindness in granting the use of the Adelphi Theatre, and to Mr. William Smith for his active co-operation.

Mr. Robert Bell seconded the resolution, which was put and carried enthusiastically.

At a subsequent stage of the proceedings Mr. Webster was discovered to be in one of the wings, and, on being informed, said he was extremely gratified, and felt it to be a great honour that his theatre was devoted to so admirable a purpose.

Miss Janet Henderson and Miss Franks having consented to draw the numbers and the prize tickets, and Messrs. Wade and Taylor to act as scrutineers, the drawing commenced.

We give a list of the principal prizeholders below.

Thanks were then voted to the young ladies, to the scrutineers, to the auditors, and to the chairman, and the meeting separated.

200*l.*—Briggs, Lady, Brighton.
150*l.*—Horsfall, John, Thirsk; Machin, H. C., Montreal.

100*l.*—Callender, P., Birkenhead; Jackson, Miss E. F., Carlsholm; Purdon, W., Kelso.
75*l.*—Baker, R., Sydenham; Benevolus, per J. Weller, Croston; Gee, J. B., Halstead; Markland, S. P., Handley; W. G., Birmingham.

60*l.*—Black, Capt., Madras; Blokhorn, W., jun., Manchester; Dyke, G., Farrington; Graham, Mrs. J. H., Newtonbury.

40*l.*—Macdonald, J., Antigua; Mozly, F. B., Liverpool; Parsons, J. G., Yarmouth; Shordiche, E. R., Antigua; Simons, J., Helston; Traheime, Miss F., Bridgend; Wells, J., Percy-street.

30*l.*—Barber, Capt., Leamhall-street, Bateson, Hon. Mrs., Grosvenor-place; Beck, P., Shrewsbury; Belton, S. E., Ancot; Cort, W. G., Blackburn; Gibson, G., Leeds; Gassett, J. J., 2, Hertford-street; Hatfield, J. A., Cumberland-street; Johnson, J., Liverpool; Lawrie, D., Kilmarlock; Mackintosh, C. F., Inverness; Moore, R. H. M. S. Impregnable; Sinclair, J. M., Canterbury, N.Z.; Smith, Geo., Middlewich; Wiley, G. A., Islington; Young-husband, J. T., St. John's-wood.

20*l.*—Ascoug, J., Handsworth; Bath, Mrs., The Temple; Blundell, A., 50, Cornhill; Burroughs, J. T. R., Lee; Canaway, J. R., London Gazette; Casebourne, T. W., Hartlepool; Judd, J. R., Farrington; Leicester, G. O., Bayswater; Little, B., Bath; Lupton, Jno., Aylesbury; Marsh, Dr., St. Ives; Mittlehobson, W. C., Berline; Morley, L. B., Liverpool; Ogden, J., Warrington; Pearce, W., Bristol; Proctor, W., Clifton; Richards, Miss Alfreton; Speckley, T., Wood-street; Thurlow, Mrs., Bank of England; Volter, W., Blackheath.

20*l.*—Barry, F. C., Birch-lane; Boulbee, Captain, Lyndhurst; Chiffman, M., St. Petersburg; Clifton, N. H., Cross-street; Islington; Coleman, R., Wandswoth; Dobson, Sam., Cardiff; Powle, Rev. W. C., Hereford; Gellman, H., Chestnut; Green, J., Stonehouse; Grove, Jno., Wandswoth; Grundy, J. C., Manchester; Hussey, Rev. J., Brixton; Lloyd, R., Graecian-street; Lord, T., Todmorden; Maitland, J. D., Rochester-road; Metcalf, Rev. P. W., Hadleigh; Murray, Major, Army and Navy Club; Ogden, E., Sheffield; Oldroyd, C., Dewsbury; Roberts & Co., York-buildings; Sanders, R., Exeter; Silvester, T., West Bromwich; Swan, J., Lincoln; Thompson, Mrs., Regent's-park; Townsend, W., Halifax, N.S.; Ward, W., Hull.

15*l.*—Berridge, R., Derby; Coles, H., Haughton; Collier, Mrs. H., Dalton; Critcher, E. J., Dewbury; Deans, Captain, Kilmarlock; Dell, J., Coventry; Dobson, R., Birkenhead; Dykes, Mrs. Torquay; Ford, J., Wolverhampton; George, —, Derby; Gibson, G. W., Chester; G. S., St. Paul's; H. B., Blackburn; Harper, T., Plymouth; Haselman, P., Samarang; Homersham, J., Kent-road; Horsley, T., Alfreton; Jeake, C. J., Portland, Australia; Johnson, J., Hutton-le-Hole; Moore, W. P., Drury-lane; Roberts, —, Old Kent-road; Sadler, —, Mansfield; Sloper, T. J. J., Grosvenor-street; Tuke, Dr., Albemarle-street; Toole, H., Dublin; White, Jno., Hartlepool; Williams, W., Birkenhead; Wilson, A., Vigo-street; X. Y. Z., per C. Croxford, Brentford.

10*l.*—Aldate, J., Oporto; Beardmore, J., Deptford; Best, Hon. Captain, Upper George-street; Brazil, W., Wenlock-place; Brown, H., Cheltenham; Cleland, —, 9th Lancers; Davies, F., Pershore; Dittlinger, M., The Hague; Hall, W. A., Tottenham; Hancock, J. C., Devonport; Harrison, J., Wandswoth; Homere, P., Smyrna; Howarth, Geo., Todmorden; Hughes, T., Antigua;

Hutt, J., Moorgate-street; Jones, E. H., Wolverhampton; Jones, T. B., Brixton; Kirby, J., Forchester-terrace; Long, J. W., Clapham; Rise, Mason, H. W., Bermondsey-street; Monckton, Mrs., Stretton Hall; Morris, W., Chester; Mumford, M. J., Minories; Nicholson, J., Westbury-terrace; Pollock, A. J., Norwood; Simpson, A. M., Madras; Small, Dr., Boston, Lincoln; Stanley, J., Fleetwood; Sterry, A., Swansea; Taylor, H., Hampton; Teschemaker, Dr., Exmouth; Whittaker, W., Manchester; Wilson, Mrs. Col., Finsbury; Yeoman, Mrs., York.

A Bronze Statuette of "Caraculacus."—Arganini, P., Leghorn; Cheadle, T., Boulogne; Crawley, R. S., Mount-street; Dudley, W. J., jun., Wellington; Penry, J. E., Southampton; Halse, —, Port Elizabeth; Ladd, W., Malta; M'Andrew, H. C., Inverness; Marsh, E., Dudley; Mackinn, W., Boston, U.S.; Marriott, J., Portland, S. A.; Müller, Dr., Kilburn; Morrison, Mrs., Lewisham; Mooterhead, —, St. Petersburg; Phillips, W. S., Kensington; Potts, W., Earl's-terrace; Remington, Major, Harley-place; Richardson, E., Mount-place; Roberts, C., St. John's Wood Park; Whittingham, J., Nantwich.

A Silver Medal, commemorative of Sir David Wilkie, R.A.—Airey, Rev. J., St. Paul's; Bolton, H., Birmingham; Bourner, T., Horham; Braithwaite, B., Epsom; Carr, A. C., Goodge-street; Clington, W. W., Tillingbury; Cockerell, F., Twickenham; Doe, J. B., Osborn-street; Hall, W., Salford; Liverpool; Penn, Geo., Brixton; Fisher, Rev. J., Oxford; Jackson, Rev. S., Magdalen College, Cambridge; Longden, G. A., Doctors' Commons; Mackintosh, F., Stirling; Pocock, L., Lewes; Hon. W., Cape Town; Propping, K., Hobart Town; Psihary, N., Constantinople; Rich, S., Clifton; Roberts, J., Liverpool; Russell, Miss M. W., Bristol; Siver, W., Portsea; Thompson, C., Sheffield; Williams, B., Truro; Vulliamy, J. J., Mickleham; West, W. J., Dublin; Whitcombe, A., Cheltenham; Wilson, E., Cheltenham; Wise, Mrs., Royal Academy; Worthington, W., Newton.

A Chromolithograph of "Baulogue, 1857."—Drury, W., Frankfort; Fraser, E., Kensington; Porter, C., St. Ives; Rishton, J. E., Chalcot-vil.; Somerton, G., Clifton; Soward, J., 62, Gower-street; Taylor, J., Bellbusk; T. P., per C. Burdett, Lutterworth; Wainsley, J., Durban; Whitting, R. A., Gray's-inn.

COLOUR ON STATUES, AND COLOUR ROUND STATUES.*

In entertaining the view of the great statues of the presiding geni of the Greek temples having been surfaced with ivory for the purpose of being coloured up to a refined version of the tints of nature, we must not be under the impression that they had a common vulgar effect, like that of wax figures, for which we have an instinctive repugnance. This, indeed, would have defeated the very object which the priest had in view—that of impressing the multitude. Indeed, in as far as it could work at such a disadvantage, no doubt the exquisite taste of the Greeks was also applied to the finish of these works. The Minerva of the Parthenon was no mere sham of a great woman, but, in the hands of Phidias, was a bold, though a coerced attempt to realize the tutelary divinity of Athens, the immortal virgin of Wisdom—a being solemn and impassive, far above the human level, and through whose veins coursed, not blood, but celestial ichor. Dramatic effect in their worship was ever sought by the Greeks; and it was only at special times that their divinities were unveiled at all to the general people. On such occasions every means were taken to work upon the senses. Coloured curtains tinted the light; ceremony lent its impression; and music and the chant their charm. Censers filled the air with their ambrosial steam; and sacrificial clouds waved before the divinity, like those of his own imaginary heaven, from behind which, to the entranced votary, well might the mystic god almost, or quite, seem to breathe, frown, or smile.†

This was "a consummation devoutly to be wished" by the priests; for then the fame of their god increased, and offerings flowed in to their treasury. To effect impressions like these, doubtless, was it that their great statues were painted up to a key of divine life, which assuredly could not have been reached by the mere natural tints of ivory and gold. It was to accomplish this that the powers of such as Phidias were thus coerced; and it was under all these devices that these magnificent idols were manufactured in those old days as the agents of polytheism and superstition.

Whenever, also, the statue of the god himself, in the penetralia of his own marble house, was thus treated with the hues of life, doubtless ita

* By Mr. John Bell. See page 286, ante.

† The "Lucius" of Apuleius (we may here note on Mr. Bell's text) was placed "as a statue" behind the veil of the Temple of Ceres at Eleusis, when he had "reached the confines of death," at his initiation, and was probably entranced and cataleptic, in the "autopsia,"—the regeneration or resurrection of the "baptized vision" in the "illuminated" or the "oracle," of the God, and the highest grade of initiation. Then the veil was suddenly withdrawn, and the "God-like" initiate was thus presented to the "unhallowed" people, "arrayed like the sun,"—a "Shining Image," such as Warburton, in his "Divine Legation of Moses" (vol. i., p. 299), tells us is "so much spoken of by the Mystics" as representing the Divine nature in general. Here, then, we have a curious illustration of the original meaning and purpose of exhibiting idols or life-like statues in heathen temples.

own immediate subordinates around, especially within the building, had in some degree to wear his livery. Also, when polychromy spread in addition over the exterior architecture, harmony dictated that some variation of colour should be connected also with the outside sculpture, as especially in the backgrounds of the tympana, metopes, and friezes. As regards, however, the statues themselves in these situations, the variety of tint was probably confined to that obtained by difference of material,—as in shields, swords, helmets, and bridles of metal,—and not by added surface colour, requiring constant and extensive repairs not capable of being done in secret, as was the case with the interior figures.

Thus do I conceive that the Greeks did colour some of their statues, and that they did so in different degrees, which, however, may be divided into two general styles of execution. One was the painting or staining them more or less to imitate reality, for the higher classes of which work it was, I conceive, that ivory was used, as in the great gods of the temples. The second was the obtaining of variety of colour by difference of material. The former of these treatments can only, I conceive, find its excuse, if excuse it may be called, in the idolatry of the time. The second partakes of the character of mosaic work, and is perhaps less objectionable in principle; but as an art it is assuredly more curious than beautiful, as may be remarked of several late experiments in this direction by our neighbours the French.

While, however, it may be readily acknowledged that Greek art, covered with polytheism and superstition, did occasionally colour some of their most prized works; yet, on the other hand, with respect to the highest class of their independent marble statues, it is equally evident that they were left untouched in this respect, as we have seen was the case with that most cherished work of them all, the "Venus of Cnidos."

I would thus submit that Greek art-craft made beautiful statues—uncoloured—as works of art, and left them so; and that it was Greek priestcraft that made them coloured—as idols, and as engines of state religion. This is a broad distinction: as such, I venture to submit it to you as a clue to what I readily acknowledge to have been the varied characters of old Greek practice in this respect.

We will now proceed to later times. Here the reflection obtrudes itself on us that even now we meet occasionally with coloured statues which savour of superstition; and I would avoid this phase of the subject; and, as regards modern times, restrict myself solely to the art-craft of the question.

In the Renaissance, or revival of the arts in Europe, we hear nothing of colouring marble statues. In the time of the learned Leonardo da Vinci, Michelangelo, Raffaele, John of Bologna, and others great in art, we find no instance of marble statues having been coloured. Michelangelo, who was so remarkable for the union in his one person of all the arts, being at the same time an admirable architect, painter, sculptor, and decorator, never attempted to colour his marble statues. It is true that colouring was afterwards applied to statues and reliefs, even of considerable size, by Luca della Robbia and others; but these works were not in marble, but in porcelain, and more subordinate than any fine work of sculpture can ever be, however harmonious with the situation in which it is placed. The marble Moses, for the tomb of Julius, and the wonderful groups of the Medici monuments, have come down to us in their native monochrome, untouched by change of tint, except such as time has supplied. Michelangelo, that representative in one of all the arts of his time, did not mingle in one object the two arts, nor does it appear that, in the more important works of the Cinque Cento, marble statues were ever coloured; nor, great as was the attention given to the works of ancient sculpture that at this period were, from time to time, discovered among the ruins of Italian towns, especially in that of ancient Rome, does it appear that these great masters ever contemplated the idea that such works were ever coloured. It appears, therefore, improbable that any remains of colour were found in the Apollo, the Venus, the Laocoon, or other celebrated works when first exhumed, nor does any colour seem to have been found on the statues in Herculaneum and Pompeii, although the colours on the walls of the apartments in which they were discovered were still fresh and vivid. Thus, neither in ancient nor modern Italy does there appear any proof of the prevalence at

any time of the colouring of independent marble statues, any more than in Greece.

Having thus set forth my view as to the practice of the ancient Greeks in this respect; namely, that they did not colour their statues except for purposes of idolatry; for which reason we find this treatment only connected with their temple architecture, and that not always; we naturally come to the consideration as to whether we should now colour our statues? At any rate, in these isles we are not idolaters. Our Church is not one of idolatry; and therefore we have not, as I have said before, that excuse, such as it is, for colouring statues which the Pagans had.

Quitting, however, for a moment, this vantage ground; let us consider the matter merely as an art question.

Let us first consider—is the addition of colouring to statues to be looked upon as an advance in art, or a retrogression? The polychromists will, of course, hold it to be the former; while the monochromists in sculpture will represent that it is rather a confusion of these arts which good taste has gradually separated, in the progress of civilization, into distinct languages of human expression. The polychromist will claim honour for uniting the charms of colour with those of form, as the evidence of advance and improvement; while the monochromist will point with a significant finger to the earliest efforts of art, when the arts of form and colour, each barely sufficient in itself to even suggest an animal, a man, or a god, were obliged to club their means to produce anything like a clear result.

We are not without illustrations of this even now, in our most inferior specimens of pottery sold about the country to cottagers by the "Cheap Johns," in crude little images of children, dogs, and parrots, &c., of which the form is so incomplete that the intention could hardly be recognised but for the aid of colour.

In primeval times, the first thing that men attempted in art was probably in the way of hero worship, in the making of images of their ancestors, or of great tyrants, as a sort of guardian to their houses, and to be prayed to and propitiated in the chase or war. The more living these could be made to look by the artist's hand, and the more ferocious, the more effective, no doubt, was deemed their mystic power; and hence, from these beginnings, arose that evil feature that has played so large and lamentable a part in the history of man—the idol.

This form of superstition we have, I trust, thrown off for ever, except in a region in which I have no doubt we shall all allow there is no objection to it—in the nursery; where it appears with but little change of name, that of the doll. Doll is only an abbreviation of idol. It is an infantine abbreviation. It is the way a little child would strive to say idol. In the original Greek the word is *ἰδωλον*; in the Latin, *Idolum*; in the English, idol; and in the nursery, doll. You may recognise readily that these little images are, to all intents and purposes, coloured statues. Also, we may say that in the nursery they are to a great degree worshipped, especially when they are new. A new doll is to a certain degree a divinity for the time being. However, these kinds of idols are no longer "ferocious." On the contrary, they are produced as pretty as wax and carmine and silk dresses can make them. They even open and shut their eyes, which is an advance even beyond the chryse-elephantine statues of the ancients. At least, I have no recollection of any record of winking divinities in those days. We can have no objection to the harmless and interesting idolatry of the nursery towards these little images. There is nothing that breaks any commandment in that. I would here remark that these little figures possess one great advantage over any coloured marble statue that I have seen, namely, in having eyelashes. The want of these natural and beautiful fringes to the eye in such coloured marble statues as I have seen is very unpleasant. Of course, in a pure marble statue you do not feel this; but, when coloured, the want is sadly apparent, and I do not see how it can be got over. There are some evidences of bronze eyelashes having been added in some of the ancient works; but the effect of these could not be very happy, one would think. The children's favourites are more fortunate in this respect. Pray do not conceive that I introduce the nursery statuettes in any way for the purpose of throwing ridicule upon the subject of coloured statues, but only as an illustration of the sole phase of the "coloured statue" which I conceive to be at the present time legitimate as a matter of art or regard.

However, I must not let this happier phase of the idol draw me away from our view of the origi-

nal type, or from the broad consideration I desire to illustrate; namely, that barbarians and idolaters have been and are more or less polychromists as regards the art of sculpture. They have all coloured, and, while they remain barbarians and idolaters, will continue to colour, their statues.

I conceive, therefore, that, in these civilized days, the colouring of statues is not an advance, but a palpable retrogression towards earlier times of less intelligence, and of a lower dispensation; and, moreover, as far as art is concerned, that a decadence would at once ensue on a general adoption of such a practice. A coloured statue or bust now and then can do no harm; perhaps rather good, as they may serve to show they will not do. But there is a great deal of fashion in art. Fashion is often very unreasonable; and, if a fashion were to set in for idols instead of statues, I believe it would do for the time a deal of mischief. Moreover, as a matter of sense and probability, is it possible to consider that the uncoloured statues of the Venus of Cnidos, and of the Moses, and Night and Morning, of Michelangelo, and the noble works of Thorwaldsen and Flaxman, are but incomplete steps, half-way as it were (and as having left the true track of the arts) between the first struggling idolatrous attempts when images were all painted—and a more advanced and perfect period, forsooth, when the same barbaric principles are to be reproduced and practised?

Colour Round Statues.

While, however, for the above reasons, I am opposed to placing various colours on a statue, especially a marble one, I have no idea of underrating the value of colour in connection with statues. On the contrary, I am sure that this subject of the association of various treatments of colour with statues has not received nearly the study and attention it deserves. My difference with the statue polychromists is not that I do not desire colour and statues together. In that we both agree that it should be so. Our difference only exists in the mode in which this should be done; they desiring to place colour on the statue itself, so as to make it harmonise with the surrounding objects; while I submit that this harmony is to be effected far better by other means; namely, by arranging such colours around the statue as require the natural, pure, creamy, semi-transparent, local tint of the marble to complete the composition of colour. And the same, *mutatis mutandis*, may be said of statues in bronze, which is indeed a quality of colour frequent in the finest paintings, as in those of Titian and Giorgione, and in the landscapes of Gaspar Poussin, and our own Wilson and Cromie. It is thus I conceive that the picture should be made up, with the statue as the eye of the composition, and that the surface of the statue itself should not be deteriorated by any colour treatment, which, if once commenced, you know not where to stop, and which, if treated up to the full colour of flesh, only looks like a wax image.

I do not attempt to enter now on the treatment of colour with statues in edifices of which they form an illustrative and integral part. That were a very wide field indeed, including the whole subject of architecture, painting, sculpture, and decoration, and their relation; enough, indeed, for several addresses. On the present occasion I limit myself to that part of the subject alone which attaches to the treatment of colour with statues in art-exhibitions, under such arrangements as are practicable on such occasions. A few weeks ago I touched briefly on this subject, in some notes I read at the Department of Art, Kensington, entitled, "The Four Sisters;" but perhaps you will permit me now, for a few minutes, to go into more detail. The more so, inasmuch as I submit that the inadequate treatment of colour, in connection with sculpture, has hitherto formed an important item in the shortcomings of our current exhibitions of this art.

The situations in which, round a statue, colour presents itself, are below it, behind it, and above it; on the floor, the back-ground and the ceiling. Of these, of course, the background, is the most important to the statue, as it is that against which it is seen and which contrasts immediately with its outline. Now it has been the prevailing custom, at least till quite of late years, to make this contrast a very strong one; and for this purpose a very strong dark red has been the favourite colour, as at the Royal Academy. I conceive this to be an error; and, as far as I have been able to influence decisions on the subject, I have done my best to introduce a change. On being called on, at the time of the Great Exhibition of 1851 in Hyde-park, to arrange the British sculpture there, I made it a stipulation that I should be allowed

to depart from the violent red used, and proposed, up to that time, as a background for statues, and to select a modified tint. Again, in 1855, being employed with Mr. Redgrave, by the Board of Trade, to arrange the British sculpture in the International Exhibition in Paris, I used the same colour; which, however, on that occasion was seen under every disadvantage, from the darkness of the room allotted to that purpose.

Since this, a similar tint has been adopted in the exhibition of British sculpture at South Kensington.

Also it has been partially used in the Crystal Palace at Sydenham, as a background for some of the ancient statues; and I believe that portion is best liked. Thus it may be said, I think, that this treatment of tint has been to some degree endorsed by experience. This colour is not in a violent key, but a mild one, being a middle tint, warm grey, not too dark or sombre. This, while it affords a sufficient relief for the outlines of the figures placed before it,—more, however, from its atmospheric character and quality of retreating from the eye than from its direct contrast,—softens the outlines agreeably, and makes the forms before it look round and fleshy.

If you notice the effect of flesh in nature you will find the outlines never harshly projecting from the background; and in fine paintings accordingly you perceive this natural softness imitated. If we desire, therefore, by a background, to gain the same agreeable appearance in statues, why should we not use similar means, viz., by softening of the outline? If the background is such that the edges of the statue melt into it, then the statue looks round and like nature. But if, on the other hand, the background asserts itself too much and tumbles forward, as a strong red is apt to do, instead of retreating, like grey; and is, moreover, harsh and violent in its contrasts; then the outlines of the statue all round are thrown out upon you, and the figure looks flat, harsh, and unnatural. You know how inferior is the appearance of a plaster statue to that of one in marble, greatly from the opacity, and therefore, harsh edges, of the one, and the semi-transparency and comparatively soft edges, like those of flesh, of the other. As a consequence, by a harsh treatment of background, you may thus make a marble statue look like a plaster one; while, on the other hand, by a suitable tender background of sufficient contrast and of a retreating atmospheric character, you may make a plaster statue look almost like a marble one. For this purpose delicate mixed tints are more appropriate than any more positive. However, pray do not conceive that I think this individual warm grey the only colour suitable for the background of statues. By no means is this the case; and I only put it forward as one example of the class of colours, and not the sole colour, suitable for this purpose. The material, however, in which these are presented is also important. Texture is important as well as tint. In these cases no material, perhaps, is more favourable for the background than drapery of some unglazed material, arranged, not rigidly, but in easy folds, whereby it affords a more natural adjunct to the statue before it; its lines being adjusted so as to compose with the lines and masses of the statue, thereby advantaging its effect.

Let us suppose the drapery woollen, of some simple, rich texture, and graceful fall, and of some tender atmospheric tint; and let it be suspended along a wall space to be occupied in front by a few statues. Let the drapery hang comparatively plain immediately behind each statue; but, in the intervals between, be gathered somewhat together, so as to form columnar perpendicular folds. Thus is a semi-architectural effect attained without rigidity, in which plain panels are simulated behind the statues and columns between them. The result of this is pleasantly regular, and yet gracefully varied, and is capable of the most easy adaption to the various breadths and scales of statues or groups placed before it, and also to any changes of their places which may occur in the course of arrangement. Taking this as an example of the principle of arranging drapery as a background to statues, it may be recognized as capable of practice in so many ways, in simulation of forms of architecture, as to suit it to the exhibition of any kinds or classes of sculpture. No doubt, when a statue is composed especially for some express architectural space in a building, it ought to look best there, associated with the actual architecture for which it is designed; but in exhibitions where the placing of statues is comparatively unrehearsed, statues will probably harmonize better with drapery accompaniments than with more rigid and precise forms in relation to

which they have not been originally composed, and in which congruity is difficult if not impossible.

This, also, is a semi-pictorial treatment of sculpture; inasmuch as thereby a varying artificial atmospheric background is formed and composed behind each statue as a simulation of nature's sky and clouds, behind a portrait or figure in a picture, whereby the principal object is enhanced. On several occasions I have suggested this mode of enhancing statues by ample drapery backgrounds; and on more than one, only considerations of expense have prevented its being done. It will be recognized that a mere flat tint, discoloured or painted on the wall, is not calculated to give much idea of the effect of the same tint presented with the variety and grace of drapery; and, therefore, it were prejudicial to judge of the ultimate effect of drapery, except by drapery itself. In the Louvre, behind the famous fragment of the Venus of Melos, drapery has been hung with excellent effect, and seats are placed at the best points to view it from,—a mode which, in a gallery of exhibition, has many advantages. But the background is not the sole consideration. Supposing, in a statue gallery, a warm grey has been adopted for the background, and the creamy-white statue stands before it, we have then to complete, by the choice of tints for the other parts, the composition of colour. With this starting point of warm grey for the background, I believe that the pedestal of the statue might well be covered with cotton velvet of a deep bronze green. The floor on which it rests might then be stained deep red and black, of a mosaic character, as seen in encaustic tiles. The ceilings might then receive some light delicate retreating atmospheric colour, with a little yellow introduced, which were best done by light gilding. This is one key of tint for the arrangement of light-coloured statues, which will rarely, I believe, disappoint the eye. Perhaps it is sufficient as an illustration of the principle I advocate.

In cases where statues are darkened and embrowned by time, a different key altogether may be required. This, however, is the reason which I have received for the intense and almost furnace-like colour placed behind some of the darker works in the British Museum.

The whole question, however, of the effects of statues with colour presupposes a good light; namely, for most statues, at an angle of 45 degrees, or thereabouts, falling on them from above. Recumbent statues are more favoured by a lower light, slanting down so as to show the features.

Coloured lights, as in the Napoleon tomb in the Hôtel des Invalides, in the Princess Charlotte's tomb in the chapel at Windsor, or in the Ariadne room at Frankfurt, may not appear consistent with the dignity of art. In the case, however, of their being admitted as an aid to effect, as probably was the case in the Greek temples, all the other adjustments of colour might have to be reconsidered. In these remarks I only contemplate uncoloured light.

As regards bronze statues, a positive key cannot so well be given, as their tints are various, extending from dark Florentine bronze to the light golden browns of Paris. However, as a general suggestion, it may be remarked that a golden green is usually a harmonious background for a bronze statue. A polished black marble pedestal also is effective in taking the dark out of the bronze which stands on it, lighting up its shadows by contrast. In the absence of black marble, a covering of black velvet affords an agreeable substitute. In the immediate neighbourhood, vigorous warm colours may come in agreeably, as a Turkey carpet on the floor, and hangings around of rich velvet, looped up with gold cords.

As a general rule, perhaps it may be said that tender colours in the backgrounds harmonize best with marble statues, and full colours with bronze, as we see the dark races the most attached to brilliant and powerful tints. With marble statues, delicate greens, azures, and purple greys, citrons, lilacs, and chocolates supply charming backgrounds; the effect of the composition of colour being, of course, supplied by the other adjuncts. It may, however, be held, generally, that there should always be some strong colour somewhere. Of course, these modifications of mixed tints are, in art, almost inexhaustible, as they are in nature. Yet, in connection with this subject of the due exhibition of sculpture, they require special means and scope for their presentation. Therefore, I have not attempted ocular illustration to-night.

As I observed just now, I have, on this occasion only, had the opportunity of considering, at all closely, the subject of colour and statues in exhibitions. The same general considerations, how-

ever, hold when they are associated more intimately and substantially with architecture. Thus, I would hope that, although restricted by my limits from going into the whole subject, the position taken to-night to some degree illustrates my whole view; namely, that, while the harmony of colour of statues with their *entourage* is highly important, this does not necessarily entail the desecration of the surface of the statue itself; but that, on the other hand, this is more justly to be done by so selecting and adjusting the surrounding colours that they may require the natural tint of the marble itself to complete the picture.

Arrangement together of Painting and Sculpture.

I am now nearly at an end, and have but few more words to add; which, however, will take us a little beyond the consideration of colour as merely subordinate and subsidiary to sculpture. I now allude to such cases wherein colour is presented by the sister art of painting when exhibited together with sculpture in one and the same gallery. First, however, we will give a preliminary thought to that mode of the presentation of painting which still may be considered subsidiary, only, however, from the method and material in which it is worked: I mean tapestry. We well know that Raffaele did not consider his mastermind and hand debased by designing for tapestry. The noble cartoons in Hampton Court are a sufficient evidence of this; having been executed by himself and his assistants expressly for this purpose. It is not, however, because the colours are produced in tapestry by the needle or loom, instead of the brush, that I speak of it as subordinate, but only in accordance with general custom. Pictures in fine needlework, as hangings, have usually been considered of the nature of furniture as well as art. Their textile rich surface expressly fits them for their subsidiary purposes. We may well suppose, for instance, that a beautiful classic group, in Parian marble, of Cupid and Psyche, would appear admirable on a pedestal of polished Siena and other marbles, standing in a room which should be surrounded with rich tapestries portraying their story, as told by Apuleius and other classic authors. Actually in practice, indeed, tapestry, with its varied lines and texture, and subjects of interest, will often unite admirably with sculpture, as some of those present may have had the opportunity of observing.

We will now, however, pass on to the harmony of works of the two arts, painting and sculpture, when they meet on a level of direct equality, as in galleries for their reception. This is a point not for the sculptor alone to consider, but also for the painter; also for the general art-lover; also for the public; for opinions are various on this point. My own is that they may be made to harmonise perfectly in combined exhibitions, which thereby may be made the more attractive. Still, however, I conceive that this would require special arrangements; so that, on the one hand, the white tint and brilliancy of the marbles may not injure the pictures by too close juxtaposition; and, on the other, that these may not injure the effect of the statues by the cross-cutting lines of the gold frames which surround them. Therefore, as a general rule, this might point to the conclusion that, in a picture-gallery where sculptures are introduced, the latter should be at intervals where special arrangements should be made. In the centre of saloons, also, such statues and groups as look well in a downright light might well have situations; also at the meeting of cross-ways; also busts, or even statues on each side of doorways; but in these cases it would appear that they should have suitable back-grounds afforded by draperies or other materials.

Of the direct association, however, on a dignified scale, of works of painting and sculpture of a high class, but few examples exist in galleries of exhibition. Those which most readily occur are afforded by the celebrated Uffizi gallery in Florence. This was adapted by Vasari, in the early part of the seventeenth century, to the reception of works of art. It consists of two long corridors and about thirty rooms, in which works of painting, sculpture, and decoration are variously arranged. The Niobe room contains that well-known series of Greek statues. It also contains some historic pictures of Rubens, some portraits by Lely, and some hunting subjects by Sydneys.

The most celebrated apartment, however, in the Uffizi gallery is the Tribune, which also affords the best example of the exhibition together of works of the two arts. The works therein exhibited are of the highest excellence, reputation, and value. The works of sculpture contained in this room are five in number, the celebrated Venus de Medici, the Apollino, the Dancing Faun,

and the group of the Wrestlers, Boxers, or Pancratiasts, as they are variously called; also the Knife-grinder or Slave, whetting his knife. The pictures are almost of equal celebrity, and are from forty to fifty in number. Among them is one picture by Michelangelo, and several by Raffaele; as the Madonna with the Goldfinch, St. John preaching in the Desert, and the portraits of Pope Julius, the Farnarina, and of a Florentine lady. Titian also has here his celebrated Venus, also another Venus, and a portrait of an Archbishop. Paul Veronese has a Holy Family with St. John and St. Catherine. Also, there are examples within these walls of the works of other celebrated painters, as Annibal Caracci, Spagnoletti, Guercino, Daniel di Volterra, Correggio, Andrea del Sarto, and Vandyke, as well as the grand Isaiah and Job, by Fra Bartolomeo; so that this room presents an associated exhibition of works in both the arts, not to be surpassed for beauty and excellence. Although I acknowledge I have met with some who have taken exception to the arrangement of this room, yet by most it is highly admired. I think it may be said generally to be by far the most interesting room of art in the world. One more often hears it spoken of, and that with high admiration, than any other room of art; and in this the works of painting and sculpture are associated.

There are some other examples, on the Continent, of galleries of exhibition (for to that section I restrict myself), in which works of painting and sculpture are associated more or less happily. Occasionally, also, on a very small scale, we have seen this done in London, as at the British Institution. Also, in the International Exhibition in Paris, in 1855, this was done with good effect. In some degree, indeed, we set the example on that occasion, as mentioned at page 81 of our bound reports of that Exhibition, in which it is stated, "After many applications, the Imperial Commission at length assented to statues being placed down the centre of our picture gallery: when arranged, the general effect was so satisfactory that it led to a like treatment being adopted for foreign statues in the corresponding galleries of the building." This theory, however, of combination is, I conceive, capable of much more development than it has as yet attained; and that in practice, with due attention and scope, the exhibition together of the works of these two sister muses of the fine arts may be made eminently attractive and complete in effect, perhaps more so than by any other method. As such, I would submit it as a worthy subject for discussion. The time, however, warns me of my limits; and I now leave this subject in the hands of those who, I hope, will oblige the audience and the Society, with their remarks and experience, in elucidation of the above subjects.

THE ARCHITECTURE OF LONDON.

LECTURES AT THE ARCHITECTURAL EXHIBITION.

A LECTURE on the above subject was delivered on Tuesday evening in the Gallery at Conduit-street, by Mr. A. J. Beresford Hope. The chair was taken by Mr. Gilbert Scott, R.A.

Mr. Beresford Hope said he supposed every lecturer when he began his discourse had better say what he was going to lecture about. He saw in a paper a few days ago a criticism on his proposed subject, fancying that it was rather indefinite; and in order, therefore, that his audience might at the outset have a definite idea of the present lecture, he should premise that when he talked of architecture in London he did not mean to convert himself into an architectural reviewer, and go about from building to building criticising them as an art critic would criticise pictures on those walls. He did not think they would derive much benefit from pursuing such a course as that. What he proposed to do was to take up London as a whole, a great existing whole; and taking London as a whole—taking London past, London present, and London in the future—deduce from this whole panorama certain teaching for the future, building that teaching on its actual condition, physical as well as architectural. In short, he wanted to stir them up to become volunteers to improve London in the way that he believed London might now be improved. What is London? London is an ancient city—it is a Northern city—it is a picturesque city. That London is an ancient city hardly required proof. From Tacitus downwards, there were numerous indications of its growing greatness and grandeur. That London is a Northern city hardly required demonstration either; particularly to those who had the fortune, good or bad, to be out in the snow storm last Saturday. He did not talk of London as a

Northern city in any contemptuous sense. The people of England were all Northerns in descent, in language, and in constitution,—Northerns in every relation of life, Northerns in everything that makes either individuals or nations historical and great. In Heaven's name, then, let us not be ashamed of being Northerns. Let us live up to the condition of life in which Providence has placed us, and let us not think that the being Northerns is any great damage or misfortune. A great deal was said about Southern cities and their delightful climate; but on this point he might mention that last summer, when travelling on the railway between Milan and Como, he met a very intelligent officer of the Italian army, who said to him, "Ah, we Italians are becoming very tired of our sun." Charles II., who never said a foolish thing, observed that England had a climate in which a man could take exercise on every day in the year. Granting, then, that London is an ancient and a northern city, he had also told them that it was a picturesque city. It is a picturesque, not a monumental city. It might be said, "Why is it not a monumental city? There is St. Paul's, Westminster Abbey, the Tower, and all that; not to speak of the Monument on Fish-street Hill." Here came the great difficulty in lecturing on a scientific subject, such as architecture, in which the lecturer had to invent his own terms of art. No term of art comprehended in a single word could be so explicit, so concise, and at the same time so comprehensive, as to cover the whole ground for itself, and to exclude something else from trespassing on its own domain. For instance, in contrasting a monumental with a picturesque town, he might be met by the inquiry, "Why should not a picturesque building or town be monumental, and why should not a monumental town be picturesque?" There was really no answer for this question, but for the convenience of technical art,—in short, to label the different divisions of the subject, it was necessary to rely upon the incomplete, lame, and paltry definitions. The incomplete, lame, and paltry distinction which drew between a monumental and a picturesque city was this. A monumental city was a city which was, as it were, thrown out by one effort of the intellect of its builder, just as one monument or one building was thrown out by one intellectual effort of its architect. A picturesque city was one that had grown up under the different operations of many intellects, which might have more or less of unity in its general conception, but was not one vigorous shoot from the ground, sent up by the one inventor, but, as the name implied, a series of pictures, each picture different from the one previously examined. Like Peter Naas's churches, each differing from each other; like Canaletti's pictures of Venice, differing each from the other;—so Flemish churches, by the testimony of Peter Naas, are picturesque; and the streets of Venice, by the testimony of Canaletti, are picturesque also. London, then, had grown up, in the course of revolving centuries, to be a picturesque city; and it was also, as he had said, a northern and an ancient city. Suppose they had to do with a city which was neither of these three. Suppose their accomplished chairman were called on to design the federal capital—not of the confederated States of America—but of Australia, for example,—what would he do? He would have to build a modern city, a southern city,—not merely southern in respect to its being situated in the southern hemisphere, but southern because of the climate, which is much hotter than ours. How would he build this city—how construct a town in a vast unoccupied plain,—

where fancy sees
Squares in morasses, obelisks in trees.

He would do it in this way. He would give sweeps of buildings, or else each separate building standing in its own garden. He would also give broad straight streets; but neither Mr. Scott nor any architect of eminence would, in building a new city, fall back on that most clumsy, vulgar, and odious plan of designing towns with streets running at right angles to each other,—a plan which united the maximum of ugliness with the maximum of inconvenience. Streets built at right angles were destitute of perspective: the only view to be obtained was from one end of the town out to the other end; whilst it was obvious that, with streets at right angles, there could be no short cuts from one point to another. Any one building a new city would follow the new plan, adopted in Washington, of building the town radiating from various centres, the different rays crossing each other. By this plan the shortest cuts, consistent with straight streets, would be obtained. At the centre of every star,

some large building would be placed, so that the spectator would see a public building before him at the end of every street; and at the various squares made by the intersection of the different rays, there would be a group of several large buildings to be seen. This would be a monumental city,—its streets straight, its buildings well placed, one or two being at every crossing, and the streets so broad that even omnibus tramways could run along them without the slightest inconvenience. Could this be done in London? He believed not. Ought we to repent of not being able to do this in London? He believed not. We ought not to dream of building a new city of prospective eminence, of speculative magnificence. We had another task before us, more sure, equally grand, equally worthy of the whole soul and thought of every one who had the broadness of heart to deal with architecture, not as a makeshift but as a science. We had, by our individual exertions, small though they might be on the part of each of us but great in the aggregate, to conduce to the convenience, the healthfulness, and the beauty of our great capital. Louis Napoleon had riddled Paris with broad boulevards. He might have done a great deal of good, and made great streets. No doubt he had. He might have swept away ruthlessly many most picturesque vestiges of Old Paris. No doubt he had; but we could do neither the one nor the other, and we must accept our position. It was a position inherent in a free constitution,—a nation in which the maximum of order combines with the maximum of independence. If we like to take France with the accidents and positions of France, let us take it. He for one was satisfied with the British constitution, and with London as it is. In 1666, indeed, we lost the opportunity of building a monumental London. Sir Christopher Wren made a very grand plan, on the radiating principle, for rebuilding the city of London. That plan went to pieces, and came to nothing; but whether or not the city of London, rebuilt by Wren, would be mediocre as regards street architecture, or whether it would not have hampered us now, was a question into which he could not enter. He fully admitted the theoretic beauty of Wren's London; but it was a matter of ancient history, and no more affects us practically than the question of what would have been the result if Harold had conquered William at the Battle of Hastings. London had been rebuilt, with all its old inconveniences and old picturesque-ness, in the style of Charles II., and all the rest of the town had grown up at haphazard around it. The question was, could we do any great heroic work to reconstruct and regenerate the map of London? Great work had been done in our century, within the last fifty years. Regent's Park, with all its faults, was a great work. Regent-street, ugly as were the buildings at either side of it, was a great artery. Cannon-street was a great artery; and there were two main thoroughfares of recent construction, one to the north of Snow-hill, and the other at Westminster Abbey, both of which, he regretted to say, bore the name of our gracious Sovereign. Then there was Victoria Park, at Hackney, a very pretty thing, though not perhaps a great work of art. A new bridge was also about to be thrown across the Thames. When all these things were done, was there much more of the great and heroic kind to be carried out? A future generation might accomplish much, but he doubted if more could be done in our day, except that one great, necessary, and noble work which had been the dream of so many years, and was now become an imperative reality: he meant the quaying the Thames. An old friend of his, lately deceased, Sir Frederick Trench, who died in his eightieth year, and whose sterling simplicity of character must have been appreciated by every one that knew him, was the real author of this Thames scheme. People laughed at him as a visionary, or repudiated him as an intruder. He had not lived to see the realization of his day-dream, but he was really the man to whom, in our generation, we owe this great improvement. He had published book after book, upwards of thirty years ago, advocating this scheme. He (Mr. Hope) remembered reading a debate on this subject which took place in the House of Commons, in 1825—thirty-six years ago. Great ministers and officials took part in that debate. Sir Robert Peel thought the thing would never do. Why? Because the Thames scheme would diminish the value of property in Essex-street, Arundel-street, and other streets in the same neighbourhood. He was not the only minister who raised difficulties about it. There was another member of Parliament who, in 1825, was a veteran member, having then been

some twenty years in the House, and having held high office some eighteen or twenty years. He, also, made difficulties about that scheme. That veteran official was one of whom they had all heard by the name of Viscount Palmerston. He, also, in 1825, saw difficulties about the Thames scheme, as, in 1859, he saw difficulties about the Foreign Office. When he was sceptical as to any great scheme for the regeneration of London being carried out, he made a sacrifice of much private feeling.*

THE CONSTRUCTION AND ARRANGEMENT OF LUNATIC ASYLUMS.†

Not only is the question of the best mode of arranging and constructing lunatic asylums a highly important one, but so is that of cost and economy in construction; since it is better to have many of the mentally afflicted properly attended to in buildings of minor cost than a few number even better accommodated in more costly edifices. At the present moment, in Scotland alone, the question of cost is delaying the construction of no less than ten or twelve district asylums, of which there is great and immediate need, but which the Scottish District Boards of Lunacy (the equivalent of the English Asylum Visitors) hesitate to proceed with, disputing the statistics of the Scottish Lunacy Commissioners as to the number who ought to be placed in asylums of a certain calibre; and, from the enormous cost of asylum building (judging from English county asylums), these District Boards of Lunacy in Scotland are procrastinating till some new Act of Parliament relieve them of a portion of the dreaded burden.

If, therefore, a principle of construction, true and sound, can be pointed out, whereby a really good and cheap asylum can be provided, no small benefit will be conferred on the cause of the insane paupers, the majority of whom, in Scotland, are now placed in workhouses and other unsuitable places.

It is under these circumstances that Dr. Fairless, who is the resident medical officer in charge of the old Royal Lunatic Asylum of Montrose, has offered some suggestions, embodied in a pamphlet, containing plans and specifications prepared with the aid of Mr. William Middleton, of Montrose, architect.

Dr. Fairless's chief purpose is to show that an asylum for 350 pauper lunatics, with all the necessary accommodation,—principal building, washhouse, stables, workshops, infirmaries, separate houses, superintendent's house, garden and walls, and drainage—may be provided for 16,698*l.*, or 47*l.* 14*s.* per patient, with a facility of making additions, at an estimated outlay of 23*l.* for each; and, when 20*l.* a head is added for site (a quarter of an acre to each patient), and 12*l.* for furnishings and clothes, "these sums will make the entire cost about 80*l.*, instead of ranging from 150*l.* to 250*l.* for each patient; and for this sum (adds Dr. Fairless) we have no imperfect, make-shift asylum, but an institution as perfect in all its parts, and as fully adapted to the great purpose contemplated by all asylums as any of the more costly buildings."

The leading feature of the plan on which this very desirable end may, according to Dr. Fairless and Mr. Middleton, be accomplished, is its being built in detached portions; though not on the mere "village system;" but consisting of separate houses for the bulk of the patients; infirmaries, workshops, &c.; grouped around a central building, containing the hospital for the acute and dangerous cases, kitchen, stores, officers' apartments, &c. The houses are to be connected by covered ways for facility of communication, and are to be built only as need for them arises, so that no unnecessary expenditure may be incurred.

An asylum for 350 patients, built on the foregoing principles, it is maintained, would only cost, in all, about 28,000*l.*, instead of 63,000*l.* or thereby, according to English rates, for land, buildings and fittings, &c.; and, if the same principles were applied to all the Scottish districts, 360,000*l.* instead of 800,000*l.* would suffice, and 440,000*l.* be saved to the ratepayers.

The principle of construction referred to has little of novelty in it; and, indeed, Dr. Fairless makes no claim to novelty of principle; but, although it is substantially the same as that recommended by the English Lunacy Commissioners,

in their report for 1857, as applicable to additions required to be made to existing asylums, constructed on the popular model; Dr. Fairless proposes to apply the same principle *ab initio*; making it an integral portion of the design of the establishment, and not a mere expedient, to be adopted merely when the original asylum is filled with patients. The Scottish Commissioners, we may here add, also recommended that detached buildings of a cheap and simple character should be provided, for working patients and for imbecile and fatuous patients generally.

In the pamphlet "On some Principles in the Construction of Public Lunatic Asylums," which is a reprint from a treatise "On the State of Lunacy, and the Legal Provision for the Insane," Mr. Arlidge denounces the "ward system" as a monkish anomaly and a disastrous mistake; and advocates the separation, as far as practicable, of the day and night accommodation. Instead of building wards, fitted for the constant habitation of their inmates, he proposes to construct a series of sitting or day-rooms on the ground-floor, and to devote the stories above entirely to bed-room accommodation, except for such classes of patients as the paralytic and the noisy.



THE NEW RAGGED SCHOOL - CHURCH OF HOLY TRINITY, KENTISH TOWN.

THIS new building, of which we give a slight illustration above, is now being completed, and will be publicly opened by the Lord Bishop of London on Friday next, the 10th instant. It is built entirely of brick, with string-courses and arches of varied colours. The interior consists of one lofty room, nearly 70 feet in length by 40 feet wide; it will be used for Divine service on Sundays, and is capable of accommodating 800 people. On week-days a temporary division will be placed across the centre of the room, and schools for boys and girls thus formed for over 300 of each.

The building has been erected from the designs of Mr. Moore, of Walbrook; and the contract was taken at 595*l.*, by Messrs. Manley & Rogers, of Hartland-road, Kentish-town. The greater portion of the money has been already subscribed, but about 200*l.* will be required to meet all the necessary outlay for the working of the schools.

Situate in Ferdinand-place, Hampstead-road, in the very centre of the poorest part of a poor parish, this school-church must prove a blessing to the neighbourhood; and when we find the opening will be supported by the Bishop of London, the Earl of Shaftesbury, Lord Ebury, Sir Morton Peto, Mr. Robert Hanbury, Mr. Joseph Payne, and numerous other warm friends of the ragged-school movement, there seems little doubt that the small sum now required will be soon subscribed.

A RAMBLE NEAR SADLER'S WELLS SIXTY YEARS AGO.

THERE are aged inhabitants still living who remember the formation of the "New-road" from the Bank to Paddington, and when it was a quiet road,—ill-conditioned,—and far from the houses which were marching towards it both from the north and the south. Along this road, with fields and trees on each side, we will wander with the mind at the date above mentioned to Sadler's Wells, which even at that time had become a well-established and respectably-conducted theatre. Thinking by the way of its more early condition; it is said that at a remote date there was a mineral well here remarkable for its virtues, which belonged to

the priory of St. John of Jerusalem: this, however, seems to have fallen into disuse, and the site of it was lost. At length one Mr. Sadler built a house of entertainment, and while digging gravel for the mending of the highway, he came upon the spring, which has become so intimately connected with his name. Then Mr. Sadler built a house for recreation adjoining to the well, and petitioned the House of Commons to give him a license for that purpose. In this petition it was stated, that a house of this description had been on the spot in the reign of Queen Elizabeth. On an old view of this place printed at the top of one of Dibdin's songs, it is shown that Sadler's house consisted of seven windows in the front, and was two stories in height: the basement portion is, however, partly hidden by a wall: the upper story was probably the music-room. A wall of considerable extent enclosed the wells, and within the enclosure were several very fine trees.

In 1735 a person named Forcee, a musician and composer, owned the wells. It seems that they had fallen into some ill repute, for he was obliged to apply to Parliament for a renewal of the license to continue his exhibitions. This was refused him. The petition relates that forty years ago (which makes the commencement by Sadler 1695) this place had been resorted to for music, rope dancing, a short pantomime, and the sale of liquors. The Wells were celebrated for ale, which was served in mugs of a peculiar shape and colour. The Music Act of George II., 1751, removed the difficulties of Forcee, who, with his son, kept the establishment.

At the best the place must have afforded but sorry amusement. A chief portion of the admission fee was expended in strong drinks, which, with additional quantities, led to riot and impropriety. Sir John Hawkins says, that the music here consisted of violins, hautboy, and trumpet—consequently in unison—or if a bass instrument was introduced, it was only for the grand-bass to divisions in old ballads and country dances.

In 1765, a great improvement was made at the "Wells," which had more than once received the censure of the magistrates of the county of Middlesex. Rosoman purchased the place, and at the expense of 4,225*l.*, put up a new building, and it is a wonder for those days that the old building was taken down, and the new put up in seven weeks. Afterwards the management of Sadler's Wells fell into the hands of several distinguished persons.

In the course of this time the old well, which had been prepared by Sadler, was found between the New River and the stage-door. It is said to have been encircled with stones, with a descent of several steps. In years gone by, and it may be so now, there was a well under the stage, sunk for the purpose of concentrating the water of the mineral spring: this was always full and very clear. At the date we are speaking of a fine view of St. Paul's and London was had from near Sadler's Wells. Amongst the foreground objects, were the Spa, once a place of fashion, which has been before referred to; and Bagnigge Wells, a place of amusement, which was also founded on the discovery of springs: this, Mr. Lysons says, was in 1767. Wandering that way in Mr. Malcolm's company, it may be remarked that Bagnigge Wells does not show very great attraction; that it is placed in a low, unwholesome situation, and already the Fleet had become unwholesome. The steep bank towards Pentonville was prettily broken, and, mixed with a flame-coloured earth, were groups of herbage, which would have served for an artist's study. Going from this point towards the Foundling Hospital, we find Mr. Burton—the Cubitt of sixty years ago—engaged in extensive works, although "the present war" has been a great check to the enterprising spirit of builders: consequently the improvements have been nearly confined to the northern side of the metropolis, and have chiefly been in the hands of the eminent builder mentioned: the grounds are those belonging to the Foundling Hospital and the Duke of Bedford.

The site of Guildford-street was formerly a path, which led from the Earl of Rosslyn's house (formerly Loughborough House), at the back of Queen-square, and the gardens of Ormond-street, and round the front wall of the Foundling Hospital to Gray's-inn-lane, and was generally bounded by stagnant water, at least 12 feet lower than the square. This place has been raised to a level with the adjoining streets, which hide a beautiful view of Highgate and Hampstead. The new houses are, however, stately, and inhabited by people of the first respectability.

Brunswick-square adjoins the gardens of the Foundling and its western side. The views from

* To be continued.

† Suggestions concerning the Construction of Asylums for the Insane: Illustrated with Plans. By W. D. Fairless, M.D. Edinburgh: Sutherland & Knox. 1861.

On some Principles in the Construction of Public Lunatic Asylums. By J. T. Arlidge, M.B., A.B. London. The Jamaica Lunatic Asylum. By J. T. A.

the west end of the square include, through a number of trees, the distant range of buildings beyond the verdant slope at the New River head, Pentonville, with St. Mary's steeple, Islington; and, between other trees, the white colonnade of the Hospital, its quaint walks and grass-plots.

Bedford House, in Bloomsbury-square, designed by Luigi Jones for the Earl of Southampton (a building of little pretensions to taste or magnificence), has been sold by the duke for about 5,000*l*, and taken down. The site now forms a continuation of Russell-street. The north front, with a grand avenue of lime-trees, had a good effect from the fields and its vicinity to the Museum, whose grounds and trees are somewhat similar, and made that part of London pleasant and respectable. The gallery of Bedford House contained Sir James Thornhill's copies of the cartoons which were purchased, at the sale mentioned, by the Duke of Norfolk, for 450*l*. The same nobleman also purchased the marble chimney-piece of the same gallery for 300 guineas.

Russell-square and Tavistock-square are in progress; and, in order to expedite these great works, the proprietors offer the leases for 99 years, and the houses are to be of from 600*l*. to 4,000*l*. value. They also lend sums of from 150*l*. to 600*l*. for three years, to such persons as choose to accept of them. Several acres of ground north of the above square, on the margin of the New-road, have been converted into gardens, for culinary and other plants. In the centre of one a cottage has been erected, whose rustic-thatched roof is supported by trunks of trees.

We glance at Red Lion-square, then completed and occupied by fashionable people. This square was thus named from the site,—Red Lion-fields,—and contains ten acres, with a large and handsome obelisk in the centre, which was said, without any good authority, to cover the bones of Oliver Cromwell: this ornament was promoted by a subscription of the inhabitants. This, with some other stone buildings at the corners, was removed to the entrance of Durhams, the seat of John Trotter, Esq., of South Mims, Middlesex.

Queen-square, so called from Queen Anne, whose effigy is placed in the centre of the garden, was also completed. Both these squares, and Ormond-street, and other parts adjoining, are in the parish of St. George-the-Martyr, of which Dr. Stukeley was for many years rector; and in the church, which was originally built as a chapel-of-ease to the church of St. Andrew, the following circumstance occurred connected with the venerable antiquary:—

Mr. Harris, the lecturer of St. George's, had just deceased (in March, 1765), in consequence of which an election was appointed. The candidates were Mr. Hollingburg, of the Charter-house, and Mr. Floyd. The latter had a majority of one vote, till Mr. Serjeant Eyre arrived from his house in Queen-square, whence he was brought in a chair, in consequence of previous indisposition. Mr. Eyre's vote being given, the candidates had equal numbers. Thus situated, Dr. Stukeley exercised his right of voting a second time, as rector of the parish, in favour of Mr. Hollingburg, who was immediately declared duly elected. The catastrophe of this ecclesiastical contested election was serious. The rector caught a violent cold in the vestry-room, which terminated in a paralytic stroke, and his death, aged 84. The serjeant fell in the same room, exhausted by illness, was carried home, and expired a few days afterwards.

The church of St. George-the-Martyr is a characteristic ugly example of the ecclesiastical edifices erected in Queen Anne's days. In a survey of London published in 1743, it is mentioned that this church was built upon the eastern bank of a cow pond, and that the observables are "the devils," and Lamb's conduits. The fountain which supplies Christ's Hospital with water is enclosed by a wall at the north-west angle of Brunswick-court, Queen-square.

From this place, and hearing complaints that the buildings are interfering with the pleasant prospect from the gardens of Montague-house, we move on to Somers-town, which, though little has been added to it for six years past (we are speaking of sixty years ago), is of recent date. The only house of any age is the Brill Tavern, which, so lately as 1792, was approached by a rural path through a white turnstile where Judd's place now stands. Houses and people have thronged into this neighbourhood since those days. Over a large part of Somers-town houses have been reared and removed in a state of rotten dilapidation; and now round what was once the rural Brill Tavern is a swarming population. Changes for the better are going on, but in the buildings

about here much life has already been sacrificed, and before matters are put to rights there will be much more. The Brill at Somers-town and the streets adjoining on a Saturday night present in our own time an extraordinary sight. The glare of gas-light, the loud touting for custom by the cheap butchers and other trades, the hoarse notes of the costermongers, the smoke and flame of their naphtha lamps, the crowding of men, women, and children,—in one place the dealer in quack medicines and other matters is eloquent; in another is carried forward the sale of dogs, pigeons, hedgehogs, and at times sparrows for shooting, and rats for other purposes,—old shoes, old clothes, the shops of slop tailors,—form an extraordinary scene, and one difficult to describe. On a Sunday morning, at the time of our last visit, the scene was not much more orderly. The contrast is great between the old view and the new.

THE COMING GREAT EXHIBITION.

THE concrete is put in for the permanent part of the intended building for the Exhibition of 1862: the great domes are staked out; and all the arrangements are now made for a fair start. Applicants for space have poured in during the last week. Not only in the great manufactories of our own nation, but in those throughout Europe, America, and our colonies, the busy note of preparation is heard, and thousands are now anxiously thinking how they can add to their own reputation and to the advancement of general civilization.

When the idea of the second Great Exhibition was first started, many pooh-poohed it, believing that it would be difficult to create again the enthusiasm which was shown by all in 1851. However, when the determination was made, the waverers became steady, and of dissenters against the proposed plan of the Royal Commissioners we now hear nothing.

The experience of 1851, and that gathered at Manchester and elsewhere since, have shown that improvements can be made in the arrangement of such exhibitions; and these will doubtless be adopted.

The advantages of such collections cannot be over-estimated. From them we gather useful hints, are enabled to form right estimates of our present position, and learn our progress or decline in art.

In the proposed Exhibition we shall doubtless see some of the best of each artist's works, which are now in places only accessible to a few persons.

At the last Exhibition it was gratifying to see the numerous productions of working men,—richly and curiously inlaid cabinets, and other cunning displays of handicraft. These had been made during the early mornings before the time of work, or in the evenings after labour had ceased. Some of them were bought by visitors at a good price: other makers declined to sell them, and preferred to keep them as a sort of heirloom in their families. Some were applied as gifts to benefactors. In the Brompton cemetery there is to be seen a medallion of a female head in stone, which was intended for the Crystal Palace of 1851. The hand of the artistic stonemason was, however, stopped by death before the work was completed; and his relatives had it placed, carefully glazed, on the grave-stone which covers his remains.

Our object in mentioning this is to remind many of the industrious classes,—our skilled artisans, particularly the young,—that they have an opportunity of gaining distinction in the coming Exhibition. For instance, if an ingenious person has devised some useful piece of machinery, or produced a work of art, it will be put in the sight of thousands well able to appreciate its merits. Independently of this advantage, it is well for the industrious classes of this country to endeavour, as far as is possible, to represent their skill on the approaching occasion.

As regards the fine arts, there is much to be done to make the English school of painting, sculpture, and engraving stand well when contrasted, as it will be, with foreign rivalry. For this purpose, all who have valuable examples should contribute. Our best living painters should put their shoulders to the wheel, and endeavour to produce pictures which will excel their former works. In sculpture, Flaxman must not be ill-represented; and, in cases where it is not possible to get the originals, careful casts should be taken. The finest water-colour drawings by Turner, Cox, Prout, Cattermole, and others, will, if rightly arranged, set all rivalry in this department at defiance. In engraving, on copper, steel, and wood, we need not be afraid of competition; and we hope that the opportunity will be taken to show the

best examples of this department of British art. From the Print-room of the British Museum, where treasures are stored, which according to the present arrangements are seen by only a small number of persons, selections of the finest English engravings should be made. The engravers of the present day must make a worthy display of their best proofs.

The wood engravers should also be astir: those who are known to fame should select their best works, see how much room they will occupy, and without delay apply for the necessary space. Nor should those who have not become distinguished neglect this occasion. And it is to be hoped that Thomas Bewick's "Old Horse waiting for Death," his "English Game-cock," and other charming bits of nature, will find honourable places.

Anxious to display our own skill, we look hopefully forward to the advantages which will be derived from foreign examples.

NEW HORTICULTURAL GARDENS.

As the grounds are being rapidly wrought into shape, and planted, this appendage to the new Exhibition Palace, for such it really will be, assumes an aspect peculiarly its own. Most other public gardens possess external prospects and features which "lend enchantment to the view:" this is essentially shut in, and will be to a great extent overshadowed, although certainly by very aerial and elegant domes and structures. So that all the varieties that fancy can invent of quaint terraces, balustrades, spectral arcades, gurgling streams diversified by quaint flower-knots and shrubs, are needed to constitute the scene a veritable Arcadia.

Several hundreds of workmen are busy, night and day, in realizing the idealities of Mr. Nesfield, and Mr. Eyles, the horticultural superintendent, and producing parterres of most varied and accurately geometric forms. The green-sward surface adorns every slope and level in a carpet of the most pleasing and graceful finish: the towering conservatory on the north has been carried to its culminating height with unexampled rapidity; for now within three weeks this enormous structure has been reared and is almost ready for closing.

Close to the Conservatory, on the Gore side, the great hydraulic works of the Messrs. Easton, Amos & Sons, are in active operation. A well of 6 feet in diameter has been already sunk 150 feet, and will probably be driven 100 feet deeper, to draw from beneath the clay deposit of the London basin supplies to feed five cascades and two constantly-flowing brooks. A huge engine for an Apollod's pump has been already placed *in situ*, and pipes of 8 feet diameter have been laid throughout the grounds, to drive the torrent, first, over a cascade 20 feet wide and 15 feet deep; then through the pebbled brooks; and having passed over all the cascades, again to return to the reservoir, to be raised afresh by the engine for successive revolutions.

This engineering firm has already dealt with the subterranean waters of London as elsewhere; and although scientific prognosticators have foretold a failure in the hidden medium from which they drew so freely; still the St. James's Park and the Orange-street wells yield an abundant tribute; and even the Trafalgar Fountains (supplied as well as the public offices from the latter source), show no symptoms of decline.

A notion of the aspect of the gardens when perfected may be obtained. The architectural effect of the colonnades was shown, and could fairly be estimated from our illustration some time since. Ornamental details are not yet complete; but even with the verdant carpet complete, and all the pensile patterns of flower knots and borders cut out, the liveliest fancy could hardly describe what will be the effect of nature's richest bloom, when all that is rare in English and exotic flowers may be disposed in luxuriant array. Terra cotta is largely employed in the arcades, and with excellent results. Each column consists of five pieces, of which there are twelve changes, so that considerable variety is obtained. The work is exceedingly sharp and straight, and does credit to Mr. Blanchard, the manufacturer.

That the effect of the architectural portion of the arcades will be good, is now clearly discernible, although the spandrels of the arches and the frieze of the entablatures are left blank for filling in, and the bases and capitals, where of stone, are still in block; and, judging from the general combination, it may fairly be said that no grounds of the same extent, placed similarly within the precincts of a great metropolis, can compare for grandeur of design and outline with the new Horticultural

Gardens. Even in winter the Grand Conservatory and the mile of arcade will form a promenade for multitudes; and, as an accessory to the Great Exhibition, having the Park and Kensington Gardens in close proximity, the whole metropolitan population will find, in these provisions made for them by the Royal Commissioners, not only a source of enjoyment, but of health.

ROYAL COMMISSION ON THE EMBANKMENT OF THE THAMES.

On Tuesday last the Commissioners appointed to consider and determine upon the best plans for the embankment of the River Thames within the limits of the metropolis met at the offices of the commission in Victoria-street, Westminster, to receive evidence from the projectors as to the merits of the plans sent in, which number upwards of fifty. The Commissioners present were;—the Right Hon. the Lord Mayor (in the chair); Sir Joshua Jebb, G.C.B.; Captain Galton; Captain Bursall; Mr. John Thwaites; Mr. H. A. Hunt; and Mr. J. A. Maclean.

The first case considered was that of the Thames Embankment and Railway Company, who were represented by Messrs. Baxter, Rose, Norton, and Spofforth; and the engineers, Messrs. Fowler, Fulton, and Hemans.

It is proposed to construct an embankment, protected by a river wall, from Westminster to Blackfriars Bridge, carrying a road or street 80 feet in width, commencing at Westminster Bridge, and joining, a little beyond Blackfriars Bridge, the intended extension of Cannon-street to Bridge-street, Blackfriars, with suitable stations at the bridges, running nearly parallel with the roadway, and joining the London, Chatham, and Dover Railway in Bridge-street, Blackfriars.

The quantity of land proposed to be reclaimed from the river would be about 49½ acres, and docks would be constructed within the embankment covering 7½ acres, leaving 12 acres, which it is proposed to vest in the Commissioners of Woods and Forests in return for their payment (out of funds to be placed in their hands by Parliament) of the compensation consequent on the construction of the embankment. The total estimated cost (exclusive of compensation, put at 200,000*l.*) for the railway, road, and embankment, was 700,000*l.* Towards this amount it was proposed that the Metropolitan Board of Works should contribute in respect of the site for the sewer 150,000*l.*, that the cost duty fund should defray all compensation and contribute 250,000*l.* for the construction of the new road. The saving by this arrangement to the Metropolitan Board of Works would not be less than 100,000*l.*; and the total contributions of 400,000*l.* would leave 300,000*l.* of open capital for the railway.

Mr. F. W. Shields, C.E., of Parliament-street (whose book we have mentioned to-day), submitted his plan for an embankment between Westminster and Blackfriars. The embankment would be formed by a face wall next the river, and by filling in the space enclosed between the wall and the present shore, the face wall extending from Westminster Bridge to Whitehall-stairs, and continuing by a sweep of uniform curvature to the upper end of the Temple Gardens, and terminating at Blackfriars Bridge, touching the first piers of Hungerford and Waterloo Bridges, and being a little beyond the line of low water. Through the space between the river wall and the shore there would be carried a road or thoroughfare of 80 feet wide. It would give an additional main thoroughfare, improve the river, and afford facilities for the construction of the low-level sewer. The embankment would contain 1,000,000 cubic yards, and 62,999*l.*; brickwork of face wall, 2,024 rods, or 26,312*l.*; concrete, 5,484 cubic yards, 1,782*l.*; granite coping, 23,555 cubic feet, 8,244*l.*; iron in piling, 9,542 tons, 95,420*l.* Total cost of face wall and embankment, 194,757*l.*; low-level sewer, 18,000*l.*; approach to Waterloo Bridge, 7,000*l.*; formation of new roads, 10,213*l.* Total cost, and with 20,000*l.* for contingencies, 250,000*l.*

Mr. H. W. Sich explained that by his plan it was proposed to run a roadway on an embankment in the same direction, crossing Queenhithe, and terminating at Southwark Bridge. It would be 60 feet wide, and be supported upon columns, with facilities for barges to unload at all times. The embankment would be 27 feet above Trinity high-water mark.

Mr. H. R. Newton gave a descriptive account of a viaduct he proposed to construct on both sides of the river, and which would have the effect of reducing it to 700 feet in width. He proposed upon this viaduct to erect public offices for Government and terraces of first-class houses. He

also proposed to carry the ground 150 feet further into the river at Somerset House, so as to give the Government an opportunity of extending the wings of that structure.

Mr. A. M. Rendel's plan was next considered, which was a river wall, docks, and low-level sewer. He proposed an embankment from Westminster Bridge to Blackfriars Bridge, with openings for barges to enter. The line of road afterwards to be continued to New Earl-street. He proposed to make the river wall by large blocks of brickwork brought to the place, and then set by lowering stages by means of divers, in the same way as adopted by the late Mr. Rendel in the works at Portland harbour. The foundations of the wall would be 32 feet below Trinity high-water mark. The cost of the works would not exceed 650,000*l.* That would not include compensation, as he was not aware what compensation could be required. His opinion was, that in a few years first-class warehouses would spring up along the line.

The Lord Mayor said the commissioners would first receive all the plans, and then they would invite the wharfingers and others interested to state their opinion as to the plan which they might consider the best, or offer any suggestions upon it.

ARCHITECTURAL INSTITUTE OF SCOTLAND.

At a meeting of the Architectural Institute of Scotland, held on the 30th day of April, the memorial formerly submitted to the Lords of the Treasury in regard to the General Post-office for Scotland, at Edinburgh, was to be considered, and the report of the Council of Management upon the drawings sent in in competition for the prizes offered by the Institute.

The following is a list of the successful competitors—

I.—Geometrical Drawings.

Medal.—John M. McGibbon, apprentice to Messrs. Baird & Thomson, architects, Glasgow; Edward F. C. Clarke, apprentice to Mr. David McGibbon, architect, Edinburgh.—Equal.
2nd Prize Book. William Dothie Dobson, apprentice to Mr. Patrick Wilson, architect, Edinburgh.

II.—Perspective Drawings.

1st.—Book. G. M. Moyses, apprentice to Mr. James Anderson Hamilton, architect, Edinburgh.

III.—Drawings from Old Buildings.

1st.—Medal. William Porteous, apprentice to Messrs. Bell & Menzies, architects, Edinburgh.
2nd.—Book. Mottio, "Spero." The author's name not yet known.
3rd.—Book. John Lawrie, apprentice to Mr. William Fairbairn, architect, Edinburgh.

IV.—Original Design.

1st.—Medal. James Souttar, apprentice to Mr. James Matthews, architect, Aberdeen.
2nd.—Book. William Young, apprentice to Mr. William Tait, architect, Glasgow.

V.—Architectural Ornament.

A Book. James Kennedy, 9, Innes-court, Calton-hill.

THE LABOUR QUESTION.

London.—Last week a numerous meeting of working men connected with the building trades was held at St. James's Hall, to protest against the system of payment by the hour. Mr. Jarvis, a plasterer, was called to the chair. Mr. Aldcroft proposed the following resolution:—"That in the opinion of this meeting the system of payment by the hour, introduced by Messrs. Kelk, Lucas, & Smith, is objectionable; because it opens a wider field for competition, jeopardises the Saturday four o'clock, does away with the payment of time and a half for overtime, and destroys a recognised day; therefore we pledge ourselves to oppose the system until it is withdrawn." This resolution was carried. Mr. Wright moved the next resolution as follows:—"The men thrown out of work by the new conditions of the master builders being willing to resume their employment, providing the employers recognise a fixed day, we pledge ourselves to render every assistance to those at present locked out; and we urge upon our fellow-workmen of the United Kingdom the necessity of assisting us to successfully combat the destructive system of payment by the hour." Mr. Leigh seconded it, and the resolution was carried unanimously. One speaker endeavoured to show the other side of the question, but was hooted down.—We are sorry we cannot convince ourselves that the difficulty is over. The most resolute endeavours are being made by "the committee" to prevent men, who are contented with the increased payment by the hour, from remaining so. A few days ago the whole of Mr. Kelk's plumbers were called off, and still remain out. As some of them said, "We are very sorry, governor, but we are called out, and go we must."

Wolverhampton.—The strike of the operative painters, plumbers, and glaziers here, and the lock-out on the part of the masters, are for the present at an end. The masters have intimated to the men that understanding that the builders' rules are to undergo some alteration in May, respecting the time of commencing work every morning and the time of leaving off work on Saturday, they were ready to allow any man to resume work who chose. The men have therefore returned to work, on the understanding that in the mean time they are expected to be a mile on the road by six in the morning, and that they will leave work at five on Saturdays.—After this was in type, we learnt from a local correspondent that, on Wednesday of the present week, about 400 operatives in the building trades in Wolverhampton turned out for an advance of wages. The sections interested are the bricklayers, plasterers, and labourers. Prior to June last the bricklayers and plasterers received 4*s.* a day; but since that time they have received 4*s.* 4*d.* In January they gave notice that they should require a further 2*d.* a day on and after Wednesday; and the labourers, who, since June, when they, too, got an advance of 2*s.* a week, have been receiving 17*s.* a week, also required an increase to 18*s.* At the same time they all required their time to be reduced from 59½ to 59 hours a week. Simultaneously with the branches named, the masons and carpenters also gave notice of their intention to demand a rise of, masons, from 26*s.* to 28*s.*, and carpenters, from 24*s.* to 25*s.* a week. The masters, on receiving the notice from the men, themselves gave them notice that they should reduce their wages to the level at which they were before June, when the masons and carpenters also received an advance of 2*s.* a week, and that they should also require them to be two miles on the road towards their work at 6 o'clock in the morning, instead of one mile, as hitherto. The employers, however, have given the masons and carpenters the rise they demand; the men, on their part, according to the requirement respecting the two miles. In regard to the bricklayers, plasterers, and labourers, the masters have offered to withdraw their notice if the men will withdraw theirs; but they require the two miles to be observed. The men withdraw their application for a decrease of half an hour a week in their time, but refuse to consent to the two miles, or to withdraw their notice; and have resolved to continue the strike till the masters yield.

Liverpool.—Another meeting of operative painters has been held, for the purpose of the committee (appointed at a previous meeting) "submitting to their consideration matters of the utmost importance connected with the present state of the trade." There was a numerous attendance. The chairman, Mr. A. McDonald, opened the proceedings, according to the *Journal*, in a very temperate and conciliatory speech. He said the masters had offered the men employment at 5*d.* an hour, thus introducing a system never yet tried in Liverpool, though at present in operation at Manchester, with this exception, that the operative painters there received 6*d.* instead of 5*d.* an hour. At the commencement of the dispute the operatives asked to be paid 2*s.* a week extra for eight months in the year, and to be allowed to quit work at three o'clock on the Saturday afternoon. Instead of acceding to that demand, the masters preferred granting a half-holiday, by which the men would leave at one o'clock instead of three, though they would be in receipt of 11*d.* less wages. He said the statement which had appeared in the papers to the effect that an arrangement had been come to between the masters and the men was incorrect; though a large number of operatives had accepted the offer to work by the hour, while a small number had gone back on advanced wages. On the whole the committee recommended that the meeting should consent to work at the rate of 6*d.* an hour, on condition that, during the winter months, they should be employed not less than eight or nine hours a day. Another operative condemned the hoursystem as oppressive, and believed they ought to, and could, obtain 28*s.* a week on the terms proposed. After some discussion it was moved that the consideration of the terms proposed by the masters be adjourned for a week. In the mean time, the mover, Mr. McArthur, added, let the men accept these terms if they liked, and get work wherever they could. The motion was carried unanimously.

Manchester and Salford.—The masons' labourers of Manchester and Salford, who recently struck for an advance of their wages from 19*s.* to 21*s.* a week, are still out, and at present show no inclination to return to their employment.

Edinburgh.—At a numerously-attended meeting of the local association of employers in the building trades, it has been unanimously resolved—1. "That the nine-hours movement on the part of the operatives is unreasonable; not for their own benefit; oppressive to employer; and injurious to the public; and, therefore, that no proposition be made to the operatives for shortening the hours of labour to nine hours per day." 2. "That it be remitted to the directors to make such a proposition for the settlement of the question as they shall think fit; but not to the effect of shortening the hours of labour; and that such propositions be submitted for the sanction of a general meeting to be afterwards called for the purpose."

Guernsey.—On the 19th ult., the painters at Guernsey applied for more wages. The masters came forward, and 3s. a day was decided on as the men's pay in future. On the 21st the builders in the employ of Mr. Mollet demanded higher wages, and on the 22nd a circular was circulated containing the following proposals:—To enhance the rate of wages by 9d. a day, from 1st March to the 31st October, for 10 hours' labour, viz., from 7 a.m. to 6 p.m.; and the wages to remain the same as at present from 1st November to the last day of February in each year, for eight hours' labour, viz., from 8 a.m. to 5 p.m. On the evening of the 25th a general meeting of about 120 carpenters was held, when another circular was issued, and it was decided by a majority to demand a rise of 6d. per day upon their wages throughout the year; and for the hours of labour stated in the circular of the 22nd. The men say the increased rate of wages is to begin from the 1st inst.

THE "HAYDN FESTIVAL" AT THE CRYSTAL PALACE.

THE centenary returns of the births and deaths of illustrious composers are doubtless excellent opportunities for the holding of monster musical festivals in their celebration; but they are rare occurrences, and modern music-lovers are not blessed with the patience of their forefathers. The centenary commemoration of the death of Handel, in 1859, is indeed a pleasure and a pride to look back to; but to wait for the same chance again, or even for that of a centenary commemoration of his birth, in 1885, would be to check the progress of musical taste at a period of unparalleled development. But, though the same opportunities in the case of the other, and scarcely less mighty, writers of the oratorio may prevent these popular observances from becoming matters of such extreme rarity, yet a far greater frequency is now absolutely necessary than such few and far between excuses would present. Nor need we wait for reasons so plausible even as that which gave rise to the Mendelssohn Festival of last year, namely, the inauguration of the bronze statue of that great composer; but seize the happy opportunity that a magnificent building for their celebration, an orchestra of unusual number for their performance, and a public already tutored for their enjoyment present, to hold such mighty congresses upon convenient and discretionary occasions.

Accordingly, the proposition for holding a "Grand Triennial Handel Musical Festival" seems to present the *juste milieu* between the extremes of over-long and over-short intervals; and the further addition of occasional performances of the works of the other great masters of the chorus may not only keep in practice the 1,600 amateur singers who form the "London Contingent" of the Handel Festival Choir, but also present occasions for meeting between them and their brethren of the provinces, that cannot but have a beneficial effect upon the progress of this now national pursuit. Birmingham, Norwich, Leeds, Bradford, Worcester, Hereford, and Gloucester, have now an addition to their sisterhood in Sydenham; and the colossal size, singular beauty, and easy access of the Crystal Palace, must confer a *prestige* upon the *fiestas* enacted within its walls proportionate to the size, wealth, and population of this vast metropolis.

The grand festival performance that inaugurated the Season of 1861 at the Crystal Palace, on Wednesday last, comprised the time-honoured oratorio of the "Creation," the masterpiece of Haydn, that most prolific of writers, whose works, endowed with an undying verdure, still elicit the idolatry of the old, the admiration of the young, and the respect of all.

Francis Joseph Haydn was born on the 31st of March, 1732, at Rohrau, fifteen leagues from Vienna, and died in 1809. His life was a model of regularity, which may alone account

for the amazing number of his instrumental productions in chamber-music, church-music, symphonies, operas, &c., amounting to between 500 and 600 instrumental compositions alone, independent of vocal. In addition to these we may imagine many more lost, and many more subjected to the severe but wholesome treatment exemplified in Ovid, and well worthy of imitation, for purging one's productions of anything damaging to reputation. *Multa quidem scripsi; sed quæ vitiosa putavi, emendaburis ignibus ipse dedi!* Like Leonardo da Vinci, who, when he saw a beautiful face, sketched it from hasty glance and memory, for future use, Haydn noted down anything remarkable that struck his attention in music. But this was as an aid to study, and not for the purpose of plagiarism, for the pure fountain of Haydn's genius presented an unlimited supply of flowing and genuine melody that no admixture could adulterate,—no consumption exhaust. Another rule of Haydn's, too, was worthy of imitation: he would not sit down to compose a great work, such as a symphony, till he found himself in a fit state of mind for the task; but for works of lesser moment, he indulged in a habit of constantly writing something, whether "i'the vein" or not,—a habit since imitated, and with equal bad consequences, by the late illustrious composer, Spohr.

When thoroughly prepared for a great work, Haydn dressed for the occasion, put the diamond ring presented to him by Frederick II., upon his finger, selected the finest paper for his task, and wrote his manuscript in fine clear penmanship, as neat and finished as the composition it expressed.

He was fifty-nine when he came to London, and composed, "to order," the twelve symphonies for Salomon; the most spontaneous effusion of musical genius ever offered to the world. It was during this visit, in 1791-2, and again in 1794, that Haydn first heard the sublime oratorios of Handel, under the conduct of the great master himself, and from that inspiration conceived the impulse which resulted in *The Creation*. This work was commenced in 1796, and completed in 1799; and when urged to hurry it, he characteristically answered that "he was a long time about it, as he intended it to last a long time;" an observation worth remembering.

Two years after he produced a second oratorio, *The Four Seasons*, to the words of Thompson.

Haydn composed a good many Italian operas, but their performance seems to have been limited to the private theatre of his patron, Prince Esterházy,—for at that time the Germans had not a national musical drama,—and the scores of them were destroyed by an accidental fire in the palace of that prince. It is a characteristic trait of him, that for the special entertainment of the same prince, who was a proficient upon the long-since obsolete *viol da Gamba*, Haydn wrote no fewer than 124 pieces for that instrument alone.

But here we must leave the great composer of numerous operas, three oratorios, fifty symphonies, eighty-three stringed quartettes, thirty-one trios for pianoforte and strings, twelve sonatas for piano and violin, and masses, motets, hymns, songs, canzonets, and various other works without number, and briefly allude to the performance of Wednesday last.

An audience of 13,000 and an orchestra of 3,000 assembled to do honour to Haydn's great work, and anything more lovely than the Palace and gardens, with their countless visitors, could not well be imagined while the sun shone; but about three o'clock a thick mist obscured his rays, and continued for the rest of the day, though no rain fell.

The construction of the orchestra being precisely the same as before described, we need not here allude to it; its acoustical defects being now thoroughly understood, and its excellencies, on the other hand, perfectly appreciated. To obtain the full effect of the choruses, the opposite end of the transept is perhaps the best place, and for the solos the nearer to the conductor the better, being in fact the same law that would influence the spectator that might require a comprehensive view or a close inspection.

The introductory "Representation of Chaos," played *sans solennité*, was given with excellent effect. The choruses, generally speaking, were more satisfactorily rendered than those in *Ellijah* last year, and that of "Awake the Harp" was only surpassed by "The Heavens are telling," the grandest display of Haydn's genius, and which terminated the first part with a burst of enthusiastic applause.

The same praise must be accorded to "Achieved is the glorious Work," which terminates the

second part; and the final chorus of the oratorio, "Praise the Lord," was perhaps never done more justice to. The solos were entrusted to Midmes. Titiens and Rudersdorff, Messrs. Sims Reeves and Santley, and Herr Fornes. Madlle. Titiens sang beautifully, and formed an excellent substitute for the incomparable Clara Novello. The solos, "With verdure clad," and "On mighty wings," were given by her with a sweetness, purity, and power that delighted her hearers, and entitled her fairly to the applause so liberally and heartily bestowed upon her. Mr. Sims Reeves was in excellent voice, and exerted himself to the utmost, and his delivery of the air, "In native Worth," was emphatically, and as usual, a triumph. The music of Eve and Adam, in the third part, was excellently sung by Madame Rudersdorff and Mr. Santley; and Herr Fornes, though more out of tune than usual, seemed in no want of admirers. Mr. Costa received his usual and well deserved ovations upon entering and quitting the orchestra.

A more intelligible mode of entering the orchestra is strongly required for the performers; for the way in which dress-bonnets and double-basses, fiddles, and finery, got jostled together in the "new entrances" under the orchestra, was what we never before witnessed on similar occasions.

MR. SPURGEON'S TABERNACLE, NEWINGTON.

THE vast building erected for the Rev. Mr. Spurgeon, under the designs of Mr. W. W. Pocock, architect, by Mr. William Higgs, of Palace-road, Lambeth, is now completed, and has been formally opened. The view of it we have engraved, looking towards the tribune or pulpit, shows the general arrangement.* In plan the building is a rectangle, measuring 174 feet by 85 feet outside the walls, exclusive of the portico. The ceiling is vault-shaped, and is divided by ribs in plaster work. It is supported on twenty cast-iron shafts, which have enriched capitals, from which spring semicircular arches, the soffits enriched with guilloché ornaments.

The chapel is lighted on both of its sides by sixteen square-headed windows on the ground-floor level, eighteen in first gallery, eighteen in second gallery, and seven in front, with circular heads, in addition to which there are louvre-lights in the roof.

The tribune, it will be seen, is large and open: below it, within the inclosure bounded by the steps, is a marble baptistery. The walls are matched-boarded. The ground-floor ascends from about midway, so that the seats farthest from the preacher are raised above those in front.

At the western or tribune end of the building is planned a library, with male and female candidates' rooms, as also vestries and class-rooms; and in the basement there are a school-room, four class-rooms, and a large lecture-hall.

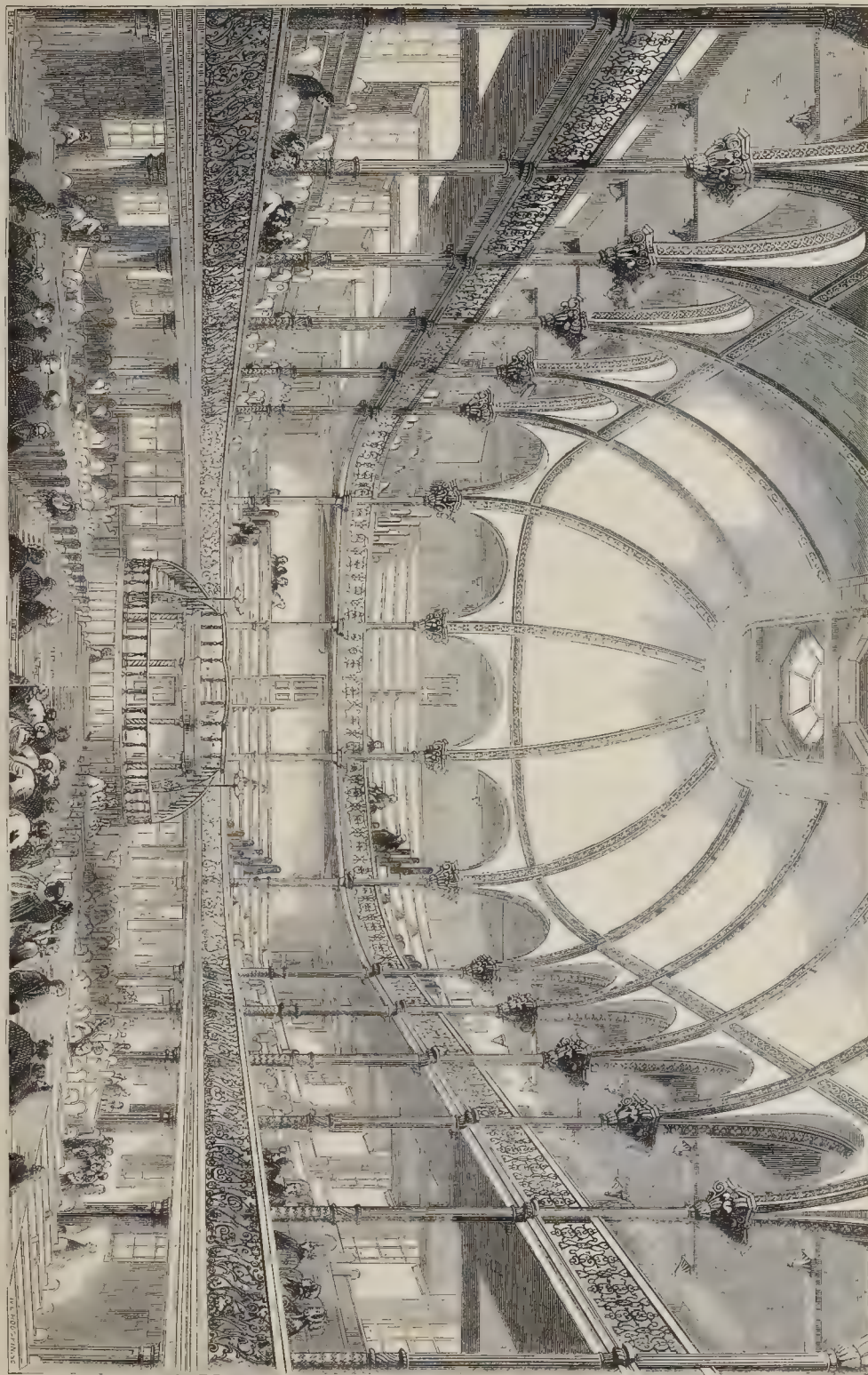
The following has been given to us as a correct comparison between the Surrey Gardens Music Hall and Mr. Spurgeon's Tabernacle:—

<i>Sitting Area.</i>			
Surrey Hall.		Feet.	Mr. Spurgeon's Tabernacle.
Ground-floor and platform	8,625		Feet.
1st gallery	4,598		Ground-floor
2nd	3,250		10,227
3rd	3,250		1st gallery
			7,268
			2nd
			7,730
			Total
			25,225

The Tabernacle affords seats, including 200 recently attached to the seat-ends, for 4,404 persons, with standing-room for a large number in addition.

The means of ingress and egress, including the staircases, have been avowedly arranged by the architect with special reference to the views we have at different times advanced on the subject, and are very satisfactory. There are in all fifteen doors,—eight for the ground floor, and the remainder for the galleries. The stairs have no winders, and are supported with iron columns and wrought-iron carriages. The flights are about 5 feet wide. The careful attention which has been paid in this respect is highly creditable to the architect. We have only to add that the building is lighted by lamps placed at short distances round the front of both galleries, and star-burners placed on the top of the abacus, all round, of each column. The colour is white, slightly gilded in parts. The cost of the building and inclosures has been 22,600*l.*; including the land, about 31,000*l.*

* A view of the exterior as designed (not as carried out), will be found in a previous volume.



INTERIOR OF THE METROPOLITAN TABERNACLE, NEWINGTON.—MR. W. WILMER POCOCK, ARCHITECT.

CHURCH-BUILDING NEWS.

Stammarket.—The foundation-stone of the new Congregational Chapel, to be erected in this town, has been laid. The principal front will be on the north side of the street, which has been opened out by the removal of three houses. It stands 80 feet back from the street, and is about 100 feet in length. The plan of the chapel is oblong, with the addition of north and south transepts, and it is intended to seat about 1,100 persons, including 200 children in the transepts. A gallery extends round three sides, the fourth side being occupied by the organ-gallery in an arched recess 40 feet high. At the end of the chapel, and communicating with it, are school premises, consisting of infants' school, 35 feet by 21 feet, on the ground story, to be also used for evening week-day services; and four class-rooms. Above these is a school-room 60 feet by 25 feet, opening to the galleries by inclosed lobbies, and having separate staircases for boys and girls at either end. The design of the exterior of the chapel is in the English Gothic style of thirteenth century, the materials being Kentish rag stone and Caen stone dressings. The clear internal dimensions of the chapel will be 65 feet by 46 feet, and 63 feet across the transepts by 22 feet wide. The design is by Mr. F. Barnes, architect, Ipswich; and the contract has been taken by Mr. H. B. Smith, builder, of the same town, for the sum of 3,500*l.*, including the old buildings on the site.

West Torrington (Lincolnshire).—A thorough restoration of the church of West Torrington is about to be commenced. It has been sadly mutilated and disfigured; the only remnants of the ancient church being the south doorway. Two south windows, and a beautiful Roman font were thickly coated over with paint. Plans have been prepared by Mr. Withers, of London, which comprise the extension of chancel to its original limits, new roofs, seats, windows, and double bell gable. A porch and vestry are also to be added. The wood-work will be of Petersburg red deal, and Ancaster stone will be used for all dressings.

Walsingham.—The restoration of the parish church will shortly be commenced. The expense of putting the interior into a thorough state of repair is estimated by Mr. Street, the architect, at 1,760*l.*, to which is to be added the cost of a suitable organ, 250*l.*, making a total of 2,010*l.* The parish of Walsingham is celebrated as containing the site one of the most famous of old abbeys. "Our Lady of Walsingham" was only surpassed in this respect by "Our Lady of Loretto," in Italy; and, before the dissolution of the monasteries, a pilgrimage to her shrine of Walsingham was undertaken, as a religious duty, by the devout of all ages. Robert Bruce and his Queen, and several foreign princes, besides our own sovereigns, Henry III., Edward I. and II., and Henry VIII., came hither as pilgrims; and of the latter, the tradition is that he walked the last mile of the way barefooted, in order to show his devotion.

Stony Stratford.—The new parsonage, from a design by Mr. H. Woodley, of Guildford, is approaching completion.

Cobham.—The parish church has recently been restored, under the superintendence of Mr. Scott; and the work having been completed, the church has been re-opened for divine service. The edifice is a small collegiate church, with nave, aisles, chancel, and square tower, in which are five bells. The ancient chancel screen has been removed from its present position, and converted into screens to form a vestry at the south-west corner of the nave. The ancient stalls in the chancel, which are of rude construction, have been restored. The gallery which disfigured the church at the west end of the nave has been swept away, and the area increased in size by an arch being opened in the tower, in the centre of which the ancient round roof has been placed. The windows into the chancel and nave, several of which had been either wholly or partially bricked up, have been entirely restored, although at present with plain glass only. The old high pews have been removed, and low open seats substituted. Instead of a bookshelf only, every pew is fitted with a desk capable of supporting a large-sized book.

Newland (Forest of Dean).—Preliminary measures for the restoration of the old church of Newland, in the Forest of Dean, have just been commenced. The church, which is dedicated to All Saints, is the mother church of Coleford, Clearwell, and Bream. Mr. White, of London, is the architect employed. Mr. White divided his estimate into three branches—1st, necessary repairs; 2nd, interior fitness for the use of the congregation; and, 3rd, works that are de-

sirable, but not absolutely necessary; the details being as follow:—

Necessary repairs	£ 120
Fitness for accommodation	300
Further desirable works	420
Chancel	250
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The Dunraven aisle	£ 175
The Probyn aisle	63
The Gage (or Beavan) aisle	80
If new clerestory nave roof	500
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Bell framing and stages	100
Incidentals	202
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Total	£2,600

The amount of subscriptions to the present time is between 1,000*l.* and 1,100*l.*, which the vicar had thus appropriated: towards necessary repairs, &c., 660*l.*; towards particular repairs, 400*l.*; leaving the sum of 378*l.* to be provided for necessary repairs. The parishioners have in the meantime resolved, at a meeting on the subject, "to begin the first portions of the restoration in two months, provided the sum of 1,400*l.* be in hand;" and they have appointed a committee.

Wellington (Salop).—The church at St. George's being unworthy of its object, and inadequate to the wants of the people, says a Wolverhampton contemporary, is about to be rebuilt, and the architect selected will be one of the following:—Mr. G. G. Scott, Mr. G. E. Street, Mr. B. Ferrey. The church is to be a memorial of the late Duke of Sutherland, and is to accommodate 800 persons or more. Viscount Hill, Archdeacon Allen, the Dean of Lichfield, and the Vicar of Lilleshall are among the promoters of the movement.

Willenhall.—St. Ann's Church has been consecrated by the Bishop of Lichfield. The edifice is built of a hard volcanic stone, from the Powk Hill quarry, near Walsall, with facings of stone from the quarries of Brewood and Codsall: the facings inside the building are of Bath stone. It is of the Early Decorated style of architecture, with a small tower at the west end, and will accommodate about 450 people. Inside the church the body of the building is divided into two parts by four arches, resting on three light circular shafts, and the southern of these divisions and the tower are the portions which have been lately added. The northern portion contains about 200 sittings, and has been used for the past two or three years under episcopal license; but, being too small for the requirements of the place, the building was enlarged, so that there are now 450 sittings, 150 of which are free. The chancel is at the eastern end of that portion of the building which has been lately added. About 1,200*l.* or 1,400*l.* have been expended in the extension of the building, and the cost of the original chapel-of-ease was about 1,500*l.* or 1,700*l.* The architect was Mr. Griffin, and the builder Mr. Horsman, of Wolverhampton.

Birmingham.—At a recent council meeting, the report of the burial board committee was brought up: it mentioned that considerable progress had been made in laying out and planting the grounds of the new cemetery, and that it was necessary for its protection that the boundary fences should be erected without delay. The committee recommended that the fence walls in New-lane and Moor-lane be constructed of stone of the same kind as that proposed to be used for the chapels and buildings, and at a total estimated cost of 6,000*l.* The committee advertised for tenders for the erection of the chapels and buildings, and received eleven tenders in reply. That of Mr. Charles Wright, of Nottingham, at the sum of 5,820*l.*, being the lowest in amount, had been accepted. The report having been received, a resolution was moved, authorizing the committee to carry out the recommendations contained in their report, at a cost not exceeding 6,000*l.* An amendment, postponing the consideration of the subject until the next meeting of the council, however, was carried, by a majority of 24 to 18.

Birkenhead.—Mr. Brassey has recently contributed 800*l.* towards the cost of a working men's church at Birkenhead, on condition that the sittings in the body of the church be free.

Kirtlington-Lindsey.—The parish church of Kirtlington-Lindsey has been reopened for divine worship. The church is a building of the twelfth century; but, having been rebuilt at later times, it has every period of architecture down to the fifteenth century; and, from the clerestory being of this date, together with the windows of the north and south aisles, this latter period seems to prevail, until a close inspection shows some specimens of the early period. The chancel has been rebuilt by the Ecclesiastical Commissioners, under the direction of their architect, Mr. Christian. The church has been entirely repewed with open benches. The roof has been enriched by the introduc-

tion of hammer beams and carved ribs. The south porch has been reconstructed into a baptistery, where a new font has been placed. The north porch has also been rebuilt in accordance with the earlier architecture of the church. The whole of the works have been carried out by Mr. Huddleston, of Lincoln, under the direction of Mr. J. H. Hakewell, architect. During the operations some interesting remains were discovered; among others a painting on the north wall of the north aisle, representing the emblems of the seven Roman Catholic sacraments.

Jarrow.—The New Connection Methodists at Jarrow intend to erect a chapel to accommodate about 300 persons. Designs have been furnished by Mr. Gibson Kyle, architect, of Durham and Newcastle, and the contract has been let to Mr. Wm. Prior, South Shields.

Sunderland.—For some time past, says the *Gateshead Observer*, St. Mary's Roman Catholic Church, in Bridge-street, Bishopwearmouth, has become too small for the congregation; therefore, funds have been raised, and a new church, named St. Patrick's, has been erected in Church-street, Sunderland; and, in addition to the new church of St. Patrick, the Roman Catholics on the Wear have purchased a piece of ground at Monkwearmouth, where they intend to erect a church and school-rooms. This piece of ground is said to have formerly belonged to the ancient monastery of Monkwearmouth, during the life-time of the venerable Bede.

Newcastle-upon-Tyne.—The foundation stone of a new church has been laid at Byker, by Sir Walter C. James, Bart. The site of the church, which will be dedicated to St. Michael, is a prominent one in Byker fields, on the west side of the village, on a piece of ground known as "Byker Folly." The church is decorated, and will consist of a nave, south aisle, and chancel, with a spire of moderate height. The aisle will be separated from the nave by a row of cylindrical columns, with octagonal caps. The roof will be an open timber roof, stained and varnished; and there will be seats for 490 persons, mostly free.

Banff.—Tenders have been accepted for the erection of the enclosing walls and keeper's house, of the new cemetery, for Banff. The contractors are—Mr. William Lawrence, Banff, for the enclosing walls and mason work of the house; Mr. P. Herd Culbuckly, for the carpenter work; Mr. Walker, Banff, for the slater work; Mr. Innes, Banff, for the plaster work; and Mr. Duthie, Banff, for the plumber work.

STAINED GLASS.

Brimpton Church.—A memorial window, from a design by Mr. White, of London, executed by Messrs. Lavers & Barrand, of London, has been placed in the chancel of Brimpton Church, by the Rev. Edward Cove.

St. Swithin's, Winchester.—Preparations are making at this church to insert the stonework of a window which is to be filled with a design in stained glass by Messrs. Powell, of London, at the cost of the widow of the late rector, and as a memorial of her deceased husband.

Yardley Parish Church.—This church, which is now undergoing internal restoration and repair, has just received the addition of a stained glass window, in memory of the wife of the Rev. H. Gwyther, vicar of Yardley, and her daughter, wife of the Rev. W. H. Hill, incumbent of St. Andrew's, Bordesley. The window is the gift of the Rev. J. H. A. Phillips, of Picton Castle. It has been placed in the south transept, and the work has been executed by Mr. Holland, of Warwick. The subjects are the Resurrection and Ascension of our Lord. The church will be opened for divine service in about two months, the restorations, which have been carried out under the direction of Mr. H. R. Yeoville Thomson, architect, being now nearly completed. They do not include the restoration of the chancel, the lay impropriator declining to contribute towards that object; nor is there any hope that the plastered ceiling of the nave will be restored, and the thirteenth century timbered roof, which is still perfect, disclosed to view.

Bromsgrove Church.—A new stained-glass window has been erected in this church, by Messrs. Lavers & Barrand, introducing a series of subjects illustrative of our Lord's life on earth. Commencing with the left-hand and lower corner, there are, in one line, and in the following order, the Annunciation, the Salutation of St. Elizabeth and St. Mary, the Nativity, the Presentation in the Temple, and the Flight into Egypt. In the next row are our Lord in the Temple with the Doctors, His subjection to His Parents at Nazareth, the

Baptism in Jordan, the Temptation in the Wilderness, and the Anointing of our Lord's Feet by the Magdalene. The next line above contains the Agony in the Garden, the Crucifixion, the Appearance to Mary Magdalene after His Resurrection, and the whole is surmounted by the figure of our Lord in Majesty.

Gloucester Cathedral.—A scaffolding has been erected in the interior of this cathedral for the purpose of removing the painted glass of the great east window prior to its entire restoration. The glass, we are told, will be forwarded to Messrs. Ward & Co., of London, by whom, under competent superintendence, the stained glass now remaining in the window will be preserved, and the window completed as nearly as possible in accordance with the original design. It is said to be the intention of the Dean and Chapter to erect immediately two windows of Munich glass in the north aisles. The memorial window to the Rev. Mr. Evans, in the south aisle, next the porch, will be completed in June; and the memorial window to be erected by Lady Davey in the south aisle will be commenced immediately.

St. Julian's, Shrewsbury.—The Chancel of St. Julian's Church has been enriched, by subscription, with a window of stained glass, by Messrs. D. Evans & Sons. The window is Venetian in design, the centre compartment being occupied with a copy of Raphael's Transfiguration. At the top, within an aureola of clouds, denoting the Divine presence, is depicted Christ, arrayed in light, with Moses and Elijah, as in the act of homage, conversing with him; whilst Peter, James, and John are prostrate in the foreground. The side-lights are occupied with four incidents connected with the life of Christ, each having a motto, viz.,—the Nativity, the Baptism, the Last Supper, and the Entombment.

Gloucester Parish Church.—A memorial window of stained glass has just been fixed in the Old Church of Oswestry. The window was executed by Messrs. Pilkington; the stonework by Mr. Vaughan. The window is in the Decorated style of the fourteenth century, and the coloured glass represents the following passage from St. Luke's gospel: "The spirit of the Lord is upon me, because He hath anointed me to preach the gospel to the poor: He hath sent me to preach deliverance to the captives and recovering of sight to the blind."

Glasgow Cathedral.—One of the three additional painted windows which arrived from Munich lately for the Cathedral has been erected in its place, and the erection of another is nearly completed. The former is the gift of the Duke of Buccleuch, and is placed in the south aisle of the choir. The subjects illustrated in the four divisions of the window are taken from the 15th chapter of Luke. In the two divisions on the right two incidents from the parable of the Prodigal Son are depicted, the first representing the prodigal resolving to return to his father; the other his father receiving him. The subjects represented in the other two divisions are from the text, "There is joy in the presence of the angels of God over one sinner that repenteth;" and, "Rejoice with me, for I have found my sheep which was lost." Beneath each group are the armorial bearings of the ducal house of Buccleuch, and above, the glass is filled in with geometrical ornamentation. The other window is the gift of Sir John Maxwell, of Pollok, and is in memory of his deceased wife. This window, which is placed in the north aisle of the choir, has three divisions, and the subjects illustrated are from the 13th chapter of Matthew—the parable of the sower. The middle subject represents the sower sowing the seed, from the text, "Behold, a sower went forth to sow;" the subject to the left has the words beneath, "Some fell upon stony places;" and that on the right, "But others fell into good ground." The third window, which has still to be erected, is the gift of Mr. Stirling, of Keir, and will be placed in the north aisle of the choir.

SCHOOL-BUILDING NEWS.

Ruishton. The *Taunton Courier* reports the laying of the foundation-stone of a new building intended for a boys' and girls' mixed Sunday and day school, at the entrance of the village of Ruishton. The design of the school, which was prepared by Mr. W. White, is in the Decorated Gothic style of architecture. The builders are Messrs. Hartnell & Macey, and the amount of the contract is 450*l*. The size of the building is 32 feet by 17 feet, and 25 feet high; and the exterior walls will be of Monkton stone, the dressings of doors and windows of Bath stone, with a bell-cot on the east gable. The whole of the interior timber-

work will be stained and varnished, and exposed to view. The roof will be covered with a dun-coloured tile, laid in pattern, with an ornamental crease.

Gloucester.—It is the intention of the Grammar School Charity Trustees to proceed with the erection of new schools immediately, according to the local *Chronicle*. The position of the new buildings has been settled, and instructions have been given to the architects, Messrs. Meland & Maberly, to use all possible despatch in preparing their drawings and specifications, for the purpose of enabling the builders to give in their estimates. The new buildings will be of brick, with stone-dressings, and comprise a large and lofty school-room, with three good class-rooms. A lavatory and play-shed will also be provided; and it is proposed to erect a five-court for the exercise of the boys during play hours.

Cold Ashton.—The new schools at Cold Ashton have been opened. They have been built, at a cost of 500*l*., as a memorial to one of the rector's family, without any assistance from the Government. The school-room is 40 feet by 18 feet; class-room, 12 feet by 15 feet, with porch. The schools are in the Gothic style, and are built with the stone of the neighbourhood, and Bath stone-dressings. The roof is open, covered with stone tiles. Mr. Pope, of Bristol, was the architect.

Handbridge (Chester).—The new school in Handbridge has been opened. This building has been erected at the expense of the Marquis of Westminster, to supply better and more extensive accommodation for the public worship of this populous part of St. Mary's parish, as well as to afford greater convenience to the parents of the neighbourhood for purposes of education. The new building consists of a school-room, with open-roof of woodwork, a class-room, a cloak-room, which may be used as a reading-room or library, with a house for a schoolmaster and mistress,—the whole completed from the designs of Mr. J. Hodgkinson, architect. There is also an enclosed playground in the rear of the building, which has been drained and laid down with gravel.

Smethwick.—The foundation-stone of St. Matthew's New Schools, at Smethwick, has been laid. The architect is Mr. Naden, and the builder, Mr. Ramsay.

Manningham (Yorkshire).—The erection of new national schools was begun some time ago at Manningham; and, on Easter Tuesday, the chief stone was laid by the mayor. The new schools are intended to supersede the national schools in Heaton-road. They are being erected from the designs of Messrs. Knowles & Wilcock, architects, on a plot of ground adjoining Church-street. The style of architecture is Gothic. The building will consist of two stories, and will include three rooms,—one for about 240 boys, another for about 180 girls, and the third for 180 infants. The schools for the boys and girls will be in the upper story. The school for the infants and the offices will be on the ground-floor. The principal elevation will front to a new street called Ambler-street. The cost of the building, with the site, will be about 3,140*l*. The sum now obtained amounts to 2,286*l*. The execution of the various works have been let to Messrs. Rhodes, masons; Mr. Thomas Taylor, joiner; Mr. Hargreaves, plasterer; Mr. Smithies, slater; and Mr. Hird, painter.

PROVINCIAL NEWS.

Norwich.—The corn exchange is now being taken down. The new exchange, which will be in the Italian style, with red and white brick and mouldings of Corsham-down stone, will be covered with an iron and glass roof, contracted for by Messrs. Barnard, Bishop, & Barnards. The contract for the building, exclusive of the roof, is taken by Messrs. Ling & Balls, for 4,880*l*., including an oak doweled floor. The height from floor to roof in the centre will be 67 feet, and the area of the hall will be 80 feet 8½ inches by 124 feet 7½ inches. The building will be under the supervision of Mr. Barry, the city surveyor. The architects are Messrs. Goodwin & Butcher, of London.

Washingley Hall (Huntingdonshire).—This property, belonging to the Right Hon. the Earl of Harrington, has recently been extensively altered and restored. The centre of the mansion has been entirely remodelled, and the south-west wing rebuilt. The works have been executed by Messrs. Sams & Bridge, builders, of Holme, under the direction of Messrs. Gilders & Brookhouse, architects, of Derby.

Oxford.—At a special meeting of the Local Board of Guardians for the purpose of considering the expediency of erecting a new workhouse, the Rector of Exeter moved—"That it is desirable

that a new workhouse be erected within one mile and a half of Oxford." After a long discussion, the motion was carried unanimously. The Rector of Exeter then moved—"That application be made to the Duke of Marlborough by the chairman and vice-chairman for the terms upon which his Grace is willing to sell a piece of land on the Woodstock-road for a new workhouse, and in the event of the answer being unfavourable, that the chairman and vice-chairman should be empowered to ascertain what sites can be obtained within the specified distance." The motion was also agreed to. In the course of the discussion several sites were spoken of, namely, at Jericho, near Jericho House; some land on the Woodstock-road; and a piece of land on the Abingdon-road, near Cold Harbour; but the general feeling appeared to be in favour of the Duke of Marlborough's land.

Portsmouth.—Mr. Myers, who is building Netley Hospital, has obtained the Government contract for building a ninety-gun battery, barracks, and hospital at Portsdown-hill, near Portsmouth. The contractor for supplying 10,000,000 bricks for the fortifications of Portsdown-hill is about to be selected. These fortifications, and their necessary adjuncts, will cost between seven and eight millions: a million and a half has been already voted.

Edinburgh.—Mr. D. McLaren, one of the City Council, has proposed a scheme for building a large public hall on a vacant piece of ground at the top of the new street leading into the High-street. The local *Post* commends the scheme, so far, as a very useful one, but condemns the site as an almost impracticable one for carriages. "But Councillor McLaren," adds the *Post*, "evidently mistakes the real thing wanted in this city. What the city requires is a suitable Town Hall, with ample accommodation for the lord provost, magistrates, the municipal courts, the police establishment, and also a large hall, all the offices being under one and the same roof. We require something like what the corporation of London has, or the corporation of Liverpool, or of Leeds, or Birmingham, and other English towns. So far the City Chambers present the germ of such a building; and in skillful and enterprising hands, we believe it might be converted into a suitable and handsome edifice. The large hall spoken of by Mr. McLaren should be part and parcel of such a plan, and not a separate building at all."

Rutherglen (near Glasgow).—The town council of Rutherglen have accepted offers for the erection of a new Town Hall and other public buildings. The designs are by Mr. Charles Wilson. The entire cost, including the site, will, we understand, be nearly 4,000*l*. The new buildings are to be erected in the main street of the town, immediately to the east of the parish church.

BELFAST, IRELAND.

The Town Council of Belfast met on the 24th instant, for the purpose of selecting a surveyor in the room of Mr. Hastings, resigned. As we stated last week, there were thirty-eight candidates for the office, which had been reduced to the four following:—J. J. Montgomery, C.E., Bradford; Jno. H. Archer, C.E., Belfast; James Frazer, C.E., Belfast; and Geo. Jno. Parfitt, C.E., Bath. On taking the votes, there appeared a majority of four for Mr. Montgomery, who was consequently elected.

There are few towns in a worse state as to sewerage than Belfast. Political affairs would seem to be a more congenial study with the Council than how to improve the sanitary state of the town. This conclusion is inevitably drawn from their antecedents.

So far as regards the pedestrian community of Belfast, and all who desire to inhale the pure sea-breeze, there could be no more desirable improvement carried out than that which has been commenced by the Harbour Commissioners, of connecting the Western Twin Island with the main land at Thomson's Bank. This, when completed, will form a healthy and agreeable promenade, and will ultimately prove an important extension of the harbour. And we hope to see, before many years, a line of rails laid there, for the carriage of heavy goods. We are surprised that the revenue station was built on the present site, instead of on the Western Twin Island, whither it will probably be removed as soon as the contemplated improvement alluded to above is completed.

Good often comes out of apparent evil. The depressed state of trade amongst the Ballymacarrist weavers, and the consequent destitution of a number of families, have led to an effort being made for their relief by providing employment for

the able-bodied males, on a new road leading to the intended people's park.

The site of this park is ground reclaimed from the sea, and lies very little above the level of low water. It has been allocated for this purpose by the Harbour Commissioners; but no provision was made in their Act for providing funds to put it in such a condition that the inhabitants could even walk on it. The construction of the present road leading to it is, however, one step towards rendering it available; and we hope soon to see some method adopted for raising the sum necessary to fill it up, make walks through it, and such other improvements as may be required for health and recreation.

THE FIRST DRINKING-FOUNTAIN IN BRADFORD.

The first public drinking-fountain erected at Bradford was inaugurated by the mayor, on Saturday, the 27th inst. The fountain has been erected at the junction of Manor-row and North-parade, by the Band of Hope Union of this district and their friends, at an expense of 200*l*. It is built in the Italian style of architecture, from the designs of Mr. T. C. Hope, architect, and has been very creditably executed by Messrs. Stake & Co., of Bradford. Square on the plan, it has angle pilasters, and detached columns of the Corinthian order, at each corner, coupled together by dwarf pilasters and arches. On the keystone of the arches are carved children's faces: the spandrels are ornamented with bulrushes and scroll enrichments, on the alternate sides.

The pillars and arches support an entablature, with modillion cornice, from which springs a panelled dome, surmounted by an octagonal cupola and ball. The dome is square, and at the angles are raised ribs, on each of which is carved a stem of the leaves and flowers of the convolvulus, terminating in carved scrolls against the sides of the cupola, and linked together with festoons of flowers. The pillars stand upon a moulded base, 2 feet 6 inches high, of which the four drinking basins form a part. The upper member of the cap of the base is continued to form a semicircle above the basins; and in the space thus circumscribed are carved groups of water flowers, from which the water issues. The basins are circular, carved in stone, and moulded.

The space covered by the dome is occupied by the large fountain basin; and in the centre of this is a stone vase, from which springs an ornamental jet of water. The overflow from the fountain basin supplies a dog-trough at the foot of one of the drinking-basins. The whole structure is raised two steps above the street, the upper steps being 3 feet 6 inches wide. It is 10 feet square at the base, and 24 feet 3 inches high, from the street to the top of the ball.

RAILWAY MATTERS.

FROM an analysis of the position of the twenty principal railways of the United Kingdom on 31st December last, it appears that of the total capital raised 49.80 per cent. is ordinary capital, 22.65 preference and guaranteed, and 27.55 loans, debentures, and debenture stock. It also appears that the gross traffic receipts realize only 8.69 per cent. (under 8½) upon the total capital raised, and that the net receipts give an average interest on the total capital of 4.75 per cent. (4½); but that the preferential charges and guarantees reduce the average interest on the ordinary capital to 4½ per cent. As regards the rate of dividend, the Midland and the London and Brighton occupy leading positions, while the Eastern Counties, and the Manchester, Sheffield, and Lincoln, are at the bottom of the scale.

The traffic returns for the week ending April the 13th amounted to 521,633*l*, and for the corresponding week of last year to 502,342*l*, showing an increase of 19,291*l*. The gross receipts of the eight railways having their termini in the metropolis amounted to 232,118*l*, and for the corresponding week of 1860 to 226,766*l*, showing an increase of 6,352*l*. The receipts on the other lines in the United Kingdom amounted to 289,515*l*, and for the corresponding week of last year to 276,576*l*, showing an increase of 12,939*l*.

In reply to a question in the Commons, Mr. M. Gibson stated that a deputation of engine-drivers had represented to the Board of Trade that they were overworked, and prayed for a limitation of their hours of labour at a reduced rate of wages. Mr. Gibson said his reply was that the Board of Trade could not interfere; nor did he think the Legislature would. He added that he had heard with great astonishment the statement the deputation

made as to the long hours the engine-drivers had to work. Now, considering that the public safety so much depends upon engine-drivers in railway travelling, it is right that the Government and the legislature should take no heed whatever whether overwork, to such an extent as to excite astonishment, may not totally unfit such men for giving proper attention to the public safety?

Iron railway carriages are being introduced on the railways of the United States. The sides are made of corrugated sheets, and are of two thicknesses, with a space between. The advantages claimed are greater lightness, strength, and durability, than are possessed by the present wooden carriages, and a saving in weight of 30 to 35 per cent. Another advantage claimed is greater safety than in wooden carriages. In cases of accident, the greatest damage is generally done by the splintering of the timbers. The worst that can possibly happen to an iron carriage is severe indentations and bruises. The idea is not so new as it seems to be regarded in America.

BRICK VAULTING: STABLES NEAR THE STRAND.

SNUGLY lying in an obscure position between St. Clement Dances and the river, near Arundel-street, a large structure has been erected for Mr. W. H. Smith, of the Strand, under the direction of Mr. F. H. Groves, architect, which displays some excellent brick vaulting. The building includes a series of vaults, averaging about 60 feet square, entered from the lower part of the hill near the river, arched over on the fan-groin principle, a segment of a circle being the section on the diagonal line, carried partly on brick piers and partly on iron pillars, and mainly divided into squares of 12 feet 6 inches by 12 feet.

The floor next above, which is entered from the high part of the hill near the Strand, consists chiefly of stables, also arched over on the fan-groin principle, an elliptical curve being the section of the diagonal line, springing from the side walls and iron pillars (forming the alternate heel posts of the stalls), and mainly divided into squares of 12 feet 6 inches by 9 feet. One of the compartments, owing to an alteration at an advanced period of the work, is of the width of three stalls, being 18 feet by 19 feet 3 inches; and this the architect has vaulted with ribs and panels, of red, malm, and white bricks. It is well done, and, so far as we know, is unique.

The two upper floors consist of workshops, entirely clear between walls. The works have been very well executed by Messrs. Wardle & Baker, builders, at a cost of from 5,000*l*. to 6,000*l*.

PROPOSED NEW CHURCH IN THE CHRIST CHURCH RECTORY DISTRICT, SAINT MARYLEBONE.

AN appeal is being made for assistance in providing a church for the population attached to Christ Church district,—a population estimated at more than 20,000,—densely settled upon an area of no great extent, the district being bounded by the Marylebone-road, the Edgware-road, Earl-street and Upper Park-place, and Upper Baker-street. A few gentlemen formed themselves into a committee, some months ago, to procure the building of a new church. After some of the usual difficulties, a site was fixed upon, and negotiations for the purchase of it were begun and have been concluded. The committee are now in possession of the spot called Smith's Cottages, including a house in Bell-street. Upon this it is proposed to build a small church, to hold from 600 to 800 persons. In order to prepare a congregation which may occupy the church as soon as it is built, it was determined to erect a temporary iron building, in which a boys' school might be held, and Church Services performed. A school-church has accordingly been erected in Manning-place, Bell-street, capable of accommodating 250 persons. The cost of the site, including incidental expenses, will be under 3,000*l*. The outlay for the church cannot be reasonably put at less than 4,000*l*. The cost of purchasing and fitting the temporary building will be about 500*l*. The whole amount to be raised is, therefore, about 8,000*l*. The sum already contributed, chiefly by the congregation of Christ Church, is about 2,500*l*. The Diocesan Church Building Society has made a grant of 200*l*. towards the cost of the site, and another of 150*l*. towards the temporary church; and it is hoped that substantial assistance may be obtained from the same society towards the building. To obtain the large sum yet wanted (about 5,500*l*.), the committee

rely on the aid of those residents and owners of property in the district who have not yet contributed, of the parishioners of the old Christ Church district and of St. Marylebone generally, and of the metropolitan public.

ROYAL ITALIAN OPERA.

THE production of "Guglielmo Tell" has been attended with complete success; singers, orchestra, manager, and scene painters having all concurred to produce a remarkable whole. We do not forget that time when Mario in his best days was like Arnoldo, but with such artists as Tamberlik, Faure, Fornes, and Madame Carvalho, the best that can now be had, it is unnecessary to look back; and we may be well contented to praise and enjoy. The close of the second act, when, after the trio by Faure, Tamberlik, and Fornes, the inhabitants of the Cantons assemble and unite in

"Giuram, giuramo
Pel nostro onor,
Fe' nostri danni,"

closing with *All' armi! All' armi!* is one of the finest things ever done on the Covent Garden stage; and that means ever done anywhere. The scene in which this takes place, a valley amongst the mountains of Rutil, by moonlight, with the lake of the four Cantons and the village below, is very beautiful. The first scene, too, the same village on the lake, with Tell's chalet at the side, and lofty mountains in the background, is an excellent piece of work. The overture was played to perfection.

THE "BUILDER'S" LAW NOTES.

Power of Sale.—*Minerals.*—Land was devised to trustees with an absolute power to sell or exchange such land. A question arose as to whether the power included minerals, though not named; and the Master of the Rolls has decided that, both on principle and authority, the land could not be sold without including the minerals as part of the property sold.—*Buckley v. Howell*.

What constitutes Acceptance of Goods?—Certain goods from abroad (worth more than 10*l*.) were in the hands of a warehouseman. The delivery order was given to a purchaser, who sent his servant with horse and cart to remove part of the goods. They were delivered by the warehouseman to the servant, and removed to premises of the purchaser, who sent them back, stating that they were not such as he had agreed to purchase. It has been held by the Court of Queen's Bench, that the purchaser was too late, for that before sending for a part he ought to have gone and examined them, and that he had no power to reject any after removing a part; the acceptance being complete on his taking possession by his servant.—*Baylis v. Lundy*.

Turnpike Road.—*Injury to Land.*—The trustees of a turnpike road made and maintained certain catchpits for carrying off water from the road so negligently that large quantities of water ran into the plaintiff's lands and collieries by means of which he sustained great loss. He complained, in July, 1859; and the defendants made alterations. He was again injured in December, 1859, and soon brought an action. It was objected (among other points) that the action was not in time, as it was not brought within three months, as directed by the Turnpike Road Act, 3 Geo. IV., 126. But it was held that the action was in time; as, though the cause of action first occurred when the plaintiff received actual damage, the continued negligence caused fresh damage, and thus brought the plaintiff within the time limited.—*Whitehouse v. Fellows and Others*.

Wording of a Guarantee.—A letter of guarantee was in these words: "The bearer, my brother-in-law, who is on his way to New York, wants to purchase some goods in your line. I have recommended him to your house, hoping you will do the best you can for him; and any accommodation he may require I will feel obliged by your giving: he will give his bill, and I will guarantee the payment." It was held that the guarantee was for one transaction only, and was not a continuing guarantee.—*Gatke v. Caan*.

Property acquired after Date of Will.—A person made a will, bequeathing to his son certain leasehold premises, and his interest in certain partnership work-in-trade connected with the said premises. After the date of his will he obtained the lease of other premises, at which a portion of the partnership business was carried on; the rent, outgoings, &c., being paid out of the partnership assets. It was decided that, under these circum-

stances, the interest of the testator, obtained subsequently to the date of his will, passed to his son, as well as that possessed by him at the time of its being made.—*Re Robson.*

Poor rate.—Where property has been rated to the poor-rate, and it has been decided that such property is exempted by reason of the occupation not being beneficial, the party so rated cannot maintain an action of replevin for a distress made to enforce such rate, but he must seek his remedy by an appeal to the quarter sessions.—*Re Mersey Docks.*

IMPROVEMENTS IN DWELLINGS.

CERTAIN well-timed remarks in your last impression but one prompt me to trouble you with one or two observations on the homes of that large class constituting a grade lower in means than the middle-class of London population.

In the first place, with respect to ventilation: what use is it to ventilate upstairs when the sink-trap is left open in the back kitchen by the servant, mistress, or charwoman? There is a sink *water self-acting* trap advertised in your paper, which seems to rectify the evil. It is most vexatious to open windows all up the house and find the wretched back-kitchen *sink*, and the as wretched closet, doing their best to pour their *lyphoids* and unseen fungi of disease upwards with the draft, to destroy the trunk and olive-branches of the family tree, "root and branch."

In the second place, though our sinks are execrable, if improved we shall want more of them. Mrs. Scourbrat, with four babes, takes a second-floor: her husband earns thirty shillings a week. He is very respectable; but how can Mrs. Scourbrat scour her brats up over so many pairs of stairs, without a sink, as she says, "to throw the suds down?" Consequently, little Tom or Rachel, or their socks, or something, as the floor or stairs, go without wash. Water, sir, should be laid on to every floor, in these days of improved pipes in lead, gutta-percha, and india-rubber. The water companies may have the right to charge a little more money for the boon. Let them do so.

Thirdly, with regard to getting rid of dust and refuse. Pawnbrokers use a *spout*. Now a spout is wanted down which dust and all refuse may be swept; a sort of chimney *upside down*, shut off, and communicating with every floor; and the dust-bin or receptacle being arranged *not* near to sources of house ventilation. Of course the children must not fall into this *hopper*, to astonish other lodgers or to break their necks, but that can be prevented by having the inlet raised high enough from the ground.

Fourthly, cooking by gas should be resorted to in summer; and if the burner, taps, and the joints are made air-tight (as Strode makes them, and I dare say many others),—not without,—then gas is the cheapest mode of illumination. I have been told this day that the gas-lighting of the Great Western Railway carriages costs about *one-seventh* the price of oil illumination; though this I doubt. By using gas in summer to boil, &c., consider how much soot is saved on utensils, smoke in rooms, dust on hearths, carriage of coals or cinders, blackleading of grates, cleaning of shovels and pokers, &c.: of course at all times, even in summer, gas alone cannot be used with advantage.

Fifthly, our lower class house rooms are faulty. Papered walls are a mistake for poor people. Too much of carpets is a mistake. *Coiled "overheads"* are a mistake. Let the timber in these days of steam *tonguing, grooving, and planing, show itself, for this reason* :—then we can see what will bear nails for hanging up our goods and chattels, as Crusoe covered the walls of his cavern. Many of us, sir, are respectable and well educated, and yet (woe be it!) poor are we as charity. We want *every corner*, and even to see the beams overhead, to hang the children's swings to, or maybe some line or useful appliance. The beams may be ornamented easily, if desirable.

Of course those who look to show, and crinoline, and custom, and fashion, will not approve my suggestions; but health and economy are nowadays wanted, indeed, to the classes I refer to.

The *Saturday Review* declares that statistics incontrovertibly show that Londoners are becoming more and more *enfeebled*,—that actually stimulants are becoming a *necessity* of the nature of our modern life.

Sixthly, baths. Who that is poor can have a good wash now-a-days? Let every floor give us a good trough and water, and sink, and broad hobs, instead of barbarous absurdities in cast iron, so that we can get hot water easily. Any bachelor likes his bath: maybe he is feverish;

but he won't bother others about it. If I am reading and perplexed, I like to step from a easy chair into the delicious fluid which opens every pore.

Seventhly, with regard to *sound*: felt will settle this: felt between woodwork; or open spaces, assisting purification and ventilation. All windows must open at the top, or should be smashed with a poker, as a morally justifiable revenge.

Eighthly. These different advantages can be ensured cheaply and easily by a shrewd architect bent on serving his fellow-creatures. If houses are built with only two floors in the outskirts of London, it will be a great advantage: by suitable corridors, entries, and *bell handles*, several families may reside conveniently under one roof. The accommodations behind the house should be amended.

P.S.—The cheap lodgings of Piccolo are perfectly appalling in their tinselled, shabby, cobwebbed grandeur: all *show*; no *use*; no delicious old upboards.

FURNISHED HOUSES.

AMONG the many schemes in operation or in contemplation for the public accommodation, no provision, on a large and economic scale, has yet been suggested for the numerous residents in London who are obliged to make their homes in furnished or unfurnished apartments. The uncertainty of tenure, the insecurity of property, and the general dirt and discomfort of most of these lodgings are notorious. An establishment on a large scale, placed under judicious management, and let in suites of rooms to persons of known respectability, at rents ranging from 30*l.* to 50*l.* per annum, and all neatly but not expensively furnished, would, I think, be a profitable investment. The situation should be within easy walking distance of the City and the West-end. There is a plot of ground now being cleared at the top of Tottenham-court-road well adapted to the purpose, if it could be secured at a moderate rent. The capital would be easily raised by a company, as calculations would show a large profit on the shares, and the offer of a preference in the choice of apartments would be an inducement to many persons, who are in a similar position with myself, to become shareholders.

A RETIRED TRADESMAN.

ROAD ACROSS HYDE PARK.

It has been reported in the daily papers that Mr. Cowper (Chief Commissioner of Woods, Parks, and Buildings) lately declared in the House of Commons that he could not devise any practicable plan of making a road across Hyde Park; and he apparently regretted that the railway, intended to have been made subterraneously under the Broad Walk from Bayswater to Kensington, was withdrawn. As to the tunnelled railway we give no opinion; but as to the road across the Park, so often advocated, we think we can point out an inexpensive and yet effectual line, which will be as free from objection as the nature of things allows.

Hyde Park and Kensington Gardens together extend from Park-lane for about a mile and a half along the Uxbridge-road on the north, and a rather greater distance on the southern highway; far too great a space to be thus enclosed from traffic, especially as the districts on either side have now become so populous. The proposed road should, of course, for public convenience, be as near as may be to the mid-length of this great space of ground—650 acres. Now, although forming but one great block, it so happens that there are really two separate and distinct parks, shut off from each other at night, opened and closed at different hours of the day. What, then, is more simple and free from objection than to form the road on the boundary between the two parks, and enclosed from both? That is, entering on the north at the foot of Westbourne-terrace, and running along the "ditch" at the east of the brick wall which encloses Kensington Gardens, passing down to the Guard House, then over the Serpentine Bridge (a 50 feet roadway), and across Rotten-row into the main road opposite Exhibition-road. This new road would be in a cutting for the northern half of its length, which would be a recommendation rather than otherwise; and in the southern half it could either pass under or over Rotten-row; or, indeed, the latter could be turned in a semi-circle, and continued back to Apsley House, running near the main road. We are aware that Rotten-row (sacred to cavaliers) must be preserved as a gallop at all hazards. The present brick-faced

"bastions," which are neither very ornamental nor useful, could be removed for the sake of straightening the new road; and the latter could be effectually enclosed from both parks, with the exception of a few gates or two light suspension bridges; so as to dispel all bugbears as to the danger of children getting into the carriage roadway. Such a road ought to be well lighted, and to be kept open night and day to all vehicles and pedestrians whatever; otherwise its use would be vexatious and partial.

H. & R. P.

* * We have inserted the above communication to give the freest discussion, but we must again refer to Miss Martin's plan for a tunnel, under the broad walk in Kensington Gardens, which was illustrated in these pages. Mr. Cowper evidently inclines to such an arrangement. Why should it not be carried out?—Ed.

A JOURNEY TO KEW 7-14 THE NORTH LONDON RAILWAY.

SIR,—Seeing in your last impression an article headed "Metropolitan Railways," in which you mention the great inconvenience arising from the changes and stoppages on the North London line, you will perhaps allow me a corner in which to state my personal experiences and grievances.

On Good Friday I had an appointment with a friend at Kew at half-past three in the afternoon, and I was foolish enough to imagine that, if I arrived at Stepney at two o'clock, I should be all right. It was about ten minutes to two when I entered the station, and found the ticket-place not "get-at-able." There is only one for five different lines. However, I managed to get a ticket at last, and found a train waiting, and thought I was very lucky.

It was now about two o'clock. Presently a whistle and off we went at a pretty smart pace for about ten minutes; then a stop, and "Bo—Bo—Bo," shouted out by a railway-porter. Left "Bo," but soon after came to another stop, with an embankment on each side, and the engine commenced blowing off steam; and, to make the music all the more grand, as I supposed, under an arch. Stopped twenty minutes, and then went off again, the next station being "Toria park—Tuck-wick." Waited ten minutes, most of the passengers out of the carriages looking at the music going on in the gardens of the White Lion Inn, when off we went again.

Nothing of any importance occurred till we arrived at "Cam-road—change." I waited on the platform, which was so densely crowded that I was nearly pushed off,—for about twenty minutes, when the Kew train came up, and I got in.

I imagined I should soon be at Kew; but judge of my astonishment, Sir, when I found I was being driven back on to a siding, where I was kept for at least three-quarters of an hour, while several trains passed, both up and down.

At last we started for Kew, and it was five o'clock when we arrived—something like 10 or 12 miles in three hours. I was just in time to catch my friend as he was about to enter the other station, to return to London, and had the satisfaction of being told that I was an hour and a half behind time.

By the time-table, and according to the porters at the station, a train would leave for London at five minutes past eight, so, to be sure of being in time, I returned to the station ten minutes to eight.

I waited very patiently on the platform for half an hour, feeling very cold, for it was too crowded to move about, and then asked the porter, "And all the time the train really would be in?" "Expect her every minute, sir," was his answer.

For the information of yourself and readers, I beg to inform you that five minutes past eight, or rather, "every minute," means exactly half past ten, the time at which the train arrived at Kew: consequently I reached Stepney at twelve o'clock, mentally resolving never to trust the London Railway again. And all this worry and vexation cost is, 4*d.* ;—rather a dear pleasure trip for one who obtains a holiday once in an age.

PUNCTUALLY.

SUGGESTED OUTLINE OF A SCHEME FOR FORMING AN ARCHITECTURAL ALLIANCE.

THE following paper, with a letter, has been sent by the Northern Architectural Association to the Royal Institute of British Architects and the various architectural associations:—

1. That it be called "The Architectural Alliance."
2. That although, for the present, it is desirable to confine it to the direct furtherance of the extension of its operations to other countries shall be kept in view.
3. That its object shall be to promote united action among the otherwise isolated architectural societies, and to the establishment of new local societies where not now existing.
4. That it shall take cognizance of all matters affecting the interests of the profession. That for this object it shall especially direct its attention to the present unsatisfactory mode of conducting competitions, and shall endeavour, by the publication of a scale of charges, to regulate the rates of professional remuneration.
5. That all architectural societies giving in their adherence at or before the first meeting shall constitute the nucleus of the Alliance; and in future all architectural societies shall be eligible for election in the mode hereafter provided.
6. That any society wishing to join shall be proposed, in writing, by a society already in the Alliance, through their secretary; that such proposal shall be sent to the secretary of the Alliance, at least one month before the annual meeting, and shall state the title of the society proposed, and the names of its chairman and secretary. The name of the society so proposed shall be inserted in the notice convening the meeting, when the election or rejection of such society shall be decided by ballot.
7. That the business of the Alliance shall be conducted

by a president, vice-president, treasurer, honorary secretary, and delegates from each society in the Alliance.

The delegates shall consist of the chairman of each society in the Alliance (*ex officio*), four members appointed by the Royal Institute of British Architects, three members by the Architectural Association of London, and two by each provincial society, or any less number they may see fit to appoint; all to be appointed annually.

The president, vice-president, treasurer, and honorary secretary, to be elected annually by ballot by the delegates. All correspondence shall be conducted by the secretary of the Alliance and the secretaries of the various societies composing it.

8. That the annual meeting shall be held on the first Tuesday in June in each year, and other meetings may be held as hereafter provided for.

9. All members of each society in the Alliance shall have the right to attend the meetings of the Alliance on introduction personally by one delegate, or by a card of introduction from one of them; but delegates only shall have the power to speak or vote.

10. Questions may be brought under the cognizance of the Alliance by any society writing through their secretary to the secretary of the Alliance, who shall then ascertain the views of the other allied societies, and report to each the general feeling. On the requisition of a majority of the councils or committees of the various allied societies, the secretary shall call a special meeting of the delegates for the consideration of any question that may arise. To such special meetings provincial societies may send all their delegates, or one delegate with three votes, or may excuse their three votes by proxy through any other delegate.

11. That the officers of the Alliance shall prepare a report of the proceedings of the Alliance for each year, to be laid before the annual meeting; and it shall be competent for such meeting to alter or amend it, and to order it to be printed if they see fit; in which case a copy shall be sent to each member of every society in the Alliance.

12. That every society publishing a report of its proceedings, or of any paper read before it, shall present a copy to every other society in the Alliance.

13. That any member of a society in the Alliance shall have the privilege of attending (but not of speaking or voting) at the meetings of any other society in the Alliance, provided such member be introduced by letter from one of his own delegates, or personally by a member of such society.

14. That each society shall pay the expenses of its own correspondence, and shall make arrangements with its delegates as to their expenses, and the expenses of the Alliance (stationery, postage, printing, &c.) shall be borne equally by the allied societies.

The Northern Association suggest that delegates should be appointed to meet in London on the first Tuesday in June, to discuss the details of the scheme.

THE ARCHITECT AND HIS CRITIC.

To give the general public a passing glimpse of the "sweets" attending the avocations of newspaper correspondents, who wish to write fearlessly and independently in the interests of the public, the *Daily Mail* (Scotland) gives the following as a *bonâ fide* dialogue. Place, Rothessy; time, last Saturday, three in the afternoon. A shopkeeper is behind his counter, poring over his day-book. Enter a jobbing architect, somewhat excited:—

Arch. Are you the editor of this paper?

Corres. (gruffly). No! thank God, I was never an editor.

Arch. Do you write its news from this district?

Corres. You have no right, sir, to ask such personal and direct questions.

Arch. You are reported, however, to do so.

Corres. Well, what of it? Be quick, I am busy.

Arch. Look at this paragraph [gets excited], and read it.

Corres. What paragraph? [Takes hold of newspaper and is shown a paragraph of very commonplace character, where a gentleman, slipping his foot, falls on a stair and receives a severe contusion. The paragraph says that the stair is "narrow, winding, and spiral."]

Arch. (ironically). Well! have you read it?

Corres. Yes; and what about it? I read nothing in it objectionable.

Arch. (emphatically). "Narrow!" "winding!" and "spiral!" Do you know the architect of that stair, eh?

Corres. (dimly beginning to see the drift of the visit)—Not I! Never knew that stairs needed much architecture.

Arch. Then your education would appear to be neglected. I am the architect of the stair, and you have insulted me.

Corres. I have done nothing of the kind. I am busy: what do you want?

Arch. I want an apology.

Corres. An apology!—an apology for what?

Arch. For the stair: "narrow," "winding," and "spiral"—why, it is abominable. I planned it with my own hands.

Corres. I have no doubt the stair does you credit; but I am not in the "apologizing" vein. Good-bye!

Arch. I'll write the editor by this post, and expose the whole concern.

Corres. Do, do. Good-bye!

[Correspondent retires to his back sanatorium in perfect disgust with newspapers, stairs, and the

world at large; and exit the architect, muttering with much emphasis, "Narrow, winding, and spiral! I'll write the editor!"

PATENTS CONNECTED WITH BUILDING.*

A PLASTIC COMPOSITION FOR FINE ART WORKS, BUILDING PURPOSES, IMITATIONS OF MARBLES, ANCIENT CARVINGS, &c.—*W. Kirrage and A. Ripley*, Albion-place, Vauxhall. Dated 30th August, 1860. The patentees claim the amalgamation of animal and vegetable gelatines, glutens, or albumens, with a portion of caoutchouc, oils, or animal fats in a liquid state, to mix with sulphate of lime, gypsum, China clay, French chalk, or other cements, to form a plastic material capable of being moulded or rolled to any required form.

COMPRESSING BRICK EARTH AND OTHER MINERALS.—*W. Grimsham*, Lower Broughton, near Manchester. Dated 6th July, 1860.—This invention consists, first, in an improved mode of stopping the pistons of those machines in which the direct action of steam is employed for compressing brick earth and other materials, in order to produce bricks and other articles of a uniform thickness; secondly, in admitting steam to the top of the piston after the stroke has been given, in order to bring the piston down so as to be in its proper position for the succeeding stroke; and, thirdly, when compressing articles that do not require to be of a uniform thickness, but where the full force of the steam is required, in providing a passage for the escape of the steam when the mould fails to receive its proper supply.

BLOCKS FOR BUILDING PURPOSES.—*Sir J. S. Lillie*, Pall-mall, London. Dated 23rd August, 1860.—In carrying this invention into effect, the patentee takes stone, flint, broken bricks, clinkers, or other hard material, and unites the same by bituminous compounds or other cements cast in moulds of such form, shape, or size, as may be required, being rectangular for perpendicular walls, and in segments of circles for arches, sewers, tunnels, &c.

VENTILATING BUILDINGS, VESSELS, AND MINES.—*A. V. Newton*, Chancery-lane, London.—A communication. Dated 9th August, 1860.—This invention relates to the employment of an air duct or passage heated by a flue or steam-pipe passing through it, in such a manner as to rarefy the air within it, and create an upward current therein, for the purpose of carrying off the impure air, such air duct to be in combination with another duct or passage for admitting pure air.

CHIMNEY-TOPS.—*J. Billing*, Abingdon-street, Westminster. Dated, 14th August, 1860.—In difficult cases the patentee constructs a number of bars of gutter-shaped form, and he places several of them in proximity, and parallel to each other, or radiating to a centre. If a grating, a fan, or star be thus formed, it will be easily permeated by a current of air in one direction, which will be guided by the gradually-contracting passages between the bars; while, if a current of air be moving in the opposite direction, it will enter the gutters and regurgitate and be reflected backwards, and thus oppose a great resistance to the passage of the air. The gutter bars may be made separate, or several may be made in one piece, and they may be constructed of wrought or cast iron, or zinc, or terra-cotta, or other suitable material. He applies these gutter gratings in various ways. Thus, he constructs the tops of a row of chimneys with cones, or pyramids and partitions, and he places over each cone or pyramid, and a few inches above them, two inclined gutter gratings meeting in the centre.

TREATING SURFACES OF INTERIORS AND EXTERIORS OF BUILDINGS.—*P. Pizzi*, Winey-street, London. Dated 11th July, 1860.—The patentee takes common mortar, and coats or spreads the surface to be operated upon to the depth or substance of about $\frac{1}{2}$ inch to $\frac{3}{4}$ inch. He then gives it a second or additional coating composed of fine sand, lime, and water. The surface so prepared is then allowed to dry and becomes hardened. He now takes in suitable proportions lime, water, soap, soap-stone, or French chalk, to which he adds a small quantity of an alkali or liquid salt of ammonia, which must be well mixed together to form a liquid substance. With this mixture or composition he washes over the surfaces, previously prepared as above, with a brush or other instrument, and afterwards paints or colours them according to the kind of marble or stone to be imitated. And, lastly, he smooths and polishes the surface with a trowel or other suitable instrument. By this process the surfaces so

operated upon will (it is added), become petrified, fixing the painting or colouring indelibly therein, and at the same time rendering them impervious to the action of the atmosphere and other elements.

ORNAMENTING GLASS SURFACES.—*F. Boer*, Brussels. Partly a communication. Dated 10th July, 1860.—This invention relates to a novel mode of ornamenting glass, chiefly as panels for the walls and doors of drawing-rooms, and for ornamental furniture. The invention admits of various modifications, but the principle consists in obtaining a design on a reflecting surface of silvered glass.

ORNAMENTING THE EXTERNAL WALLS OF HOUSES, &c.—*R. J. Cole*, Pembroke-gardens, Bayswater, London. Dated 18th September, 1860.—The walls or partitions are to be covered with a thin coating of cement; and thereon, in suitable frames, or embedded therein, is to be placed glass, ornamented in stencilled designs; or, by painting with oil or varnish, colours in any desired device; or the designs may be burnt in or transferred to the under surface of the glass, and thus fixed to the walls or partitions, as above described. In some cases it may be desirable to have the device painted in fresco, or otherwise, on a properly prepared wall or partition, and then to cover such design with plain or coloured glass, so as to present an ornamental exterior protected by the surface of glass from atmospheric and other influences. [This covering of external decorations with glass was patented (if we mistake not), long ago by the late Miss Wallace.]

HANGING DOORS.—*J. A. Callander*, Springfield House, near Ryde. Dated 28th September, 1860.—The object of this invention is to hang the folding doors, or single doors of rooms, in such a manner as to slide them with their posts into cavities or recesses formed for their reception in the wall or partition, the door being hinged on to the door-post in the ordinary way.

Books Received.

The Strains on Structures of Ironwork; with Practical Remarks on Iron Construction. By F. W. SHEILDS, M.Inst.C.E. London: John Weale, High Holborn. 1861.

MR. SHEILDS was engaged in 1852 at Sydenham, to assist in calculating the strength and designing the details of the Crystal Palace Company's works. He found great difficulty in acquiring a complete knowledge of the strain on the several parts of iron framings, and his subsequent practice arising in great measure from the former connection having been to a considerable extent of a similar character, he has laboured to supply the deficiencies in this respect in the works of previous authors. In the compass of a small book he has treated peripatetically of beams, girders of various kinds (lattice, bow and string, plate, &c.), and iron roofs. It would be of little use to quote a portion of our author's calculations: all who are concerned with iron, or desire to be, should possess themselves of the book, which, we may add, is illustrated with sufficient diagrams to make the statements clear. We will, rather, look to some of his general observations. Thus, in comparing different kinds of girders, he says,—

"The plate girder is, except perhaps in appearance, undoubtedly superior to the others. It forms under equal conditions a more rigid, trustworthy, and durable structure; its manufacture is simpler in character, and in small girders it is more economical. When the span, however, exceed 80 or 90 feet in length, the lattice girder is cheaper, and little inferior in strength; and, as bars can be rolled in greater lengths than plates, the lattices in very deep girders may consist of single pieces only when plated girders must be jointed horizontally to make up the depth of the beam."

The girders with bracings of single triangulation are less rigid than the others, and are open to the serious objection, that the giving way of any one brace, or fastening, involves the failure of the entire structure. They have some advantages, on the other hand, in cheapness and in portability, as they may be conveyed in small and light pieces to places difficult of access, and erected at little expense. A double system of triangulation, however, with the braces united at their intersections, gives equal advantages in this respect, and forms a better construction with little additional cost.

In short, it may be generally stated—supposing the strains and the iron disposed to meet them to be alike in each case, that the comparative advantages of different systems of girders depend on two circumstances. The first is the continuity and perfection of the part uniting the top and bottom flanges; and in this respect, the plate girder manifestly occupies the first place, the close lattice with the braces frequently intersecting, and thus approaching the plate in continuity, occupies the second, and the unconnected single braces the third. The second circumstance is the mode of fastening the several parts of the girder to each other; this is usually done either by riveting, or by pins and bolts passing through the pieces at their intersection. The former method is greatly superior; it is universally used in plate girders, and frequently in lattice, though its application to the latter is not in all cases equally convenient."

* From the *Engineer's* lists.

Rivets are more easily applicable where the vertical pressure is diffused, as in the case of plate or close lattice girders; and large bolts are more suitable for the single or double triangle system, where the pressures are collected at fewer points, and are greater at each.

With reference to the proportion of length to depth of girders, he has the following remarks,—

"The depth of a girder is usually made from one-tenth to one-fifth of the span. The most economical depth, as regards quantity of material, is one-twelfth; and an inch to the foot is an excellent proportion for practice; but the depth must frequently be varied to suit the requirements of each case. It is important, however, to state, that the rigidity of the structure is proportionate to the square of the depth; consequently, though the ultimate strength remains the same, the deflection increases very rapidly as the depth is diminished. Thus, in two girders of equal span and loading, and of the respective depths of one-tenth and one-fifth of the span, both constructed of proportionate strength to resist the strains upon them, and both loaded to the point of fracture, there would be equal weights required to break them down, but the deflection of the one would be fully double the deflection of the other."

Simplicity and repetition of the same processes throughout the structure (the materials of ordinary size and of similar dimensions, with the rivets or other fastenings disposed at like places in each), are points to be aimed at in designing for such ironwork.

In referring to the sources whence he has derived assistance, Mr. Shields gives his chief acknowledgment, in warm terms, to the late Mr. Charles Heard Wild, who was cut off almost at the commencement of what would doubtless have been a brilliant career. The book is dedicated to Mr. Vignoles, civil engineer, "in token of long and sincere friendship, by his former pupil, the Author." This speaks well for both. We shall doubtless often hear of Mr. Shields again.

Miscellaneous.

THE COPPER STANDARD.—The standard at the sale on April 18th, according to the *Cornish Telegraph*, was 133*l.* 9*s.*; produce 6*l.*; price per ton 5*l.* 18*s.* Compared with the previous sale on April 11th, the standard advanced 13*s.*, and the price per ton of ore 9*d.* Compared with the corresponding monthly sale on March 21st, the standard advanced 2*l.* 5*s.*, and the price per ton of ore 3*s.*

BELLS, MILTON ABBEY, DORSET.—On the occasion of recent festivities on the Milton Abbey Estates, in consequence of the marriage of Baron Hambro, a new peal of bells were rung in the tower of the old abbey. We learn that the old peal of bells was removed by Lord Dorchester some eighty years ago; and it is believed that one of them is now in Bath Abbey; two others having been placed in the village church, where divine service has been long performed instead of in the pile where generations previously worshipped. The present proprietor of the estate has, however, now had a peal hung in the old Abbey tower. There are at present only five bells in position, the largest weighing 12 cwt.; and we believe it is intended to increase the peal with three of still heavier weight. They are from the foundry of the London firm of Warner & Sons, Cripplegate, and are hung upon approved principles. The Baron has likewise given a peal of four bells to the parish church of Kingsworthy, Hampshire, in celebration of the happy event there solemnized.

DISTRICT SCHOOL OF ART, ST. MARY'S, VINCENT SQUARE, WESTMINSTER.—A *conversazione* was held on the 24th of April, to inaugurate a district school of art, which has grown out of a drawing-class (in connection with the St. Mary's Church Institute), commenced under a certificated master from the Department of Science and Art, South Kensington, about two years ago. It is intended that the class shall now meet on Monday, Wednesday, and Friday evenings, from seven to nine o'clock, under the direction of Mr. H. Hoyer Lock, by whom the original class has been conducted up to the present time. The instruction given will embrace practical geometry; freehand drawing in outline and in light and shade, in chalk, sepia, &c.; mechanical and architectural drawing; painting in monochrome, in tempera, oil, or water-colour; and elementary colour, &c. We trust the committee will be able to enlist the sympathy and co-operation of their friends in aid of an institution which we believe is calculated to advance materially the progress both of art study and of intellectual culture in the neighbourhood, and at the same time make more generally known the existence of the School of Art to those who are likely to avail themselves of the opportunity of art-instruction thus afforded them.

THE CREWE MECHANICS' INSTITUTE.—At the tenth annual *soirée* of the Mechanics' Institute, which took place in the Townhall, Crewe, Mr. E. A. Davidson, of the Chester School of Art, gave an address, illustrated by diagrams on the black board, "On the Early Habitations of Man." The prizes were afterwards distributed.

FIRES.—The premises of Mr. King, timber and mahogany merchant, Saffron-hill, and those of Messrs. Abbot & Hopwood, builders and sewer contractors, Bleeding-heart-yard, near Mr. King's premises, have both been burnt by fire originating in the latter,—how is not known. In Chelsea, too, there has been a serious fire in the premises of Messrs. Todd, and much timber and other property destroyed.

COMBINED STEEL AND INDIA RUBBER SPRINGS. Mr. S. Moulton, of Bradford-on-Avon, has invented a new kind of spring for railway and other purposes, in which spiral or flat springs of steel are imbedded in vulcanized or elasticated India rubber, so as to obtain the peculiar advantages of both sorts of springs combined in one, while neither, it is said, interferes, to any objectionable extent, with the action of the other; the India rubber, on the contrary, being said to sustain the form and action of the steel, while the steel prevents injury to the India rubber.

GAS.—The Redruth Gas Company have issued a notice to the local consumers of gas, informing them that a reduction of 1*s.* per 1,000 feet will take place after the 6th of April: the price will now be 6*s.* per 1,000 feet.—It has been resolved to establish a society in Edinburgh, to be called the "Edinburgh and Leith Gas-Consumers' Association," for the purpose of obtaining gas at 3*s.* 6*d.* per 1,000 feet, either by the foundation of a new company or otherwise. By this means it is expected that 30,000*l.* a-year will be saved to consumers, who feel that the present high price of gas (5*s.* 5*d.* per 1,000 cubic feet), in the city, is a serious tax upon the inhabitants. One result already is, that the existing gas companies have announced a reduction in the price of their gas from 5*s.* 6*d.* to 4*s.* 10*d.* per 1,000 cubic feet.—At Jedburgh also a similar stir is being made towards a reduction in the price of gas.—The city of Aurora, in Indiana, it is said, has been for some time brilliantly lighted with gas made from water. The gas is described as being almost colourless, very brilliant, and one-third cheaper than the gas from coal and resin.

CO-OPERATIVE STORES.—Sir: Although I do not think, with "M. M.," that those engaged in this somewhat miscellaneous and perilous movement are more chargeable with "avarice of trading" than the trading community at large, in the savage strife for means of life and luxury which now prevails, without much regard, in the "higgings of the market," in any quarter, competitive or co-operative, to "Christian principles and morality,"—with which it seems to be considered, on all hands, amongst traders, that the principles of trade have, strictly and directly speaking, little or nothing to do;—still the warning of "M. M." against indiscriminate operations in co-operative manufacture is a timely and judicious one, to which the promoters of co-operative associations ought to give heed; and I am even inclined to think that it would be well were they to confine themselves, as much as possible, in the meantime at least, to the mere sale of goods manufactured as usual by other than co-operative companies,—such goods especially as are most useful to the working classes themselves. If there be any exception to such a rule of prudence, perhaps the manufacture of bread and such like may be allowed to be such an exception. One objection made to co-operative stores, however, for the sale of goods, I think can easily be rebutted; namely, that they should be discouraged because they tend to take away the livelihood of small traders who live upon the sale of such goods. Now this is an undeniable fact; but I do not think the advocates for co-operative stores are far wrong when they urge that there are too many of such small traders; that the surplus ought to become producers of wealth, like the working classes who co-operate, and not mere superfluous "handers over" of such wealth from producers to consumers, taking a "rive" out of every poor man's loaf as it merely passes through their hands; that if the co-operators can economise their own expenditure by doing without such middlemen, they are perfectly justifiable, even on orthodox trade principles, in doing so; and that it will be ultimately for the benefit of those very middlemen themselves, as well as of the public, that their excessive and ruinous mutual competition, and consequent bankruptcies, &c., should be thus diminished.—J. E. D.

THE NEW RIVER.—Last week, the bed of the New River being clear, the works were commenced for laying down the immense iron aqueduct intended for the conveyance of the water from the company's works in the Green-lanes, Tottenham, to the New River-head, Clerkenwell. In cases of leakage, or other injury to the pipes, the expense of breaking up the thoroughfare and repaving will thus be obviated; and the iron aqueduct being inclosed in an arched subway on the site of the river, the cost of repairs will be comparatively trifling. In addition to the new aqueduct, similar pipes have been laid down by the company, extending from the filtering reservoirs, Stoke Newington, through Ball's-pond, the Lower-road, Islington, and St. John's-street-road, to the works near Sadler's Wells, where the water is further purified previous to being supplied to the public.

MONUMENTAL.—It has been proposed to erect a statue to Henry Cort, "the father of the British iron trade, and the Tubal Cain of our century and country." Mr. William Fairbairn, the president of the British Association for the Advancement of Science, says, "The inventions of Henry Cort have saved this country six hundred millions sterling." As there are a dozen statues to commemorate the hero of a hundred fights, and others erected to the memory of Watt, Hargreave, and Arkwright; as two are in course of erection at Newcastle-on-Tyne for George and Robert Stephenson; one in progress at Bolton for Crompton; and one proposed for Captain Cook, the circumnavigator of the globe; the *Mechanics' Magazine* suggests that one also should be erected to the memory of Henry Cort.

PROPOSED NEW BUILDINGS, &c., AT CAMBRIDGE.—The council of the senate, since the discussion in the Arts School, on the subject of the proposed erection of lecture-rooms and museums, and the fences of the Fitzwilliam Museum, have issued revised schemes anent these: That with regard to the lecture-rooms and museums proposed—1. That a special fund be immediately formed, to be called "The Museums and Lecture-rooms Building Fund." 2. That so soon as a plan of building shall have been approved and adopted by the senate, the vice-chancellor be authorized to apply, towards the expense incurred for such building, this and other specified funds. The council have abandoned the idea of the erection of the costly gates at the Fitzwilliam Museum, at least for the present; and recommend, instead, that the southern fences be completed by erecting a palisade along the street southwards, similar to the one in front of St. Peter's College, and by building a brick wall to the south of the Museum of the same height as the adjoining brick wall. The estimated expense is 166*l.* 16*s.*

FARM BUILDINGS.—The following description has reached us of the plan by Mr. John E. Watson, architect, Newcastle, to which was awarded by the Council of the Yorkshire Agricultural Society the first premium of 50*l.*, for the best design and plan of farm buildings, adapted for a farm of not less than 500 acres:—The buildings are in the form of a rectangular parallelogram, enclosed on all sides. A superintendent's house is placed at the entrance, so that no one can enter without being seen. The gate at the opposite side leads to the fields: these being locked at night, and the superintendent or hind living on the spot, are the means of making the place secure, which is not the case with other farm buildings, most of which are entirely open. He can also attend to the horses or cattle at all times, especially when required in cases of necessity. Taking the barn or straw-house as a centre, it is so arranged that the straw and fodder can be taken to every part of the building under cover. There is also a complete communication to all parts, viz. the stables, folds, feeding-sheds, feeding-boxes, byres, &c.; so that one person can attend to the feeding of the cattle, horses, pigs, &c., entirely under cover. The same arrangement is effected with regard to the turnip-houses. The feeding-boxes are so arranged that when fat cattle are taken out others can, without trouble, be put in their places from the folds, which are in immediate juxtaposition. Connected with the machinery are cutting and bruising-houses, and a shed for cutting up timber for gates and railing. The superintendent's house, cart-shed, workshops, tool-houses, boiling-house, &c., are placed on the south side, thus enclosing the building: the back wall of these forms a garden-wall, in connection with the farm-house; and, as a boiler is immediately behind, a small green-house or conservatory might be erected at little expense. A line of railway is shown, so that, if the building be in the vicinity of a railway, a connection may be formed for the conveyance of corn, hay, and manure.

NETLEY ABBEY.—The improvements (?) of Netley Abbey are now completed. The *débris* and modern brickwork, which concealed some portion of the architecture of the abbey, have been removed. The base of the columns and pavement of the chancel of the chapel are now also exposed to view. About 3,000*l.* have been expended on the improvements. Search was made for the crypt under the altars, but without success.

ELECTRIC TIME SIGNAL AT EDINBURGH.—An electric wire has been suspended mid-air, between the Royal Observatory, on Calton-hill, Edinburgh, and the Castle rock, where it is to be the means of discharging, at one o'clock daily, a signal-gun from the castle, the time being given by the electric clock in the Observatory. The distance in mid-air, from the turret at the Argyll battery to Nelson's Monument, Calton-hill, where a time ball signal has been in operation for several years, is 1,200 feet,—above three-quarters of a mile; and over that distance the wire had to be suspended without a rest. The suspending of the wire, at an elevation of from 150 to 200 feet, was one of considerable difficulty. In the course of its progress to the Calton-hill four temporary rests were employed—namely, at the mound; on the roof of the railway station; on the new buildings, Northbridge; and on the prison buildings. The wire was carried forward from station to station by means of a rope drawn by seamen and others, and at length the end was fastened in safety at Nelson's Monument, where it was brought into connection with the wire from the Observatory to the time-ball signal. The operation of tightening and raising it in mid-air was to be accomplished by coiling it round a drum in the Castle turret till it became straightened.

NORTHAMPTON TOWN-HALL COMPETITION.—The Northampton *Mercury* says,—The competitive designs for the new Town-hall have been on view during the week, by ticket, at the late residence of Dr. Robertson, in St. Giles's-square. To several the names of the architects are attached. The one selected, as our readers already know, is by Mr. E. W. Godwin. "Circumspect" whom Mr. Tito placed No. 1 in his report, is Mr. Louis de Ville, of Great Ormond-street, London. "Non Dubitantur," of whom also Mr. Tito reported in very high terms, is Mr. Charles Baker, of Leicester. All the designs are modifications of the Italian and Gothic styles, and of course show more or less ability, some being of considerable merit. The other architects whose names are given are Messrs. W. Millican, Leicester; W. T. Law, Northampton; John Butcher, Adelaide-place, London; Augustus Freere and Thomas Porter, Ebury-street, London; William Purdus, John-street, Adelphi (an imposing elevation); T. H. Vernon, Piccadilly; C. L. Dresser, Park-row, Leeds; Charles Anslie and Thomas Blashill, Old Jewry; James Winsell, Belmont, Bath; S. T. Welch, Park-street, Bristol; J. S. Pedley, Hampstead-road, London; H. B. Garling, Gray's Inn, London; Rodolph Fielding, Windsor-terrace, London; Allen & Clayton, Adelphi, London; Geo. Bidlake, Wolverhampton; Egbert Mexham, South Norwood, Surrey; P. A. Mathews, Gray's Inn, London; W. M. Fawcett, Cambridge; Frederick Warren, 6, Whitehall; John R. Main, East Cowes, Isle of Wight; Alfred Williams, Brompton; Henry S. Prichard, Chelsea; Philip Wilkinson, Connaught-terrace; Walton & Robson, Adam-street, Adelphi; J. P. Jones, Piccadilly; John S. Bateman, Cherry-street, Birmingham; and Acken & Capes, Farnival's Inn.

STONE OF CHICHESTER CATHEDRAL.—Sir: In the last number of the *Builder* is a communication from "Goth," in which he comments on the opinion given by me as to the inferiority of the Chichester stone for weight-bearing purposes. He erroneously assumes that my conclusions were based solely on the crushing weights of the stone experimented on. If he will refer to the remarks made at the Institute, he will find that the structural weakness of the stone was alluded to and explained; and of this any one can form his own opinion by holding a thin vertical slice to the light. It will then be seen that rays of light pass horizontally through the pores of it; and there is every indication of mechanical weakness in the character and internal formation of the stone. I will here mention that the blocks of stone from which the experiments were made were examined microscopically, and no appearance of disruption was visible; but I do not argue from this that its elasticity was unimpaired; indeed, its general internal structure renders the elasticity liable to be affected. I think also, that the stone, from loss of moisture, has become harsher and more brittle than when quarried; but this carries out my observations on the unsuitability of the stone. * * *

ALFRED THOMPSON.

CHAIN MAKING BY MACHINERY.—In the United States, chains of all sizes, from those of the jeweller to anchor cables, are manufactured by machinery; and it was recently stated that a company to manufacture them was being formed at New York, with a capital of a million dollars.

LE MANS, FRANCE.—The Protestant "Temple," at Le Mans, Sarthe, France, is to be opened for service on the 5th of May. This structure is erected in a very plain manner, and on the front are the words—"Temple Evangélique." It is surmounted by a cross of freestone.

SOCIETY OF PAINTERS IN WATER COLOURS.—The fifty-seventh exhibition of the Old Society of Painters in Water Colours is now open, at the Gallery in Pall-mall. It comprises 295 pictures, and is of average excellence. We must return to it.

CAMBRIDGE ARCHITECTURAL SOCIETY.—At the first meeting of the society for the Easter term, Mr. J. W. Clark, of Trinity College, read a paper upon "The Cathedral of St. Magnus, Kirkwall." Besides speaking of it historically, he explained its architectural arrangement and detail, with the aid of illustrations, showing the different points of character in the building.

A NEW METALLIC ALLOY.—M. Aich, of Brussels, is reported to have produced an alloy which presents the advantage of working as well cold as hot; and which may be forged without losing its cohesion; melts very readily; and can be afterwards submitted to the operations of hammering, rolling, and punching. It is said to be cheaper than brass, and to cost much less than red copper. In the state of homogeneous fusion, it consists of 60 parts copper, 38.2 of zinc, and 1.8 of iron.

SWINDON.—A correspondent says:—The Great Western Railway Works at Swindon have recently been greatly increased, and gradual additions to the number of workmen are constantly going on, so that, unless supplied by private speculators, the company must erect a number of dwelling-houses, in addition to the mass of buildings already on their hands. At the Old Town, the estate of the National Freehold Land Society is being well taken up.

WESTBOURNE ATHENÆUM HALL.—A new hall has been built at the back of Havelock-terrace, and in the rear of the new Athenæum now in course of erection in Westbourne-grove. In form it is a parallelogram, rather more than twice the length of its width; being 80 feet wide by upwards of 70 feet long, and 27 feet in height. The roof is of an elliptical shape, and divided into large square compartments throughout. The principal ribs are supported upon moulded stone corbels in the side wall, which are finished with ornamental arched pediment upon each side and end of hall. There are no windows in the side wall, but it is lighted by skylights formed in the compartments of the ceiling, about one-fourth of which is glass. There is a gallery at the entrance end of the hall, and platform at the other end, raised about 3 feet above the general level of the floor. The ceiling has been decorated with lines of blue and red bordering, with pouncings of stars between, the whole being arranged within the compartments of the ceiling. The painting and decorating have been executed by Mr. James Warrington, under the direction of the architect to the building, Mr. Arthur Billing, of the firm of Newman & Billing.

AID FOR POOR ARTISTS AND LITERARY MEN.—The excursion-month is fast approaching: the country sends its hundreds of thousands to the capital of the arts: they will make their myriad footsteps echo through halls, exhibitions, and museums: how many of these buildings display their treasures cost-free? Now, sir, I would suggest that in all these receptacles of art, science, and literature, there should be appealing money-boxes, the funds to be dedicated (for much would be dropped therein) to an asylum for poor artists by profession and its maintenance, and poor literary men. The system is capable of such extensive application, and is so obvious, that I shall barely suggest it, and no more; for sure I am that hundreds of thousands, if it entered their minds, would drop their coin cheerfully for the necessities of those whose works have delighted them so often, or whose heads have at least attempted it. I would more particularly urge this upon that leviathan institution, the British Museum (since it seems that a few paltry hundreds is all that Government ever intends to bestow), the proceeds to be handed to the treasurer of the Literary Fund as often as he shall make application. Let an orifice be made in the first lobby, and another in or at the door of the library, where the teeming brains of so many benefactors of their race teach from the shelves of that institution the rising genius of a great people.—J. A. G.

CORN USED AS FUEL.—On a certain portion of the Illinois prairies corn, according to an American paper, is being used as fuel instead of coal, and is found an excellent substitute. In the district referred to, corn is said to be 13½ cents per bushel, and coal 12 to 17 cents. Not only is the difference in price in favour of corn, but a bushel of it gives more heat than a bushel of coal.

ACCIDENTS.—Two painters, while engaged, at Brighton, in painting, the façade over a shop-front in Montpellier-road, were on a plank laid upon crutches on two ladders, when suddenly the plank snapped asunder, and they were precipitated to the ground. One of them fell upon his head, and was severely injured.——At the Bury Gas Works some carpenters were engaged in covering the old gasometer, when one of them fell into the tar and water beneath, about 7 feet deep: the other men were so much frightened that they could not render assistance until the manager suspended himself by his arms from one of the banks. When the carpenter rose the second time to the surface, he fortunately succeeded in catching hold of the manager, and the other men then drew both up.

THE DECAY OF THE LARCH.—A writer in the *Scottish Farmer and Horticulturist* attributes the spread of diseased larches to the planting of seeds from the cones of diseased larch-trees. It is known that diseased plants, like many diseased animals, tend to profuse reproduction; and this, it is said, is the case with the diseased larch: indeed it is the custom of horticulturists to lift, root-prune, and replant, fruit-trees for example, for the sole purpose of checking their individual growth, and so increasing their fruit-bearing properties,—at the expense of healthful and continued existence to the individual trees, doubtless, the life of the individual being absorbed, as it were, and exhausted, in the life or perpetuity of the species. We recollect an instance of this, in which we had a very handsome Scottish laburnum tree transplanted at Brompton, though afraid it was too old for the purpose. The roots were very much torn and destroyed: nevertheless, in the following spring it yielded an immense profusion of magnificent flowers, in strings no less than 15 to 18 inches long, and was regarded by all who saw it as a wonder of its kind. In two years thereafter it died. In the case of the diseased larch, the cones are exceedingly plentiful, and cheap; and they are hence used in the production of new plantations; and as the progeny resembles the parent, doubtless, in this as in other cases; it is held to be no wonder that the larch disease is spreading. Could not fresh stocks of cones be imported from the native *habitat* whence the larch was introduced, not very many years since, into this country?

PAPER DRAPERY.—The Japanese paper handkerchiefs must be coming at last. At least paper neck-kerchiefs, scarves, or neck-ties, "in every colour and pattern," are among the latest of those inventions for which, we suppose, Mr. Gladstone and his twice-promised removal of the tax on paper must be held responsible. It is not paper neck-ties alone, however, that are now advertised as the latest novelty in the paper-drapery line; but "paper bands for clergymen and members of the bar,"—especially those "members of the bar," we dare say, who have plenty of room in their empty brief bags for a stock of paper drapery. There are also "paper shirt-fronts," "paper waistcoats," "paper hats, water-proof," and "paper bonnets of the latest fashion, trimmed with paper lace and paper flowers," besides "paper lace" and "paper lace-collars, cuffs, and stomachers for ladies," as previously advertised, and various other forms of paper drapery, millinery, and mantua-making. Of the paper neck-ties the *Critic* says: "They are printed in imitation of silk and gingham, with such exactness as to defy detection, save on close inspection!" The same paper states that, at a recent meeting of the paper manufacturers, who have again been stimulated by the prospect of the extinction of the paper duty, "Some extraordinary samples of newly-imported Japanese paper were exhibited, one of which was of such prodigious strength that the material of which it is composed might be manufactured into ropes; and another, which is fit for bed-hangings and wearing apparel, so much resembles stuffs of wool and silk, that it is often taken for them." Thus, like so many others of our Western novelties, we see that paper drapery, or linen shoddy, as we lately called it, is an Eastern invention, and probably not a new one at all. There seems to be a prospect, too, of a return to the papyrus of ancient Egypt, as one of the very best materials for the anticipated great extension of the paper manufacture.

FREE LECTURES ON MUSIC.—The Gresham lectures on music, by professor Edward Taylor, will be delivered in the theatre of the college, Basinghall-street, on the evenings of Monday, Tuesday, and Wednesday next, the 6th, 7th, and 8th inst., at seven each evening. The lectures will be illustrated by a full choir, accompanied by Mr. Turle, organist of the Abbey. The doors open at half-past six, and the admission is free.

COST OF HOLYHEAD HARBOUR.—It appears from the estimates just presented to the House of Commons that the sum required for the new works at Holyhead Harbour in 1861-2 is 65,000*l.*, which will leave 667,000*l.* to be voted in subsequent years. The original estimate of the entire cost was 808,063*l.* The total of the estimated cost up to the present time is 1,920,000*l.*, on account of which 1,188,000*l.* have been voted from 1845 to 1860.

INSTITUTION OF CIVIL ENGINEERS.—On April 23rd, Mr. G. P. Bidder, president, in the chair, the paper read was on "The National Defences," by Mr. G. P. Bidder, jun., B.A. The author showed the importance of the question, by stating that during the last eight years 29,000,000*l.* had been expended in the maintenance and reconstruction alone of the navy,—about 8,000,000*l.* representing the value of new ships,—besides which 12,000,000*l.* had been recently voted for the construction of military coast defences.

ELECTRO TELEGRAPHIC.—At the principal telegraph stations the state of the weather and the direction of the wind throughout the kingdom, at ten a.m. daily, are now shown. On a large map of the United Kingdom, hung in the lobbies of the stations, a circle, about half an inch in diameter, surrounds each seaport and principal city, on the circumference of which circle names expressive of the different kinds of weather, and also the initials of the different points of the compass, are printed. Two small watch hands, one red and the other white, are inserted in each circle. By means of the hands the state of the weather and the direction of the wind throughout the country are indicated, and the progress of ships known to be on our coast can be pretty accurately guessed at from day to day. It is expected that these maps will come into general use amongst persons interested in shipping, who can have the hands in the circles regulated by the telegraph company every day. The report of the Atlantic Telegraph Company states that, in the cable recovered and brought home by Captain Kell, there was not the slightest symptom of deterioration or decay in the gutta-percha. It had been subjected to a severe electrical test, according to the *Chemical News*; and a comparison between the present state of insulation and the records of original tests of the most perfect portions of the cable when it left the gutta-percha works three years ago, showed that an actual improvement had taken place in its condition since it was laid down. Were not the company, then, as we have before remarked, rather hasty in abandoning the whole line?

THE DRINKING-FOUNTAIN MOVEMENT.—The new Victoria Fountain, Old Pye-street, Westminster, has been opened. The fountain is erected in a very poor vicinity, and in front of the Female Home of Industry. It consists of a bronze front, on either side of which are cherubs supporting an arch of flowers, and surmounted by the bust of her Majesty. The water, which is supplied by the Chelsea Waterworks Company, and afterwards filtered, runs from a bronze lion's head, in a perpetual "slaver,"—not a very pleasant or sightly idea, as we have before noted of lion's head designs for drinking fountains; and the waste is carried down to a trough underneath, for the use of dogs. It has been erected at the joint expense of the Working Men's Committee and the Metropolitan Drinking Fountain Association. A new drinking fountain, erected by the Bristol Young Men's Christian Total Abstinence Society, near the weighing-house at the Clare-street end of the Drawbridge, Bristol, has been formally inaugurated. The fountain, which will now be taken charge of by the Local Board of Health, is of cast-iron bronzed, and was cast by the Coalbrookdale Company, from designs furnished by Messrs. Willis, Brothers, of London. The ornamental figures are in bas-relief. On the upper part are seraphs. On the right is represented Moses smiting the rock, with an inscription from psalm cv. 47. On the other side there is a representation of Hagar giving drink to her son Ishmael in the wilderness. The waste water is carried through a grating into a dog-trough underneath, whence it passes by a waste-pipe into the sewer. In front of the dog-trough is the inscription, "Love me, love my dog." The drinking-cups are of enameled iron.

LAYING THE FOUNDATION-STONE OF THE WELLINGTON COLUMN AT LIVERPOOL.—The foundation-stone of a column, in honour of the late Duke of Wellington, has been laid in Liverpool, by the mayor. The site selected is at the top of Telington, and in close proximity to St. George's Hall and the Free Library. The statue will be made of bronze, and 12 feet high.

NEW BLASTING POWDER.—Some blasting powder, made by Mr. Laurence Geoghegan, gunmaker, Galway, from tanner's waste bark, nitrate of soda, and sulphur, is spoken of by the *Galway Indicator*. Mr. Samuel U. Roberts, Engineer to the Board of Public Works, under whose superintendence the extensive drainage works in the Galway district were carried to completion, says, in a certificate as to Mr. Geoghegan's powder:—"In my presence he inserted a small quantity of it (much less than would be required of the ordinary blasting powder), into a jumper-hole 1 inch in diameter and 15 inches deep, in a very solid boulder rock of hard granite containing about 30 cubic feet. On being ignited in the ordinary manner with a fuse, it burst the rock into fragments without making a report or causing spalls to fly from it; so that a person might safely stand within a short distance without incurring danger. Mr. Geoghegan states that this powder can be sold at half the price of the ordinary blasting powder. I am of opinion that it is much stronger than that which is now generally in use for blasting purposes.

CLARE-MARKET RAGGED SCHOOLS.—A public meeting was held at the Vestry House, St. Clement Dunes, on Tuesday, in aid of the funds of the above schools. The Earl of Shaftesbury presided. Mr. Peters, the secretary, read the report, which stated that they had a daily average attendance of 150 for the day-school, and 60 for the night-school, which was opened from eight to ten o'clock, for the benefit of those who were occupied during the day in earning their living. They had also a Sunday school, which numbered fifty in the morning and 100 in the evening. The boys attending the night-school had, deposited in the bank connected with it, 64*l.* 14*s.* 6*d.* They had also established a night-refuge, at which the applications by homeless boys were between seventy and eighty a week. The estimated expenditure of the schools and refuge for the ensuing year would be 200*l.* The subscriptions and donations during the past year had been only 170*l.*, and a debt was now owing by the school of nearly 30*l.* The report was adopted, and resolutions agreed to, calling on the public to support the movement.

RAGGED SCHOOLS.—The ragged school movement is one the greatness and importance of which it is not possible to overrate: our highest admiration and praise are due to the benevolence of the noble mind that suggested, promoted, and carried it out, with such unexampled success, amidst the most overwhelming difficulties. What would our ancestors say, if they were to find us educating with tenderness and care the outcast and forlorn, the desolate, the neglected, and destitute children with whom our cities and towns abound,—the very lowest grades of society, the ragged, tattered, and filthy urchins, boys and girls, who pour forth in swarms from our crowded courts, lanes, and alleys, emaciated with disease and starvation, blaspheming, swearing, and pilfering all that comes before them,—the companions of the most vicious and depraved? This great movement commends itself to our sympathy at all times; and he whose heart gives no response to such a work must be callous indeed to the best instincts of our nature, and insensible to the strongest appeals of Christianity and philanthropy. The advantages which society has reaped from the establishment of these schools are so great, that new ones are being opened daily all over the country. Let us see what has been done in London alone. Here are 155 ragged schools and 15 refuges, with morning, afternoon, and evening Sabbath schools, and an average attendance of about 26,400 scholars. There are 146 week-day schools, with an average attendance of 15,457. There are 200 week-night schools, averaging over 9,400, and there are 99 industrial classes, averaging close upon 3,750 scholars. There are over 4,300 voluntary teachers, 132 who were formerly scholars in ragged schools, and 416 paid teachers. The income is 29,280*l.*, and the expenses are 29,252*l.* 8*s.* 4*d.* 844 boys and 652 girls have been sent to situations from these schools. 76 penny banks are connected with them, in which 25,687 depositors have deposited 8,888*l.*; and there are 60 clothing clubs, to which the scholars and their friends have subscribed 592*l.* These figures speak for themselves. They are facts that require no comment.—*St. James's Magazine.*

WORKING-CLASS DWELLINGS AT BRISTOL.—We hear, says the local *Times*, that contracts have been entered into for the erection, in the parish of St. Philip and Jacob Without, of 187 houses, to be let at 10*l.* per annum each.

TENDERS

For post-office hotel and offices, Park-lane. Messrs J. W. & J. Hay, architects:—

Barker	.....	£4,048	0	0
Roberts	.....	3,985	0	0
Bourgeois	.....	3,743	0	0
Mullin	.....	3,710	0	0
Heigh & Co.	.....	3,685	0	0
Rome	.....	3,590	0	0
Holme & Nicol	.....	3,355	0	0
Tomkinson & Son (accepted)	.....	3,355	0	0

For farm steading, at Thorpe Satchville, in the county of Leicester. Mr. R. W. Johnson, architect, Melton Mowbray. Quantities supplied:—

Osborne, Brothers	.....	£714	0	0
Clifton	.....	655	0	0
Duxberry	.....	637	0	0
Hall	.....	591	0	0
Hayes & Barnes (accepted)	.....	493	2	6

For additions and alterations to Park house, Regent's Park, for Mr. Joseph Blackstone. Mr. Henry J. Lancaster, architect:—

Foxley	.....	£434	0	0
Lawrence	.....	410	0	0
Fish	.....	395	0	0
Batterbury	.....	387	0	0

For building a pair of semi-detached villa residences, in St. Andrew's-street, Watford, Herts., for Mr. James Watkins. Mr. T. Lavender, architect:—

London Building Company	.....	£2,126	0	0
Woodbridge	.....	1,898	0	0
Sharlington & Cole	.....	1,815	0	0
Piemming	.....	1,800	0	0
Rudkins	.....	1,750	0	0
Marindale	.....	1,692	2	0
Weller & Haas	.....	1,627	10	0

For building two semi-detached houses, at Brownswood Park, Stoke Newington. Mr. G. P. Raggett, architect:—

Greenwood	.....	£1,393	0	0
Hart	.....	1,649	0	0
Smith	.....	1,636	0	0
Ross	.....	1,555	0	0
Mann	.....	1,485	0	0
Sharlington & Cole	.....	1,477	0	0
James & Ashton	.....	1,412	0	0

For building a savings' bank, on the Terrace, Camberwell. Mr. J. J. Laforest, architect:—

Fish	.....	£970	0	0
Harsay	.....	984	0	0
Sawyer	.....	917	0	0
Heath	.....	908	0	0
Crawley	.....	890	0	0
Thompson	.....	824	0	0
Smith	.....	789	0	0
Sharlington & Cole	.....	783	0	0

For building Ladbroke Chapel, Notting-hill. Mr. Searle, architect:—

Moore	.....	£5,921	0	0
Myers	.....	4,833	0	0
Turner & Sons	.....	4,959	0	0
Howard	.....	4,774	0	0
Howard	.....	4,463	0	0
Macey	.....	4,475	0	0
Hill	.....	4,470	0	0
Brown	.....	4,450	0	0
Keys & Head	.....	4,411	0	0
Robinson	.....	4,323	0	0

For building a house, in Duke-street, Piccadilly. Mr. A. Castles, architect:—

Jackson & Shaw	.....	£2,283	0	0
Wood	.....	2,273	0	0
Higgs	.....	2,222	0	0
Dunstan & Co.	.....	2,260	0	0
Fish	.....	2,150	0	0
Brown	.....	2,120	0	0
T'Amson	.....	2,094	0	0
Macey	.....	2,059	0	0
Faulkner	.....	1,993	0	0
Trotter	.....	1,983	0	0

For foundations of church and presbytery, being Contract No. 1 for new Catholic church, Bath. Mr. Chas. F. Hansom, architect, Clifton:—

May & Son	.....	£1,500	0	0
Mitchell	.....	1,431	0	0
Hill	.....	1,350	0	0
Badwell & Ambrose (accepted)	.....	1,048	0	0

For the repairs and restorations of the tower, transepts, and north aisle of chancel, of the Brecon Priory Church. Mr. G. F. Scott, architect. Quantities not furnished:—

Pearson & Son	.....	£3,306	0	0
Griffiths & Son	.....	2,790	0	0
Ruddle & Thompson	.....	2,599	0	0
James & Price	.....	2,321	0	0

For the restoration of the chancel of Brecon Priory Church.

Pearson & Son	.....	£2,584	0	0
Ruddle & Thompson	.....	1,990	0	0
Griffiths & Son	.....	1,670	0	0
James & Price	.....	1,665	0	0

For the erection of new buildings for the *North Cheshire Herald* newspaper printing-office, and binding and stationery works, stock-room, &c., for Mr. George Booth, Hyde, near Manchester. Mr. Joseph Lindley, architect, Ashton-under-Lyne. Quantities supplied:—

Robinson & Sons	.....	£354	0	0
Fairbrother	.....	339	0	0
Green (accepted)	.....	279	0	0

For Plumbing and Glazing ditto.

Beech	.....	41	0	0
Steel	.....	40	8	3
Siddobham (accepted)	.....	34	0	0

The Builder.

VOL. XIX.—No. 953.

Architecture at the Royal Academy.



UR readers have been informed of the changes made at the National Gallery, including those in the rooms occupied by the Royal Academy. The staircase, they will remember, has been brought nearer to the front, and opens into what was known as the Miniature Room; while the corridor into which it formerly opened, and the Architectural Room, have been thrown into one, and form a handsome apartment. The effect of the hall is not good, the staircase not being in the centre. The entrance to the new Sculpture Gallery, too, is somewhat awkward. We must put up with this, however, for the sake of the improvement in the latter. A tasteful decoration of the wall in the hall, which comes nearly close up to the staircase, might be made to lessen its present disagreeable appearance.

The Sculpture Gallery is a great improvement upon the old cellar that heretofore did duty; but the lighting needs reconsideration and arrangement. Besides a large window at the end of each of its three divisions, the vaulted roof of the central (and main) compartment is of glass; and the result is so general a diffusion of light that we look in vain, in most instances, for those shadows on which the effect of sculpture so much depends. Probably it would be found useful to cover the glass in the roof up to within a few feet of the end, where the window is. The latter was at first filled with ground-glass; but this has been removed, and clear glass substituted, with considerable advantage. The walls of the gallery are coloured lilac. The whiteness of the floor is objectionable; but this can be easily remedied by means of druggot or paint. The cast of the Farnese Hercules, which followed the Academy from its old quarters in Somerset House, is close to the steps leading down into the gallery; and, being the last thing seen before entering, it seems to have the effect of dwarfing the modern works.

The collection of sculpture is of more than average merit; or, at any rate, asserts itself more vigorously than usual with increased light.

Going up-stairs we find that the hangers have appropriated the new room (formed, as we have said, out of the corridor and the old Architectural Room, and now called the North Room), to architectural works, and other drawings in water-colours and chalks. The former occupy one side of the room, and a half side, and are seventy in number. These are mostly set forth in well-finished drawings; and we may suppose that, architects now having an exhibition of their own for the complete display of architectural and building progress, the Academy will confine itself to hanging works which, either as designs or drawings, display *art*. Nearly half of those now exhibited are unfortunately hung so high, and reflect light to such an extent, that they cannot be seen, much less can they be judged of. A number of the buildings represented, as a matter of course, have been already described and illustrated in our pages; for example (667), "Bodelwyddan Church, near St. Asaph: View of the Chancel," J. Gibson (an elaborate drawing); (691) "Victoria Military Hospital that [costly error], on the Banks of

the Southampton Water," F. A. Dovey; (694) "The new Chapel, Exeter College, Oxford," J. H. Le Koux; (696) "Manchester Assize Courts, now in course of erection," M. Waterhouse; (692) "Views Illustrative of Gothic Designs for the Government Offices," G. G. Scott, R.A.; (708) "National Schools, Eudell-street, St. Giles's, E. M. Barry, A.; (715) "The Hartley Institution, Southampton," now in course of erection," by Messrs. Green & De Ville; and various others. Mr. Scott's drawings, very large and comprehensive, may be taken, we suppose, as a sort of appeal to the public as against his own Italian design for the Government Offices, which has been accepted by the Minister, and is about to come before the House of Commons. Under Mr. E. Barry's view of the Bloomsbury schools he gives an interior view and a sketch of the very picturesque arrangement of the upper part of the back of the building. The same architect also sends a view of the "New Opera-house about to be erected at Malta" (666). The front is recessed above the basement to form a portico with four Corinthian columns between the wings, terminating with the entablature. The wings have each a detached column at each angle, carrying seated figures, as at the Taylor and Randolph galleries, Oxford. Mr. Ferrey sends "Killyleagh Castle; a Restoration of the Gateway and Outworks" (661); "Bulstrode, a seat of the Duke of Somerset, now erecting" (693), a neat Ferreyian Tudor residence, of large size; and "Wynnstay, a Seat of Sir Watkins W. Wynn, Bart., now erecting" (705). The latter is in the Italian style, with tower and turrets, and promises to be a fine house. Amongst other residences illustrated are (665) "Part of the Court-yard of Dalzell Castle, Scotland" (656), R. Billings; "Dunrub Castle, Perth" (657), W. G. Habershon (a large structure, of Tudor character, with tower); "Frogmore, near Hertford" (707), W. M. Teulon; "Grafton Manor House, Worcestershire, rebuilding, with the exception of the Banqueting-hall" (710), D. Brandon (Late Tudor in style); and "Mansion erecting at Blackmore Park, Worcestershire" (711), by the same architect. These do not present any strikingly distinctive features, but will take their places creditably amongst the "Homes of England."

The drawings of churches are few in number, and show the general power of dealing with Medieval forms that now exists. We will name the chief of them. 663, "New Chapel in the Church of the Immaculate Conception, Farm-street," H. Clutton. The interior is richly carved and coloured, displaying marble shafts and wall-paintings. The panels on the wall over the altar take the shape of one centre arch and two half arches, which have an incomplete aspect. 671, "Study for a Chancel," J. Bentley, is a fine drawing, and exhibits good acquaintance with the materials dealt with. 673, "Sketch in Waltham Abbey," W. Burges, shows the new east end, lately executed under his direction, wherein the architect has introduced Early English in connection with the original round-arch work, and without inharmonious results. Mr. Hadfield sends a view of the "Church of St. Peter and St. Paul, Barnby, Devon, now being Restored" (677); and Mr. Pearson internal and external views of "A Church to be built in London," 679 and 681. The two ranges of windows in the chancel suggest an arrangement that does not exist. 704, "Church of St. John the Evangelist, Newport, Monmouthshire," Pritchard & Seddon. The style is Geometric: the body of the church is overwhelmed by the tower and spire. 718, "Design for the Church of St. Peter, at Bournemouth, in course of erection," G. E. Street. The style is Geometric. The parts on the north side of the chancel with turret between them look crowded, but the general effect is very satisfactory. "The Church of St. Luke, Tor-Mohun, Torquay," A. W. Blomfield (719), has a site the irregular levels of which aid in a picturesque result. The aisles have

a gable over each window, an effective but costly arrangement, enforcing many "down pipes" for the rain-water.

Under the head of suggested public improvements, we may place 664 and 672,—views of proposed high-level road, and viaduct from St. Sepulchre's Church to Hatton-garden, Holborn-hill, F. Marrable; and (706) "a proposition submitted to the Government last session for endowing it with an estate of from 50 to 100 acres, stretching through the heart of the metropolis, by building an open viaduct, with or without locks, on both sides of the Thames, and for forming permanent canals on either side, retaining the water at ebb-tide up to 6 feet below high-water mark, by means of the low-level sewer running through the centre of viaduct," H. R. Newton. The view ranges from Westminster to St. Paul's. The "estate" in question would be environed by water, and we should lose the fine open quays and improved means of transit desiderated. Mr. Marrable's design for getting rid of Holborn-hill does not differ greatly from some others we have seen. Half of the road is continued on a level viaduct, containing shops, approached from the low level; and carrying houses built on the high level. A sitting opening through the viaduct gives access to Victoria-street.

To speak of some more miscellaneous designs. 655, "Villas erected at Rouppell Park," J. Taylor, junior. Mr. Taylor, it will be remembered, patented a mode of forming walls with thin facings of either stone or brick, and this drawing is to show the employment of it in conjunction with timbers, forming a half-timbered construction. The advisability of so using timber is more than doubtful. 662, "Interior of Grand Staircase in the Mansion now being erected at Gottenburgh, Sweden," W. A. Boulnois; an Italian design, with galleries round on the various stories. We are glad to find Mr. Boulnois at work so far afield. 668, "The Blind Asylum, Brighton, in course of completion," by S. Clarke. A morsel of the Ducal Palace serves for windows on each floor, and doubtless makes a sufficiently effective front. 680, "Interior of the Council Chamber of the Royal Horticultural Society at South Kensington, capable of being used on state occasions for a Vestibule to the Gardens," designed by Captain Fowke. This is a handsome and spacious apartment, in the Italian style, with flat lights in the roof, a cove round them, and looking-glasses in the angles of the room to give increased effect of size. It is better as a vestibule to the gardens than as a council chamber. 684, "Gallery of Communication lately erected in the Hall at Compton Wynyattas," and 689, "Original Sketch for a Public Building," both by M. D. Wyatt, are pen-and-ink sketches scarcely in fitting trim for their company. 685, "Ceiling of Show-room at Mr. Hancock's, Bruton-street," O. Jones. This is executed in patent canvas plaster, a valuable material used by Mr. Jones in several similar works, and shows his well-known flat foliage. The colour is blue, with white, red, and gold harmoniously introduced. 688, "Design submitted in competition for covering in the area of the Royal Exchange with glass," H. S. Legg. In this iron is used at the top of the building, the centre being filled with glass, and the cove all round ornamented with coloured panels. Without being the best, it serves to show how different the effect would be if the *cortile* were covered at the top of the building from that produced by the wretched arrangement that was threatened. 690, "Kintbury Vicarage, Berks," T. Bury, a good substantial mullion-windowed tile-covered house. 692, "Proposed Grand Hotel de la Méditerranée, Cannes," T. Smith & Son. In this drawing, Messrs. Smith show the beautifully situated residences of Lord Brougham, and the late Lord Londesborough (chateau St. Ursule). The proposed hotel is a large building of Italian character, with coupled arches carried on marble columns, in the front of *loggie* on three stories.

It would make a handsome and effective building. Amongst the drawings for hotels in England, there is a view of "the Hotel at Great Malvern, now erecting," E. W. Elmslie, but all that can be seen of it is that it is five stories in height, and has a tower. 709 sets forth a design submitted in competition for the New Houses of Parliament at Ottawa, Canada. It has an enlarged version of the dome and drum at the National Gallery, and is otherwise so ugly that we cannot be sorry it was unsuccessful. The last drawing we can here mention is 920, "A Drinking Fountain," H. A. Darbishire, and this we have fully illustrated and described on another page in our present number.

The dinner at the Royal Academy took place, as usual, on the Saturday preceding the first Monday in May. The President, in the course of his reply to the toast "Prosperity to the Royal Academy," said an exhibition of sculpture, under the direction of the Commissioners of Fine Arts, took place in Westminster Hall in the summer of 1844—nearly seventeen years since. My Lord Palmerston, referring, in the House of Commons, in July, 1844, to the success of that exhibition, expressed his regret that the space allotted to the display of sculpture in the Royal Academy was so inadequate, and his hope that the subject would receive consideration. In consequence of that remark the late Sir Robert Peel, who was then at the head of the Government, gave some attention to the question; but, although most willing to effect a change, his plans, whatever they may have been, were afterwards unavoidably laid aside. Thus, after so many years, it has been reserved for his lordship, with whom the suggestion originated, to carry into effect an improvement for which the sculptors of this country have reason to be, and are, most grateful. I will only add that, considering the difficulties with which the architect had to contend, the result, on both sides of the building—I had nearly said on both sides of the House—may be regarded as highly satisfactory. The rapidity with which the work has been executed has taken many by surprise. A doubt, I believe, existed among the sculptors whether the room could possibly be ready in time; and this may have induced some to postpone the completion of their works.

Lord Palmerston, replying for "Her Majesty's Ministers," said, the fine arts are not only a source of intellectual enjoyment to the nation in which they flourish; but they are also a measure, in the estimation of other countries, of the honour, of the dignity, of the reputation, of the position of the country to which they belong in the scale of civilized nations. In fact, the office of art is higher even than that; for not only does the artist promote the intellectual enjoyment of his contemporaries,—not only does he raise them in the scale of social existence,—but he perpetuates the records of the age in which he lives, and even of those ages which have preceded; and hands down from generation to generation those memorials of great events, those records of distinguished men, which, being subjected to the faithful eye, are more instructive and more permanent monitors of the greatness and glory of a nation than even those traditions which may be conveyed sometimes to the treacherous and forgetful ear.

The Chancellor of the Exchequer was called on to speak in connection with "the Interests of Literature and Art." Speaking of the connection between literature and art, Mr. Gladstone observed it was never more beautifully illustrated than in the group of the famous Laocœon compared with the not less famous description in the poem of Virgil, and with regard to which literary men for ages argued whether it was the group that suggested the poem, or the poem that suggested the idea of the sculptor. Modern criticism has resolved that controversy, and has determined that both were original, and that the treatment of each was strictly in accordance with the principles of each art,—the name of the poet well known, that of the sculptor unknown, but not less illustrious; each relying on his own inspiration; each pursuing the path of his own distinct orbit of human excellence, parallel to each other; each one entire, varying one from the other; independent of each other, yet never servile one to the other. Such may they ever continue. I should not venture to offer any opinion of the height to which English artists have attained; yet there are some points which mark their proceedings, upon which any man, as a man, may give an opinion. He may judge of the spirit in which they work. I have before me two men I need not name, each of

them most distinguished in one of the sister arts which are united together in the Academy; and of whom I believe I may say that, at about the same time, they having received a commission for the execution of a great work from high authority, and each having executed the commission in a manner that must have satisfied the severest taskmaster, independent of himself; yet neither the one nor the other had satisfied the severest taskmaster still that he bore within in his own mind and heart; and each of them has given, or is about immediately to give, the whole of his achieved labour to pitiless destruction, in order to begin again something that may approach more nearly to his ideal perfection. The state of art cannot be other than promising when such a spirit of resolute self-sacrifice and chivalrous devotion distinguishes its professors,—men who have attained the command of unlimited public confidence,—men whose very name is enough, independent of criticism, to give circulation to whatever they produce.

The President drank the health of the Lord Mayor; saying, the prosperity of the City of London, which, in its results, embraces so many useful objects, comprehends also, in due gradation, the encouragement of the fine arts. In connection with these arts it is gratifying to notice the gradual and great improvement which has taken place of late years, and is still taking place, in the external appearance of the City of London, properly so called; showing that an attention to architecture in its more useful forms and applications may combine the cultivation of good taste with public convenience and security; and the Lord Mayor, in replying, expressed the gratification it gave him to see the exhibition and meet those who had contributed to it. Our country, he continued, for the last half century, has been occupied in works of physical science, in great improvements of mechanism, in matters which have tended greatly to the comfort and well-being of the world. It has done enough in that way to suffice for the glory of the country; but, notwithstanding all that, art has made great progress too.

Nearly the last toast was the health of the Chief Commissioner, the Hon. W. Cowper, in proposing which Sir Charles Eastlake said the skilful arrangements which, under unpromising conditions of space, have been planned and completed in the recent alterations of this building, do honour to the architect, Mr. Penneborne; but we are indebted to the Chief Commissioner of Works for enabling the builders to complete their labours within the appointed time. Afterwards, when Mr. Cowper acknowledged the toast, he paid a graceful compliment to the skill of Mr. Penneborne.

THE ARCHITECTURE OF LONDON.

WE continue our report of Mr. Hope's address on this subject. He advocated, and still adhered to the belief, that the greatest improvement in London would be the construction of a river-side park between Westminster Abbey and Charing Cross. Whilst we had the great forest track of Kensington Gardens and Hyde Park—whilst we had the meadow of the Green Park and the ornamental garden of St. James's Park coming within two or three hundred yards of the river, it was a shame and disgrace that this great sweep of country in the middle of the town should not come down to its natural basis—namely, the Thames. There were many other schemes which a fervid imagination might dream of. Sweeping away, not without a sigh, St. James's Palace, opening St. James's Street to the Park, and then carrying it forward until it touched and was lost in the Regent's Park, would be a magnificent improvement. But putting all these considerations aside, the practical question was, how to improve London as it stands. The lecturer then gave an outline of the configuration of the ground on which London stands, which he said was admirably suited by its undulating character to conduce to a picturesque effect in its buildings. There was hardly any town of the size of London that lay in a country of so high an average elevation. Venice and Amsterdam respectively, perhaps, the most picturesque Southern and Northern cities in the world, were each of them situate in morasses won from the sea. To be sure, the presence of water up and down the streets of those towns and the character of the buildings that fringe the quays give to Venice and Amsterdam their peculiar character; but, compared to those cities, London was a series of broken hills,

in fact almost a mountainous country. The cause of this vast size of London was nothing to be proud of. London might have had all its population, all its healthfulness, and a great deal more, and much more convenience than it had at present, but for the accidental fact of the building of this city having got from the hands of proprietors into those of middle men, and from their hands into those of double middlemen under them. The system of giving leases, advantageous as it might be in many cases, produced a spirit of speculation, and the various proprietors of farms about London threw them into the market, and endeavoured to realize in their lifetime by parting with them on building leases. The principle was adopted of erecting buildings which covered the maximum of ground area with the minimum of vertical height; and so London had grown up with a combination of different proprietors and different building leases under those proprietors, until it had reached that painful superfluity of area even compared with its population which he hoped would enable us to increase London not into Essex or Hereford north and south, but upwards into the sky, in buildings more aerial, more bright, and more elevated. London being a northern city, of course depended much on atmospheric effects. Those southern suns gave a clear sky, a climate which, except when a thunder storm came on, was of almost unbroken brilliancy, but there were none of those half shades, those mists that came and went, that play and variety of atmosphere which represented the same building under different aspects at different times. Those atmospheric effects were what the northern architect should rely on. He must not rely too much on combining foliage with house building. Foliage did very well in climates where not much coal was burned, where, consequently there was no deleterious atmosphere, and where the warmth of the sun kept evergreens green, or brought out the deciduous trees early in spring. In London the combined effect of coal smoke and a cold climate caused the trees to come out very late, and to turn black very early. Common sense had taught Englishmen that the best way to deal with foliage was to mass it together, to bring as it were large tracts of country inside the town, and mass his foliage with broad belts of turf between them. Our parks illustrated that principle, as did also our principal squares, such as Grosvenor-square, Lincoln's-inn-fields, &c. In a warmer climate the planting of trees in streets might be adopted, and it might be advantageous here also; though, as he had said, it was not to be relied on. In Amsterdam, for instance, there were rows of trees along the streets, which in summer conducted much to the picturesque of the city; but even in winter the gables compensated for the absence of the foliage. Any great scheme of reconstruction was not to be thought of: the widening of streets and the making of short cuts whenever that could be effected were what we should rely on. A great deal would be done with broad pathways being, as it were, swept out by a cannon-ball, and the various means to that end, though in themselves they might seem insignificant, would produce a satisfactory result. To come to the point—what were to be the main principles of the future architecture of London? Design was one; material was another. He contended that under the head of design they might come to two main principles, each of considerable importance. The first was to play with the sky line; to take that sky line and deal with it boldly as the most important feature of the whole building. The second was to construct every house as in itself a unit standing by itself, looking, of course, more to its height than to its width. The principle of building houses in terraces, which was the principle that must be adopted in a monumental city, and the principle so often adopted in London, could never be satisfactory. Do what you will, there was something about it that betrayed the sham. In building a town, even if it were necessary to make a street as straight as an arrow, it would be better to break up and destroy the uniformity of the terrace. The idea of causing it to resemble a palace front could never be realised; and if the builder had to make one house higher than others it would be better to place it at the corner instead of in the centre of the mass. The sky line resolved itself into three special forms; namely, the pyramid, the tower, and the cupola. By the pyramid he meant everything that tapered up with two lines meeting at a central point; it included the spire, the cone, and the gable. By the tower he meant everything that rose in a square mass, and thus the tower included the massive chimney-stack. By the cupola he meant everything that rose with lines more or

less curvilinear, and under that term he included the Mansard roof. These three included everything out of which the sky line ought to be formed; and in building in London, with its varied atmospheric effects, the sky line ought always to be taken into consideration. An architect, if he had the selection, would choose the corner of two places for the erection of his building, on account of the opportunity it gave him for rounding off, which added so much to the general effect. That was a very laudable ambition, because then he would have scope there which he would fail to find elsewhere. Dealing then with houses as units, what were they to come to? The first thing to look to was the elevation of the front, which was all in all. It is often very seductive to draw a very pretty geometrical elevation, but they might take his word for it, that was very often little better than a mockery, a delusion, and a snare, when building in a town. Every building has a front, but it has also two sides and a back, and the elevation of the front, with respect to the two sides and back, would as often lead astray as lead in the right direction. Look to what London is: blocks of houses, enclosing hollow squares within. These blocks could not be called absolutely square, as they were generally longer in front than deep behind. If buildings were erected nearly on the same elevation, he would not say they would see an ugly back, because that would be hidden, but a side that in no way corresponded with the front, and they would also see an ugly cornice stopping 44 inches round the corner. These cornices, he would say, were the greatest temptations that could come in a frail and erring architect's way. They should avoid cornices as they would avoid any other form of evil. If they could carry it round they should do so; but if they put a great lump of a cornice, hanging in front and ending in nothing, they would make a great sham, and expose themselves to the criticism they richly deserved from those who would look more than 1 inch round the corner. They should deal with the sky-line as he had stated, run the building up into a cupola, tower, or pyramid, and then they would place the cornice in its right position. He did not mean to say that the cornice should not play its part, but its part should be a very subordinate one in this northern architecture which he advocated. It should be the base of the sky-line capping, not the termination of the vertical building. For instance, if they had a cornice as the termination, how could the chimneys be carried out well? and yet a good solid stack of chimneys, in the hands of a good architect, is not only virtually but really a tower. It gave elevation and formed a break. It might be to a great degree grand, and at the same time to as great a degree unsightly. Any stack of chimneys that required crockery or metal topping was not only a failure but a solecism, both architecturally and actually. By building the stack in a mass, which was not consistent with the heavy cornices he spoke of, they would secure the sky-line and have domestic comfort for those within, and architectural beauty for the building. He would give them an instance of a great opportunity lost. If they stood at the north-east corner of the Green Park, they would have west the whole stretch of Piccadilly; south, the broken ground of the Green Park, terminating with some of the towers on the Palace of Westminster. The spires of several churches were also to be seen, and a glimpse was also got of Buckingham Palace, to which distance lent a charm which it was said was not to be found nearer. They would see also a large building which he believed was intended for a hotel. It was an offence to the eye, and why? Because the details were mean. If it had a Mansard roof and a few stacks of chimneys well disposed, then at a distance of 200 yards they would mass these, but they are wanting; and where this building might be the turning point of a great town landscape, it was a huge block of deformity. That might be taken as an illustration of what he had endeavoured to impress upon them. He did not know to whom the design of that hotel was owing, and therefore he did not speak from personal feeling, but merely from observation of the edifice. Lower down, Bridgwater House also failed with chimneys. They were just sufficient to attract the eye, but not sufficient to make a rest for the eye which they attracted. The same might be said of Stafford House, though they were both great masses, with good architecture more or less about them; but there was want of sky-line that was more especially needed owing to the slope of the ground in that direction. If they went to Hanover-square, to Hyde Park,

anywhere in Grosvenor-square, they would see the spire of that beautiful building, St. George's Church, producing, if it was a hazy day, a fine atmospheric effect. The site of the building might have been an accident, but the effect was great. Wren's western end of Westminster, with all its defects, was a great mass. Near it were Mr. Scott's very picturesque houses; and in the same neighbourhood, that monument of which a very high official was able to speak with such a superb superabundance of ignorance the other day. In looking through London, it would be found that street scenery had not been altogether disregarded. There was the Euston Hotel, with its high elevation; there was also the Great Western, which was a great improvement; also the Victoria Hotel, near Buckingham Palace, which, without entering into a discussion of design, from its altitude boldly thrown skyward, from the stone of which it was built, and from its pyramidal roof, was to be admired. Looking at these edifices, nobody would say that the cause of architecture was not growing in London. There is a house lately erected on the west side of Bishopsgate-street,—Mr. Wilkinson, architect,—in which the form of Italian Gothic has been introduced, and the cornices have been dealt with so as not to make the fatal mistake of looking round the corner; the pyramidal roof has been carried out, and those who approached the building, would find a specimen of magnificent architecture,—a good outline and great beauty and delicacy of detail. Mr. Barry's schools at the corner of St. Giles's-street were also works of very high merit: the height is great, and the gable, which is one of the elements of the sky-line, successfully handled. They were aware that gables could only be dealt with very gingerly in London, owing to the restrictions imposed by the Building Act,—one of the objects, no doubt, being to guard against fires. That should be considered by architects, and it, of course, deprived them of full scope. Those buildings by Mr. Barry had a very good altitude, and a very sufficient gable, and, inside, the rooms were airy, light, and well distributed. That was a locality in which buildings of more or less merit would be found. The schools of the parish of St. Martin showed considerable study. The buildings he alluded to were massed together, and the unity contributed to the great whole of London's future picturesqueness. They showed what the town might be if fairly taken in hand by one person after another, each person aiming at some particular object. It was a mistake to think that in Amsterdam and Venice, or any other Continental town, the buildings were all first-rate, or even tenth-rate. They were generally thirty or forty rate. It was the ensemble to which they owed their effect, making them appear as if with respect to each it had been its design and intention to carry out one idea,—and not to the mere mechanical piling of them together. I will not take you through the City; but in the City there are many very sumptuous edifices round about our public buildings. There is Mr. Sars's edifice, and the still more sumptuous Marine Insurance Office; then there is the somewhat fantastic Telegraph Office behind the Royal Exchange, and also the small but pretty schools of St. Mary's, Aldermanbury, erected within a few years by an architect seated in the City. If they proceeded onwards to the poorer neighbourhoods, they would traverse street after street, uniform, and monotonous, and wretched, and their hearts would sink within them; yet here and there they would see a sample of what enlightened enterprise might carry out. In one of the poorest parts of Bethnal Green, Miss Counts had built three great lodging-houses, two of which are complete and the third almost out of hand. They are solid masses, on a huge scale, constructed of fire-proof material, with some pretensions to architectural elegance in their sky-line, and with a bulk and solidity which carry beauty with them. These are full of inhabitants, and are the representatives and correlatives of many streets and houses, massed into those great structures. How far the habits of the population might allow them to live in "flats" instead of houses was a matter which he could not then enter into, suffice it to say, that here and there the experiment had been tried, and there had been enough success achieved to warrant its imitation, not merely by the architect but by the philanthropist. He had taken them so far through a great deal of London, but had not yet entered on Belgravia, or Tyburnia, nor into that region which had been built in a quarter the name of which he was afraid he could not accurately give. A few years ago he would have called it

North Brompton, now he believed he should designate it South Kensington. Whether it was North Brompton or South Kensington, there were large houses and straight streets there. No doubt they were improvements in the buildings compared with what they might have been some years ago. The height is greater in Tyburnia than in Belgravia, and in Brompton-Kensington than in Tyburnia. There is an improvement also in the roofing. Still there are many points which do not admit of so much praise. The material is almost confined to compe. The distribution of streets is that miserable one of right angles, square blocks, mutations of palaces, terraces, in short, where we want houses. There was no harmony in them with ancient London. They were the last specimens of every thing which, if they meant to make the metropolis picturesque, they ought to avoid. There was intended to be in the last of those regions,—South Kensington,—a building, not yet risen above the ground, which, they were told, would be completed by the 1st of May, 1862: he meant the Great Exhibition building. He should have hoped and wished that, in a lecture on the architecture of London, one might have wound up with a glowing panegyric on that very vast expanse of structure. He feared, however, that, with all desire to see the Exhibition successful, with all desire to give all praise to every good intention, he could not be very florid or very enthusiastic in his laudation of that design. People's tongues had been tied, because it was such a very good intention. It would seem like throwing dirt in the face of one's benefactor to criticize it! On the other hand, one did not like to cast reproach on anything that was like an effort of genius, or which might seem to be genius, emanating from quarters which possessed the merit that a generous man always appreciated,—that of self-instruction. But still he feared he should express something not very far distant from profound disappointment at the design. It was allowable to be disappointed at a first effort. It was, he hoped, not a crime to be disappointed at the large glass cupolas; and disappointment would not have been changed into approbation had the still larger central cupola continued to form a portion of the design. And there he would leave the Exhibition of 1862. He had been speaking so much of design that he had left himself little time to speak of material. Those who had studied the progress of architecture could not fail to realize how much their resources in the way of material had been developed; how, instead of being confined to mere Bath and Portland stone, or the ordinary brick, they had gone into the polychromatic development of real material. If they went into this style at all, they should do so boldly. The materials should be of the best sort, each in its proper place, and all well and strongly exhibited. They saw too often the polychromatic style of architecture carried out with the yellow brick of London, with a few red bricks thrown in here and there. That would not do. The bands should be bold and broad, and the colours distinct. By some means, fair or foul, they should bully the brick-maker into giving better bricks, such as were used in many of the brick buildings on the Continent. The magnificent hospital of Milan was built of red bricks, with mouldings carried out in the same material—hard red bricks, which stood the wear and tear of centuries. If they could get that material in England, well and good; if not, they should go elsewhere for it. That which they used at present—the yellow, red, and black—fused into a uniform chocolate under the London smoke. They should therefore use other tints, such as green. That colour might be used in painting window-frames, and in other portions of the structure. But whatever colours they used, yellow, red, black, or green, they should be of superior quality, and be more boldly dealt with. Time warned him to draw to a close. They would bear in mind that he had dealt exclusively with secular architecture. He had done so because he believed that the brunt of the battle now rested, so far as town architecture was concerned, with that particular branch. Churches which had both gables and spires took care of themselves. Ecclesiastical architecture had gone on improving, and had contributed more than any one had an idea of to the picturesqueness of London; and he left it as it was, not because he did not realize its real importance in every way, or underrate it, but because it was not the point which required expansion and improvement. The next matter he would observe was, that up to the present he had not insisted upon style. He thought he had hardly in the course of the lecture used the words Renaissance, Gothic, and Classic. He had not adopted that reticence from cowardice, or from a

desire to avoid the subject. He was a Goth—more than that, he was a Northern Goth; but he was anxious to beautify the Northern Gothic with the best points of other styles, namely, the Italian-Gothic and the Italian-Italian; for now that nice distinction should be drawn. He was willing to give a welcome to the best features of Grecian and Italian Gothic, and to extend the highest admiration to buildings of those classical and various styles, either in or out of London. He looked on St. George's, Hanover-square, as one of the best specimens of picturesque architecture. Then there was that magnificent structure which they saw when looking up Ludgate-hill. The forest of City spires to be seen wherever the eye turned, and the grand conception of Hawksmore, who learned his lessons not only in Italy, but on the Rhine. If they looked at St. George's-in-the-East, they would realize the inspiration which he must have drawn from styles very little appreciated by men in those days. He was ready to give credit wherever credit was due; wherever conception and originality got play. He was a Northern Goth, he hoped, in conviction, not in prejudice; because he believed the Gothic best fulfilled certain general rules of taste which ought to be applied in London. If they had gone with him in treating houses as units, not as component parts of terraces; if, as he had appealed to them to do, they would play with the sky line; if they made the cupola, the pyramid, and the tower the main features of that sky line; if they attended to design, and adopted judicious variety of colour in the materials, then he left it to their calm and cold judgment to answer in what style they found the best exemplification of all these principles. He appealed to their calmest and coldest judgment; and the more calm, the more cold, and the more critical that judgment was, the better he would be pleased; for then would they be the more likely to answer,—"The Gothic is the style with which they could best grapple with those problems." If they did not do so, for his part, he would be much surprised. In the mean time he trusted he had not occupied their time unprofitably. His endeavour had been to point out—he feared he had done so imperfectly—how, little by little, they could all of them work, as it were, like ants, so that contributing, by small degrees to the great heap, they might deal with this London of ours,—this vast, sometimes cold, often foggy,—this northern, this great, this inimitable London, and might each, in his own measure, help to convert it into a picturesque city in conformity with the natural variations of its soil and those rules of architecture which they had learned in northern climates. London would be a picturesque city if they set their shoulders to the wheel. Its picturesqueness would not be the picturesqueness of abrupt rocks and deep valleys, such as they would have in Edinburgh; but a picturesqueness in which the vastness of the whole mass of the metropolis much more than compensated for those accidental advantages,—where the thousands and tens of thousands of the houses, its numberless streets, and the number of reconstructions that go on day after day, may, with a very small amount of talent expended on them, produce a great result. There is the very highest architectural talent available in London now. The very highest talent is used here and there, and in a great many cases a secondary amount of talent, and that secondary talent, imitating the higher, will carry on the great work which we all desire to see accomplished. If there was only something like unity of intention and desire to build for the sake of the town itself, and not merely for the individual structure, with a true idea of elevation and aspect, as viewed not from a few yards distant, but from whatever point the perspective could be gained,—if, above all, the builders could be got hold of and made to understand that monotonous rows of tenth-rate houses, run up with starved designs in horrid terraces, were not commodious, beautiful, nor even cheap,—if houses were built for their own sake, as part of a whole, and not for the sake of any fancied uniformity with the house next door,—if they could get into the mind of the builder that London is not a *caput mortuum*, but a great city in the course of rebuilding,—then it might be rebuilt into something most picturesque and beautiful, by the multitudinous aggregation of units one with another. They might lay the foundation of converting this London of ours, which is so often, and so often unjustly, a mockery and laughing-stock, both to people at home and abroad, into a metropolis which might, in a century or two hence, have a name all through the world for infinite variety, infinite beauty, infinite quaintness, and also infinite gracefulness of architecture.

The Chairman (Mr. Scott), called on the meeting to join in a hearty vote of thanks to the lecturer. The subject which had been dealt with in so interesting a manner was one of great importance, and should not be passed over without some remark, however short. What could be so important as the advancement of architectural art? What could so supply an object to exercise it as improving and raising from its low state of architecture the greatest city that the world ever saw. London, he was glad to say, was showing signs of rising from its low estate, and helping in the great work. Such lectures as they had just heard would have a very great effect. Each of them in his own special sphere was called upon from time to time to think on these special subjects. It was not often they were called on to direct their attention to the whole of the subject, and to the aggregate of the subject, but it was highly desirable that their attention should be directed to the greatness of the task before them, and that they should all do the best they could to carry out those great principles by attending to the breaking of the sky line as well as the material which they made use of. For the last fifty years a series of Building Acts had restricted the architect very much; but notwithstanding these resolutions, there was great scope for the exercise of genius. Let them try to get at the minds of the builders, who, as a general rule, when they designed rows of houses, probably did so by calling to their aid young architects not yet in practice. It should be impressed upon those young architects that they ought to influence their employers to throw a little more of the picturesque into their structures. With respect to materials, it behoved every architect to attend to the colouring, so that their work would not be reduced to a dull monotony. All their efforts would be in vain so long as they did not secure proper materials. The only way to obviate the existing evil was to obtain vitrified brick without a glazed surface. Hitherto bricks of this description had only been produced at a very great cost; he saw no reason why it should be so, and he believed that if proper attention were directed to the subject, good and permanent vitrified bricks of the kind he referred to could be produced at a reasonable price. If by the use of such material they could get rid of the present dull monotony of colouring they would have a chance of making London beautiful and light, as she was already vast and grand. The chairman concluded by again calling on the meeting to thank Mr. Beresford Hope for his admirable lecture.

GENERAL MEETING OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE annual general meeting of the Institute was held on Monday evening, the 6th of May, to receive the report of the council on the state of the property and affairs of the Institute, together with a balance-sheet of the receipts and disbursements; and to elect officers of the Institute, and examiners under the Metropolitan Building Act, for the ensuing year. Professor Donaldson, V.P., presided. The meeting was very numerously attended.

The report read was of a very satisfactory character, and the balance-sheet showed that the finances were in a very flourishing condition. Of these, hereafter.

The chairman having proposed the adoption of the report,

Mr. Tite, M.P., seconded the motion, and in the course of his observations commented on the interference of the civil and military engineer in domain really belonging to the architect.

Mr. Beresford Hope, in supporting the proposition (which was afterwards carried unanimously), expressed his fear that architecture was not provided with a special place in the proposed Exhibition of 1862. He condemned the building which it was proposed to erect for it, and said it was to be hoped the works exhibited would show that architects were necessary to architecture.

Thanks to Mr. Cockerell, R.A., president, moved by Mr. Scott, R.A., and seconded by Mr. Ashtitel; to the vice-presidents and council, moved by Mr. Charles Barry and seconded by Mr. Scott; to the honorary secretaries, Mr. Hayter Lewis and Mr. James Bell, moved by Mr. Godwin and seconded by Mr. Tite; and to the honorary solicitor and auditors, moved by Mr. Mair and seconded by Mr. Ferrey, were passed with unanimity and warmth.

The Chairman, after some observations pointing out the extreme fitness of Mr. Tite for the office of President, invited that gentleman to say if he would serve if elected.

Mr. Tite replied that if appointed by the general

wish of the meeting, he would act willingly, and do all in his power to further the interests of the profession. He expressed his belief that the profession suffered in 1851 through the President not being a professional man.

It was thereupon proposed by Mr. Godwin, and seconded by Mr. G. Mair, that Mr. Tite, M.P. and F.R.S., be elected President for the year ensuing.

It was then proposed by Mr. Street, and seconded, on the ground that it was not desirable to continue electing an architect as President, that Mr. A. J. Beresford Hope be the President for the year.

Mr. Hope expressed his willingness to serve if elected.

After much discussion, the election of President was adjourned for a week by a very small majority.

The following officers were elected:— Vice-Presidents—Messrs. T. L. Donaldson, M. D. Wyatt, and G. G. Scott; Honorary Secretaries—Messrs. T. Hayter Lewis and James Bell; Honorary Secretary for Foreign Correspondence—Mr. F. C. Penrose; Ordinary Members of Council—Messrs. B. Ferrey, W. Haywood, C. C. Nelson, J. Norton, E. M. Barry, J. Fergusson, R. Kerr, W. Slater, G. E. Street, and J. B. Waring; Treasurer, Sir W. R. Farquhar, bart.; Honorary Solicitor, Mr. W. L. Donaldson; auditors, Messrs. Horace Jones and Arthur Cates.

THE CONTEST FOR THE PRESIDENCY OF THE INSTITUTE.

SIR,—Few, I think, who were at the meeting on Monday evening will fail to have been struck with the extreme undesirableness of a contest such as that with which we are threatened. However strong may be our individual preferences for one or another of the candidates, and however much we might individually rejoice to see one or another of them in the president's chair, the painful fact remains that the contest, by which alone either of those now proposed can attain it, is highly prejudicial to the true interests of the Institute. If, however, such a contest be inevitable, the ill effects which I foresee may, perhaps, be in some degree mitigated by doing what may be to divest it of a personal or a party character. Let us, then, inquire for a moment whether the candidates have not each of them claims wholly irrespective of party views.

First, then, as to Mr. Tite. He stands in the foremost rank in our profession; he is retired from its active pursuit, and is a man of independent fortune; he is a man of great and extensive information, not only on matters bearing upon our art, but upon general subjects; he is well known to the public and to public men, a man of unflinching courage and determination; and, lastly, he happens to be the only architect in Parliament, and possesses a singular aptitude for public business, which may be of importance during the year of the Great Exhibition.

Secondly, as to Mr. Beresford Hope. He is the son of the celebrated Thomas Hope, and inherits his devotion to the study of architecture, of which he is one of the most munificent patrons; though non-professional and a man of fortune, he devotes a large proportion of his time to the promotion of objects connected with architecture, and has continued to do so for a long course of years. Though not at the present moment in Parliament, he has been, and, no doubt, will be so again; and his social position brings him in constant contact with those in power. He is the originator of a most important movement, the object of which is to ensure the representation of our art in the approaching Exhibition on a scale and in a manner worthy of its rank among the fine arts; and to this object he is devoting his time and his influence; he is a man of great urbanity of manner and of tact in the conduct of public business; and finally, he is the author of an architectural work of considerable merit, and in every way a most accomplished man.

The two principal candidates, then, having these recommendations, let those who support them do so rather on these grounds than because one is supposed to be hostile and the other favourable to the revival of Gothic architecture. If, however, the claims of neither can be advocated without party or personal strife—so injurious to a society like ours—let both withdraw for the sake of peace and unanimity, and let us have for our president

* Simply on the ground of correctness, it must be mentioned that the movement was originated by the Council of the Institute of British Architects at the end of last year, and was referred to in our volume for 1851, p. 784.

a man who, though not possessing *every one* of the claims enumerated above, can boast of *many* of them, and who adds to them the somewhat important recommendation of being the *founder of the Institute*, of having devoted to its interests twenty years of most devoted labour, and of not being in any strong degree a representative of either of the parties into which our individual tastes divide us. F. R. I. B. A.

Athenaeum.

*** It was, at first, our intention to have omitted mention, in the notice we have given of the meeting, of the gentlemen named for the office of president, as being the more agreeable course for both; but the position of the writer of the above claimed from us the insertion of it, and led us to take another course.* We must set him right, however, in one respect. Mr. Tite was not "a candidate," although he may be so now. When that gentleman was requested by the late Council to allow himself to be nominated for the president's chair, he refused distinctly to become a candidate, and consented to serve on one condition alone, namely, that he was elected by the meeting *nem. con.* This he repeated emphatically on Monday evening; and those gentlemen who have thought it desirable to interpose a candidate in opposition to the unanimous invitation on the part of the Council, may, therefore, deprive the Institute of the advantages that might result from the services of Mr. Tite in the capacity of president. Under the altered circumstances, however, he will doubtless yield his objection, and allow his friends to elect him. Our own opinion as to the desirability of having a professional rather than a non-professional president has been often expressed, so that Mr. Hope is not likely to misinterpret our remarks; and we believe this desirability to be greatly increased by the circumstances of the coming year, it being of the utmost importance that the profession should be fully represented in the Councils of the approaching International Exhibition.

WHAT ABOUT THE LABOUR QUESTION?

[From the French of M. Chevalier, Member of the Institute.]

A GREAT aid in this study will be to look back on the progress already by the people, and to note how our field and town labourers have reached the point where they now are, a condition which, if not all it should be, is still vastly better than it was in ancient times.

The study seems cold and abstract compared with much that is occurring around us, but it offers us the only means of substituting for the passions which obscure truth the reason which brings her forward in the light.

In the dawn of civilization, the men employed by the head of a family to assist him in his labours were slaves, possessing nothing, not even their own persons, and who passed their lives in a destitution of which the poor of our time can form no conception. The great majority of men were necessarily under the curse of the hardest labour, and could have had no enjoyment of life. Their toil was unprofitable as severe, because it was lightened by none of the inventions which fertilize modern industry. They had none of the highly-finished tools, implements, machines, and the various other appliances which mark steps in improvement, and give effect to others. The natural forces, as wind, water, the elasticity of steam had not yet been subjugated to our use. The lower animals gave us as yet but feeble assistance, for no one knew how to turn them to account. Thus the horse's industrial uses were confined to carrying burdens. Roads, again, were so bad that wheeled vehicles could scarcely be forced up their ascents, and were subject to sink so deep in the mire, that no prayers the waggoneer was accustomed to offer Hercules could disengage them. There were no money advances: industry was distributed to excess, without anything, however, of what we call division of labour; and hence another cause why production was both costly and difficult. The labourer himself wanted aptitude for his work: labour produced little for the slave, because it produced little for the master. The labourer, therefore, lived in abject wretchedness: he suffered the triple misery of body, mind, and heart. He was a chattel by the body, a brute by the soul.

Now, what does all this imply? That in old times masters were tyrants, who for their pleasures, or other selfish ends, trampled under-foot every right of humanity! Possibly: though this

cannot be true of more than a few of them. What is certain on the other side is, that society was then without capital, and that here lay the true cause of the evil. Now, tools, machines, every species of apparatus which enable men to apply new improvements, is—*capital*. The powers of nature subdued to our use, her forces laid hold of in machines, and subjected to the will of man, the wind on the sails of the mill, the fall of the water on the wheel, the vapour in the cylinder of the steam-engine, is—*capital*. The immense preparations required for extensive manufactures, *creating wealth on an economic principle*, is again—*capital*. The skill of the workman himself, whether it be the result of preliminary teaching, of apprenticeship, or much experience, inasmuch as it increases production is in like manner capital. Thus the creation and diffusion of capital is the first condition of popular progress. When capital has no existence the greatest number must be in a state of abject misery. In the absence of capital all that the labourer can procure for himself by the most exhausting work is a coarse and wretched subsistence. If there be luxury—and even in ancient societies there existed at times an excessive luxury—it must be so exceptional that if equally distributed among the whole people it would make no perceptible change in their condition. In a word, were there no capital to support a tolerably numerous population on a given territory, a large number of men would, under one name or another, have to live in slavery; that is to say, in extreme wretchedness, and in the most absolute dependence. Without capital the degradation of a part of the human race is so inevitable and seems so necessary, that the most elevated and subtle thinkers, philosophers of whom our civilization is justly proud, held that there were two natures among men—a "free nature" and a "slave nature." We owe the distinction to Aristotle, certainly one of the most powerful geniuses that have appeared on this earth. It is only when capital has accumulated that men's labour produces enough to secure a comfortable existence to a large number, and to withdraw everybody from the hideous misery in which they formerly grovelled, and whose degrading influence pressed equally upon thought and feeling.

This fundamental doctrine, that it is by capital that the great mass rise out of their brute condition, was foreseen and expressed in an original manner by the philosopher to whom I have just referred. "If the shuttle and chisel could move of themselves," says Aristotle, "there would be no need of slavery." Well, when men acquired capital "the shuttle and chisel" *did* move of themselves, and a great progress was accomplished: slavery could be dispensed with. Just as human societies shall have, proportionately to the population, a large mass of capital, will the privations—material, intellectual, and moral—of the majority become less; nay, they must become less, for the force which urges on the great mass, and which tends to take their share in every discovery and acquisition, is invincible. I do not know how anybody can now have a doubt of it. It is thus that the accumulation of capital is the condition absolute to popular progress. Certainly it is not the only one. Science must follow in the wake in order that the increase of capital may find an increasingly profitable employment; and the Christian sentiment which makes us look upon every man as our brother before God, and our equal before the law, must fructify, and emerging from those caverns of the soul where it has been lying hid as in a conservatory, show itself in the practical existence of the nations.

But civilization, if it have divers aspects, is one. There is a law of harmony which presides over it by virtue of which it is not possible that civilization can advance on one side of the life of a people without advancing majestically and altogether in every other direction. In a word, there is no state in Europe where it is possible that capital can increase without the human mind correspondingly enriching itself, and the great mass of the people sharing in the spread of knowledge; for every nation must rot in obstruction, or retrograde into powerlessness, where the sentiment of civil equality and fraternity has not free play.

It is thus that every system which is founded on a pretended natural hostility between the interests of labour and those of capital, must fall like a house of cards. That there have been, and that there are still, grasping capitalists,—that the rich have availed themselves of the opportunities which have arisen to press upon the poor,—are things I do not deny; but it will not be denied here either that the poor have often turned the tables, and had their revenges. But these ex-

cesses, from whatever side they come, scenes of rapacity and violence, by which one or the other evidence their evil passions, in no way weaken the conclusion to which an examination of the fact has led us, namely, that capital is the helpmate of labour; that it is by cultivating and augmenting capital that rags and destitution will disappear from our cities; that we shall extinguish the vices which are the inseparable companion of misery, just as capital, according to the prophecy of the Stagyrite, has struck off the chains of the slave. Thus it is the saving of the capital possessed by society and its increase which ought to form the desire of all true friends of the working classes,—of those who wish, with all their hearts, that the virtual equality inscribed at the head of our laws, may merge as soon as possible into that practical equality which subsists in the United States, where nothing in dress, food, general manner of life, I would gladly add, even language, discloses any very great demarcation between the counterparts of our peasants or town labourers, and the most polished denizens of the cities.

Homer shows us that in the house of Penelope, who was simplicity personified, there were twelve women occupied day and night in grinding the corn necessary to the subsistence of the Queen of Ithaca, and of her companions and guests. We should exceed the truth if we named three hundred as the probable number thus fed by Penelope. Now, in this antique community, where there was no capital, and where everything was done by the sweat of the brow, it is clear that one person was required to grind, and to grind ill, the grain consumed by twenty-five,—perhaps by less than half the number. Now, supposing that all the corn used was in this way ground, one person would have been constantly required to be grinding for every twenty-five, or rather for every ten or twelve of the population. What an enormous proportion! We see by this example, among a thousand others, to what a point the human race must have been crushed under the exhausting toils necessary for supplying the first necessities of life, and how truly we may say that the most that men could then extract from the most oppressive labours was a wretched subsistence. In our time we have attained such a perfection in applying capital to the purpose of corn-grinding, that a large mill like that of St. Maur, near Paris, can grind daily enough flour, by the aid of twenty hands, to ration a hundred thousand soldiers,—that is, one miller for every five thousand consumers. Since, in ancient times, it required so much labour for so small a result, Penelope had no choice but to maltreat the twelve slaves occupied in grinding her corn, to give them but a small pittance, to clothe them indifferently; and it was, no doubt, much the same in reference to all other occupations. But supposing all our industry organized on the same basis as the mill of St. Maur, we should find it possible, nay easy to recompense every workman on a scale of actual magnificence. But 3,000 years ago there was no capital of any kind with a vast number of workmen, and therefore little production. But in a state of society where every kind of industry should attain the perfection of the mill we have just named, with capital sufficient to employ the whole population, the amount of production would be immense compared with the number of workmen: the capitalist would be secured a handsome return, and the workman inevitably obtain very high wages.

The improvement, then, of the condition of our working population reduces itself, in the eyes of one who knows how to analyse facts, to this simple formula—augment capital; develop every form of capital, including especially that which consists in the skill, industry, and assiduity of the workman; provide in such a way that, in relation to the population, capital, under all its forms, may be as considerable as it is possible to make it. It is under this formula that we must present the essential conditions of all amelioration, moral and intellectual, as well as material, of the majority of society; for, let me repeat it, the rule applies equally to all. Outside and beyond it, the people will meet nothing but illusions and deceptions, and society has nothing to expect but peril, agitation, poverty, and catastrophes.

The first thought of many who have superficially examined this great question is, that our distribution of the products of labour is bad; that it is all-important to change it; and that, in this simple manner, we should put an end to the distresses of the working classes. Hence the vigorous measures we see at times taken for an increase of wages, and a diminution of the hours of labour.

* Several letters of simple advocacy on either side we are compelled to omit.

Let us examine the two points, then, and see how they look when exposed to the light of truth.

Every increase of wages which is not accompanied by an increase of capital proportioned to the population, must be ephemeral. The laws of regulation by which we hope to introduce or maintain such an increase cannot stand. Terror may enforce them for a few days, but only for a few days, for the excellent reason that the thing aimed at is as impossible as to build a house which shall be self-sustaining in mid-air; or (to use a comparison which shows more definitely the nature of the chimera which people are thus pursuing) as to withdraw from any given object parts which, united again, would make more than the whole. You fancy you can attain your object by largely diminishing the hours of labour: well: masters will come to pay at so much the hour. You would fix peremptorily your rate of wages per hour: your behest will be eluded, because they cannot be obeyed. Labour is a branch of merchandise whose value is regulated like that of any other article in the market. It is just as impossible to fix by any arbitrary will of authority the market value of labour as that of bread, meat, or iron. It would be a happy circumstance for our national industry if iron could be sold at a farthing a pound. Unfortunately, it cannot be made for that price. Suppose, however, that the Government should decree to-morrow that its price should be fixed, under penalties, at a farthing a pound. Do you think it could be obeyed? This or that ironmaster, under a temporary alarm, might obey, but it is obvious that the rest would instantly close their works. Now, just such would be the result, sooner or later, more or less directly, of all such violent attempts to establish by law a fixed price for labour.

The recent demand for increased wages, with shorter hours, has also this enormous drawback just now, that rarely have we been at a moment when there were less means of bettering the recompenses of labour. Confidence has disappeared to give place to panic. Now, it is confidence which upholds capital, which enables it to produce and to distribute all that society stands in need of—which, in one word, circulates and fructifies capital. If this happens with the same wealth in land, houses, machines, roads, canals, and railroads; with the same stock of raw materials, and in manufactured articles; with the same intellectual capital in talent, knowledge, and ability, we are all of us poorer than we were a short time since. The fact is, that there are so many out of the general depreciation to extract higher conditions of existence for fifteen or twenty millions of our fellow citizens. Manufacturers, agriculturists, merchants, lawyers, doctors, artists, men of letters, all gain infinitely less than they did a month ago. Is this the moment, then, for workmen to demand higher wages? In such a crisis there is a higher question than high wages for labour—the having labour at all.

What is the law which regulates wages wherever labour is free? The supply of capital in comparison with the number of men requiring employment. We have here the eternal law, in reference to supply and demand, which governs all our business operations. A manufacturer has capital to pay a hundred workmen at the rate of 4s. a-day each. Two hundred offer themselves: if obliged to employ all, he can give them but 2s. a-day. In this way, the more the population increases relatively to capital, the more wages must fall. They must fall, though it be to the injury of public health, and in spite of all the appeals of Christian charity and of wounded humanity. They will fall, until the unfortunate workpeople are reduced to the minimum of starvation, to the coarsest kinds of food. This was for a long time the history of Ireland, where as the people multiplied while capital remained stationary, the unfortunate peasants came down from the use of meat to dry bread, from dry bread to a good kind of potatoes, from a good kind of potatoes to the worse quality produced in greater abundance from a given surface. This is frightful. True; but it is an inexorable necessity. "Where there is nothing the king loses his rights," says the old maxim. It is just the same of the people, whether it be sovereign or not.

Tribunes, philanthropists, preachers, it is useless cudgelling your brains; you will find no other solution than this—frivolous misery wherever there is an immense abundance of hands with little capital. Laws guarantee labour! laws guarantee wages! Childish effort! Your guarantee will be idle so long as you shall not have created capital; and you have no mode of creating capital except by accumulating labour, by economy, by moderation, and by patience. To desire increased

wages or shortened hours of labour, so long as there is no increase of capital, is either chimerical or it is ephemeral. Let us take this manufacturer who has been employing two hundred workmen. You wish him to double their wages. Should he consent, the most that he can do is to employ for a time a less number of hands. What will you do with those he discards? You may answer—"The State shall give them work. It shall open national workshops." Good. But these workshops will require capital. Whence will you draw it? We cannot do for capital as Pompay said he could for soldiers: stamp the soil with his foot. To obtain the capital necessary for these workshops the State must either take it or borrow it from private industry; but, in this case, private industry, having so much less capital, will be obliged to send away so many more workmen. While you are employing them on one side, a proportionate number will be displaced on another, who will also come to you for employment, and there will be no end of it. It is the wheel which is for ever turning.

Then, if wages are increased, the cost of production is raised: products must be sold dearer under penalty of loss; and thus consumption will be diminished. Production, as a matter of course, will diminish also; and hence fewer workmen will be employed. And how will you remedy it? Not by national workshops, working in good faith on a borrowed capital; as I have shown, that is impossible. There is, it is true, one expedient: take from the Consolidated Fund all that is necessary to support unemployed workmen. What is this but the poor-rate under another name? This tax will be drawn from the same source as the others: it will be so much taken from the national capital, for these ten millions—let us say ten—if left to the tax-payers, would have served in a great measure to augment the national capital; and from the moment you distribute them among unemployed workmen, they become consumed, and may be said to have no further existence. You are, then, battling against the very object you have in view, if you desire to better the lot of your working population. Your business is to increase capital: your plan is to diminish it.

There are several branches of industry which export their productions. France exports more than four millions sterling in woollen tissues, a like value in cotton fabrics, together with considerable amounts in silks and "*articles de Paris*." Now, as a fierce foreign competition meets us in every market, the preference our productions receive is based on some trifling difference of price—say two, or three, or four per cent.—in our favour. Now, if wages are raised any other way than by the natural course of things and the free action of trade, we have the cost of our manufactures increased, and we lose our superiority in the foreign market: our export trade is ruined; the immense populations of Paris, Lyons, Marseilles, and twenty other cities which manufacture for exportation, are left without employment. You fancy you have advanced a step: you have gone back ten.

Is it possible to change the distribution of the fruits of labour, which has hitherto existed by giving a larger share to labour, and a less one to capital? Many answer this question in the affirmative. Are they right?

Most certainly not. This is one of the delusive hopes in which thousands of workmen rock themselves, greatly to their own injury. In all free societies (and I suppose that people are anxious that modern society should preserve a characteristic so painfully acquired), under a system of perfect freedom of labour—of that freedom for which workmen have sighed through so many ages—the part played by capital is determined by that unchanging law of supply and demand I have already referred to. When there is little comparatively to workmen, the profits of capital are large. When capital abounds, its share of the fruits of labour becomes less. History proves that what we call the interest of capital gradually diminishes in proportion as civilization results in greater wealth. And thus we fall back upon a conclusion at which we arrived by another road: if you wish capital to have a smaller share from production, increase the proportion of capital to labour. There is no other way.

Let us go a step further, and measure what we might expect not only from a reduction but from a total suppression of the share that now comes to capital. We perhaps exaggerate the total production of France in material products in putting it down at a billion of francs. Let us suppose to-

morrow that by some revolutionary decree the Communist system be established in France, that all capital be confiscated to the benefit of the state, and that each of our thirty-five million Frenchmen had to take his fair share out of the billion. This would amount to about 7½d. per day for each head. Well: suppose every unmarried workman of Paris with his 7½d. *per diem*. I know of very few who would be content with such a payment, even though given in the name of a social republic. A family composed of six persons would receive 3s. 10½d.—a modest amount in the belief of many of our workmen. But it will be said, production will extend her wings forthwith, and from this billion will soon spring up two or three. It is a thousand times more likely, however, that under the influence of the fear, confusion, disorder, and general brigandage arising from so immense a spoliation we should sink down to a half, and that the immense upset would establish very soon an equality, not of well-being, but of wretchedness.*

THE GOVERNMENT COMMITTEE OF INQUIRY AS TO STONE.

A MEETING of the committee was held in Richmond-terrace on Saturday last; present: Mr. Tite, M.P. (in the chair), Sir R. Murchison, Professor Hofman, Mr. Smirke, Mr. Scott, Mr. Tennant, Mr. Abel, Professor Ansted, Mr. Godwin, Mr. Bunnell, Mr. C. H. Smith, Professor Frankland, and Mr. E. M. Barry. Mr. Bonham Carter acted as secretary. Mr. Quarm, late clerk of the works at the Houses of Parliament, was examined.

At previous meetings various gentlemen whose preservative processes have been tried, were examined at some length, also Mr. Thomas Grissell and Mr. C. H. Smith.

The chemical members of the committee are instituting various experiments; and the committee have advertised, it will be seen, expressing their willingness to receive and consider any processes for the preservation of stone that may be submitted to them by a certain fixed date.

ARCHITECTURE AND THE GREAT EXHIBITION OF 1862.

THE Commissioners have placed Architecture at the head of their Fine Arts section, and we have no doubt will be willing to afford the fullest opportunity for a complete exposition of it. The Commissioners having named the Royal Institute of British Architects as one of the art institutions of this country, through which to communicate with artists, a "Representative Architectural Committee" has been formed, consisting of the Council of the Institute, and deputies from the Architectural Museum, the Architectural Association, the Architectural Exhibition, the Ecological Society, and the Architectural Photographic Society. The Representative Committee met for the first time on Tuesday last, present Professor Donaldson (in the chair), Mr. Baresford Hope, Mr. Roger Smith, Mr. Ferrey, Mr. J. Clarke, Mr. Fergusson, Mr. Lightley, Mr. Horton, Mr. Godwin, Mr. Mair, Mr. Edmeston, Mr. Ashpitel, and Mr. T. H. Lewis (honorary secretary).

Various resolutions were passed, of which it would be premature to speak now, and arrangements were made to meet weekly.

It would seem to be desirable that provincial architectural associations willing to assist in rendering the Exhibition a complete exposition of modern architecture should at once communicate with the Representative Committee.

ILLUSTRATIONS OF LONDON.

IN the British Museum collection, amongst the valuable things there to be found is a large number of prints, maps, and drawings, which were gathered together, chiefly by the care of King George III. A catalogue of these forms a very thick folio volume. Here may be found charts, maps, and views of places abroad; but the chief value of the collection is in the illustrations of British topography, which enable us in a curious manner to compare the conditions of towns, in days gone by, with the present. The views and plans of the metropolis and the suburbs have particular interest, and consist of all the known plans and views of London from before the reign of Queen Elizabeth: by these we are enabled to trace very clearly the growth of the metropolis. There are also views of various dates of the old buildings many of which are not now in existence. By referring to these prints and drawings, a good

* "*Articles de Paris*" consist chiefly of small articles of taste and luxury made at Paris.

* To be continued.

idea of the appearance of London before the Great Fire may be gathered. We also find records of this devastation, and illustrations of the rebuilding of the City.

In the catalogue, under the title "London," there are several subdivisions; such as streets, parks, public buildings, general views, bridges, &c.: each of these can be had in large volumes, of different thicknesses, by writing on one of the reading-room tickets, "King's Coll., London, streets," or any other set of prints which may be wanted. From the street views much information may be gathered of circumstances which happened long before illustrated papers were thought of. We find representations of royal processions, riots in troubled times, fires, and other events. These prints, in addition to other things, enable us to trace the peculiarities of costumes, &c. &c.

In the parks we see encampments and reviews of volunteers, in the days of cocked-hats and pig-tails. Here may be seen George III., in the costume in which he is represented in Cockspur-street; and the fat Prince of Wales, in back view, attired in a tall bear-skin hat and close-fitting dress, like the skeleton suits of the school-boys of the last generation. Here are views of fireworks, rejoicing for peace to be soon broken. We note a mock naval battle on the Serpentine; the burning of St. James's Chinese bridge and temple; the wonderful ascent of balloons; crowds of ladies looking on, in short-waisted dresses and large bonnets. We are, however, taken farther back, to the time when the *Spectator* and *Tatler* wrote in vain against the monstrous head-dresses and hoops; and when footmen, in flaunting liveries, bore before their mistresses clubs nearly as tall as themselves, carved into the grotesque form of these which may still be seen preserved in the umbrella shops of Oxford-street and the City. In the streets we see the changes of the shops and other alterations. Here are the three Royal Exchanges, the Bank of England, past and present, the old and present Mansion House, the Bow-street runners, or "Robin red-breasts," as they were called, in consequence of their scarlet waistcoats: thick cudgels are in their hands. The newsman with his trumpet is loudly proclaiming his papers; sedan chairs help to block up the footpaths; and stage waggons, fast coaches, and lumbering hackney carriages are principal features.

A careful observer will find much to amuse him in examining these prints. We may note the first omnibus and other introductions. Elsewhere we have processions and executions at Tyburn, old conduits, coronations, state trials in Westminster Hall, civic ceremonies, and many other matters which, better than words, show the manners of the generations which have passed away.

In the Print-room of the British Museum, also, there is a very large and valuable collection of prints, drawings, and other illustrations of old London, arranged with the text of Pennant. Here are many matters which are unique. The portraits of eminent individuals have much value; and in other ways the inquirer into the past condition of the metropolis may here gain much information. An excellent catalogue has been prepared by Mr. Carpenter, the keeper of the prints, assisted, we believe, by his son.

In the Guildhall Library there are more matters for note in connection with the progress of this vast metropolis. Drawings of the most elaborate and costly description have been added, and illustrated records of sanitary and other progress. There are also records and other manuscripts which have not yet been very much examined, but which will throw light on general and personal history. The Guildhall library is easy of access. An introduction from a member of common council or corporate authority, or well known person in the City, is sufficient. We are glad to see that this library is coming into greater use than formerly, and that a system of lending books to the families of members of the corporation at home has been adopted with good effect.

A "Bird's-eye View of London" was published not long ago with the *Illustrated London News*: compare it with one of the metropolis which was engraved and published in Queen Elizabeth's day. The ancient view is engraved on copper-plate, and the modern one on box-wood. The contrast in all respects is striking. Quaint and curious as are the approaches to old London-bridge, the church of St. Saviour, the monastic buildings of Bermondsey, the inns and gabled houses on the bridge and along the north shore of the Thames, the dwellings of the nobility, the lofty spire of St. Paul's, the walls and gates, the fields and orchards, extending beyond old London town; the modern view is no less striking. With great

skill, accuracy, and attention to very minute detail, a picture of the metropolis has been produced which shows in a most remarkable manner the vast extent of the metropolis of our day. This work, which, we are told, occupied the draughtsmen and the engraver, Mr. Loudon, several years, has evidently, in the first instance, been plotted from the existing ground-plans, the various localities being carefully studied; photography has also been extensively called into use, and views from many lofty positions have been taken for the purpose of completing this picture.

In looking at the monster city with the help of this view, the mind is impressed with the vast interests which are here struggling. Crossing the Borough, the great thoroughfares lead to the bridges, which in six parts cross the Thames: it may be noted that these for the most part run in a twisted and inconvenient manner, and contrast seriously with the symmetrical lines of railway which at several points from all parts of the kingdom approach this great centre of population. In the foreground are the Lambeth Potteries, Bethlehem Hospital, the Archbishop of Canterbury's Palace, and the open space of Newington. Farther away towards the river, from the far east to Westminster, there is a dense mass of houses, which forms a dark shadow in the view. Here there are few churches or public buildings of importance. The Houses of Parliament, Westminster Abbey, St. Paul's, the churches of the City are north of the Thames, and far as the view extends, there are hospitals, prisons, theatres, squares, markets, masses of houses and long lines of streets, extending to points which form the horizon of the picture. On one part of the distant line is Canonbury Tower, on another the Angel at Islington. Westward are the new Metropolitan Cattle-market, St. Luke's Church, Holloway, Highgate, and Hampstead, the Regent's-park and Primrose-hill.

It is bewildering to gaze at this view of the homes of 5,000,000 of people, and think of the great necessity which exists for wise and rightly-directed management, and for care of the many thousands who in this great capital are in a hopeless condition. In glancing at the picture which looks so fair to the general sight, we cannot shut out the recollection of localities which are blots on the site of so much prosperity.

THE VENTILATION OF CUPBOARDS.

IN the sanitary arrangement of houses even for the richer classes, the ventilation of cupboards is neglected. In places let out in tenements, closets are the receptacles for bread and fragments of various other kinds of food. Often the dirty cloths are put away in those places waiting for the washing. It is therefore most important that air should be plentifully passed through such corners: generally, however, there is but little arrangement made for this purpose. The doors are kept close, without any perforations. There are no ventilators in the walls, and in consequence these places become cases of polluted air, which, when the doors are opened, escapes over the apartments. This defect is visible in nearly all houses of old date, and while looking at some dwellings of recent construction, it is seen that although care has been generally taken to ventilate stair-cases and rooms, the cupboards are in this respect neglected. Notwithstanding, in houses which are intended for letting in tenements, this is a matter of considerable importance.

SOCIETY OF PAINTERS IN WATER COLOURS.

THE Exhibition in Pall Mall East, briefly referred to last week, consists of 295 pictures, of which more than half are already sold. About fifty-five were sold in the room on the private view day (as against seventy, by the way, sold last year on that occasion), but the sales have been going on steadily ever since. Such of our readers as desire really to see the pictures should go in the morning; for such is the throng in the afternoon just now that movement is scarcely possible, much less examination. The Gallery is quite insufficient, and should be enlarged, or moved to an ampler site. The profits must surely be large. The pictures are of average excellence. Hunt gives his marvellous representations of fruit, and in this case dead birds (258): Richardson shows his cleanly swept up and brilliant river views; Palmer, his brilliant sky effects; Harding and Gasneane, their academic compositions, so to speak, possessing qualities which the mere nature delineator must strive for in addition; Topham, some of his Irish groups illustrating "The Angel's Whisper"

(but in this case, to our minds, only Topham—an water); and Branwhite, who is never so good when he thaws, his pieces of winter,—169 especially. If we were called on to select half a dozen pictures for our gratification, we should probably take, giving them in the order of the numbers, and not of preference,—78, "Beyond," by Margaret Gillies (overlooking the mistake this lady makes in using so often the same model); 129, "The High Altar in the Church of St. Augustine, Antwerp," by S. Read (a charming specimen of its class); 201, "Piccola Marina, the Island of Capri," by Paul J. Naftel; 225, "A Cottage," by Birket Foster (a marvel of minute delineation, with general breadth), 275, "The Old Ironside," by F. W. Burton; and 284, "A Rehearsal, Cairo," by Carl Haag, 83, "The Ancient Vestibule to the southern Entrance beneath the Temple Area, Jerusalem," by the same artist, is also a covetable work. His larger picture, "The Acropolis of Athens" (105) in a glow of sunset satisfies us less. There is great solemnity in 98, hard by the latter, by A. P. Newton,—

"—The lowering cloud,
The kindling azure, and the mountain's brow,
Illumed with fluid gold."

The mist rising, on the left, gives at first an aspect of incompleteness. It was a brave thing to do. His view of "The Garden of the Prince of Monaco, Mentone" (201), has the quality of truthfulness, and the interest given by recent political events. E. Duncan has left the sea, and sends some delicious bits of local scenery.

S. P. Jackson exhibits seven or eight vigorous and truthful water pieces in his stand: 70, "St. Ives Pier and Bay," is a particularly good example of his art. The landscapes of W. C. Smith, C. Davidson, George Dodgson, and George Frupp, and O. Oakley's "Student" (a lady painter, brush in hand, before the Clytie), all call for a word; but we have only space to say that J. J. Jenkins has several graceful works, of which 130, "Watteau" (painting from a group), is the most important. The repetition, in "N'ais pas Peur" (287), of the mother and child in "Come along," spread widely last year by the Art-Union of London, is not agreeable.

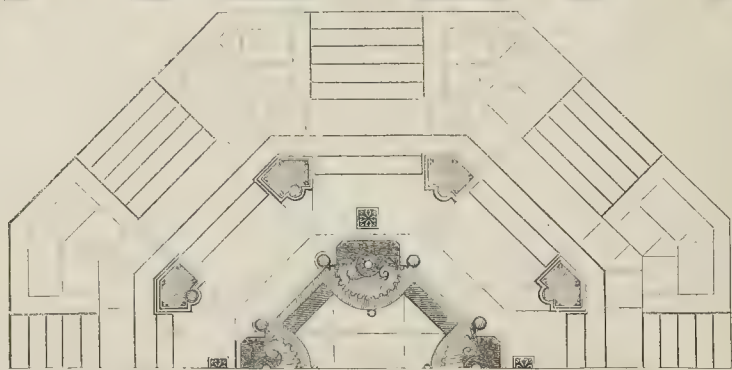
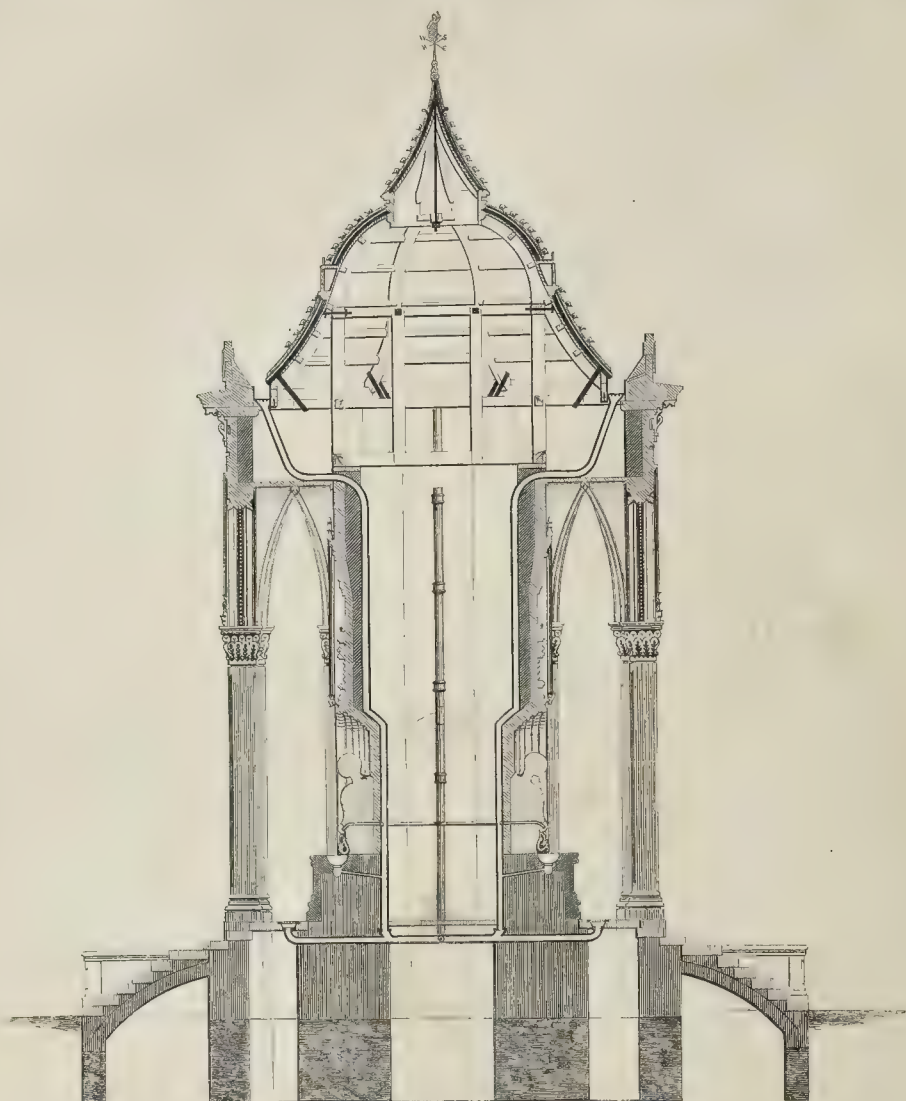
MISS COUTTS'S DRINKING FOUNTAIN IN VICTORIA PARK, LONDON.

WE said some time since that a drinking fountain of some magnificence was in the course of erection in Victoria Park at the cost of Miss Burdett Coutts. The accompanying engravings illustrate it. The design consists of an octagonal building, 12 feet in diameter, approached by eight flights of steps, in a podium, 3 feet 6 inches high, and 40 feet in diameter. On four of its external sides are situated granite pedestals and basins, with niches above them containing sculptured figures of Sicilian marble, from which the water is supplied. Three of the alternate sides are enriched with panels of green and red marble, and are ornamented with tracery, carved in the ashlar, and filled in with mastic. In the fourth side, a richly moulded doorway leads to the interior of the octagon, where the arrangements for the water supply are under direct control and inspection. Surrounding the octagon and connected with it by graining, is an arcade of eight arches, springing from piers of polished red Aberdeen granite, with sculptured caps and bases. Immediately above the crown of the arches, the spandrels of which contain moulded panels of polished marble, is a bracket cornice, enriched in a similar manner. This is surmounted by a perforated parapet, from which rises a domical leaden roof to the height of 57 feet above the ground level.

The materials employed in the work are Kentish rag and Gazeby stone for the podium and steps; axed grey granite for the pilasters; polished grey granite for the moulded bases and pedestals; polished red granite for the piers and angle shafts; Sicilian marble for the figures which supply the water; and Aubigny stone for the carving and ashlar work generally. The total cost will be about 5,000*l*. Mr. H. A. Darbishire, of Trafalgar-square, is the architect, and is entitled to credit.

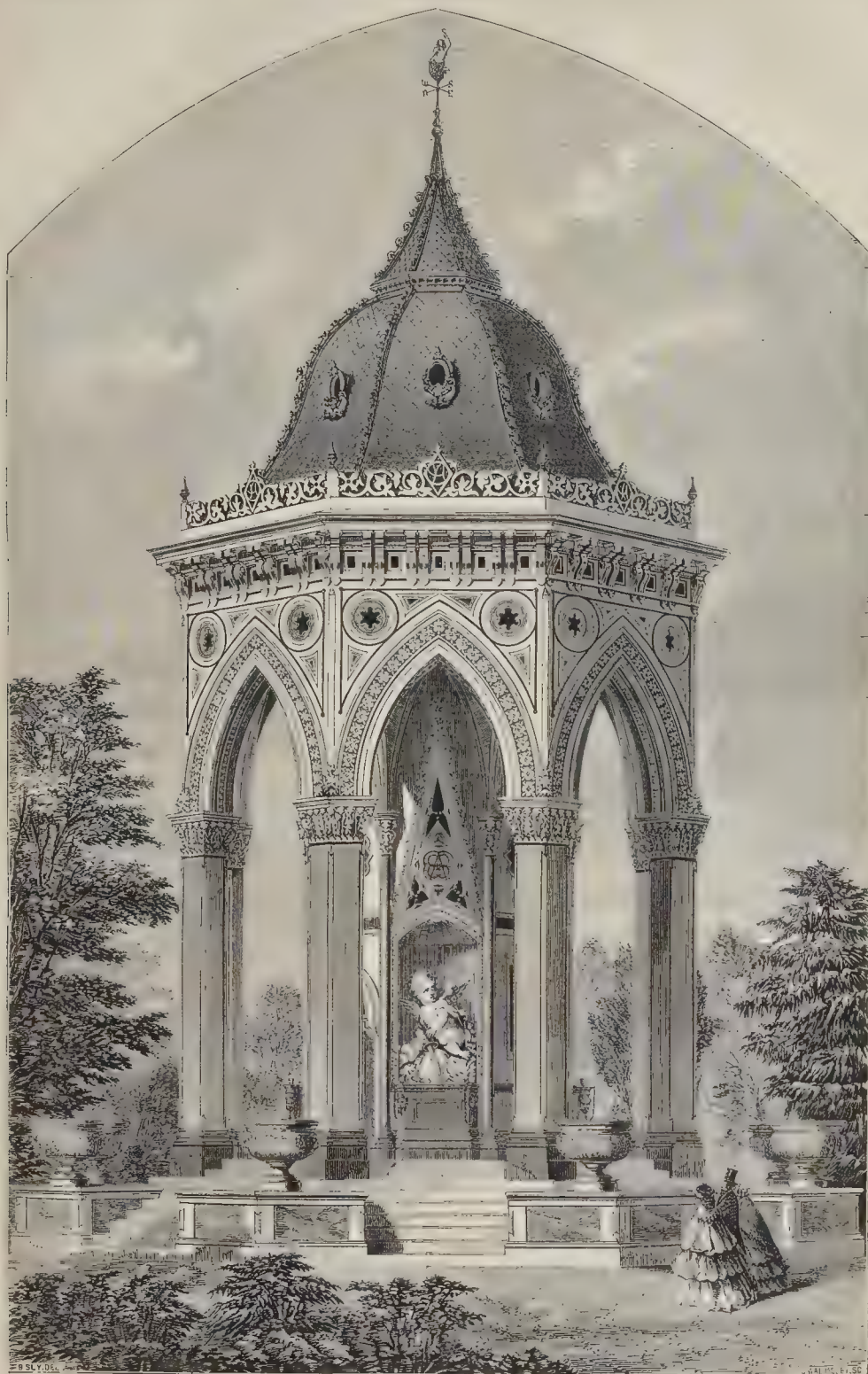
The position of the fountain in the park is very near to the gymnasium, not far from the Hackney gate. At present the podium and the steps are alone executed, but almost all the moulded work is completed and ready for fixing. Much of the granite is on the ground: one of the marble figures is being executed in the marble, and the models of two others are far advanced. Had not the strike intervened, the building would have been finished in June. Thus it is that acts react, and good is delayed.

DRINKING-FOUNTAIN, VICTORIA PARK, LONDON.



SCALE 0. 5. 10. 20. 30. OF FEET.

Section; and Plan of Half.



PUBLIC DRINKING FOUNTAIN IN VICTORIA PARK, LONDON.—MR. H. A. DALLISH, ARCHITECT.

SIR CHRISTOPHER WREN AND HIS TIMES.

LECTURE AT THE ARCHITECTURAL EXHIBITION.*

In laying out an hour's gossip about Sir Christopher Wren and his times, let our point of departure be the middle of the seventeenth century—say the year 1650. In public history, the previous year marks the execution of King Charles I., and the establishment of the Puritan ascendancy. In the history of our particular art, the year following marks the close of the career of Inigo Jones. This year 1650 itself finds the individual who was destined to be the more illustrious successor of Jones, a youth of eighteen, studying at Oxford.

I need not tell you that the England of that day was not the England of this, and London then a very different thing from London now. The population of the kingdom in 1650 was not more than double that of its metropolis in our day—not, perhaps, more than five millions. Full half the surface of the country lay waste as forest, moor, and fen; and wild deer in thousands roamed within ten miles of where we are now assembled. London, although, as at present, the largest city in Europe, held but one-fifth of its present population. Amsterdam was its rival. The second cities of England were Bristol and Norwich, each containing about 25,000 inhabitants. York and Exeter followed, with about 10,000; while Liverpool, Birmingham, Leeds, and Manchester, were little towns of from four to six thousand souls. The metropolis itself was chiefly a collection of timber houses, with a dilapidated Gothic cathedral in the midst, and one solitary bridge spanning the Thames in the form of a row of houses. Westminster Abbey stood at a distance, and marked where the court resided, out of town. The aristocracy dwelt in the Strand, Lincoln's-inn-fields, and Covent-garden. Chelsea was a country village, Mary-le-bone and Finsbury pasture fields, Islington a solitude, St. James's vacant, and the spot at present beneath our feet a pleasant meadow, which contained a famous spring or conduit. The shops of the citizens were distinguished, not by modest numbers ranging along the streets, but by the grotesque signs at present appropriated by taverns, and these not inscribed in words, but painted in effigy, or no one could have read them but the learned. Street-lighting was a thing to be wondered at. The refuse of the town waited patiently in heaps till a rainy day enabled it to sail composedly down the gutters to the river. Newspapers there were none, nor post-office, except in embryo; nor even coffee-houses, where the citizens of another generation used to chat over public affairs. The goods of commerce were carried on packhorses. The first stage-coach in England had not yet set out by twenty years. The days of Queen Bess were scarcely half a century bygone, and another half-century carried back well-remembered traditions to the time of bluff King Henry, which lay beyond the reign of Bloody Mary. Well-remembered traditions we may well say; for the blood, which was the life of them, still flowed in the veins of Englishmen; and the struggle of tradition with tradition, and hate with hate, had now at length only come to a crisis. The divine right of kings had perished on the scaffold, and straight-haired Theocracy reigned in its stead. And thus we may consider ourselves introduced to Sir Christopher Wren and his times.

With regard to the architectural practice of the period, this may be explained in very few words. The modern Classic style of design, which, upon the overthrow of the obsolete Mediaeval systems, alike of society and of art, had grown up in Italy in the sixteenth century, had spread westward by degrees over the whole of Europe. In Italy itself Bramante and San Gallo, Vignola and Buonarroti had given place to Palladio and Scamozzi, and these at last to Bernini and Borromini. In Spain, by this time a warring power, the new manner had long established itself, although, perhaps, to little purpose. In France, now rising into great influence under the youthful Louis Quatorze, that which Vignola and Serlio had introduced, and Delorme and Bullant adopted, Perrault, Le Vau, Le Mercier, and Mansard were preparing to carry still forward. In England the introduction of the new style had been later. Under James I. and his unfortunate son, Inigo Jones had exhibited the fruits of Italian travel in the Whitehall Banqueting House, in Somerset House, and in numerous other more or less excellent works; and now, or in another ten years, it was to be discovered that his mantle had fallen upon Christopher Wren.

Further to connect and compare together England, France, and Italy of that day, let it be remarked that, not more than two or three years before our starting-point of 1650, the great cathedral of St. Peter, at Rome, had been pronounced complete, after the labours of nearly a century and a half; it having engaged the attention of nineteen successive popes, and more than half as many architects, of whom Bernini was the last. Fifteen years after our date, in 1665, we shall find Wren a traveller to Paris, where he obtains an introduction to Bernini, and by that means a glance,—with but little welcome, however,—at his designs for the Louvre; to prepare which, the famous Italian had been specially invited to the French capital by the king. Two years more, and we shall find the building of the Louvre, which had been brought to a stand at the foundations by the departure of Bernini in dudgeon, resumed under Perrault. Still, six years forward, and Wren is at work upon the design for St. Paul's, the foundation-stone of which he lays, after two more years, in 1675, twenty-eight years from the completion of St. Paul's, by Bernini, and 111 years from the death of great old Michelangelo.

Thus much for the condition of architecture at our datum point. But if we are to deal with the entire character of Christopher Wren, it will be desirable that we take a glance none the less at the general science at that time. For the merits of our great architect as a philosopher are such as not only to shed additional lustre on his architectural name, but to reflect honour on the very art itself with which so good a man in science is identified.

Taking again our point of view at 1650, look a quarter of a century back, and then a quarter of a century forward. At the past date died Bacon: at the future date there will appear Newton. The memorable principles of inductive philosophy have been established by the former: the latter, by application of these principles, will show the way to the laws of the universe. The position of science, therefore, at our date of 1650, is in a manner midway between these points, midway between Bacon and Newton—between the "Novum Organon" and the "Principia." During the lifetime of Bacon, the new method of thought was not universally or even generally understood; but already the minds of educated and thoughtful men are bent earnestly upon it in the initiative problems of positive science.

There stands in honourable rank amongst these thinkers an Oxfordshire clergyman, a learned, accomplished, unobtrusive gentleman, by name Dr. Christopher Wren, Dean of Windsor and Wolverhampton, and Registrar of the Order of the Garter. He is the younger brother of a still more notable although less pacific churchman, Dr. Matthew Wren, Bishop of Ely, who is in the Tower, by the bye, at our date of 1650, and has been there for ten years back, and is destined to remain there for ten years more,—for conscience sake, as he sternly considers it; for reactionary superstitions and Popish practices, say the other side, and remorseless persecution of the saints. The young student at Oxford, who is our subject more especially, is the son of Dean Wren, and a nephew, therefore, of the bishop. And already, at eighteen, he adds a third distinguished name to the family, and great expectations are entertained of his future eminence. Many years afterwards, when this youth has passed through a very long and famous career, and passed away to the rest of the honourable and the just, his son records the lives of these three celebrated ancestors in the well-known book, the "Parentalia;" and if the following peroration of his preface is characterized by a good deal of the enthusiasm of the time, its compliments are at least not undeserved. "The memory of some men," he says, "is like the rose and other odoriferous flowers, which cast a sweeter and stronger smell after they are plucked: the memory of others may be said to be like the poppy and such vegetables, that make a gay and specious show while they stand upon the stalk; but, being cut and gathered, they have but an ill-favoured scent. The worthy persons exemplified in these records may be compared to the first sort, as well for the sweet odour of a good name they had while they stood, as also that they were cut down by the common stroke of mortality."

The only son of Dean Wren was from his childhood of a diminutive and weakly frame; but the mind is the stature of the man, and the worthy clergyman and correspondent of philosophers discerned in his boy the evidences of a quick and powerful intellect. He, therefore, took pains with his education, and presently enjoyed delight, beyond perhaps his expectation, in seeing his labours bear fruit. Setting aside such a circum-

stance as the invention by the youth at the age of thirteen of what is called an astronomical instrument, and its dedication to his father in pompous Latin verse; it appears to be unquestionable that, when sent to Oxford in his fourteenth year, such was the power of his genius that he speedily came to be looked upon, not only as a favourite, but a prodigy, even amongst learned men. Before the age of sixteen one of the most eminent anatomical lecturers of the age, Dr. Scarborough, was able to employ him as demonstrating assistant. He had also by this time taken out a patent for a *penna duplex*, or double writing instrument: he had also invented a weather-clock, and he had produced a treatise on spherical trigonometry. By his eighteenth year there seems to have been a continual succession of learned mathematical essays and ingenious mechanical inventions bearing his name, of which the versatility was marvellous. He made the drawings for Dr. Willis's treatise on the brain. In conjunction with the after-celebrated Hooke, he worked out a novelty, which he called *Micrographia*; namely, the delineation of microscopic objects on the magnified scale. As a mathematician he presented investigations of the newly-discovered Cycloid: in astronomy, he offered a theory of the planet Saturn: in mechanics, he is considered to have done something in perfecting the telescope and the barometer; and in anatomy, he claimed to have originated the process of transfusion. "The most considerable experiment," he says, "which I have made of late is this:—I injected wine and ale into the mass of blood in a living dog, by a vein, in good quantities, till he became extremely drunk." And coming thus at last to our datum point of 1650, an introduction on the part of Bishop Wilkins to the Elector Palatine of the Rhine produces an epistle from the juvenile *savant* to the distinguished visitor, from which it may be worth while to read an extract, as a sample both of the literary style of the period and of the mind of the writer. The lecturer then read the letter signed "Christopher Wren," in page 183 of the "Parentalia," to "His Most Illustrious Highness Charles, Prince Elector Palatine of the Rhine," &c. In his eighteenth year he was Bachelor of Arts: at twenty-two he becomes Fellow of All Souls and Master of Arts: he has been for years a leading spirit in those learned *conversazioni* out of which, ten years afterwards, arose the Royal Society; and the language which is used concerning him in the diary of Evelyn is such as this:—"That prodigious young scholar," "that miracle of a youth, Mr. Christopher Wren, nephew of the Bishop of Ely;" "that rare and early prodigy of universal science."

To return now to architectural matter, let us notice the death of Inigo Jones. When his royal patron stepped forth from that melancholy window of Whitehall, the illustrious surveyor-general had attained the age of seventy-seven. But for the distractions of the times, during the latter part of his life, under the unfortunate Charles, the refined tastes of the Court, operating through the genius of so great an artist, might have set in motion on a much more effective scale the progress of the Palladian manner of design in England; but the troubles of the State prevented the growth of art; and the ultimate triumph of the Puritans came like a blight upon it. When dragoon horses were stabled in cathedrals and the lecture-halls of science, we are not surprised to learn that the only consideration accorded to such a man as Inigo Jones was his recognition as a papist, the infliction of a ruinous fine, neglect, and obloquy. We might say that when he died England possessed no architect worthy of the name of his successor: it might be more to the purpose to remark that a government composed of men who (to use the words of Macaulay) "groaned in spirit at the sight of Jack-in-the-green, and thought it impious to taste plum-porridge on Christmas-day,"—who closed the theatres and flogged the players, and christened their children out of the Book of Nehemiah, would have had only more kicks than halpence for so worldly-minded a dog as an architect. With no desire to disparage the merits of Oliver Cromwell, we may be permitted to believe that it was a beneficial thing for art, whatever it may have been for religion, or even for English honour, when the profligate and mean-spirited son of the slain king was restored to the throne, with acclamation.

At the date of this event, 1660, after twenty years of Puritanism, it seems really questionable whether there existed in England a single individual who professed architectural design as his calling. The person appointed Surveyor-general in the room of Jones, long deceased, was selected upon no such theoretical grounds, but upon the

* Read by Mr. Robert Kerr on Tuesday evening last, Mr. Ashpitel in the chair. The meeting was a full one.

purely practical consideration of services rendered to the royalist cause: he was Denham, the poet. Accordingly, when the new king and his courtiers began to make themselves at home, and to look about them, and to contemplate grand operations,—the reparation of St. Paul's, the improvement of Windsor Castle, the building for his most excellent Majesty of a new palace at Greenwich, and the like,—it necessarily became a question of some importance where they were to look for a person to do the work pertaining to the office of worthy Sir John Denham. In this quandary, it appears that some judicious friend advised the sovereign to send for a certain Mr. Christopher Wren, nephew of the old Bishop of Ely, just liberated from the Tower,—a prodigious scholar, no doubt, it was said; a miracle of genius; a young man vastly skilled in the knowledge of architecture, as in everything else.

To speak now of the scientific career of Wren, his reputation during the last few years of the Puritan time was still advancing. In 1657 he removed from Oxford to London, having been elected Professor of Astronomy in Gresham College. His age was then twenty-five; but such was his celebrity, that his inaugural address was the event of the day amongst the learned. But it is curious to note in this discourse of his, as an indication of the character of thought at the time, in the midst of what is often the closest reasoning, a proposal of several hypotheses whereby to account for the going back of the sun ten degrees on the dial of King Ahaz; as also a solution of the proposition that Christ was three days and three nights in the tomb between a Friday and a Sunday, on the ground that he died for the people at the antipodes as well as here; so that when it was a day on one side and consequently a night on the other, both the day and the night ought to be counted separately. In 1658, Oliver Cromwell died; and the disorder which ensued compelled the young professor to seek shelter again in Oxford. Gresham College became quarters for the soldiery. "This day," writes a friend to him, "I went to visit Gresham College, but found the place in such a nasty condition, so defiled, and the smell so infernal, that if you should come now to make use of your tube" (referring to some of the experiments of the day), "it would be like Dives looking out of hell into heaven." He did not return, however, to his professorial chair in the City of London; for immediately after the Restoration he was appointed Savilian Professor of Astronomy at Oxford. A few months afterwards he was sent for by the Government, as we have before seen, in the capacity of an architect. About the same time it was that he received the degree of Doctor of Civil Law at Oxford, and almost simultaneously the same degree at Cambridge. His age, as we before remarked, was only then twenty-eight.

Speaking of his connection with the progress of science, we must not omit to mention the institution of the Royal Society of London at the time just referred to; the date of its charter being 1662, the year following that of the Restoration. In this important transaction the young philosopher was one of the moving spirits. The little society of the votaries of science which had been formed in his student days at Oxford had formed an almost identical cluster round him in London, by the habit of meeting at his Gresham lectures. They were called "the club." Dispersed for the time by the consequences of Cromwell's death, they rallied again when the Restoration restored personal safety to the lieges; and one of the earliest acts of the young king was to grant his royal approval, followed speedily by a royal charter, in which the name of Dr. Christopher Wren appears in the list of the first council of the body. There might probably have been two Doctors Christopher Wren on this most honourable register; but that the excellent Dean of Windsor, himself a promoter of "the club," had passed from this life, at the age of sixty-nine, just before the time when he would have had to welcome the decease of Cromwell as a sudden burst of sunshine after storm.

There seems every probability that the court patronage which now fell to Dr. Wren in the character of an architect was, in some degree at least, due to the influence, whether personal or not, which his uncle, the restored Bishop of Ely, could not fail to possess at Whitehall. Nothing can better illustrate the state of affairs at the time than the family relationship existing between a person so gentle and even retiring as we understand our young *savant* to have been (to say nothing of our strong suspicion that he was of Low Church views), with a violent, uncompromising zealot like this old Churchman. The

history of Dr. Matthew Wren is one which becomes graphic without an effort. In early middle life King James appointed him chaplain to his son, that he might accompany the young prince to Spain, and give him the benefit of his astuteness in dealing with a wily people. Twelve years afterwards, in 1633, King Charles made him Bishop of Hereford. Two years more and the see of Norwich fell vacant; so that it became desirable to find out some resolute disciplinarian to whom to commit the pastoral care of a people always hard to mit the pastoral care of a people always hard to govern. Dr. Matthew Wren was the individual selected, avowedly on account of his nungentle hand. He ruled the East-Anglian diocese with a rod of iron for three years, and then exchanged it for the see of Ely. If one dared to hint that so invincible a champion had met his match, it might be suggested that the nonconformists of Norfolk had made the place too hot to hold him. Sure enough, when the Long Parliament found itself sufficiently strong to deal with the enemies of its faith, the indictment issued against the Bishop of Ely, late of Norwich, was of the weightiest kind. Never man had done so much resolute work of its kind, in so short a time, as had Dr. Matthew Wren done at Norwich during his three brief years of government. He had set up idolatry and superstition, and had himself practised the same. No fewer than fifty "godly, learned, and painful ministers" and "powerful preachers" he had excommunicated, deprived, and banished. Three thousand weavers, of tender consciences, who declined to agree with him in opinion, he had driven out of the country; so that they had to seek hospitality of the Hollander, to the great detriment of trade. He had established Popish ceremonial; and, by even pulling down and reconstructing the church pews, had compelled the people to face the east in spite of themselves. Lastly, he had exacted tithes literally at two shillings in the pound. So he was cast into prison; and, there being as yet no Habeas Corpus Act, there he remained. The writer of the "Parentalia" calculates, with what Burke calls "delightful horror," how many times the circuit of this great globe the indomitable martyr had accomplished in pacing up and down a certain lead-flat in the Tower during twenty years. He also tells us of what might seem a very fair offer which he had of liberty, and of what must be called a very unceremonious way in which he received it.

Some space before the decease of Oliver Cromwell, Mr. Christopher Wren (only son of Dr. Christopher Wren, and nephew of the Bishop of Ely), became acquainted with Mr. Claypole, who married the usurper's favourite daughter. This gentleman, being a lover of mathematics, had conceived a great esteem for him, and took all occasions to cultivate his friendship, and to court his conversation, particularly by frequent invitations to his house and table. It happened upon one of these invitations, that Cromwell came into the company as they sat at dinner; and without any ceremony (as his usual way was in his own family) took his place: after a little time, fixing his eyes on Mr. Wren, "Your uncle [says he] has long been confined in the Tower."—"He has so, sir, but bears his afflictions with great patience and resignation."—"He may come out if he will."—"Will your Highness [so he was called] permit me to tell him this from your own mouth?"—"Yes, you may."—"As soon as he could decently retire, he hastened with no little joy to the Tower, and informed the Bishop of all the particulars of this interview with Cromwell; upon which his Lordship expressed himself warmly to this effect:—"That this was not the first time he had received the like intimation from that *miscreant*, but disdained the terms projected for his enlargement, which were to be a mean acknowledgment of his favour, and an abject submission to his detestable tyranny. That he was determined patiently to *tarry the Lord's leisure*, and owe his deliverance (which he trusted was not far off) to *Him only*."

The problem has long been one of difficulty, how to account for the circumstance that when a man had to be found who should stand in the shoes of Inigo Jones, this was a young professor of astronomy, a demonstrative anatomist, a micrographist, and what not,—anything and everything,—in short, but an architect, or even a builder.

Now this seems to me to be the explanation. It may be affirmed that it was, in those days, more or less, a matter of mere classical erudition, that a man of learning, if he possessed the faculty of imagination in any degree, or even the elements of antiquarianism, should understand something of the orders of architecture. And no doubt there would be many such who, draughtsmanship apart, might understand more or less of their appli-

cation or criticism, in either case a comparatively simple system, as we know, in that style of design. It is possible that, even in the instance of Mediaeval works, this suggestion might furnish a favourable theory for the explanation of those traditions which so often assign the composition of the most important monuments of architecture to leading men in the church; that is to say, leading men of learning, in whom leisure, scholarship, and a cultivated taste so often have led to the always fascinating study of the grandest of the arts. At all events, as regards the seventeenth century, it is matter of certainty that such men as Dr. Aldrich, dean of Christ Church, Oxford, and Sir James Burroughs, master of Caius College, Cambridge, of our own day, were accomplished critics; and that in the paucity of professional skill these learned amateurs were even obliged to act as practical designers and constructors. And such a person, in less degree, there appears reason to believe was the worthy Dean Wren, of Windsor. There is even a tradition of his having been entrusted with the preparation of a design and estimate of cost for a domestic work for the Queen of Charles I. Without absolutely reasoning in a circle, I think it may be said to be not at all unlikely, viewing the career of his son, that such a tradition may be fact; and if so, that such a fact will well explain the origin of his son's aptitude for the art. Amongst other subjects of interest, I conceive, to which the learned and accomplished dean had directed the attention of his boy, there would be architecture, very probably as illustrated in the volumes of Palladio; and amongst these subjects of which in subsequent years the worthy father would encourage the study on the part of a son so versatile, in the whole range of scholarship, there would still I think, be this. Indeed, we may go even further, and assert that the extraordinary ingenuity of his construction in after-life, and the equally extraordinary grace of his design, may be held to prove to demonstration not only that the young philosopher had early attached himself to the mastery of architecture, but that he possessed also that inherent genius which compelled him to the study, and rendered its mastery of easy attainment. Accordingly, if all this be fair argument, we have thus, I think, a reasonable clue to what must otherwise be merely marvellous, and, therefore, unconstructive. When, in short, King Charles was advised to apply to young Mr. Christopher Wren as an architectural adviser, it was because he had long been an amateur of architecture; and, possessing as he did such unusual powers of ingenuity and taste, was well known to be capable of the accomplishment of any task upon which, in that province, he might choose to exercise his mind. It seems only to be matter of regret that good Dean Wren himself did not live to see the day.*

THE BEDWAY OF BUILDING-STONE.

In the last year's volume of the *Builder* there was inserted, under the signature of "C. H. Smith," a paper on the above subject, which has been brought to my attention; and, understanding that there has not been any reply to it tending to elucidate the matter, except a few words confined to Bath stone, and admitting the difficulty of judging of the original bedway, but suggesting that the "quarryman should put chisel marks upon the stones as quarried" I am induced to offer a few observations, which I do so from having had a life-experience of quarries and of quarry-work.

On the greater quantity of smaller material sent from a quarry, it would be so nearly impracticable to mark each stone, and cause such intolerable delay that such a rule or order would, or could, never be complied with; and in the larger scantlings, however practicable, and at times possibly useful, I can scarcely imagine a case where, with a reasonable knowledge, it would be necessary.

2. I believe I am safe in saying that a thorough quarryman, such as probably Hugh Miller was originally, would have no difficulty whatever in ninety-nine cases out of the hundred, in at once assuming correctly "the setting-way," as it is called, of a stone; and if a momentary doubt arose, he would set it at rest by an almost imperceptible tip of his hammer, to bring off a little shell or scale from the edge.

3. I will admit that, even after half a century's experience of quarry working, and I might say, an enthusiastic love for what amounts to, at times, a scientific and pleasurable out-door occupation, the men who did the greatest drudgery of the work,

* To be continued.

and whose profit depended on the accuracy of their practice, far surpassed me in the quickness of their decision as to what they call the "going-way" of a stone; although I might be able, and, indeed, always was able to surpass them, in judging and proving what form was *in*, or could be got from, a stone.

4. The fracture, the form, the face, or rather every face and every angle, are all guides to the prompt decision which, in cases of doubt, as I have said, are assisted by the scabbling hammer, or that of a mason, which should be of an oblong form on the largest face, square at its angles, and well steered.

5. The power, to instantaneously judge of the bed-way of a stone, like the secret of O'Sullivan, the whisperer, may remain with the possessors, and be of no use to the working or employing public, if we cannot find words, in some measure to describe what must with practice lead to a knowledge of it; and it is, therefore, I make the trial.

To elucidate what I have observed in paragraph 4, as to the fracture, form, and face, it may be observed of all stones,—at least, as far as I have had experience, that the formation may be looked upon, for exemplification something in this way,—an imaginary stone to be built up, as it were, of oyster-shells, in say an oblong mould, about one foot high and wide, the shells all put rough or round sides down, and breaking joint, as much as possible; then suppose when the mould shall have been filled in, the interstices, with some cohesive and hardening substance, having an intense affinity for them, run in, so as to convert the whole into stone.

I need not say of such artificial stone (the mould removed), which would be the setting-bed or bed-way; of course it would be as it was built. So in nature, as assumed to be formed. But in quarrying stone there are other points essential to be known, and which practice points out, and these are, that of all the ways a stone can be cut or divided (with wedges), or poled (by holes jumped, and "plug and feather"), or scabbled, the bed-way, or "going-way," as quarrymen have it, is the easiest and surest, as it would be in the shell-made stone.

6. The second, or next best going way, as can be imagined from the shell formation, would be lengthways *perpendicularly*, or, as it is called, a "down cut," the first being called a breast or boarding-cut. At the "down-cut," the Cornish men are famous hands, as they pool accurately and quickly with their long jumper-bars without hammers, but they cannot, as far as I have seen of them, work the boarding cut or bed with the Irish quarrymen.

There is an advantage and saving of labour by the down-cut, where suitable, as it places all the work under the quarryman, both the pooling for and the striking of the wedges, that nearly, if not altogether at times, counterbalances the facile advantage as to cleavage of the bed-way or boarding-cut, which, having to be all wrought, and the wedges struck by muscular force, with scarcely any aid from gravity, is a labour that is as much as possible avoided, and would be well and wisely superseded by machinery, as greatly economising labour, and rendering the material produced more valuable by giving obviously more (true) setting beds.

10. The third or worst going-way of a stone is right across: in that way all stones are more or less tough and reluctant. In fact, the more they are so the better for steps, stretchers, lintels, or spans of any kind; and no practical mason would attempt to knock off an over-length directly with his hammer: if without any other tool he would strike it in from the end (still the going-way) and so thinning by degrees, until the strength would be reduced to greatly less than the main scantling, he would charily bring it to the dimension wanted.

11. The judging of these different ways of a stone is no matter of fancy, nor is it necessary that the quarryman should look so much to the building as to the block he has undertaken to produce: it is with him a necessity, or his waste will be larger than his work. He will use the ordinary care in the bed-way or boarding-cut, and when that is so raised or ventilated, that the friction of the surfaces should not impede further operations, then—

12. The quarryman puts in his longitudinal cut, perpendicularly, probably rolls out his block, and looks to the overlengths. If the block be long enough to make two of what is required, there is but little difficulty; for while the weight or cubical content is the same at both sides of the proposed cut, it will, with scarcely a possible exception, go

down at right angles. And this can be well exemplified by the breaking of common white or loaf sugar with a knife and a hammer. But if the cut be to one end, and the piece be too large to be scabbled off in the indirect way I have pointed out (10), then the wedges or pool-holes must be placed as if entering the main body of the stone, at an angle of about ten degrees from the perpendicular, but which practice only can define to a fraction, so as to balance the inclination of the wedge *in*, against the tendency of the cut to run *out*, and so take off but a useless shell, or wedge-shaped piece.

13. Besides the indication afforded by the face, form, and fracture of a stone, there is, to a delicately-trained ear used to the ring of the hammer, a shade of difference in the *sound* when, where, and how struck, as there is a visible difference in the pieces when scabbled; but with all the hints it is possible to convey, from face, form, fracture, sound, sight, and the length and breadth of fresh cleavage, there is that which cannot be learned truly but by years of attention to it. As we cannot learn perfectly the Indian's mode of hearing and judging, in the pathless forest the position or proximity of a friend or enemy, so nothing but *necessity* and practice for years will give an instantaneous knowledge of the bed-way of stone.

14. In England, where, in some places, quarries are remote, and, at least in London, where there is such a division of labour, a man might be an excellent mason, and yet never have seen a quarry, or a stone on its natural bed before being turned out; and, therefore, he could not be quite *au fait* in judging of the setting-bed or bed-way of it; but a quarryman, who may probably have contracted to furnish and deliver to a railway station, a dock, or a harbour, a number of blocks of a certain and often difficult size, must, to succeed, of necessity acquire the accurate knowledge I have endeavoured to describe,—1st, as every stone must stand to the cubical contents required by the specifications; 2ndly, as every pound extra carried by his team, even if not objected to at the station, acts as the tax of *ignorance on industry*; and, 3rdly, because every failure in the quarrying, or by breakage in the reduction after being quarried, would still further reduce his remuneration.

15. In conclusion, I will admit that it is possible a stone might be met with where judgment as to bedway might be doubtful or impracticable, but, in five and forty years' experience, I have never met such; indeed, it was a common practice of mine, and no doubt it was the habit of others professionally engaged, on entering or passing through a district where works were proposed or about to be effected, to look sharply to "the resources of the inhabitants" in the building way, and if we saw very many quoins and jambs to either court or cottage, ancient or modern, placed on edge or not on the bedway, we concluded that fair-faced or readily-worked stone was difficult to be had in the vicinity, or must have been, and thus, from necessity, the natural and solid bed was propped up to form a face,—a practice which experienced builders would not allow, nor would an old engineer use to

QUARRIES.

THE CLERKS' WELL, CLERKENWELL, AND THE GATEWAY IN SMITHFIELD.

It was only the other week that we directed attention to this interesting London landmark; fearing that, in its neglected condition, it might become lost to the view. Although this seemed so probable, it was with some surprise that, in passing by the ancient site, we heard an elderly lady saying to a pavior who was working close by,—*"Mr. Workman: on this spot stood the Clerkenwell pump: can you tell me who has removed it?"* The workman was not aware; and the lady expressed a very decided opinion, that a memorial so particularly connected with the parish and its name could not be removed. *"But, marm,"* replied the pavior, *"you see it is gone."* In a state of some excitement, and very indignant, the venerable but energetic lady departed; remarking that in these days it would seem that *"they can take down and demolish anything."* The writer also made inquiry, but could gain no intelligence of what had become of the inscription, which had been placed there, in very good taste and with the best intentions, by two Clerkenwell churchwardens half a century or so ago. On this memorial, as our readers know, was a very interesting record of the great antiquity and historical interest of the Clerks' Well; and, considering how few of the relics of the past have been spared to us, we regret to lose sight of this one. Wondering if it had been carried off and disposed of, by the desperate

characters in some of the adjoining alleys, at one of the old rag and iron shops which abound in this neighbourhood, we went our way; hoping, however, that the parish authorities may have removed the inscription just for a time, and that when the ruined conditions to which we have alluded have been altered, it will be replaced. Nevertheless, many persons would be glad to feel certain on this point. Passing on to Smithfield, in doubt about the Clerks' Well, we again note the ill state of the gateway of the once famous Priory of St. Bartholomew's, which for 800 years has stood the wear of time and the dangers of the several fires which have happened here. In the course of a short space of time this now miserably neglected but most interesting site will, in part, be usefully occupied, and the remaining part tastefully disposed of. When this work is going forward, we trust that the ancient and picturesque gateway of St. Bartholomew's will not be allowed to vanish like the Clerkenwell pump; but that means will be taken for its careful restoration; so that, in the centuries which are yet to come, when human intelligence has marvelously increased, the future generations may still have this characteristic specimen of architecture to look at, and remind them of dark and troubled times, which will make their improved conditions of knowledge, liberty, and prosperity seem more bright and pleasant by the contrast. Important historical events have happened close by this gateway: martyrs for conscience sake have passed through this gateway, and been destroyed by burning and otherwise. In other particulars the pages of past history are intimately connected with this spot; and, as has been before mentioned by us, the position of the affairs of the parish of St. Bartholomew's the Great makes it almost impossible for them to undertake the care of the gateway. It is, however, a relic of such general interest, that it should certainly be preserved in the City. We therefore trust that the corporate authorities will use such exertions as will be the means of restoring this gate. If placed in skilful hands, this could not be a very expensive affair.

THE LABOUR QUESTION.

Brighton.—The employers of painters, bricklayers, and carpenters, have had a meeting here, to consider the present state of the labour-market, and the present system of payment. It was attended by forty-five employers. The meeting was called in consequence of applications made by the men, particularly the painters, for increased payment. The subject was very fully discussed; and eventually the following resolution was submitted by Mr. John Fabian:—"That, on and after the 6th of May instant, all workmen employed in the building trade be paid by the hour." This was carried unanimously.

Gloucester.—The journeyman painters of this city, thirty-six in number, are out on strike. Their present rate of pay is 3s. 6d. per day, and they want an increase of 3s. per week, to which the masters refuse to accede.

Blackburn.—The dispute between the master joiners and builders and their operatives has assumed a new phase by the employers having advertised that they are in want of workmen, who are to be paid at the average rate of 5½d. per hour, without any limitation as to the number of hours to be worked, except that they will accept fifty-five hours as a week. In reply to the advertisement, the men have placarded the district, stating,—*"The masters have no occasion to advertise for men, as we are quite willing to resume work if they are willing to relinquish the hour system, and grant us that privilege which is now enjoyed by many other trades, and what they have already promised to us, viz., the Saturday half holiday."*

Edinburgh.—We understand, says the *Scotsman*, that a proposal for a conference, on the footing of the resolutions passed on Wednesday, at the general meeting of Associated Employers, was sent on Saturday to the Operatives' Society: the latter, however, we are informed, declined to meet with the employers unless the resolutions were withdrawn. The masons' co-operative scheme is progressing, though somewhat slowly and cautiously; and it is said that a considerable number of "nine hours' men" are getting jobs in Edinburgh and Leith.

Belgium.—Strikes have not hitherto been common among the manufacturing population of Belgium; but we now learn that a dispute between some of the millowners and weavers of Ghent has caused serious disturbances, during which the police were compelled to use their arms, and several persons were wounded.

NITROGEN IN STEEL.

IN 1846, as it appears from a communication in the *Engineer* by an Edinburgh correspondent, Mr. Christopher Binks (an able correspondent of our own, by the way) proposed gaseous cyanogen and compounds yielding it in the formation of steel; and in 1857, as we observe from the *London Review* of 26th ultimo, he demonstrated, in a long and elaborate paper read before the Society of Arts, as the result of a vast number of experiments, that the substances whose application to pure iron is requisite in the conversion of it into steel *all contain nitrogen and carbon*; that the residual matter got from the analysis of steel is an azotized or nitrogenized carbon; that neither carbon nor nitrogen alone will convert iron into steel, and so on; in short, fully and scientifically proving that nitrogen is absolutely requisite, as well as carbon, in the production of steel. In this country, however, as the *London Review* severely but truthfully remarks, "the practice seems to be that no English discovery attracts any attention until it has passed some years abroad and then comes back to us as the original production of a Continental savant;" and no wonder, therefore, we may add, that Carlyle defines England as a country inhabited by a population of nearly thirty millions, "mostly fools." The benefit of this species of folly is frequently reaped by our French and American brethren; and so it is in the present instance. A Mr. Fremy has just been producing, with Mr. Binks's results, "a profound sensation" amongst the astute Academicians at Paris, who have received them as a highly important discovery by their countryman M. Fremy; and a Mr. Fleury in America is laying claim to the very same discovery. It is a notable circumstance, and curiously accords with all we have ever and anon been saying as to the wonderful depth and universality of ancient Eastern knowledge, that the celebrated Indian steel called "wool" is *always* made with materials amongst which is an abundance of nitrogenous as well as carbonaceous matter: thus the wood used is the *cassia auriculata*, and the whole is covered with the *convolvulus lanifolius*, both rich in nitrogen.

SCOTLAND.

Roslin Chapel.—About two years ago the Earl of Roslyn consulted an architect as to the practicability of repairing the greatly-decayed stones in some parts of the east end of this chapel; and, shortly afterwards, gave orders for the sharpening of some of the stones, and the relaying of the pavement in places where it had been broken. The work thus begun has grown from less to more, until the whole east end, known as the Lady's Chapel, has been overhauled. Almost all the carvings of this part of the buildings have been gone over with the chisel, and sharpened. Where this could not be done, from the stone being too much decayed, a new stone (of *fascia simile* of the original) has been inserted, and afterwards stained of the present colour of those around it. The most serious and startling change is that which has been made on the appearance of the exquisitely ornamented column, popularly known as the "Prentice Pillar," though properly the Princess Pillar, so named in honour of the Princess Elizabeth Douglas, the wife of William St. Clair, prince of Orkney, the founder of the chapel. An Edinburgh paper says it would scarcely be recognized now, so great is the change that has been made upon it. The lime with which it had at one time been overlaid, accidentally or otherwise, has been taken away: and the green lichens, that rendered it an object of so much attraction to the artist, have been washed off, so as to show completely the character of the stone of which it is composed. From its having been constructed of alternate layers or courses of brilliant red and yellow sandstone, it now, says this paper, presents a gay appearance which, at first sight, is somewhat out of keeping with the rest of the building, and can scarcely fail to be displeasing to those who admire its look of stained and mouldy antiquity. Mr. Laurence Baxter, under the superintendence of Mr. David Bryce, R.S.A., has executed the new carvings. With the exception of new steps to the north and south doors, no alterations are contemplated in the other parts of the chapel.

New Church at Aberdeen.—The re-building of the church of Aberdeen has been contracted for, the estimates accepted being as follows:—Mason, J. McDonald, Charlstown; carpenter, Thom, Elgin; plasterer, Anderson, Elgin; slater, Findlay, Keith; plumber, J. Gordon, Elgin; painter, Brown, Elgin; glazier, McDonald, Aberdeen; sculptor, Goodwillie, Elgin. The building, which

is after a plan by Mr. Petrie, architect, Elgin, is, according to the *Elgin Courier*, to be in the Norman style, in order to be in keeping with the tower, and is to contain sittings for from 700 to 800,—about 200 more than the former church.

Callander Free Church.—This church has been re-opened, for public worship, by Dr. Beith, of Stirling. The church is built from designs furnished by Mr. G. P. Kennedy, of Glasgow. The building is in the Italian style, to correspond with a tower attached to the west gable, which was built a few years ago. The roof is ceiled and arched. It is ornamented with five ribs pannelled over each pilaster, which are coupled, and form the supports between the windows. The windows also are coupled, with circular heads. The end window—which is filled with stained glass, the gift of a member of the congregation,—is triple, and about 21 feet by 16 feet. The breadth is 54 feet, and the length 71 feet. The building, which is of freestone, will accommodate 700 persons.

SCHOOL-BUILDING NEWS.

Guernsey.—The rector of St. Sampson's parish is submitting to his parishioners the desirability of making an infant school in that parish out of the old parish one, which is not now used for educational purposes.—A school for children is being built at the Castle, Guernsey. It originated with the Misses Carey, so as to make their endeavours more permanent and useful. It has been determined to erect a plain and commodious edifice. The cost is estimated at 416*l*. The price of the ground is 40*l*. A wall 6 feet high round the premises is a condition made by the person from whom the ground was bought. It is proposed to place it in connection with the National Society, and hereafter, if possible, under the inspection of the Committee of Council on Education.

Kinnerley (Hereford).—The new schools at Kinnerley have recently been formally opened. The building consists of a school-room, 32 feet by 17 feet, by 25 feet high, with apacious entrance-porches for boys and girls. The materials used are red brick, the windows and other openings being relieved with stone and bricks of a darker colour. The roof to school-room is of open timber work. The amount expended, exclusive of site, has not exceeded 300*l*. The architect is Mr. John Clayton; the builder, Mr. Evans, of Kinnerley.

CASES UNDER METROPOLITAN BUILDING ACT.

THE 1862 EXHIBITION BUILDING.

MR. JOHN KELK, one of the contractors for the erection of the intended International Exhibition of 1862, in South Kensington, appeared before Mr. Ingham, at the Metropolitan Court, on Monday, to answer the complaint of Mr. T. L. Donaldson, district surveyor of South Kensington, for unlawfully commencing a building on the north side of the Crownland road, by giving two days' notice thereof, as required under the 13th section of the Metropolitan Building Act.

The complainant's case was as follows:—The building in question was intended to form part of the Great Exhibition of 1862, as the picture-gallery, and was one which required the supervision of the district surveyor. Under the 6th section of the Act certain buildings were exempted, and it was contended that this was one of those buildings. It was also contended that public buildings came under the supervision of district surveyors, as fireproof staircases, &c., were required.

Mr. Ingham inquired what was done on the former occasion, when the Great Exhibition was erected in Hyde Park.

Mr. Donaldson could not answer that question. He said it was built on Crown lands, and before this Act was passed.

Mr. Ingham said that, according to the Act, Crown lands were not exempted.

The defendant, on being called upon for his answer, said he had not come prepared to argue the question in legal point of view, as there had not been time to summon the Commissioners together, for them to consider what course should be taken. He attended for the purpose of asking for a postponement.

Mr. Ingham was ready to grant the application, and said that it appeared to him there was an omission in the Act, as it never could have been intended that a building of this nature should come under the supervision of a district surveyor; but, as the Act stood, it seemed that it did.

The defendant said if Mr. Donaldson had waited a week longer the consent of the Metropolitan Board of Works would have been obtained. In certain cases the Board had power to take away the control of the district surveyor, and he would mention the instance of his building the new Horticultural Gardens adjoining the intended Exhibition. He was the contractor for that building; and the Board had authorized him to execute the works without the supervision of the district surveyor. The Exhibition of 1862 could never take place if it came under the supervision of the Building Act; and he simply attended that day to ask for an adjournment for the case to be settled in the same way as the horticultural building.

Mr. Donaldson denied that he had no authority over the horticultural building; and said he had caused some alterations to be made. What Mr. Kelk referred to was certain special powers.

Mr. Ingham said the question had better stand over, and asked what time would suit them.

Mr. Donaldson wished for a short adjournment, as the building was going on. He said there were certain things being proceeded with which could not be allowed, if they went on and were condemned, the defendant would have to pull them down; and therefore the sooner the question was settled the better for Mr. Kelk.

The defendant said an opinion had been obtained; and it was to the effect that the building was lifted out of the Act by the 6th section.

The recommissioners stated the summons should be adjourned for the application to the Metropolitan Board, and recommended the defendant to be careful of his right to proceed with the building, as he might find, after spending a large sum of money, that he would have to pull down the works he had erected.

The summons were then adjourned for a fortnight.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of members was held on Friday evening (the 4th inst.), at the house in Conduit-street; the President (Mr. T. Roger Smith) in the chair.

The President brought under the notice of the meeting the circular of the Northern Architectural Association, containing the outline of a scheme for forming an architectural alliance, to embrace all the architectural bodies now in operation in the United Kingdom, and to give facilities for the formation of new local societies.

A desultory conversation ensued, in the course of which the merits of the scheme were discussed, paragraph by paragraph, and a general opinion elicited in favour of the project.

It was ultimately agreed to refer the communication to the committee, with a request that they would report upon it at the next general meeting, on the 18th inst.

Mr. Bashill then brought under the consideration of the meeting the report on the registry. It recommended that a register containing the names of assistants requiring instruction, or of employers requiring assistants, should be kept at the head-quarters of the Association, and should be in charge of an officer paid for that purpose; that it should be open free of charge; and that applicants should furnish the Association with certain particulars as to age, previous employment, acquirements, &c.

Mr. Capes said that the report was substantially in accordance with the suggestions which he had before offered on the subject some time ago. In his opinion, it was most desirable that the register should be kept at the usual place of meeting of the Association.

The recommissioners complained in the report were discussed at some length. The general feeling of the meeting was in favour of a system of registry; but several members pointed out what, in their opinion, were the difficulties incidental to the system. The main question discussed was as to whether the Association should take upon itself to communicate with the past employers of assistants, with a view to corroborating the representations made on the face of the register; or whether it should content itself by submitting to applicants for assistants such information as it had itself received; leaving it to the former to institute any personal inquiries they might think fit.

The report was eventually received, and substantially adopted, but referred back to the committee to make certain modifications with reference to the latter point.

Some other business of a routine character was discussed and disposed of, and the meeting adjourned until the 18th inst.

Books Received.

Quips and Cranks. By THOMAS HOOD. London: Routledge, Warne, & Routledge, Farringdon-street. 1861.

It is very questionable whether the son of a great writer enters the arena of literature under auspices which, on the whole, can be said to be either decidedly favourable or decidedly unfavourable. "Comparisons" are but too apt to be "odious" in such cases, and adverse to the new literary aspirant; while, on the other hand, a grateful recollection of the father's excellencies is no less apt unduly to overlay and put out of sight the shortcomings and faults of his successor. Therefore, everything considered, perhaps it is a mistake to regard a new author with the old and familiar name as being anywise differently situate from other young authors of his class. This is our own feeling in the matter; so that we flatter ourselves that we can quite fairly and impartially judge of the merits of such works as "Quips and Cranks;" and a critical examination of it under all these neutralizing and equilibrating circumstances induces us to feel that "Thomas Hood the Younger" bids fair shortly to convince the public that at least the skirt of the glowing mantle with which "Thomas Hood the Elder" was arrayed is descending on him. "Quips and Cranks" is a really genial, able, and humorous production; and Mr. Hood appears to be getting no less skillful with his pen than with his pen. Some of his "cuts" are worthy of a place side by side with those of *Punch*, and that is no small praise; and that the "young idea" will "shoot" there is pretty clear internal evidence; and of which desirable result, too, we may accept as a favourable omen the genial literary and art Cupids (if we are so to regard them) who, in the frontispiece, are sharpening their pen-feathers and their crayons at the literary grindstone, striking off "quips and cranks" in sparks and flashes, as they laughingly get on with their work.

With our contemporaries, we give Thomas Hood the Younger a hearty welcome.

Pamphlets issued and distributed by the Ladies' Sanitary Association.

THE Ladies' Sanitary Association must be doing good worth speaking of by means of their numerous little tracts on sanitary and other cognate subjects, of which no less than 76,000 were issued by the Association down to the end of last year, and widely circulated, not only by the Association, but by many clergymen, district visitors, hospital managers and physicians, and other labourers among the poor. The committee have experienced some difficulty in obtaining suitable manuscripts for tracts; and, in the third annual report of the Association, it is stated that most valuable assistance would be rendered to the committee, if publishers and authors of sanitary books would kindly forward specimen copies, or the titles, to the secretary; and Miss Florence Nightingale, Mrs. Acland, Dr. Wyld, and other friends, are thanked for their aid in presenting copies of their sanitary works.

Among the tracts already published is one on "Healthy Dwellings, and Prevailing Sanitary Defects in the Homes of the Working-Classes," by Mr. Henry Roberts, which formed the subject of a lecture delivered at the South Kensington Museum, and was printed in the *Builder*. Various other lectures have been and are to be given at the instance of the Ladies' Sanitary Association. The titles of a few of the tracts already issued we may here note, in order to show more fully what this active and useful association of ladies is doing:—"The Worth of Fresh Air;" "The Cheap Doctor, a Word about Fresh Air;" "The Use of Pure Water;" "The Value of Good Food;" "The Influence of Wholesome Drink;" "The Power of Soap and Water, a Dream that came true;" "When were you Vaccinated?" "The Sick Child's Cry, and other household Verses on Health and Happiness;" "How to Manage a Baby;" with engravings [Let those who feel inclined, as some do, to smile at a tract so important and useful as one on Infant Management, remember that it is of the efforts of a ladies' sanitary association they are thinking so lightly—and so stupidly: what subject can be more appropriate (so appropriate we had almost insisted on saying) than one just such as this for such an association to issue?]; "Work and Play;" "Household Verses for the Children;" "The Health of Mothers," with engravings, &c.

The good work in which the Ladies' Sanitary Association are so judiciously and diligently engaged has our warmest wishes in its favour.

The publications of the Association, we may here note, can be had at their office, 144, Princes-street, Cavendish-square, W.; and they are sold for the Association by Jarrold & Sons, 47, St. Paul's-churchyard, E.C.

Miscellanea.

MORE OF MEMPHIS.—M. Mariette is said to have made a new and important discovery in the ruins of Memphis. This new discovery, according to the *Athenaeum*, consists of a list of sixty-three Egyptian kings, engraved on limestone. The Paris Library and the British Museum are in possession of similar tablets, but they are not nearly so complete, it appears, as the one lately discovered, which is to find its place in the new museum in Egypt. This tablet of Memphis, it is conceived, will determine the Egyptian dynasties of the auto-pyramidal period.

WORKED CORNISH GRANITE.—The pedestal for the equestrian statue of the late King Carlo Alberto has been shipped at Falmouth, in the *Pride of the Isles*, for Genoa, en route for Turin. It is the produce of the parish of Mabe, and consists of three courses of polished fine grit granite, the bottom and top forming moulded base and cornice, and the middle course of plain polished surfaces, about four feet high. Each stone has been sunk by great labour out of the solid, so as to leave a bold projection in the form of a buttress at each angle. The entire mass consists of six stones in all 21 feet long, and six stones, in all 13 feet long, and so arranged as to avoid the appearance of any joint. When fixed in the wharf before shipment, it had the appearance of one massive block of polished granite, 26 feet long, 17 feet wide, and 7 feet high. The material was raised by Messrs. Freeman, at their quarries, and polished at their works at Penryn, where they are engaged at present in preparing a set of polished columns of granite for the temple or mausoleum at Frognor, in which the remains of the late Duchess of Kent are to be finally deposited.

MONUMENT TO WATT AT GREENOCK.—It has been suggested that the erection about to be put up in the centre of Cathcart-square, as a well and fountain, should be a monument to James Watt, who was a townsman of Greenock.

NEW FOREIGN OFFICE.—Mr. Tite having asked the First Commissioner of Works in the Commons whether the plans and designs for the Foreign and Indian offices were determined upon, Mr. Cowper said Mr. Scott, the architect of the new Foreign-office, had, at his desire, prepared a new elevation of that building, which would be exhibited in one of the committee-rooms before the House was called upon to consider the estimates.

TAUNTON SCHOOL OF ART.—The annual examination of the drawings of the Taunton School of Art has been made by Mr. G. R. Wyld, Government Inspector. The school has now been in existence five years; and, through the exertions of the committee and secretaries, and the head master, Mr. Gunn, it occupies a high position among similar institutions. The number of pupils connected with it is 550. The inspector awarded twenty-two medals to students in the various stages, although he made his visit at an unexpected time.

THE "CROOKED SPIRE" OF CHESTERFIELD PARISH CHURCH.—The crooked spire of the fine old parish church of Chesterfield is an architectural curiosity known throughout the kingdom; but of late its safety has been much jeopardised by several shocks of lightning; the spire having been struck not less than three times within twelve months; and on the last occasion the electricity occasioned a fire, which might have ended in the destruction of the whole building. Messrs. Marden and Mason, churchwardens, have decided (and full time too) upon having erected on the spire a lightning conductor. The kind chosen is one of the copper octagonal tubular conductors, patented by Mr. J. Brown, of Sheffield, builder. Three of the workmen of Mr. Brown secured a plank through the "crow hole" of the spire, on which the foot of a ladder rests: other ladders are laced together until the vane of the spire is reached. Mr. Seaton, plumber, has been engaged in the dangerous task of glazing the illuminated dial of the clock, portions of which were broken by the late storm. He was suspended in a chair, which was supported from the spire by means of ropes and blocks.

WINDSOR CASTLE IMPROVEMENTS: THE OLD TOWERS.—Now that the Hundred Steps are completed and reopened to the public, says the *Windsor Express*, a neat lodge erected at the bottom next the town, and the various restorations effected in the neighbouring ecclesiastical houses, brick giving place to stone of a durable nature, mostly from Hughendon Heath, near Wycombe, with alternate rows of flint intermixed, though in a style which all may not approve of,—an arrangement of scaffold-poles round the old Garter Tower, on the western side of the Castle, nearly opposite to the Great Western station, with sundry holes made ready for others, is strongly suggestive that this part is next to be operated on. Having now stood since the days of Henry III.,—some full six hundred years,—it will wear a new face, with all its familiar features—wrinkles though they be—taken away. Those who object to the manner in which the present restorations have been carried out (says the same paper) will do well to remember that, in the olden views of the Castle, the towers were chiefly quadrangular, most of them having a smaller quadrangular tower attached, carried above the level of the greater tower; and, in many instances, these smaller towers were surmounted by a turret, with a leaden bell-shaped cap or dome. The cupola of the belfry tower is the only instance remaining of such excrecence; but the peculiar features of the other towers have been perpetuated in these restorations. In reply to a question put in the Commons, on the 2nd instant, by Sir H. Willoughby, in regard to the restoration of the belfry or "Julius Caesar" tower, which he erroneously spoke of as two towers, Mr. Cowper replied that, although it had been found necessary to recase a large portion of the external wall of Windsor Castle, he was glad to say that that process had not become necessary in the case of the tower called the belfry tower, which was built in the reign of Henry III. The walls of that portion of the Castle were so thick that, if decay continued to progress at the rate that it had hitherto done, a period of about 1,200 years would probably elapse before recasing would become necessary. He had impressed upon the architect who had charge of the repairs, the necessity of preserving, as far as possible, the ancient character of the buildings, and he thought the matter might be safely left in that gentleman's hands.

EXHIBITION IN PAINTERS' HALL.—According to the *City Press* the court of the Painters' Company have elected the following gentlemen judges at the approaching exhibition of decorative art:—From the court, Mr. Thornton, of Great Carter-lane; Mr. Morant, of Bond-street; Mr. Sewell, of Aldersgate-street. From the trade, Mr. Simpson, of West Strand, and Mr. Hayward, of Newgate-street.

OXFORD SANITARY ASSOCIATION.—The promoters of this Association have adopted a very wise mode of bringing its objects and intentions before the public, and especially before the humbler classes, by instituting a series of Free Public Lectures. The first of the series was delivered on Friday, the 26th ult., by Dr. Acland, "On the Elements of Sanitary Knowledge." Dr. Acland endeavoured to sketch out the three great divisions of sanitary knowledge:—1st, the knowledge of the human frame; 2nd, the knowledge of what a man ought to do for his own health; and, 3rd, to show that what a man could not do for himself the State ought to help him to do.

BRADFORD SCHOOL OF ART.—The annual meeting of the friends of this Institution has just been held. The president, Mr. A. Harris, jun., who occupied the chair, stated, in his speech, that, while acknowledging the support of those who have aided them in their efforts, the committee had to regret in other quarters an amount of coldness and indifference which they were hardly prepared to expect. He appeared to allude especially to the manufacturers and merchants, the very class who are likely to be first benefited by improved taste in art. There are 150 pupils, however, at present receiving instruction, exclusive of those—between 50 and 100 in addition—who are receiving tuition in private schools; so that there are already rather more than 200 pupils now receiving instruction from this school. Mr. Ruskin awarded the prizes of the current year, which were presented at the annual meeting.

MANCHESTER ARCHITECTURAL ASSOCIATION.—A meeting of this Association was held on Wednesday evening, May 1, the Vice-President in the chair. Mr. Henry Fisher read the paper for the evening, "On Chemistry in relation to Building." After noticing the small attention usually devoted to chemistry in the education of the architect, the essayist referred to the action of the weather and other influences on the various materials used in building, and pointed out some methods for preventing the decay and dilapidation which result from this cause. He described several reactions which take place during the setting of mortar, cements, &c., and called attention to the fact, that slate and stone are the only two materials used in the exterior of modern buildings in a natural state unprotected from the weather, and that it appears probable that the coating of one of these with some impervious preparation will ere long be deemed indispensable in all cases where durability is desired. Among other means of preserving stone he alluded to the generally received opinion that this end is attained by setting it on its natural or quarry bed; and showed that in many cases stone bedded vertically offers more resistance to the penetration of damp, and is therefore preferable.

PERFUME VAPORIZER.—A simple apparatus, capable of being made very useful as a sanitary agent, as well as for the diffusion of merely pleasant odours through apartments, hospitals, halls, theatres, &c., has been invented by Mr. E. Rimmel, the well-known perfumer. It consists of a vessel heated by a small lamp below it, and intended for the vaporization of steam impregnated with the odours of flowers, aromatic vinegar, or other acids, and sanitary agencies, such as chlorine, ammonia, &c. Even some perfumes are believed to act not merely as ministrants to luxury or pleasure, but as sanitary agents; by, it is believed, ozonizing the oxygen of the atmosphere, and so converting it into true vital air; and one essential oil we particularly know of, namely oil of cloves, which, though heavy as a mere perfume, has a very singular power of destroying musty mould, as in paste or gum, for example; and keeping it sweet and fresh for months; while, otherwise, in a few days it would be utterly useless. Such an agency, diffused by Rimmel's vaporizer, in close and musty apartments, could not but sweeten them; but the choice of perfumes and such like is endless. Dr. Hassall, who, with Dr. Letheby and others, recommends this apparatus as a useful sanitary agency, states that, if even the delicate flower-leaves of the violet or rose be thrown into the vaporizer, their scent will be diffused throughout a room without any of that acrid and offensive empyreumatic odour which is so apt to accompany the combustion of perfumes, as on the burning of incense or pastiles.

NORTHAMPTON TOWN HALL COMPETITION.—Considerable dissatisfaction is expressed in consequence of the selection of a design, the cost of which it is stated will greatly exceed the sum named by the Committee as the limit. Of the injustice of this, if the statement be correct, of course there can be no doubt. We shall probably hear more of it.

THE LATE MR. JOHN CROSS, HISTORICAL PAINTER.—The death of Mr. John Cross, author of "The Clemency of Cœur de Lion" (a picture now in the New Palace of Westminster), induced a number of his friends, (as we mentioned some time ago), to take measures for raising a fund by subscription to purchase one or more of his unsold works (viz., "The Burial of the Princes in the Tower," "The Death of Thomas à Becket," or "The Coronation of William the Conqueror"), for presentation to some public institution, as a tribute to his memory as an artist, and as a means of rendering assistance to his widow and four children, otherwise totally unprovided for. Mr. J. H. Foley, R.A., has taken an active interest in the movement, and an influential and numerous committee of patrons and lovers of art has been formed. Subscriptions will be received at the London Joint-Stock Bank, Western Branch, Pall-mall, to the account of Mr. Edward Armitage, 2, Hall-place, St. John's-wood; or by any member of the committee. The art-works just named, and others by the late Mr. Cross, will be exhibited at the Great Room of the Society of Arts, Adelphi, from May 6th to the 24th. Admission free, daily, from ten till four.

THE SALE AT THE EAST-INDIA HOUSE, LEADEN-HALL-STREET.—On the outward walls of this once central office of the East-India House, large placards, announcing the sale of its internal fittings, have for some time past been plentifully displayed. The carpet was hung out of the window, and the auctioneer's hammer has for days been heard, above the bustling noise of feet, and the voices of many bidders. There were iron staircases for sale, powerful fire-engines, lead in large quantities, about 200,000 feet of panelling, carpets, and other materials, too numerous to mention. In about a fortnight all these will be cleared off, and the building, of stately appearance, and at present in substantial condition, will be left, stripped of all unnecessary fixtures. The valuable library and the museum have, as we are told, been carefully removed to Westminster, so that there is now a great edifice, one of the "Lions of London," ready for a fresh use. The site is valuable, so is the building. With good management the interior might be easily altered so as to serve, in this central position, for several business purposes; it is, therefore, probable that the now well-known East-India House may for long remain as one of the architectural features of the metropolis. Charles Lamb would have been surprised if the present state of affairs had been suggested to him.

THE VICTORIA BRIDGE AT PIMLICO.—The Engineer says,—"It is rumoured that both the roadway and the piers of this structure, completed a few months ago at a cost of nearly 100,000*l.*, are exhibiting signs of weakness. This bridge has, besides a number of short spans in the approaches, four wrought-iron segmental arches of 175 feet span each, there being three piers in the river. After the completion of the work, the piles, we believe, which had served as an enclosure to the piers, were withdrawn, leaving the foundations of the bridge exposed to the scour of the river. From the nature of the bottom, we should suppose that all the protection which the original piles (sawn off below water) could have given, would have been necessary. The arches themselves are formed each of six wrought-iron plate ribs, arranged in three pairs, two pairs being placed so as to form the outsides of each span, while the other pair extends along the centre. These arch ribs are each about 4 feet deep, and, perhaps, half an inch thick, although they do not appear to the eye to be more than three-eighths of an inch thick. Flanges are riveted on both top and bottom. The spandrels are made of T-iron riveted together in a sort of latticework. Over the spandrels horizontal plate beams are placed, with their upper surfaces level with the crown of the arch, so as to complete the horizontal line of the roadway. The latter is carried upon rolled wrought-iron cross beams, each about 11 feet long and 9 inches deep, and spaced about 3 feet apart. The ends of these beams abut against the inner vertical surfaces of the arch ribs and horizontal beams over the spandrels. The fastening of these ends to the ribs is one of the most wretched 'cobbles' to be found in bridge construction."

THE STATUE OF WILLIAM IV., NEAR LONDON BRIDGE.—With reference to remarks at a recent discussion, a "Subscriber" wishes to be remembered that the statue of William IV., at the junction of King William and Gracechurch Streets, was executed by the late Mr. Nixon, a most promising sculptor. The statue, he says, caused him many a painful hour, from the inadequate remuneration he received for it. The same sculptor executed four statues of the Seasons, for the Goldsmiths' Hall, introduced in the staircase.

THE WELLINGTON MONUMENT AT LIVERPOOL. On the anniversary of the birth of the late duke, the first stone of the Liverpool monument to his memory was laid, on the site in Islington Old Market. The statue, says the *Journal*, will be placed upon a column, with foundations of Rum-corn stone, each block being about 3 tons in weight. The base will be formed by three courses of granite, with steps set back. The pedestal will be 15 feet square, with a panel on each side for inscriptions. The column will be of Darley Dale stone, fluted, and from base to capital its length will be 81 feet. The height of the column from the ground to the figure will be 115 feet. The statue, which represents the duke in his uniform as Field Marshal, will be 12 feet in height. The column, which will be 10 feet in diameter at the bottom, and 8 feet 9 inches at the top, will be solid throughout. The architects are Messrs. A. & G. A. Lawson, of Glasgow. Messrs. Holme & Nicol are the contractors. The total cost of the structure is estimated at about 7,000*l.*; and it is hoped that in twelve months it will be completed. Mr. R. Gray is clerk of the works.

WORKING MEN'S EXCURSION TO PARIS.—A public meeting to promote the success of the working men's excursion to Paris has been held in the Whitington Club, Arundel-street, Strand. Mr. Layard, M.P., presided. The room was crowded. The Chairman said he cordially approved of the excursion. There was a great deal to be seen in Paris, and the working men, if they used their opportunities properly, might learn a great deal by visiting the French capital. In Paris, for example, he understood the dwellings for working men were paying—speculations, and it would be for the excursionists when they saw them to form some idea whether they answered, and whether the principle on which they were erected might not be extended to this country. The excursion was in no way connected with politics. He disapproved of Mr. Klotz, Roswell's volunteer excursion; but Mr. Roswell had nothing to do with the excursion about to be organised, and it had no connection with the volunteer movement. Mr. Layard, in a friendly manner, advised the excursionists to conduct themselves in a manly and gentlemanly manner. He was, he said, pleased that ladies were to be of the party. He intended himself to join the excursionists. Addresses were afterwards delivered by Messrs. Merriam, Blanchard Jerrold, and Passmore Edwards. Mr. Cooke explained, at some length, the business details of the excursion, and the following resolution was, with great enthusiasm, adopted:—"That the excursion of the working men of this country to Paris is eminently calculated to promote good fellowship between the people of the two countries; and this meeting believing that the organisation of the working men's committee offers great facilities, highly recommends its programme to public acceptance."

TENDERS

For a mansion at Blackmore Park, Malvern, for Mr. J. V. Hornby. Mr. David Brandon, architect:—
J. & C. Hanson.....£18,445 0 0
George Smith.....16,910 0 0
Wood & Son.....15,970 0 0
Lucas, Brothers.....15,100 0 0
Myers.....14,560 0 0

For additions and alterations to Union Chapel, Compton-terrace, Islington. Messrs. Lander & Bedal, architects:—
Woodward.....£3,464 0 0
Tolley.....3,445 0 0
Perry.....3,245 0 0
Greenwood.....3,237 0 0
Smith.....3,208 0 0
Stephenson.....3,165 0 0
Mann.....2,918 0 0

For chimney-shaft, Old Gravel-lane, for Messrs. Knight & Sons. Mr. Andrew Wilson, architect:—
Langtree.....£314 0 0
Johnstone (accepted).....307 0 0

For building a parsonage-house at Langford, near Newark, Notts. Mr. Goddard, Lincoln, architect:—
Miner.....£1,192 0 0
Stiles & Robinson.....1,075 0 0
Clipham.....1,025 0 0
Mackenzie.....1,025 0 0
Fox (accepted).....1,620 0 0

For villa residence at Leytonstone, Essex, for Mr. Richard Carpenter. Mr. Andrew Wilson, architect:—
Joshua Wilson.....£1,980 0 0
Morter.....983 0 0
Rivett.....972 0 0
Palmer.....945 0 0
Tarrant.....940 0 0
Perry.....894 0 0
Waskitt (accepted).....892 10 0

For building a house at Hastings, for Mr. R. H. Roberts. Mr. Henry Carpenter, architect. Quantities by Mr. Crocker:—
Kenward.....£2,075 0 0
Parks.....1,530 0 0
Colls & Co.1,857 0 0
Jones.....1,894 10 0
Howell.....1,850 0 0
Harman.....1,735 15 0

For building schools, residences, offices, &c., at St. John's, New Windsor, Berks. Mr. Street, architect. Quantities supplied by Mr. C. Balam:—
Wright.....£6,250 0 0
Symm.....2,847 0 0
Mole.....5,616 13 0
Lawrence.....5,380 0 0
Sharlington & Cole.....4,907 0 0
Perry.....4,895 0 0
Rowley, Brothers.....4,868 0 0
Myers.....4,930 0 0
Hollis.....4,890 0 0
Passnidge & Son.....4,469 0 0

For the erection of a villa residence, stables, &c., at Westwood, near Leeds, for Mr. Henry Oxley. Mr. William Helli, architect, Leeds:—

For Mason's and Bricklayer's Work.
J. & B. Pounder.....£1,572 0 0
For Carpenter's and Joiner's Work.
T. Hall & Co.£819 0 0

For Plasterer's Work.
J. Wilson & Son.....£166 18 0

For Plumber's and Glazier's Work.
T. Story.....£235 10 0

For Slater's Work.
W. Ellis.....£138 18 4

For Painter's Work.
F. Jackson.....£230 10 0

Total.....£3,052 16 4

For re-decorating Canterbury Hall and improving the ventilation, for Messrs. Morton & Stanley. Mr. Samuel Field, architect. Quantities supplied:—
T'Anson.....£856 0 0
Sanderson.....821 10 0

For two pairs of model cottages at Hertford, for the Hertford Cottage Building Society. Mr. Sextus Dyball, architect:—

Elliott.....£277 0 0
Cook.....603 0 0
Collins.....599 0 0
Andrews.....60 0 0
Dearsley.....499 0 0
Ekins & Sons (accepted).....498 0 0

For erecting and finishing a new house at Strattham, for Mr. D. Norton. Mr. R. W. Drew, architect. Quantities supplied by Mr. J. A. Bunker:—
Downs.....£1,520 0 0
Hill.....1,594 0 0
Deacon.....1,395 0 0

For the erection of two houses in Camberwell-grove (re-using old materials), for Mr. John Margaretson. Mr. George Elkington, architect:—
Wills.....£1,075 0 0
Wells.....1,065 0 0
Thompson.....990 0 0
Acock (accepted).....770 0 0

For new warehouse, No. 11, Warwick-square, Newgate-street. Messrs. Young & Son, architects. Quantities supplied by Mr. C. T. Shaper:—

Brass.....£1,440 0 0
King.....1,420 0 0
Harriman & Sandon.....1,387 0 0
Perry.....1,355 0 0
Cheasum.....1,290 0 0
Coleman.....1,289 0 0
Hart.....1,285 0 0

For alterations and repairs to premises "The Star," City-road, for Mr. John Keast. Mr. H. J. Hammond, Finsbury-square, architect:—

Brown.....£841 0 0
Woods & Son.....833 0 0
Harrup & Son.....823 0 0
Conder.....799 0 0
Wills.....785 0 0
Macears.....772 0 0
Anley.....712 0 0
Abbot & Hopwood.....712 0 0

For proposed industrial school in Redcross-street, Cripplegate, City, for the Trustees of Lady Holmes's College. Mr. J. Foster Pickering, architect. Estimates taken in two ways. First, Portland stone principal elevation; second, lower portion in Portland stone, upper in Portland cement. The site has a frontage of 64 feet, and the building is to be about 50 feet high. The lower portion, above referred to, is 14 feet high. Quantities by Mr. Enoch:—

	Portland Stone.	Portland Cement.	Difference.
Prince.....	£3,787	£3,288	£499
Turner & Sons.....	3,637	3,245	392
Lawrence & Sons.....	3,588	3,180	408
Lark.....	3,420	2,932	488
Brown & Robinson.....	3,100	3,032	368
Hack & Sons.....	3,167	3,057	310
Brass & Sons.....	3,237	2,922	315

* Accepted in Portland stone.

The Builder.

VOL. XIX.—No. 954.

The Exhibition in Paris, of Works of Living Artists.



THE French Exhibition of Works of Fine Art, which, by the present arrangement, takes place every two years in the Palais des Champs-Élysées, or "de l'Industrie," was opened on the 1st of May, and, as usual, affords a rich display of paintings and sculpture. Architecture is very poorly represented; engraving and lithography are better circumstanced; whilst the collection of water-colour drawings includes some works of great merit, or peculiar interest, without equalling as a whole the exhibitions of that class with us. The Paris exhibition includes cartoons, and some designs and works of ornamental art, and

generally a wider field than is embraced by our own ordinary displays of corresponding intention. Photographs form a separate exhibition in the same building.

The prominent characteristics of this year's exhibition, or "Salon of 1861," are those of the arrangement of the works—both paintings and sculpture; the number of the works; the great proportion of battle-pieces; and the prevalence of subjects taken from real life, and landscape and cattle pieces. The subjects having a religious bearing would appear to be lessening in number; but for works of that class, it is necessary to visit churches, where, in such frescoes as those of Alexandre Hesse, just completed in the church of Saint-Sulpice, or yet finer works of Emile Signol, the latest of which are in Saint-Eustache,—the best testimony of the power which there is in French art-work will be found. The frescoes of Hesse, above mentioned, which occupy two sides and the ceiling of the chapel of St. Francis de Sales, and represent scenes in the life of the saint, and his beatification, have a certain attribute which it is difficult to designate otherwise than as want of finish—which men of established reputation are liable to—or as the appearance that there is in scene-painting when closely approached; and which is to be regretted in paintings, the position of which leads to their being examined from a near point: nevertheless, the works of both the painters we have named—those in the church of Saint-Philippe-du-Roule, by Claudius Jacquand; many in the church of Saint-Severin; and the recent works at the Palais du Sénat, or Luxembourg, by Adolphe Brune, Théophile Vauchelet, and Louis-Godefroy Jadin—though perhaps not all in fresco, are instances of a success in art of the highest class applied to the decoration of buildings, to which we have before been obliged to allude, as contrasting forcibly with attempts which have been made in England since the subject of the decoration of the Houses of Parliament was raised, and the exhibitions were opened at Westminster Hall. Besides the 4,102 numbers which there are in the French catalogue, there is

a long list of works, including those we have named, "executed or placed in the public monuments since the preceding Salon, and which by their nature could not appear in the Exhibition." These works begin with the paintings by Mr. François Bonhomme, illustrative of the History of Metallurgy, "Calamine and Zinc," which decorate one of the rooms of the École des Mines; and then include paintings of the first class in churches, palaces, and hospitals, both in Paris and the provinces, and works of sculpture, as tombs, or in connection with buildings such as the Bourse at Marseilles. We mention this section of the catalogue, chiefly as affording a hint which might be carried further, with the object of stating periodically the progress of art.

Both in the section of the catalogue named, and throughout the exhibition, evidence is constantly before us of the responsibility which French Governments accept, of promoting and rewarding the pursuit of art. We are not about to enter into the discussion which is rife in France, as to the good or ill results of centralization as a principle of government, a question which is all-important to the future of the country; and respecting which, writers in this country and the other defend the system which prevails with themselves, without attaching the due importance to results from the opposite system. We have merely to record impressions that we receive, in connection with the field of art. Here, then, we continue to be impressed with the activity of the promotion, and much of the judgment in the provision of educational agents; whilst we hesitate to approve of the state so constituting itself as to be looked to as the chief employer; and are even prepared to go further towards questioning whether the direction given by choice of subjects is entirely good. Only be it recollected, that it is to some amount of centralization that we owe the prospects which we have for the popularization of art-education and taste, as well as much of the gain in a different matter, that of public health. Let the reader accord the importance which he may deem fitting, to what strikes the attention in connection with the Paris exhibition. There are in the collection, works "commanded by order of the Emperor," which include those acquired by the "Intendant des Beaux-Arts de la Maison de l'Empereur;" others belonging to the domain of the Crown, and placed in the museums and "châteaux impériaux;" works belonging to the state, including those commissioned or acquired by the different "ministères," or public offices; and others named separately as obtained at the instance of the "Ministère d'Etat," or the Préfecture of the Seine. Every artist's name has appended, in the body of the catalogue, not merely his address, but the name of the place at which he was born, the names of those under whom he studied his art, and the honours and decorations which he has received. The decorations Englishmen may not care about,—witness Mr. Cobden's refusal of an honour, better and more bravely won than some of those which the French give away; but the practice of chronicling the relations between master and pupils, has advantages. Beyond anything that may be the result, of fame to the beginner, it is a pleasing solace to the age of men like Ingres, to live in their children; whilst to architects of a similar position to the great painter in regard to those whom they have educated, it serves to keep to them what is their due, some advantage from a reputation; and to the public, advantage which might be lost by the selection of an untried hand, through the agency of a competition; or at least, may be lost pending the realization of some better system,—whether that recently suggested by Mr. César Daly (of which we shall speak hereafter), or other,—for the constitution of a jury and the selection of an architect. The French practice suggests to us the possibility of having something more than the inducement to the young and the gain of new blood: it suggests a mode of pre-

serving what has been acquired, of inciting age to new exertion, and making the gain of the young no longer to be accompanied, on the other side, with any sensation of defeat. It is not the first time we have said, that it is to something of this desired relation of master and pupil, that the Gothic school amongst us owes much of the vitality which it presents.

The oil paintings in the Paris exhibition occupy the whole of one side and the greater portion of one end of the vast galleries of the building in the Champs Élysées, with the exception of a narrow space next the gallery railing, which further is continued all round, and is appropriated to busts and minor works of sculpture or ornamental art, and to the drawings and engravings. The general collection of sculpture, as heretofore, is arranged in a garden formed in the central area below. The enclosing space, where the gallery columns are, is hung with festooned drapery of dark-toned neutral-green colour. The ends of the area have, however, been formed semicircular on plan; and here, whether designedly or not, the calico or other material of the drapery is nearly black. The groups are placed on temporary pedestals, which are covered with marone-red calico. The area of ground is divided by broad walks; and each space consists of a large grass-plot encircled by a narrow gravel walk, and a broad margin of flowers. Whether the individual works are as favourably circumstanced as required under a recently expressed supposition of an arrangement, we can hardly say; but the general effect of the garden is very beautiful, and the result for the sculpture a gain. Whoever wants to see what the effect of sculpture, as art, is, should go to the Continent, and he will see not merely that such effect is in a majority of cases due to the position in gardens, but also he will feel the value of a knowledge by sculptors of the principles of architectural composition applicable to a whole, and of forms and details applicable to the more architectural parts, as pedestals,—a subject on which we dwell in connection with the competition for the Wellington monument, and our public statues, on several occasions some time since. That the practice of art on the Continent, in these latter particulars, and in the treatment of bronze, is farther advanced than our own, is shown by the most prominent object which we find in the collection of sculpture. This is the equestrian statue of Don Pedro I, Emperor of Brazil, destined for the city of Rio de Janeiro, which is by Louis Rochet, a pupil of David d'Angers. Around the pedestal are groups of figures, representing the rivers Amazon, Parana, Madeira, and San Francisco, with animals symbolizing the principal indigenous races of Brazil. As examples of the correct treatment of bronze, and some other particulars, these figures may be classed with those of the fountains, by Monti, in the Crystal Palace. What will not be the benefit to France, from sending to Brazil this one work of art? The amount of material of interest which there is in the work, to take no higher ground, will be fully appreciated; and for years to come every gentleman that has to furnish a house, and every lady that desires a bracelet, will think of France as the country where objects of taste are produced. The present Emperor of Brazil has some taste for art; we happen to know that a few years back, very friendly relations existed between the minister for this country at the time, who was also an art-lover, and the monarch; but we have not heard of an English influence like the French; for, the English architects did not design the theatre in obedience to a commission. Yet, this country supplies the world with everything but taste.

Amongst the sculpture, are two statues of Napoleon I., belonging to the Prince Napoleon, one by Pierre Jules Cavalier, and the other by Claude J. B. E. Guillaume. They are in Roman costume, and are in many particulars very fine.

The last named, has ornament in gold and colour on the edges of the drapery, and the sceptre, sword, and laurel-wreath. Modern costume is scarcely to be found, unless in the busts: some of these, as those of the Empress, by Jean Auguste Barre, and of the president Boileau, which *speaks* without colour, are very fine. Other busts are plentifully adorned with cameos and ear-rings; and several are executed in party-coloured marble and bronze.

We have not looked at many of the other works of the sculpture collection. One of the number which is of the nature of a public monument, perhaps a fountain,—for we here write from recollection, belongs to a class wherein the French make mistakes sometimes like ourselves. A representation of rockwork, as a base, is a chief feature in it. A similar mistake is made in the bronze sculpture of the Fontaine Saint-Michel, a view of which we gave some months back. At one end of the garden area stands a cast, full-size, taken in Egypt, of the second obelisk of Luxor, once intended to be brought to this country. It is, however, not a *fac-simile*, but merely the mould; so that the especial character of the sculpture is not given; though not one person in ten thousand will be aware of the fact. There are 515 works of sculpture in the Exhibition, inclusive of medallie art.

The other divisions of the collection are,—Painting, which includes pictures, designs, "aquarelles" or water-colour drawings, "pastels," miniatures, and enamels; Engraving; Lithography; and Architecture, divided into designs, engravings, and lithographs. Painting, includes 3,146 productions; Engraving, 237; Lithography, 84; Architectural Designs, 70 (or about 100 drawings); Architectural Engraving, 37 numbers, or perhaps 60 works, and Architectural Lithographs, eight productions.

In the arrangement of the paintings and the works generally, the system has been adopted of arranging all those by the same author together; but a selection fills a "tribune of honour, or *salon carré*," which is first entered, and where the chief works commissioned, as battle-pieces, are to be found. Otherwise the arrangement of the catalogue is alphabetical, as is intended to be, and as is in the main, the arrangement in the rooms. There are a dozen, or more, rooms of large area: there is no crowding. Nevertheless, the mode of arrangement gives little reason for approval. General effect is bad, as might be expected; and there is so much departure from the system, and from consecutive order of the numbers, that it is very difficult to find works that one might desire to see, or to acquire an insight into contemporary French art, from one or two days' inspection. We suspect, however, that the impression which we derived and have expressed at the outset of this slight notice, may be taken as correct to the limits of more detailed examination, and that the rivalry of schools and theories which commenced with David and his contemporaries, whose works are so remarkable in the collection of the Louvre, is to a considerable extent effaced; whilst that there is an increased growth of the art in which the representation of nature or actual incident is a leading element. Considering, however, that the most remarkable feature of the collection is its extent, we have some hesitation in asserting that works of the highest class are only to be found elsewhere, as in the churches. There are several paintings in which the art is such as there may be in the representation on a great canvass, of four or five men occupied in conveying a block of stone: there are a much greater number than we should have expected of works which should not have been allowed to find place: but there are a large number of others which are worthy of the best days, be they present or the past, of French art. Amongst these are the chief battle-pieces, such as the large works, the "Battle of the Alma," by Pils, and that of "Solferino," by Yvon, and the "Episode de la Bataille de Solferino," by Du-

maresq. In portraiture, the French are inferior to us; but there is a good portrait of the Pope, which, surely by intention and "malice prepense," was hung facing one of the Princes Napoleon. Some of the processional pictures, if we may so call them, and works which might be suitable for panels or friezes, display great invention and taste.

Mr. Kendal, jun., is an exhibitor in the architectural department, which scarcely calls for notice. The Photographic Exhibition contains upwards of 1,000 works. We may add that amongst the water-colour drawings, are numerous representations, made for the Ministry of War, of the affairs in Italy and China, in which the French have been lately engaged.

THE PERILOUS CONDITION OF NEWCASTLE.

AFTER our recent inspection of the narrow, dark, and filthy entries,—the undrained chares,—the ill-paved streets,—and badly-kept roads of Newcastle, we take up the Reports of the town and roads' surveyors for the years 1859-60, only just published, with considerable curiosity. We look, naturally, for expressions of regret that so little has been done,—of appeal for power to put into practice more stringent measures and more comprehensive schemes,—of hopeful intention to renew, with fresh strength, the numerous and long combats with unmanageable landlords; but we find nothing of the sort. Instead, we find a complacent retrospection—a summing up, in congratulatory terms, of general improvement. But, in these official documents there is, nevertheless, confirmation of that concerning which we could scarcely believe our own eyes. Under the head of Sewerage, we note that in the year ending August, 1860, for the whole of this prosperous, but scandalously disregarding, town corporate, there were not two miles of additional sewerage completed; and, under the head of Drainage, that in the "ancient borough" but sixty-four houses had been drained. The other departments into which town improvements are divided, such as water-supply, flagging, paving, and road-making, have all been presided over with the same parsimonious supervision. Only one aim is apparent,—to reduce the outlay to the minimum. Bearing this end in view, we are not surprised to find the first-mentioned report diffuse upon the advisableness of repainting the street names—this being an inexpensive, yet showy, evidence of the vitality of the Town Improvement Committee.

The Surveyor's Report informs the Committee,—“That a number of the houses, which continue to be occupied by poor persons in the banks, and in the vicinity of the Town Banks, Close, Sangleate, the Clooping Stairs, and the dwellings on each side of the public stairs leading from the lower to the higher parts of the town, are either so dark, or so damp, as to be almost, if not quite, unfit for human habitation: the reason everywhere assigned by the occupiers for continuing to reside in them is, that better dwellings cannot be obtained consistently with their limited means, near to their respective employments. It would probably be easy enough to obtain the medical certificate required by the Act, and the decision of the magistrates necessary for shutting up such dwellings, but no other use can be obtained of a better class sufficiently low. The price of ground in or near the town is too high to allow of its being purchased for the erection of cheap tenements. This object is further made more difficult of attainment by the building regulations at present in force within the borough, which allow no front street to be less in breadth than 40 feet, and no back street less than 20 feet. Speculators, therefore, in providing dwellings to pay for the class referred to, have of late years resorted to the erection of houses on old foundations, and to the raising of additional stories in the old streets of the ancient borough and suburbs, where the Act which determines the width of new streets cannot be applied.”

We would ask why this evasion of an approach to sanitary regulations is permitted—why does this general paralysis prevail? It cannot be that the poor denizens are content: we have their unvarying testimony that they put up with these disgraceful shortcomings because they cannot help themselves. The local press is not to blame. The leading journals have taken the matter up in a truly enlightened and public spirit. The *Northern Daily Express* says the statements in the leading article of the *Builder* "are so extraordinary, and are so graphically put, that they must command attention; we, therefore, present them in all their nakedness to our readers." The *Newcastle Guardian*, in a preface to a reprint of the article in question, avers,—“There is too much truth” in it. The *Daily Chronicle* remarks,—“In a recent number of the *Builder* there was published a trenchant and deserved exposure of the sanitary condition of Newcastle. The testimony on these points is beyond dispute;

though one of our worthy but old-fashioned aldermen declared, recently, that he 'reckoned nothing of these new-fangled notions of sanitary reform: these smells had never killed him, and for his part he thought they were rather healthful than otherwise.'” We repeat the query,—Why is Newcastle still besotted, when even Liebon has arisen and purified herself,—when the famous, or infamous, rookeries of St. Giles's have been overthrown,—when Billingsgate is no longer a reproach,—when, to come nearer to her gates, Alnwick and North Shields have buried their evil reputations, and even Gateshead is partially reformed? Why does Newcastle lodge her industrious poor in the "damp" and in the "dark"? (Ibid. Surveyor's Report.) The answer is only to be found, we fear, in the hidden meshes of the individual interest of some few members of the corporation. It remains for the inhabitants to watch narrowly the votes of those they have chosen to represent them in this body; and, when a determined resistance to sanitary reform is manifested, their resignation should be advised; and, in electing new members, due means should be taken to ensure the return of such men as are known to be well informed in the important matter of sanitary science.

It is with regret we observe, in the numerous communications with which we have been favoured on the subject under consideration, a strong professional rivalry. It would appear to us, that, in a matter of such vital importance—the annual sacrifice of 1,200 lives—there should be but one aim to effect an immediate removal of the fatal cause. It is quite true that, in the overwhelming sense of the miseries endured in the numerous houses these preventable deaths leave destitute, we dwell at greater length upon the lamentable deficiencies in needful sanitary arrangements than upon the architectural aspect of the town. But the contemplation of the harrowing fact, that in fifteen years 18,000 lives have been lost—as great a loss as though an army had perished—as though Newcastle had been visited with a dire earthquake—the contemplation of this terrible loss of life induced us to abandon every secondary consideration, and do our utmost towards rousing the innocent to a sense of their danger, and towards intimating to those whom it concerns the proper course to pursue. Architectural effect is a matter of moment; but a want of the due attentiveness for the maintenance of public health is a matter of life and death.

We would correct a misnomer. The tower and spire we noted, as being of "poor, wiry detail," belong to St. Peter's church, not to the Clayton memorial church. We gladly take the opportunity to make more special mention of this latter edifice, as it is, after St. Mary Magdalen, the most important of the modern churches in the town. It has a tower, nave, chancel, and aisles, with a costly arrangement of six gables, with buttresses between to the north and south aisles, having two tiers of windows. The upper tier consists of long, double-light windows, with Geometric tracery arched headings; the lower tier of plain, domestic trefoil-headed windows. This arrangement, though bold and effective, has a drawback in the difficulty and expense it will entail to get rid of the long-lying snows in the winter, as the buttress and parapet between each gable admit of no sufficient outlet. The tower generally does not quite represent the imposing character of the rest of the building; for, although the double row of belfry windows is at once simple and striking, the cornice, parapet, and pinnacles are poor. We must not again pass over the fact, that, in defiance of the time-honoured recommendation that cleanliness should follow close upon godliness, the field upon which this beautiful and costly church is built is occupied by a foul, open ditch, and made still more malodorous by two prodigious deposits of the town's scavengage.

The John Knox Chapel is, too, specially noticeable. It enjoys the unfrequent advantage of being at the angle of two streets. The treatment of the principal end in the Early English columniated triplet, with buttresses between, resting upon the piers of the boldly-recessed doorway, is excellent. The adjacent Baptist Chapel enjoys a similar advantage as to site; but the effect of this building is somewhat marred by the heavy cornice and chimney-like pinnacles at the apices of the gables and the four angles of the building.

The Shield-field Church, we reiterate, is "good." We trust that the Shield district, especially the rear of the houses in Shield-street, Carlton-street, and Wesley-street, will have the earliest attention. It is not without satisfaction we learn that, since the publication of our paper, a remedy has been partially applied to a great and grievous nuisance—the approach to the back premises to these long

streets, which for years had been a great deposit for ashes and filth. The accumulations of fetid slush had at last blocked up all ingress and egress at the back doors: not before it was time, this has been removed, and the approach is to be forthwith paved and drained.

We might say much in praise of a remarkable building now erecting on a commanding and breezy site, overlooking the race-course—the Deaf and Dumb Asylum. The general design and plan of this effective edifice are due to the skill of Mr. Johnstone Hogg; while Mr. Christian is understood to have suggested the very pleasing façade. The refectory, school-room, and dormitory, one above the other, occupying the north wing, are externally represented by a beautiful cloister-upon-cloister looking treatment, of which the upper story terminates in gables over the five windows. An entrance-tower occupies the centre, and the south wing, appropriated to the master's residence and apartments for private pupils, is treated more simply; thus distinguishing the parts with a due subserviency. The choice effect of this building is much enhanced by a polychromatic treatment in granite string courses, red stone mixed with white, bold carvings and inlayings of black and white—an enrichment that is due to the taste of one of Newcastle's sons, and is understood to be conferred as a graceful thank-offering for the education of an afflicted daughter. This will be a pleasant legend, of which Newcastle may be proud, in time to come!

SIR CHRISTOPHER WREN AND HIS TIMES.*

It may be interesting to draw a parallel between our Dr. Wren, the amateur of England, and his contemporary, Dr. Perrault, the amateur of Paris. Perrault, who was nearly twenty years the senior of Wren, was by profession a physician, although it is not considered that he was successful in that vocation. When Bernini had prepared his plans for the Louvre, and proceeded to build, it was immediately found that he and his French subordinates could not pull together. An Italian celebrity in art of that day was accustomed to meet with deference to his dictation: the French mind then, as now, was not so much accustomed to defer. In a word, before the foundations were put in, the haughty Italian quitted his commission in high dudgeon. His priceless designs, as he deemed them, he carried with him, leaving his refractory clients in the lurch. But, nothing daunted by this untoward event, the French architects (of whom there were several of eminence when there were none in England), forthwith prepared designs for the abandoned undertaking, and the minister, Colbert, received them in competition. Amongst the rest one was received from Dr. Perrault as an amateur. The brother of this gentleman, by the bye, was at the time a confidential *employé* under Colbert; and it is only human nature if the official brought to bear upon the interest of his relative what influence he possessed. A design by the architect, Le Veau, was much admired; but that by Dr. Perrault was much admired also. The end of the matter was, that the ministerial secretary's brother received the preference in respect of honour and probably of emolument, and his professional rival received employment as his assessor. A very so-so physician, said Boileau, seemed to make an excellent architect; and the wits of Paris, taking up the theme, suggested that architecture was in a very poor way, and had sent for the doctor. But, although the amateur of Paris had thus achieved an artistic immortality, *per saltum*, which no one grudges him, there is a wide difference between him and our Englishman. How Wren, during a long series of years, called into existence a multitude of first-class conceptions by the work of his own pencil, and built them by his own constructive skill, all the world knows. Perrault's works, beyond the Louvre, were of no account whatever. Wren, again, had no Le Veau at his right hand; he was himself both Perrault and Le Veau. It is true that Perrault was fifty years of age, and Wren but twenty-eight; that the one had passed his best days, therefore, and the other was just approaching them; but, as I think, there was all this difference more: the one at the best was but an eminent amateur, and the other at the least a great architect.

Well, our Savilian professor, in obedience to the royal command, takes up his abode once more in London. But, let it not be supposed that he is set down at once to the drawing-board. The stately projects of royalty, just restored from the

depths of seediness, must be allowed time to ripen. The exchequer must also be allowed time to fill. So we must not expect to hear of our new architect, Dr. Wren, for some little while. However, such was the deplorable condition of the cathedral, that a survey of its dilapidations could scarcely be postponed. Accordingly, of the date of 1663, we have a report by Dr. Wren upon the state of the fabric; and it at once becomes clear that the right man is in the right place. The old church bore date the eleventh, twelfth, and thirteenth centuries; and it had been falling rapidly into the decay of almost total neglect for a hundred years back. When the son of good Dean Wren was a baby in arms, the foundation of a new entrance porch had been laid by Bishop Laud. It was a fine Corinthian portico, by Inigo Jones. People are, now-a-days, fond of laughing at the idea of such a thing: somewhat inconsiderately, I think, looking at the circumstances of the times. However, so far as we are concerned, this was but a new cloth put into an old garment, and the rent was made worse. A few years more, and the sacred choir was found to make eligible quarters for the Roundhead cavalry, about the same time that the redoubtable Bishop of Ely was quartered in the Tower. The Restoration relieved the temple from profanation, and the bishop from durance. It need scarcely be remarked, that the church had suffered more than the churchman; and this was why it became necessary to call in the surveyor-general by his assessor to inquire carefully into its condition. Dr. Wren reported that he found the nave piers 6 inches or so out of the perpendicular; that he discovered them to be built of "rubbish stone and much mortar within," and a mere shell of ashlar on the face; that he found the vaulting to be too heavy for its abutments, and to have been always so: hence the failure of the walls; and that the tower "leaned manifestly" by the settlement of one of its piers. He recommended "new flagging" (that is to say, stone casing) for the interior; he advised it to be done "after a good Roman manner" (that is to say, in classic style); and he argued that this could be accomplished quite as easily as any restoration of "the Gothic rudeness of the old design." He proposed, also, to construct a new roof of timber, plastered, or a lighter shell of stone, or of brick and stucco. He lastly suggested (referring obviously to the example of St. Peter's at Rome) the substitution of a dome and lantern for the ruinous tower, which he pronounced to be "a heap of deformities." At the present day, without committing one's self to more than the mere suggestion of a fact, it may be remarked that a report upon a ruinous Gothic cathedral would be conceived in at least a very different spirit.

Although, however, the royal patronage of Dr. Wren went as yet no farther than this call for his advice upon Old St. Paul's, and certainly did not go in any degree to carry it into effect, we find in the same year of 1663, that private commissions began to assume a much more substantial shape. He produced his designs for the Sheldonian Theatre at Oxford; as also for a new chapel to Pembroke Hall, Cambridge. As regards the latter, his triumphant uncle, the Bishop of Ely, having at the Lord's leisure come forth from his twenty years' imprisonment, had resolved to appropriate the greater part of his revenues for the benefit of Pembroke Hall; the new chapel, therefore, was in fact a commission from him. And it may be noticed that a few years afterwards, when the bishop, at the ripe age of eighty-one, came at length to rest from his labours, it was here that he was buried, and that with all the pomp which the ancient university could display, in honour of one who had suffered so much in the cause of what he honestly considered to be Muscular Christianity.

Having now fairly embarked in the practice of an architect, Dr. Wren determined to travel; for the sources of information and means of study at his command at home were very limited indeed. The Italian treatises and plates of Alberti, Palladio, and their followers, the few buildings erected by Inigo Jones, and perhaps a stray drawing from Paris now and then, if not from Italy itself, handed about reverently as a marvel,—these were all. Critics of the modern Gothic school will remind me that he had the whole range of the fine monuments of Medieval England, and that the modern spire or steeple, a feature of his own origination, and of his continual use in exquisite variety of perfection, proves how much he owed to the study of those remains; but there need be no dispute about the fact that our doctor of classical learning treated Medieval buildings with very much of straightforward disrespect, and would gladly have put "new flagging" to the best of them, "after a good Roman manner," to

conceal "the Gothic rudeness of their old design." Doubtless the contemplation, with so keen an eye for grace and fitness as his, of the picturesque effects of that style of architecture, did much to form his taste: this is now universally admitted; but whether he was aware of it is quite another thing. At all events, a natural anxiety to extend his sphere of study in the art of his choice, led him to resolve upon a journey to Paris—the Paris of Louis XIV.—and to the Italian cities, the headquarters of modern art, to examine the works of the great masters.

In 1685, then, our young architect (for he was now but thirty-three) journeyed to Paris. I dare say it took him more than twelve hours, and no doubt he was much more than two hours on the Channel. He did not see the Boulevard de Sebastopol, nor the Rue de Rivoli, nor the Madeleine, nor the Panthéon, nor the Louvre of Louis Napoleon, nor the Bois de Boulogne; but he saw what was worth quite as much in his day, and was as much delighted as any one of us now to see Paris for the first time. To give a fair notion of his impressions and of his doings, of the condition of art at that day, and of his own tastes and principles, there is a well-known letter given in the "Parentalia," from which let me read some extracts.

(The lecturer then read an account given at pp. 261-2 of the "Parentalia," of Wren's visit to Paris in 1685.)

In the spring of next year, Dr. Wren (as he was still designated) returned home. His travels had not been pursued beyond Paris. There are some intellects which do not work on the laborious collection of illustrations, but rather on certain abstracted principles, which are more or less readily but almost unconsciously grasped. I fancy the intellect of Wren was of this stamp. If so, I can easily understand that he deemed the impressions which he had acquired in Paris to be enough for his purpose. "When you have seen one green field," says Dr. Johnson, "you have seen all green fields;" just so, to certain minds, when they have seen one great city, they have seen all great cities. At all events, Wren seems to have been satisfied with the sight of Paris; books, drawings, and his own fancy would do the rest. And so they did. And, curiously enough, it has been pointed out, in view of the graceful proportions and carefully moulded details of such a building as St. Paul's, that where this great architect repudiates the fripperies of the school of Bernini, and swerves from what was the precedent of his day, he leans by some inexplicable instinct invariably towards the then unknown manner of the Greeks; one of the most remarkable instances on record of that natural elegance of conception which in its modest simplicity and subdued power is the ultimate perfection of the highest art.

We are now brought in the course of events to the Great Fire of London and the new St. Paul's, and the thence uninterrupted routine of the life of an architect.

On his return from Paris, Dr. Wren was desired to report again upon the ancient cathedral of London. Evelyn, who held an official post in connection with Government buildings, was associated with him; also a Mr. Pratt, and a Mr. Chicheley. Wren's proposal for extensive re-edification does not seem to have been palatable: Pratt and Chicheley persistently opposed it, advocating piecemeal repair. The fact that the vaulting of the nave had spread and thrust out the walls has already been mentioned: when Wren directed attention to this, the reply of his opponents seems singularly apt as a sample of John Bull logic. This receding of the walls, said these authorities, was but a refinement of design, intended to enhance the perspective effect.

This was within a few days of the end of August, 1666. On the 2nd day of September, fate stepped in very unexpectedly and took up the matter. The Great Fire reduced the fabric to a state of wreck.

The city of London was now in great part laid in ashes; and here there was presented to our young architect, as has been often said, the finest opportunity for the acquisition of fame which has ever been provided for any man in his walk of life; for I need not remark that it very soon became apparent that the public buildings of the new city were to be committed to his charge as a whole. How this happened, allowing all that can be claimed for Wren's transcendent merits, those who look at the case as men of business and men of the world can scarcely yet understand. He appears to have had literally no competitor; and it seems inexplicable that no individual whatever should have taken advantage of the opportunity to palm off upon somebody a knowledge of stone masonry

* Read at Architectural Exhibition. See p. 323, ante.

and the possession of Palladio as a certificate of qualification,—made a trip to Paris, for instance, to come home a travelled man; or, what might have been easily done, journeyed forthwith to Rome and Florence, that he might hold his head even higher than that of little Dr. Wren.

It is worthy of note how rapidly projects for rebuilding London came before the public. The flames raged from September the 2nd till the 8th; on the 10th even the whole area was a field of smouldering ruins. But within two days of this 10th of September, while clouds of stifling smoke and mantraps of hidden fire must have been the staple commodities of the unhappy scene, we find a plan presented to the king by Evelyn, officially, for a new city. Exactly a week after this, Mr. Hooke, the geometician, Wren's college companion of the Micrographia, now Gresham professor, exhibits to the Royal Society another plan, for which in the mean time he has received the approval of the Lord Mayor and Aldermen, as being, in their opinion, preferable to still another plan prepared by the City Surveyor. One more plan, however, was in preparation: this one by Dr. Wren. He is in less hurry than his rivals, for certainly the composition of a scheme on which to rebuild the largest city, then as at present, upon the face of the earth, seems a thing which ought scarcely to be attempted within a week. In due time this plan is presented to the king. It is then laid before Parliament. I need not remind you that it receives the preference. Dr. Wren is formally appointed Deputy Surveyor-General, under poor Sir John Denham, and architect for the control of the new city.

The merits of Wren's plan were very clear. It was based upon a simple plan of redistribution, with converging lines laid out to suit old tracks of traffic; parish churches at the prominent angles, and the cathedral and the Exchange placed centrally. There seems to have been little straining at effect; and even now the arrangements are often quoted as those of common-sense practicability. When more utopian schemes were set aside it was found that public and Parliamentary opinion took two distinct lines of opposition to the plan, and no more. One of these stood upon the inviolability of property, and claimed the old streets, the whole of the old streets, and nothing but the old streets, with brick instead of timber for building, and no more; the other proposed a compromise between this and the plan of Dr. Wren,—new streets on the old lines, widened and improved as far as possible; but nothing beyond this. The project of the great architect, as well known, was never carried out; and the denunciation of City meanness and City obliquity of vision has not ceased since that day. But I venture to ask fair play even for the City. To exhibit an admirable plan of the sort of Wren's is one thing, and no doubt a very great achievement; but if law is to be below, and property property, to realize it in bricks and mortar, and satisfy all interests concerned, is quite another thing. Imagine the case in practice. What a wilderness of purchases, with consent and without consent,—repurchases, sales, and compensation cases,—friendly references and decidedly unfriendly references,—questions of law and of equity, and of fact, and of custom,—of freehold and leasehold, and copyhold, and no hold,—injunctions in Chancery, and motions to set aside an award,—and all the lawyers and surveyors in the country hard at work,—what a picture of professional felicity! The happy hunting grounds of law and valuation certainly could not lie beyond this! In short, Wren's plan of London, like many another admirable scheme, sank of its own weight into the abysses of the impossible.

The old Cathedral of St. Paul was, of course, surveyed once more,—surveyed, indeed, and surveyed for several years. Whether the considerations were economical or archaeological, I cannot affirm, but people could not agree to pull it down. I fear they were chiefly economical, for the expression used to signify the process advocated by the upholders of the fabric, is not restoration or anything of the sort, but patching. Wren had at the first advised the building of an entirely new edifice; but the patching party carried their opinion for a long time, and no doubt considerable sums of money were expended accordingly, during two years; but at length part of the edifice actually falling to the ground, Dr. Wren was sent for, and the intention determined upon to rebuild the cathedral on a grand scale. But the adherents of repair were not even yet defeated; although the king's government had ordered the pulling down of the ruins, the matter was still debated, and it was not until 1673, seven years after the fire, that designs were ordered for the new edifice. Sir Christopher

Wren (as he had now become), was appointed architect of the work, and one of the commissioners for the management of it. His salary, by the bye, was 200*l.* a-year, equal to perhaps 500*l.* of our money. The foundation stone of the present St. Paul's was laid two years afterwards, on June 1st, 1675. The age of the architect was now forty-three years.

Meanwhile he had attained to the name of Surveyor-General by the resignation of Denham in 1668. He also found himself employed by all the chief authorities in the kingdom. The churches of London were placed in his hands, with a salary of 100*l.* a year. Up to the date of the commencement of St. Paul's he had begun the building of the London Custom House, the Exchange, Temple Bar, the Monument, St. Mary-le-Bow, St. Stephen's, Walbrook, and various works of less note; and many of them he had brought to a conclusion.

The scientific position of our still learned and active philosopher must not be forgotten all this time. He continued to be one of the most prominent members of the Royal Society; his theories of motion attracted much attention, and are considered to have led the way for Newton's great discoveries of some twenty years later. In 1672, the year of Dr. Wren's knighthood, Newton was elected F.R.S. It was only in the following year that the architect of the proposed new cathedral was obliged by press of business to resign his professorship of astronomy at Oxford. The next year, 1674, made him vice-president of the Royal Society. We may also anticipate a little, and observe that six years afterwards he was elected to the very high honour of president.

I do not know that we ought to overlook the private affairs of our hero. It was not till the third year of his knighthood that the philosopher permitted himself to marry a wife. The poor lady soon left him a widower, and he married again. His first wife was the daughter of a Sir John Coghill; his second, of Lord Lifford. It is thus rendered plain, therefore, if it had not been so before, that the world looked upon him to be a gentleman of social consequence, not only as philosopher and artist, but probably much more as son of a Dean of Windsor, and nephew of a famous bishop. We do not depreciate his merits if we bear in mind the ways of the world. If he had been the son, not of a quiet dean, but of some powerful Roundhead preacher, and the nephew of a grim old Ironsides, instead of a persecuting bishop, who made East Anglians face the east in spite of their teeth, St. Paul's and the City churches might have been the work of some Sir John Denham, and their graceless façades and shapeless towers we might now dismiss with less regret.

I do not propose to enter upon any artistic criticism of the works of Sir Christopher Wren. These have their faults, and oftentimes those faults are grave; but to him who scrutinizes, however severely, what may be called the make-shifts of St. Paul's,—say the double dome and the screen-walls of the nave,—one thing must always be apparent,—that these are at least the make-shifts of marvellous ingenuity and still great artistic power. They are falsities, it is true; but they are those of a master mind. They are no common vulgar fibs, but great grand lies of genius.

From the commencement of St. Paul's, the professional engagements of Sir Christopher Wren were incessant till he reached old age. The numerous churches of the City, Greenwich Hospital, Chelsea Hospital, the College of Physicians, and other works, and above all the stupendous structure in the midst, carried him through a period of altogether forty-seven years' practice, to the year 1710. In that year, being of the age of seventy-eight, he laid, by the hand of his son, the highest stone of the lantern of St. Paul's: no doubt with heartfelt joy. We can fancy the venerable little gentleman, drawn up in a chair, as was his custom, to the giddy summit, casting a thoughtful glance around upon the City below, and far backward into time,—a proud glance, too, in its thoughtfulness,—for he remembered a waste of smoking ruins where stood that forest of graceful spires; and he remembered, too, the echo of a youthful voice in Gresham College long ago,—the voice of a "rare and early prodigy of universal science," people used kindly to say; and humble, and retiring, and gentle little man as he was, there was nevertheless a whisper in his ear that he had done well.

The building of St. Paul's, of thirty-five years' duration, led the architect through various political vicissitudes,—past the pitiable death of Charles II. and through the brief reign of the un-

lovely James; it witnessed the Revolution and the reign of William and Mary; and it closed in the days of Queen Anne. When a new and foreign king brought new and somewhat foreign times, there arose some petty disputes, with a little paunch-bearing and the like, which vexed him, because he had grown old and infirm, and had not perhaps the vigour in him with which a certain old uncle of his, in long bygone days would have handled such enemies. The Government committed the egregious folly of dismissing him from the office of surveyor-general, at the age of eighty-six years, in favour of one Benson, a court favourite: it would have been only good policy to retain the name of so eminent an officer, for the few more years he had to live, among the servants of the Crown. It is with very natural satisfaction, therefore, that I notice the fact that Benson, within one short year, fell into terrible disgrace, and made his friends repent bitterly of their bargain.

The Parliament in 1683, in the reign of James, numbered amongst its members, Sir Christopher Wren, then about 50 years of age. He sat for Plympton, in Devonshire. After the Revolution he was elected for New Windsor. In 1700, again we find him sitting for Weymouth. His parliamentary career, therefore, extends over some twenty years or more. He seems to have aimed at nothing of a political kind.

After his ungracious treatment by the Government, the aged architect retired to his house at Hampton Court. He came to London occasionally to inspect the repairs of Westminster Abbey, of which he held the office of surveyor till his death. Once a year he was carried to St. Paul's just to look at it again before he died. He still pursued his studies in science, and no doubt often talked with the pardonable garrulity of age of the difference of men's ways and opinions since the days, seventy years ago and more, when he used to busy himself about his *penna duplex* and his weather-clocks, and his Micrographia; and we may fancy that he heard the little old gentleman still laugh pleasantly when he remembers his transposition of the good strong ale into the veins of unoffending Pincher till he became as drunk, sir, as a lord.

And when they led him to discourse upon the art by which he had attained to such high eminence, and perhaps would sometimes hint, as many of us may do when we reckon up the matter, that if he had left art to other men, what might he not have done in science!—we can fancy him bowing to the compliment as modestly disclaimed it, but glorying rather in the destiny which had enabled him to give his native country so many objects of just pride. "For architecture has its political use," are his own words; "public buildings being the ornament of a country; it establishes a nation; draws people and commerce; makes the people love their native country, which passion is the origin of all great actions in a commonwealth."

He lived at Hampton Court for five more years of extreme age, till at length he was 91. His annual visit to St. Paul's was a great delight; the building of such a work being, in the words of Walpole, "an event which, one cannot wonder, left such an impression of content on the mind of the good old man, that it seemed to recall a memory almost deadened to every other use."

At last one day, the 25th of February, 1723, on the occasion of a visit to London, resting at his house in St. James's-street, he died, and as his custom was, went to sleep in his chair. He slept longer than was usual; an attentive servant came to see that all was well. He had fallen asleep—pleasantly asleep—for ever. His body was buried in peace, and as was meet, in splendour, in the silent crypt of St. Paul's. They built him no monument, for he had built his own. They put up this simple record, more majestic in its simplicity than would be the oratory of Cicero upon the marble of Chantry; they put up this simple record of plain English truth:—

"Beneath is laid the builder of this Church and City, CHRISTOPHER WREN, who lived above ninety years, not for himself, but for the public good. Reader, if thou seekest his monument, look around!"

ROBERT KERR.

Mr. Ashpitel, at the conclusion of the paper, proposed that the meeting should give its most cordial thanks to Mr. Kerr, for the able communication just afforded to them. If interesting to those present, it was still more so to himself, who

* By an error in setting up, an omission occurred towards the end of the first part of this paper, page 324, *ante*. In the sentence, "Such men as Dr. Aldrich, Dean of Christchurch, Oxford, and Sir James Burroughs, Master of Caius College," of our own day, there ought to be inserted, at the asterisk, "like Dr. Whewell and Professor Willis."

had shortly before gone over the same ground while writing the biographies of Vanbrugh, Wren, and several other English architects, for the new edition of the "Encyclopædia Britannica." He was much pleased to find that, from the same sources, the lecturer had arrived at very much the same opinions. To enter into a criticism of the merits of all the buildings of Wren would, as Mr. Kerr had said, occupy too much time. In fact, such a disquisition would fill volumes. He might, however, be permitted to call the attention of the meeting to a very valuable collection of drawings of this great man, preserved in the library of All Souls' College, Oxford. These had been exhibited to him by the kindness of Professor Max Müller, and were carefully cherished among the gems of that library. They consisted of original sketches of designs for various buildings, and seem to have been first got out in block, then to further scale, then often set up in perspective, but all of which evinced an extraordinary genius for invention, and that based on the soundest principles of construction.* Mr. Ashpitel, however, ventured not exactly to differ from Mr. Kerr as to what he had said on Gothic architecture; for there was no doubt, in his early career, Sir Christopher Wren had proposed to classise the nave of Old St. Paul's. But it must be remembered that it was not long after he steadfastly refused to do so with the west front of Westminster Abbey. Wren was not in the position we now are, with a perfect knowledge of Medieval detail, and with workmen ready to carry out our wishes in the most careful way. All old traditions had been worn out; new fashions had come in; new contours had been recognized as the only correct type for mouldings, and other detail; and Wren was much in the same situation as Wyatt and the other architects who endeavoured to revive Medieval art some fifty years ago. But when he (Mr. Ashpitel) looked at the general composition, the general masses of the west front of the Abbey, and still more so, the noble tower of St. Michael's, Cornhill, the curious and able spirit of St. Dunstan's in the East, the front at Christ's Church, Oxford, and many other works in the same style, which it would be impossible to detail at length; he believed that, had Sir Christopher lived in the present time, with "the appliances and means to boot" which we have, he would have been not only the greatest classic but the greatest Gothic architect of the day. He would venture a word or two as to St. Paul's. Wren's genius must not be judged of by the present building. His original idea was that of a noble edifice in the form of a Greek cross, with a grand dome fully as large as that of St. Peter's. The Duke of York, afterwards James II., had influence, however, sufficient to force him to alter his plan; and it is recorded, when the expedient of the false screen wall was forced on him, that he was so moved, though by no means an old man, that he sat down and burst into tears. It is a very curious fact, however, though but little known, that Westminster Abbey has also what closely resembles a screen wall. It was only a short time ago this fact was made known to him by the talented gentleman now engaged on the works of the Abbey. The meeting would remember over the lower windows are a range of triangular windows: these give light to a sort of ambulatory over the groining of the aisles, but through this space the flying buttresses of the nave pass, showing (to say the least of it), that the wall and triangular windows were an afterthought. It is curious that both our metropolitan cathedrals should have a sort of screen wall, and it is not improbable the arrangement at the Abbey may have suggested that at St. Paul's.

THE ROYAL ACADEMY EXHIBITION.

THE present exhibition promises to be as attractive and profitable as any of its predecessors, if not more so. A crowd fills the rooms every day, increased to some extent probably by desire to see what alterations have been made in the building. Lengthened notices of the collection have appeared in numerous quarters, and several of the journals have given sketches of the history and progress of the Academy. The artist has now a large public, and it is to be hoped that there are men rising amongst us to maintain, if not advance the reputation of the British School.

The present collection consists of 1,134 works of art, of which 157 come under the head of Sculpture. While the exhibition as a whole is exceedingly interesting and charming, displaying a number of excellent works, it is unquestionably

deficient in remarkable pictures. Mr. Faed's picture (247), "From Dawn to Sunset,"—from the baby born to the mother dead,—which would seem to be the most popular work in the rooms, is incomparably the best picture that the artist has produced, but can scarcely be called a great picture. There is a want of intensity and of light and air. It is, nevertheless, a work of great merit, suggestive and beautiful. Mr. E. M. Ward's elaborate picture, "Antechamber at Whitehall during the dying moments of Charles II." (169), is a picture of much higher intention, reflecting the frivolity, licentiousness, and want of heart of those around the dying king—of him "who never said a foolish thing, and never did a wise one." The greatest care has been bestowed on the various figures, and as a set of separate studies they demand the warmest praise. As a whole, nevertheless, the picture seems to us to fall short of some previous works of the same admirable artist. Mr. Stanfield still paints the sea with life and vigour; (57) "Capture of Smuggled Goods on the old Antrim-Road, Ireland" is an excellent specimen of his skill. Mr. David Roberts, while he omits the detail and finish, distinguishing his earlier works, shows in 108, "Ruins of the Temple of the Sun at Baalbeck," and 158, "A Fête Day at St. Peter's," his knowledge of light and shade, and composition. Admirably, marvellously indeed, as the horse is painted in Mr. Edwin Landseer's 135, "The Shrew Tamed," we prefer his noble drawing in chalk, 757, "The Fatal Duel." The admiration excited by Mr. Dyce's picture, "George Herbert at Bemerton" (98), is less qualified than was the case as to his remarkable Sea-shore picture, last year; nevertheless, the landscape portion of it is admirable. Mr. Elmore has three graceful pictures, of which we prefer 110, "Marie Antoinette in the Temple." Mr. Redgrave has several excellent landscapes. Amongst the portrait painters, Mr. Pickersgill is in force. 46, "A Spanish Lady" is a very charming work. Mr. J. P. Knight has three forcible and excellent portraits; and Sir J. Watson Gordon several, amongst which we should specially praise 33, "Edwin Field, esq."

We must go back, however, to mention briefly a few other pictures especially noteworthy. 10, "Dawn,—Luther at Erfurt." Powerful, but unpleasant; its details, generally, painted with great minuteness. 16, "The Signal Station, Gibraltar, from the Rocks near Breckneck Stairs." F. R. Lee, —a striking picture. Mr. Lee has done well to leave in for a time his Devonshire scenery. 27, "First Step Life," W. J. Grant. The mother's head is charming. 34, "Drinking Fountain," W. C. T. Dobson. Carefully painted, and not without beauty; but we prefer the same artist's single figures, on this occasion; especially 298, "A Flower Girl." 59, "Hunted Slaves," R. Andsell. A picture of great power, and with more of human sentiment in it than Mr. Andsell sometimes fixes. 66, "Gossips at a Well," J. Phillip. Remarkable for colour and the vivacity of the girls' faces; but otherwise uninteresting. 72, "La Demande en Mariage," P. H. Calderon. An excellent picture, though the lover in the distance is a spooner. The attitude and expression of the father are capital. 101, "Gondomar," H. Wallis. The well-known Spanish ambassador is viewing from a window an execution on Tower-hill (Raleigh's?). It is powerful, both in colour and expression. 123, "A Farm-yard," G. W. Horlor. We have no artist but Sir Edwin who could paint calves better than these. Mr. John Lewis displays with advantage his wonderful power over detail in 149, "A Bedouin Sheikh, Egypt;" and in 266, "In the Bezaestien, El Khan Khalic, Cairo." 180, "Consolation." A Solomon: a mother over an empty cradle, visited by a Sister of Charity. A very beautiful picture, far preferable to Mr. Solomon's other work from *Moliere*. 203, "The First Born," F. Goodall: excellent; but if there had been more light on the mother's face, and the colour of it had been more nearly that of the arms, it would have been better. 226, "A Leaf from the Book of Nature," H. C. Whitley. A charming leaf, and the artist has read it very well. 231, "A Street Scene in Cairo." W. H. Hunt. The lantern-maker is trying to get some notion of the features of his wife that is to be: well designed, and exceedingly well painted. 276, "Paolo e Francesca," F. Leighton. Full of poetry, though the embrace may be over-free. The left leg of the man is surely too long. Another picture by Mr. Leighton (550), "Lieder ohne Worte" we should praise with less qualification. Miss Osborn is pursuing a successful career: 258, "The Escape of Lord Nithsdale from the Tower," is the best picture this lady has yet painted; but why make his lordship so great a craven? Here, at any rate, is one who is not. 306, "Viscount Ran-

lagh, Lieut.-General, Commanding South Middlesex Volunteers," H. T. Wells. A life-like and characteristic portrait of one who has done most of any man to further the volunteer movement. It may be seen in the portrait why any of his men would go through fire for him. 317, marked with the quotation,—

"Compass'd by the inviolate sea,"

is a very good specimen of Mr. J. C. Hook's present vigorous and healthful style, but it is very like what we have seen before. 335, "The Parting Cheer," H. O'Neill. Notwithstanding the employment of the same models as were used in the picture which has given Mr. O'Neill his deserved reputation, this is one of the best paintings in the galleries. Few can look at it without excitement. 343, "Miss Alice Prinsep," G. F. Watts. A delicious picture, the sight of which is worth the shilling. 381, "The Franciscan Sculptor and his Model," H. S. Marks. The painter's best work. A Franciscan monk is carving a gargoyle: the figure on the ladder adds grace to the grotesque. If *Punch* miss the political squib wrapped up in this picture we shall be surprised. 400, "Collecting the Flocks—Evening," W. Linnell. A fine sky. The rich glow of the flowering foliage is admirably rendered. 434, "The Seven Ages," G. Smith, deserves to be stooped to, after looking at S. Cooper's skilful picture, "Drovers collecting their Flocks," just above it. 456, "Spring: the Outskirts of Burnham Wood," A. MacCullum. A remarkable piece of portraiture, and very agreeable to look at. 619, "Corfe Castle, Dorset," J. F. Cropsey. One of the best landscapes in the collection, hung much too high. The ruins, which are the most picturesquely situated of any in England, are seen under a lowering sky, while a rainbow on one side and a gleam of sunshine in the foreground light up the picture.

We must, however, draw to a close, simply noting as amongst the more interesting of the remaining works, 164, "Fishing Vessels off the South Foreland," J. J. Wilson; 285, "Lost and Found," J. C. Horsley; 328, "Slaves waiting for Sale, Richmond, Virginia," E. Crowe; 330, "The Sonetto," W. F. Yeames; 341, "Queen Margaret's Defiance of the Scottish Parliament," J. Faed; 360, "Pirates playing at Dice for Prisoners," F. R. Pickersgill; 433, "Land Lehen," W. Gale; 530, "Study of a Knight in Armour," the work of one who died much too soon, the late Henry Pickersgill; 553, "Petrarch's first Sight of Laura," W. Cave Thomas; 580, "A Summer's Evening," J. T. Linnell; 624, "Home from Work," A. Hughes; and 753, "The Falls of Reichenbach, Oberland," P. Skelton.

THE PRESIDENCY OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AN adjourned general meeting of the members was held on Monday evening last, at the House in Conduit-street, to elect a president for the year ensuing.

Professor Donaldson, V.P., in the chair.

The meeting was very numerously attended; 120 fellows, 19 associates, and 1 honorary fellow being present; including Messrs. Tite, Smirke, Scott, Pennethorne, Beresford Hope, S. Wood, Ashpitel, Mair, C. Barry, E. M. Barry, Street, H. Jones, Owen Jones, M. D. Wyatt, Burgess, R. Kerr, Truett, Baker, T. H. Lewis, Penrose, Jas. Bell, C. C. Nelson, R. R. Rowe, Ferrey, Waterhouse, W. P. Griffith, Boulnois, O. Hansard, Slater, Fowler, Foxball, Edmeston, Penrose, E. Roberts, Jennings, Stride, J. J. Cole, John Billing, P. C. Hardwick, Thomson, John Colson White, Darbishire, F. Murrable, John Davies, Hesketh, H. Ashton, R. Treas, H. E. Kendall, J. Clarke, F. Pownall, F. P. Cockerell, Cates, N. Shaw, John Shaw, R. Brandon, Morgan, Colling, C. Mayhew, Shout, Scoles, Good, G. Mayhew, Roumieu, Gibson, T. Bury, D. Brandon, Whichcord, St. Aubyn, Decimus Burton, Ewan Christian, Teulon, Hakewill, Moseley, F. Porter, J. O. Leicester, S. Godwin.

A number of members attending for the first time since their election were admitted by the chairman.

By way of parenthesis, we may mention that on no similar occasion have so many fellows been present in the rooms of the Institute. At the annual meeting in 1858, the numbers were 24 fellows and 9 associates. At the annual meeting in 1859, only 18 fellows were present, and 7 associates. At a meeting held April 3, 1843, H.R.H. the Prince Consort (then Prince Albert) presiding, there were present 56 fellows, 11 associates, 4 honorary fellows, and 3 honorary members,—a

* An account of these has been given in our pages.

total of 104. To return, however, to the business of the evening:—

Mr. Kerr, on the part of the Council, moved a resolution, declaring that it was desirable to retain a record of the presidency of Mr. Cockrell, in the shape of his portrait, to be obtained by the subscription of the members, and suspended in the meeting-room; and that an address, signed by all the members, should be presented to him.

Mr. Smirke seconded the proposition, which was supported by Mr. A. B. Hope and Mr. Tite, and carried with acclamation.

Mr. Cockrell, who was much affected, expressed the gratification the proposal gave him.

The Chairman, having first congratulated the Institute on the largeness of the meeting, and the strong evidences apparent of vitality, said the business of the evening was the election of a president. Two gentlemen, both eminent, had been proposed to them on a previous evening; and, as the question had been adjourned, it would be better to begin again from the beginning.

On the motion of Mr. Tite, however,—who explained on what grounds he had been led to consent to go to a ballot,—seconded by Mr. Hope, the meeting proceeded at once to vote; the proposers, Mr. Street* and Mr. Godwin, acting as scrutineers. The votes were, for Mr. Tite, sixty-six, with two lost in consequence of being signed by the voter, and fifty-one for Mr. Hope. Mr. Tite was, thereupon, declared president; and, Professor Donaldson having vacated the chair, took his seat, and made some judicious observations in returning thanks.

Mr. Hope, in the name of those who had voted for him, thanked the president for the tone of his remarks, and the meeting was adjourned.

ROMANESQUE ART.

THE ARCHITECTURAL EXHIBITION LECTURES.

MR. EDWARD A. FREEMAN delivered a lecture on the subject of "Romanesque Art" on Tuesday evening last. The chair was taken by Mr. Borges.

The lecturer commenced his observations by stating that as he had no notes whatever of what he intended to say, he would have to give them exactly what was uppermost in his mind at the moment. The reason for his unpreparedness was that he had just come back from a tour in Normandy, where he had been sojourning for a few weeks; and that during the few days that had elapsed since his return he had been visiting Romanesque buildings in England, and had consequently no time to commit his thoughts to paper. He might therefore say much that was incoherent and unconnected: at the same time he would, he hoped, be able to convey the fresh impressions of his mind with reference to some of the finest Romanesque churches in Europe. By Romanesque architecture he meant Romanesque in the ordinary acceptance of the term, including all the styles coming within that definition in England, France, or elsewhere, which were formed on the Roman model. Architecture had ceased to be Roman just as common language had ceased to be Latin; but it still retained the old Roman origin: just as the French language was a corruption of Latin, and Italian also a corruption of the same tongue; so Romanesque might be said to be the corrupted language of architecture. The Italian language was, however, nearer to the model as it was nearer to the Roman tongue; and in like manner with architecture, it would be found that the further the distance from Rome the greater the departure from the Roman model. In England and in Southern France Roman architecture had taken but comparatively slight root; and thus it was that our architects were not in earlier times so familiar with Roman models as those of Southern Gaul and Italy. Still Roman influence was strongly expressed in our ancient cathedrals. Having referred to cases in which there was an intermingling of examples, Mr. Freeman proceeded to show that the round arch

was an essential form of Romanesque, and the pointed arch of Gothic architecture; he therefore used the word Romanesque in a general sense, to denote styles which had ceased to be Roman, but which were originally of Roman origin. For the word "Romanesque" were indebted to the Rev. Mr. Gunn, of Norfolk, whose name was not so well known as it deserved to be. Romanesque was indeed a grand style, and it possessed all the features of a good style. The Romans were bad architects, but they were good builders; therefore it was not to Roman buildings that we were to look for the perfection of the round arch. The Palace of Dionysius presented the first fine specimen of the arch springing from the column, and there a good round arch was to be seen. Believing the Romanesque to be a grand, pure style, he confessed that to his thinking new Romanesque was grotesque, incongruous, and he might add, ridiculous. This remark would not apply to modern Gothic; for if it were good it pleased the eye as much as the old, though of course it could not have the same interesting associations to recommend it. He never liked the idea of restoring Romanesque buildings; for he thought it was a pity to patch them up. In Gothic buildings, however, the work of restoration might safely be carried out, because as long as the work was well done the restoration would be satisfactory. Having been engaged in a little controversy with regard to the development of good Romanesque architecture in the eleventh century, he had cheerfully proceeded to Normandy, to see what new light he could throw on the subject. A question having arisen with regard to the date of Waltham Abbey, he had instituted some inquiry on the subject, of a purely historical character, and the date turned up quite in an incidental manner. He then made up his mind to say no more on the point until he had been to Caen. He had never definitely asserted that the nave of Waltham Abbey was the work of Harold, and that the church was founded in 1060. All he said was, that there was strong presumptive evidence to make one believe it; and that until strong proof was given the other way, it was quite reasonable to hold to the opinion. If, on the contrary, there was evidence of rebuilding, he was quite prepared to abandon the position. It was impossible to prove everything in history, and it was a good deal to get a good presumption. They knew that the church was built in the year 1060, and that repairs were effected in 1170 or 1180. Historical evidence was, in his opinion, the best evidence of the date of ancient buildings, and architectural evidence was a mere deduction from it, and nothing more. Of the two classes of evidence, architectural evidence must give way to historical. There was a third form of evidence, which brought the proof within a much narrower range, and that was constructive evidence—the evidence of the masonry. Tradition might be false, and historians might be deceived, but the stones could not lie. If one saw one set of stone plainly set up against another, it was evident that it must have been built up later. This was absolutely infallible. All that could not be told was the age of the structure, whether one year or five hundred years. If a Perpendicular wall were built up against a Norman wall, they knew that the former was later; and they must go to history to find how much later. There were one or two current mistakes on this subject, which he would like to see got rid of. For what possible reason all Englishmen who lived between the fifth and eleventh century were called "Saxons" he could not understand. The people who came to England were composed of several tribes, who might have given names to provinces, as in the case of Essex, but never to the country as a whole. They were Anglo-Saxons, but never Saxons alone. People in England called themselves English a thousand years ago, just as they did now; and why we should call them by a name which they did not call themselves he could not understand. They were simply our own forefathers, governed by our own laws as they then existed; in fact, simply ourselves at an earlier stage of our existence. But it was said, that "the Saxons built their churches of wood;" but it did not follow that because in the struggling ages of Christianity wooden churches were built in the sixth and seventh centuries, that people who lived three centuries later could not have built in stone. The true way of examining the question was to go to Normandy, study the Early Romanesque, and compare it with the English. He took with him on his recent tour the best book which he could procure,—Dr. Whewell's Architectural Notes on German churches; and he had made a number of drawings on the spot to give an idea of the buildings. He had visited

the two principal cathedrals in Normandy, Jumièges and St. George de Boscherville. The latter was well drawn and elaborately described in Cotman's book on Normandy. The question upon which he joined issue was, that nothing like a rich work could be done in the eleventh century. Why might it not be so done? A plain example might be later than a rich one. It appeared to him to be a good argument that Harold, who had built a church on his own property, and with great munificence, might very reasonably have lavished his wealth upon its enrichment. But it was concluded that it could not have been built in the time of Harold, because it did not resemble St. Stephen's Church at Caen, which was built by William the Conqueror, and which was a plain church. But the circumstances which led to the building of the two churches were so widely different, and there were so many reasons why Harold should have embellished his church, while William the Conqueror should have been careless on the point, that it by no means followed that the two churches were not of the same date. Harold's church was a free-will offering, while that of William the Conqueror was compulsory, and made by way of reparation for having entered into a non-canonical marriage. The abbey of Jumièges was consecrated on the 1st of July, 1067. The choir might then have been finished, and, possibly, the nave; but it by no means followed, as a general rule, that the date of consecration proved the date of a building, but it was strong historical evidence. The church of St. George de Boscherville was commenced in 1050, and finished in 1087. It was as rich as Jumièges was plain, but it was a noticeable fact, that the latter part was plainer than the earlier part. The capitals were peculiarly plain, and it was contended that they were so because the workmen could not do them better; but at Jumièges some of the capitals were carved, but his own theory was, that they were left plain in the first instance, the intention being to cut them *in situ* hereafter. He contended that the natural inference was, that the capitals were intended to be carved into greater forms at a future time. The great abbey of St. Stephen's at Caen was consecrated in the year 1077, and late in the twelfth century some alterations were made. The tower was raised, and the clerestory was added above the earlier one, exhibiting, as clearly as possible, the constructive proof. There were also in several places great seams, showing stoppages in the work, and that the foundations were laid at the same time as the nave, but that the tower was not finished until some time afterwards. There might have been, for all they knew to the contrary, a strike among the masons, or William the Conqueror might have got to the end of his pocket, and might have had to confiscate the estate of another Englishman before he found himself with funds enough to go on. Looking over all the great Norman churches, he found that the style was often plain, although the church of St. George de Boscherville could not be reckoned among the number. At the church of St. Nicholas, though the architecture was plain, there were bits of ornament interspersed here and there. The great Norman Abbey of Cerisy was, it was said, begun by Robert the Devil, the father of William the Conqueror, and finished by the Conqueror himself. It was on the whole a plain church, but there were considerable pieces of ornament, such, for instance, as elaborate springs in the choir, billet mouldings, and the like. The date to which he had referred was the nearest date, and he had no reason to doubt it; at all events, the *onus probandi* lay upon those who held an opposite opinion. There was one subject in connection with the architectural evidence on which he wished to say a word or two. He had been told to look at the masonry of those Norman churches, and he had done so most diligently and minutely, and he confessed to have been staggered a little. The early masonry, as a rule, was wide jointed, while that of a later period was fine; but his experience had led him to the conclusion, that wide-jointed masonry was also to be found in late as well as early churches. If, for instance, you examined the masonry in Edward the Confessor's Chapel, in Westminster Abbey, some of the masonry would be found wide jointed, while other portions were fine. He had been told that Waltham Abbey could not be so old as it was represented to be, because the masonry was fine jointed; but in order to show how deceptive such a theory was, he might mention the fact, that he had visited the church only the previous day, and he found that in the two great eastern piers, and in a certain shaft in the east wall of the south aisle, the masonry was as wide jointed as in the Norman

* Mr. Hope's proposer writes as follows:—"In your report of the proceedings of the Royal Institute of British Architects, in the last number of the *Builder*, you state that Mr. Beresford Hope was proposed by me 'on the ground that it was not desirable to continue electing an architect as president.' As reporters are not allowed to be present at our general meetings, we cannot, of course, complain if your reports do not represent exactly what passed; but you will, I dare say, allow me to say that what I did propose was, that we should elect our president alternately, from the class of honorary and ordinary fellows, in conformity with the clear and undoubted intention of our charter."—"The words in our brief outline of the proceedings were, we believe, those actually used by the speaker, but it is quite right his views should be made clear. We are not aware that the Charter expresses the intention stated. It simply provides that the president may be elected from the list of honorary fellows. The words are,—'Provided always that it shall be lawful for the President to be elected out of the class of members to be called honorary fellows.'"

churches, at Caen. This, he submitted, deprived the theory of wide and fine-jointed masonry of any possible weight which had hitherto attached to it. Again, they were told that there could be no elaborate carving in the twelfth century, because the chisel was not then in use. This was really little better than a dream. The argument was advanced on the authority of Gervais, the historian of Canterbury Cathedral, but all he had really said was that, when the choir of Canterbury Cathedral was rebuilt, the carving was done by the chisel, whereas the earlier work had been done by the axe. But this was no proof whatever that the chisel was not in common use anterior to the twelfth century. The historian of Peterborough Cathedral might as well have contended that the chisel was unknown when it was built, because the west front showed the sign of the axe. The church at Beauvais was said to be the remains of a Roman basilica, and there was good reason for the presumption. It was also quite possible as had been contended that additions were made to it in the year 991. He owned he could see no absurdity in the circumstance that the men who lived in the year 991, might not have executed ornamental work quite as well as those who came after them by a couple of centuries. He had now glanced briefly at the chief features of his Norman tour, which he admitted contained but a very limited view of Romanesque architecture. Whether those who heard him would agree with him in thinking that he was justified in supposing that there could be such fine work in the eleventh century was another matter, but he did not think he was propounding anything very paradoxical or absurd, when he declared such to be his belief, inasmuch as one of our first architectural inquirers, Dr. Whewell, had gone over the same ground thirty years ago, with the same result. Dr. Whewell had not, he believed, seen any good and sufficient reason to alter his view on the subject since he wrote his well-known work; at all events, he had not issued any published refutation. Suppose, for instance, that he (Mr. Freeman) could show that Waltham Abbey was sixty years older than it was generally believed to be; he would not be doing more than Professor Willis had done the other day at Gloucester, or than Mr. Parker had done when he showed that the hospital at Angiers was twenty years earlier than it was supposed to be. There was nothing paradoxical or absurd in the contention that a Norman architect might have built a church like Waltham Abbey, which was not, after all, a rich building, more especially as the argument about wide and fine jointing, to which some persons cling with so much pertinacity, had, on examination, come to nothing.

At the conclusion of the lecturer's remarks, Mr. Burgess, in proposing a vote of thanks to Mr. Freeman, for his able and lucid observations, said that, architects, they had reason to be much indebted to him for having undertaken a journey to Normandy, to clear up a disputed point in architecture. The professional architect could not always spare time from his avocations to prosecute such researches as Mr. Freeman had undertaken; and therefore, their thanks were especially due to that gentleman for the light which he had thrown upon the subject.

The vote of thanks having been accorded unanimously,

Mr. Burgess announced that the next lecture would be delivered on Tuesday evening, 21st inst., "On the Revival of the Styles," by the Rev. J. L. Petit.

PRIZES TO ART WORKMEN, OFFERED BY THE ARCHITECTURAL MUSEUM.

The committee are about to publish the subjects for prizes, the competition for which is open to all workmen, whether members of the Architectural Museum or not. All competitors will be treated as members of the Museum, and will, as such, be presented with cards of admission to the whole of the South Kensington Museum, for the year 1862.

In addition to the prizes specified, the council of the Architectural Museum will, at its discretion, award the sum of 11. 1s. to specimens showing particular merit, although it be not sufficient to secure a prize; and, through the liberality of Mr. S. C. Hall, ten illustrated books will be given, at the discretion of the council, to competitors who do not obtain prizes, but whose works are specially meritorious.

The prizes offered this year considerably exceed in value the sum of 100*l.*, and should therefore be sufficient to induce the artist-workmen to compete more vigorously than in former years for such rewards. The council prefer, however, to

hold out as inducements, the honourable distinction of gaining a prize and the accompanying certificate of merit. It is to be hoped that employers will make known to their workmen the encouragement offered by the Architectural Museum, and also give them every facility to compete for the prizes, and that workmen will themselves communicate the intelligence to each other, the more especially as the prize specimens will, it is hoped, form a worthy contribution towards the International Exhibition of 1862, in which it is very probable the most meritorious may be exhibited.

COMPETITIONS.

New Wesleyan Chapel, Birkenhead.—To some requests for particulars, the committee have replied, that they "have already sent out 100 plans, &c., in the order of application, and do not consider it advisable to incur further expense." Some of the applicants complain to us that the advertisement has been repeated since this reply was received. Probably, however, it was ordered before the number of applicants was known.

THE LIBRARY AT THE GREAT SEAL PATENT OFFICE.

FIVE or six years ago we directed attention to the Patent-office establishments; and since then this free scientific library, we are glad to find, has made goodly progress. At present there are here about 25,000 volumes, well selected, and of a class character. The value of such collections in the metropolis is great; for, notwithstanding the advantages of the British Museum library to strangers, it is not easy, with the present arrangements of the catalogue, to obtain the books which bear upon particular divisions of study. For instance, if a person wish to get access to the books on architecture, engineering, or any other subject, it will take weeks to glean the works bearing on each from the immense catalogue of our national library. Some time since the writer, wishing to obtain a knowledge of the titles and contents of the whole of the works connected with London which were in the library, spent a very long time in the investigation. In this catalogue (which does not deserve the name), the books, unless they are published anonymously, are merely put under the names of the authors, not under that of the science, art, or other subject of which they treat. Thus, under "Anatomy," for example, as we some time since noted, all that appeared in the catalogue was the doubtless undesignedly ironical but characteristic heading, "Anatomy of et cetera." And even this would not have been entered there had it not been an anonymous work; otherwise it would have appeared under some leading word as "Smith," "Jones," or "Higgins," as the case might be.

A classified catalogue of subjects, however, is assuredly a most urgent want, as has long and often been pointed out, in the *Builder* as in other papers. In such a catalogue we should be able to turn up words such as London, Mining, Chemistry, Architecture, Anatomy, or any other general subject-matter, and at a glance have within practical reach of us all the knowledge which bears upon the respective subject; and not have to dig it out, as it were, from the midst of an immense and chaotic quarry of books, by dint of hard labour. It has been said that the formation of a classified catalogue would be difficult, if not impossible: nevertheless, it would seem to be a mere matter of time and expense. It would only require additional hands and energy enough to carry it out to any extent. In this, as in less learned pursuits, "can't be done," is only the stereotyped *vis inertia* which "the shop" opposes, as an obstacle, to all troublesome endeavours to get it out of its habitual grooves.

So convenient is the catalogue of the Patent Office, that it may be of use, as an example, to those who have the direction of the numerous libraries which are so rapidly springing up in our towns and villages.

One or two extracts will give an idea of the way in which its arrangements are managed. The catalogue of authors' names is arranged in the usual way; but, turning to the subject-catalogue, we will take "Furniture—Ancient,—see Shaw & Meyrick (900*); Cottage and Farms, see London (1031, 1091*)." Then, under the head of "Farming," after mentioning the books which

are classed under that head, the student is assisted in the following way:—

Farming.—See also:—

Bees	Honging	Plants
Botany	Horned Cattle	Plough
Breeds	Horse Shoeing	Poultry
Brewing	Horses	Rural Affairs
Cattle	Horticulture	Rotten Work
Chemistry	Husbandman	Silk Worms
Dairy	Housebandry	Slate Frames
Economy	House-weeping	Soils
Enclosures	Implement	Sowing
Farm-house	Inclosure	Studs
Feeding	Irrigation	Swine
Fences	Land	Sylvae
Fruit	Landed Estates	Tables
Furniture	Live Stock	Threshing
Game	Machinery	Tillage
Graziers	Maltsters	Trees
Haus Vatter	Mattings	Vermun
Haymaking	Manure	Wax and Honey
Haystacks	Oxen	Wheat
Hedger	Phytologia	Wood
Honey	Pig Feeding	Works.

We will at random turn to *wheat*, and see what is said under this head.

"Wheat, or other Grain. Observations upon the Important Object of Preserving from Vermin. Sir J. Wright. London, 1796. 4 vols. (813.) Growth of upon the same land for four successive years. See Laws. (216)."

This will be sufficient to show some of the advantages of a catalogue arranged in this manner.

It would be well if the accommodation for the library were as good as the arrangements of the catalogue: this, however, is, unfortunately, not the case; and, in this establishment, which might be made of the greatest use, the space is very inadequate.

In order to show the need for change, it is worth while to glance back to former conditions, when every passive effort seems to have been made by those in authority to stop the progress of useful invention. To go no further than just before the passing of the new law, on the 1st October, 1852: the elaborate, expensive, and absurd process of obtaining a patent was as follows:—

Stages.	
1. Inventor prepares humble petition to the	£ s. d.
Crown	
2. Which he must fortify by a declaration taken before a Master in Chancery, and pay	0 1 6
3. He delivers petition and declaration to Home Office, in Whitehall, and pays	2 2 6
4. Home Secretary signs petition after some days, and refers it to the Attorney or Solicitor-General.	
5. Petition taken to the Attorney or Solicitor-General, at their chambers, and the fees paid to them and their clerks are	4 4 0
6. Attorney or Solicitor-General reports in favour of petition, as a matter of course, unless opposed.	
7. Report taken back to the Home Office, in Whitehall.	
8. Home Office prepares a warrant, which echoes the report, and is	
9. Sent to the Queen to sign	7 13 6
10. Returned to the Home Office, and	
11. Home Secretary countersigns warrant, and	
12. Warrant taken to Patent Office, in Lincoln's Inn.	
13. Clerk of the Patents prepares a draft of the Queen's bill, docket of the bill, and the fees paid are	5 10 6
14. And engrosses two copies of the bill,—one for the Signet Office, and one for the Privy-seal Office. Fees	1 7 6
15. Stamping duty on each	6 0 0
16. Taken back to the Home Secretary.	
17. Sent by Home Secretary to the Queen.	
18. Signed by the Queen.	
19. Returned to the Home Secretary, and the fees paid are	7 13 6
20. Queen's bill taken to Signet Office, in Somerset House.	
21. Clerk of the Signet prepares a signet bill for the Lord Keeper of the Privy Seal, and the fees paid are	4 7 0
22. Clerk of the Lord Keeper of the Privy Seal prepares a Privy Seal bill for the Lord Chancellor, and stamp. Fees paid are	4 2 0
23. Privy-seal bill delivered to the Clerk of the Patents.	
24. Clerk of the Patents engrosses the patents, and fees paid, stamps for the patents, &c. are	8 17 8
25. Clerk of the Patents prepares a docket thereof.	
26. Stamp for the docket and patent	30 0 0
27. Boxes for the patents	0 9 6
28. Fees to the deputy (3), the Lord Chancellor's Purse-bearer	2 2 0
29. Fees to the Clerk of the Hanaper	7 13 0
30. Fees to the Deputy Clerk of the Hanaper	0 10 0
31. Receipt of the Lord Chancellor for the Privy-seal bill, which he signs	1 11 6
32. Fees to the Deputy Sealer and Deputy Chaff-Wax	0 10 6
Total	£91 16 2

To Mr. Woodcroft, Mr. Prosser, and a few other earnest men, chiefly in the manufacturing districts, we are indebted for a beneficial change.

In days of old the inventive faculty of man was taxed and made profit of by Chancellors and Chaff-waxes: the records of patents were lodged in the

* The numbers of the books.

Rolls Chapel and other places, and the expense of inquiry was great: the specifications of patents were not printed, and the cost of obtaining even a specification amounted to sums which varied from twelve guineas up to 500*l.*: the legal expenses of an old patent amounted to 350*l.* and upwards.

Now all the specifications of patents have been printed, and they can be had at the rate of from 2*d.* to 10*d.* each copy. The dim and musty records of the seventeenth century appear in clear print, and can be bought "for the price of an old song." This has been chiefly brought about by Mr. Woodcroft. The general public are not yet well informed of the interest of these publications, although copies have been sent to the libraries of the chief towns of Great Britain and to the capitals of other nations.

At the present time, in Southampton-buildings, these printed records of inventions are arranged in a long, narrow, and most unsuitable apartment. To this, however, any person, without recommendation or introduction, can have access; and, notwithstanding the badness of the position, the attention and intelligence of the officials who are here employed in some measure make up for deficiencies.

On one side of this apartment commence the patents under the old patent law. The most ancient of these is the following, which, from its high precedence, we think merits the distinction of a notice *ad longum*—

"A.D. 1617.—No. 1.

Engraving and Printing Maps, Plans, &c.

Rathboure & Burges Patent.
James, by the grace of God King of England, Scotland, France, and Ireland, Defender of the Faith, &c., to all justices of peace, mayors, sheriffs, bailiffs, constables, and all officers, ministers, and subjects of us, our heirs, and successors, to whom it shall or may appertain, and every of them, greeting.

Whereas we are informed that amongst foraine nations there have been, curious, and artificial descriptions, plottes, and mappes, made and set forth of their principall cities and townes of greatest noat, which being exactlie drawne out in metall, and printed off, are dispersed and sent abroad into all partes, to the great honour and renowne of these princes in whose domynions they are; and that of our citie of London, being the chief and principall of this our Kingdome of England, there hath never been made any true or perfect description, but false and meane draughtes cutt out in wood, and soe dispersed abroad, to the great disparagement and disgrace of soe famous and worthy a state; and whereas our loving subjects Aron Rathboure, gentleman, practitioner in the mathematics, hath a grante desire to a pfecte survaie as well of the said Citie of London as of divers other places within this our Kingdome of England hereafter mentioned, and to make suche exacte plottes, mappes, and descriptions, therefore, hath not been hitherto performed by aile, and hath humbly besought us that we would be graciously pleased to graunte unto him our royall licence and priviledge (the want whereof, as we are informed, hath been the cause that hitherto so curious and laudable a worke has been neglected), as well for the sole making and setting forth of suche mappes and plottes as of suche descriptions and bookes as he shall devise or set forth in the waile of relation of any of the places hereafter mentioned within this our realme and others our domynions, for some reasonable tyme, to the end hee may reape the fruites of his travells, charges and expenses to bee sustained in and about the p'mises, on copper, brass, or other metalls, mappes, plottes of London and Westminster, and the suburbs and adjacent parts; the cities of York, Bristol, Norwich, Canterbury, Bath, Oxford, and Cambridge; the town and castle of Windsor, &c.—they do not p'sume, attempt, or take in hand, during the said term of twenty-one years, to make, carve, describe, imprint, sette forth, or sell either to dispose within this our realme, or any of our domynions, or export out the same the said mappes, plottes, or bookes, or any of them," &c.

This is the first patent which has been printed. No. 2 patent is by Nicholas Hillyard, for drawing, engraving, and printing portraits of the Royal Family.

No. 3 is for constructing sluices, bridges, cranes, and obtaining or applying water-power.

No. 4 (1617). Protecting arms and armour from rust.

No. 5. Manufacture of swords and rapier blades, &c.

No. 6. Patent to David Ramsey and Thomas Wildgoose—a name of sinister omen and significance, so far as regards thousands of other patents, but far otherwise as regards the notable one to which it is attached. David Ramsey seems to have been one of the pages of the bedchamber. This invention is described as follows:—

"Newe, apte, or commodious formes or kinde of engines or Instruments, and other profitable inventions, wayes, and means for the good of our commonweale, as well to plough grounde without horse or oxen, and enrich and make better and more fertile, as well barren bent, salt, and sea sand, as in land and upper land grounde within our kingdomes of England and Ireland, and our domynion of Wales; as also to raine waters from anye lowe place to high places, for well watering of cities, townes, noblemen's and gentlemen's houses, and other places now much wanting water, with lesse charges than ever hath been heretofore, and to make boats for the carriage of burthen and passe goods run upon the water, as swift in calm, and more swift in storm, than boats full-angled in great weyes."

Have we not here a remarkable foreshadowing of grand results which have since been realized?

More than one very interesting article might be written on the curiosities of this catalogue of patents: the wildest schemes are there recorded; but, in the main, there is much suggestive material worthy of careful thought.

The inventions for the cure of smoke are numerous, and of several dates, notwithstanding many of her Majesty's subjects are as smoke-dried as formerly. Mops, egg-boilers, self-adjusting gloves, frying-pans, and other such manufactures have been patented. There are also beverages and such like made patent: one of these is called "a new beverage—Gibson's Pinerium; or, Aërated Sarsaparilla."

From 1617 to 1852, when the change of the law took place, we find, in this library, the record of 14,359 patents: of these the payment for extension to fourteen years only seems to apply to 7,329. Since the new law has made patents more easy of obtainment, the number of specifications is as follows; and these form a feature of this library, and show the necessity for more room.

In 1852 there were 1,211 specifications.

1853	"	3,045	"
1854	"	2,764	"
1855	"	2,958	"
1856	"	3,165	"
1857	"	3,200	"
1858	"	3,007	"
1859	"	3,000	"
1860	"	3,195	"
25,487			

These figures show that during the last nine years the specifications were more numerous than those which in the Chaff-wax days were recorded during more than two centuries.

The present cost of a patent amounts to 25*l.*; and it is worth while to consider whether it might not be beneficial to reduce this cost. It is well, however, that we can now register an invention for a stated time, at a comparatively small cost. On an average about 3,000 petitions for provisional protection are presented in each year: only 1,950 inventions reach the patented state; and but 550 patents pay the stamp duty required at the expiration of each year: probably not more than 100 of these 550 patents will pay the additional stamp duty required at the end of the seventh year.

With much interest we open the cases in which the printed records are kept. We see in them the drawings of steam power, the electric telegraph, and gas-lighting.

In 1652, 262 patents were taken out for fire-arms. One Puckle puts his specification in rhyme, and says:—

"Defending King George, your country and laws,
Is defending yourself and country's cause,
For bridges, trenches, lines and passes,
Ships, boats, houses, and other places."

The patenting of inventions seems to serve to show the progress of civilization. In 1857,—

	The population was	Patents granted.	Proportion.
Great Britain ..	27,511,447 ..	2,115 ..	1 in 12,967
United States ..	23,191,915 ..	2,919 ..	1 in 7,933
Austria	36,514,446 ..	724 ..	1 in 50,434
Russia	69,660,145 ..	24 ..	1 in 2,902,990

Although the patents have been printed and placed in chronological order, it is a troublesome work to go over the whole. Mr. Woodcroft has therefore devised a plan of publishing the collected particulars. Thus we have:—

1. Drain Tiles and Pipes. Price 6*d.* By post, 7*d.*
2. Sewing and Embroidery. Price 6*d.*
3. Steam Culture. Price 2*s.*
4. Paper. Part I. Manufacture of Paper, Pasteboard, and Paper Mould. Price 3*s.*

Believing that this library and the arrangements of the Patent Seal Office are not sufficiently known, and that the materials here are of the greatest value,* we may hereafter return to the subject, and trace the further progress of this establishment.

ARCHAEOLOGICAL INSTITUTE.

At the monthly meeting of the Archaeological Institute, held on the 3rd of May, several subjects of great interest were brought forward. The president, Lord Talbot de Malahide, on taking the chair, congratulated the members on the appointment of that zealous and munificent antiquary, the Duke of Northumberland, to be one of the trustees of the British Museum.

Further notices of discoveries by Mr. Frank Calvert in the Troad were read by Mr. C. S. Greaves, F.S.A.

Sir John Boileau exhibited coloured tracings of some mural paintings recently discovered in Eaton Church, Norfolk, one of them being the murder

* In the new Law Courts provision should be made for this library.

of St. Thomas, of Canterbury, in which the four knights, Tracy, Fitzurse, Brito, and Morville, were represented in the supposed order of their guilt, Tracy having been the *primus percussor*, and Morville, who did not strike at all, standing somewhat apart. The age of the painting is about the reign of Henry V., at which time Sir John Boileau supposes that the clergy of the Eastern Counties made renewed efforts to engage the attention of the people by the redecoration of churches, in order to withstand the spreading doctrines of the Lollards. Subsequently, when such paintings were condemned, the figure of the archbishop had been roughly obliterated, and partly covered with plaster—the remainder of the painting being more perfectly preserved under the gentler deposit of whitewash.

Some remarks on the fall of Chichester spire were communicated by Professor Willis, but he was unfortunately unable to attend and deliver them in person.

Rubbings were exhibited of two incised sepulchral stones, taken in Belgium, with some remarks by Mr. J. Green Waller. They are of very large size, and represent knights wearing alletes.

The same gentleman also communicated an account of the Miserere seats in Bristol Cathedral, which gave rise to an animated discussion—particularly on the questions, why they were made with the smaller seat (when turned up); whether they were intended to fall; and, above all, why they were adorned with grotesque and even indelicate carvings, very inconsistent with modern ideas of the sanctity of their position. It appeared clear, from the statements of Dr. Rock, that the smaller seats were made as rests to relieve such of the clergy as were infirm from age or illness, at times when the rubric required a standing posture; whilst all were made alike, because a monk would occupy the same stall from youth to age; that they were certainly made to fall, and with such a noise as would attract attention in the event of their occupants giving way to drowsiness; but for the grossness of the designs it is more difficult to give a good reason. It was argued by Dr. Rock that these representations of the vices of mankind were intended to convey moral lessons, by exhibiting how much they degraded those who indulged in them; and, moreover, that they were placed in a position expressing strong contempt. These arguments, however, will apply only to some of the carvings, and will not account for others that in a variety of ways are designed with unlicensed freedom and gross caricature. The Miserere at Bristol were erected in the time of Abbot Elyot, between 1516 and 1526.

Mr. Octavius Morgan, M.P., exhibited a number of richly ornamented hand-bells, of which those which preserve their handles have them frequently formed of three naked boys standing back to back. One of them belongs to the Society of Antiquaries, and is dated 1547. Others are nearly of the same date, and one so late as 1571; all being considered by Mr. Morgan as the production of one foundry in Flanders.

The rich collection of Bookbinding formed last month, with several accessions, remained upon the tables; but we were disappointed in no one having been found to describe these wonders of the bibliopæstic art.

The next meeting of the institute, on the 3rd June, will be distinguished by an unprecedented assemblage of gems and intaglios, including those belonging to the Duke of Marlborough, being the Arundel Collection formed about the year 1620.

PARIS OPERA-HOUSE COMPETITION.

The second competition for the Paris Opera House, that is, of projects by authors of the five designs premiated on the recent occasion, were intended to be received on Wednesday last. The "programme" submitted to the architects in question is described as very elaborate. If it be correct that the instructions to proceed were given so recently as the 25th of last month, can it be anticipated by the Government that the result will be what was first desired? The site originally decided upon, adjoining which the Hôtel de la Paix is already commenced, will, we believe, be adhered to. There is a design in the present Exhibition at the Palais de l'Industrie, for a building on a site within the angle formed by the Rue Richelieu and the Rue St. Honoré, the Butte des Moutins, near the Théâtre Français, and the Palais Royal, where much of the property is of a low class. This site was at one time spoken of. The original intention, however, as to the formation of a street from the angle here mentioned, to the site on the Boulevard des Capucines, will probably be carried out.

ANCIENT INNS OF SOUTHWARK.

In former volumes we have given representations of a few of the ancient inns in which our ancestors took their ease,—both those of the metropolis and elsewhere. We are enabled to add to these, by the courtesy of Mr. G. R. Corner, F.S.A., and the council of the Surrey Archaeological Society, views of two remaining in Southwark,—“The George” and “The White Hart,”—illustrating a paper by Mr. Corner, to which we referred at the time it was read. We avail ourselves of his account of the structures.

The George.

This is one of the inns described by Stow as existing in his time; and it is mentioned at an earlier period; viz., in 1354, 35th Henry VIII., by the name of the “St. George,” as being situate (as it is) on the north side of “The Tabard.”

I have not been able to find any notice of this inn from the time of Stow until the seventeenth century, when two tokens were issued from “The George,” which are in the Beaufoy collection at the library of the corporation of London, at Guildhall, and described in Mr. Jacob Henry Burn’s catalogue of those tokens. The first is a token of “Anthony Blake, Tapsiter, y^e George in Southwark;” and on the reverse are three tobacco-pipes; above them, four beer-measures.

The other token is inscribed, “James Gunter 16.” “St. George and Dragon, in field. Reverse, “In Southwark;” in the field, “I.A.G.” Mr. Burn quotes some lines from the “Museum Delicium,” or the “Muses’ Recreations,” 1656, upon a surfeit by drinking bad sack at “The George” tavern in Southwark.

“Oh, would I might turne poet for an houre,
To satirize with a vindictive power
Against the drayner” or I could desire
Old Johnson’s head had scalded in this fire.
How would he rage, and bring Apollo down
To scold with Bunches, and depose the clown
For his ill government, and so confute
Our poet-apes, that do so much impute
Unto the grape’s impietie!”

In the year 1670, “The George Inn” was, in great part, burnt and demolished by a violent fire which then happened in the Borough; and it was totally burnt down in the great fire of Southwark, in 1676; which I have mentioned in speaking of “The Tabard,” and of which I promised to give a further account in the history of “The George.”

From the records of the Court of Judicature, established by Act of Parliament for settling differences between landlords and tenants, and owners of adjoining houses, in consequence of this fire, we learn that the owner of “The George,” at that time, was John Sayer, and the tenant, Mark Weyland.

In the year 1676, ten years after the Great Fire of London, a great part of Southwark, from the bridge to St. Margaret’s-hill, including the Townhall, which had been established in 1510, in the church of St. Margaret, was destroyed by a fire, which broke out in the Borough; and being as yet, like old London, chiefly built of timber, lath and plaster, the fire spread extensively, and destroyed considerable property. After this it was found necessary to pass an Act of Parliament for appointing a Court of Judicature, to determine differences between owners and tenants of the houses and buildings destroyed. The records of the proceedings under that Act are preserved at Guildhall.*

The following is an account of the fire of Southwark, from the *London Gazette*, 29th May, 1676:—

LONDON, MAY 27.—Yesterday, about four in the morning, broke out a most lamentable fire in the borough of Southwark, and continued with much violence all that day and part of the night following, notwithstanding all the care and endeavours that were used by his Grace the Duke of Monmouth, the Earl of Craven, and the Lord Mayor, to quench the same, as well by blowing up of houses as other ways. His Majesty, accompanied by his Royal Highness the Duke of York, in a tender sense of the calamity, being pleased himself to go down to the bridge in his barge, to give such orders his Majesty found God, was finally effected after that about 600 houses had been burnt or blown up.”

The following is from the “Diary” of the Rev. John Ward, written a few years later:—

“Grover and his Irish ruffians burnt Southwark, and had 1000 pounds for their pains, said the Narrative of Bedloe, Gifford, a Jesuit, had the management of the fire. The 26th of May, 1676, was the dismal fire of Southwark. The fire began at one Mr. Welsh, an oilman,

* The commissioners in the Act of Parliament were, the Justices of the King’s Bench and Common Pleas, the Barons of the Exchequer, the Lord Mayor, the Recorder, the Aldermen of London who had been lord mayors, Viscount Longford, Sir Francis Vincent, Sir Adam Brown, and Sir William Mure, knights; Sir Edward Bowyer, Sir William Howard, Sir Nicholas Carew, knights; Arthur Onslow, George Evelyn, Roger James, Thomas Dalnalyon, George Woodroffe, William Elliot, Roger Duncomb, Thomas Tinge, Thomas Barte, James Reading, Rich. Howe, Peter Rich, John Freeman, John Appleby, esqrs.

near St. Margaret’s-hill, betwixt the “George” and “Talbot” inns, as Bedloe in his Narrative relates.”—*Diary of the Rev. John Ward, Esq., 1839, p. 135.*

The fire was stopped by the substantial building of St. Thomas’s Hospital, then recently erected; and, in commemoration of the event, there is a tablet placed on the great staircase, over the door of the hall or court-room, with the following inscription:—

“A.D. 1676.

“Upon the 26th of May, 1676, in the 28th year of the reign of our Sovereign Lord King Charles the Second, about three of the clock in the morning, over against St. Margaret’s-hill, in the borough of Southwark, there happened a most lamentable and dreadful fire, which, before ten of the clock at night, consumed about five hundred houses. But in the midst of judgment God remembered mercy; and, by His goodness in considering the poor and distressed, put a stop to the fire at this home, after it had been touched several times therewith, by which, in all probability, all this side of the Borough was preserved. This tablet is here put, that whose readeth it may give thanks to the Almighty God, to whom alone is due the honour and praise. Amen.”

Although the present building of “The George Inn” is not older than the end of the seventeenth century, it seems to have been rebuilt, after the fire, upon the old plan; and it still preserves the character of the ancient English inns, having open wooden galleries leading to the chambers on each side of the inn yard.

In the year 1739, “The George Inn” was the property of Thomas Aynescumb, esq., of Charterhouse-square, whose will is dated 11th May, in that year, from whom it descended to his granddaughter, Valentina Aynescumb, who married Lillie Smith, esq.

In 30th George II. an Act of Parliament was passed for vesting the settled estates of Lillie Smith, esq., and Valentina, his wife, in trustees, to be sold. And in 1785, “The George Inn,” with considerable other property, was sold and conveyed to Lillie Smith Aynescumb, esq., of Thames-street, London, merchant; and within a few years past it has been purchased by the trustees of Guy’s Hospital, to which it adjoins.

In the conveyance of 1785 the inn is described as having been formerly in the occupation of Mary Wayland (probably widow of Mark Wayland, who was the host in 1670), afterwards of William Golding, and then of Thomas Green, who, in 1809, was succeeded by his niece Frances and her husband, Westernman Scholefield.

The White Hart

is one of the inns mentioned by Stow; but it possesses a still earlier celebrity; having been the head-quarters of Jack Cade and his rebel rout during their brief possession of London, in the year 1450, when Henry VI. was king. And it has been immortalized by Shakspeare, in the Second Part of his play of King Henry VI., when a messenger enters in haste, and announces to the king:—

“The rebels are in Southwark. Fly, my lord! Jack Cade murdereth himself Lord Mortimer. De-cubed from the Duke of Clarence’ house; And calls your grace usurper, openly. And vows to crown himself in Westminster.”

And, again, another messenger enters, and says:—

“Jack Cade hath gotten London-bridge: The citizens fly and forsake their houses.”

Jack Cade afterwards thus addresses his followers:—

“And you, base peasants, do you believe him? Will you needs be hanged with your pardons about your necks? Hath my sword, therefore, broke through London gates that you should leave me at the White Hart in Southwark?” *Shakspeare’s Henry VI., Part Second, act iv., scenes 4 and 5.*

Cade entered London from Blackheath, through the Borough; and towards evening he retired to “The White Hart,” in Southwark. He continued there for some days, entering the city in the morning, and returning to Southwark at night; but at last, his followers committing some riot in the city, when they would have entered they found the bridge-gate shut against them; whereupon a battle ensued between them and the citizens, which lasted all day, and ended, at the approach of night, by a cessation of arms till the morning; but during the night a proclamation of pardon, which was published in the Borough, induced the great body of Cade’s followers to desert him, and he was obliged to fly, and endeavour to conceal himself in Sussex; where he was soon afterwards slain by Alexander Iden, at Hothfield.

There is a contemporary account of some of Cade’s doings in Southwark, in a letter to John Paston, esq., from J. Payne, servant to Sir John Paston, who was sent by his master from his house in Horselydown to the rebels’ camp at Blackheath, to obtain the articles of their demands; and Payne, being taken by the rebels, was about to be beheaded, but his life was spared on the intercession of Robert Poyning, esq. (of Southwark, who was engaged in the rebellion, and is

mentioned as having been carver and chief doer for Cade), and Payne was sent back to Southwark to array himself, under a promise to return to the rebels. On returning home he counselled his master, Sir John Paston, to send away the soldiers and munitions of war, which he had provided for the defence of his house at Horselydown; which he did, and went with his men to the Tower. Payne was seized, and taken before Cade at “The White Hart,” who ordered him to be despoiled of his array; and he seems to have lost all that he had; and they would have smitten off his head, but Poyning again saved his life; and he (Payne) says: “I was up till at night that the battle was at London-bridge [8th July, as the historians have it; but, by a note in one of the Paston letters, Cade fled on the 22nd June from Blackheath], and then at night the captain put me out into the battle at the bridge, and there I was wounded and hurt near unto death, and there I was six hours in the battle, and might never come out thereof.”

The “Chronicle of the Grey Friars” (one of the publications of the Camden Society) records another deed of violence committed by Cade and his followers at this place.

“At the Whyt Harte in Southwarke, one Hawaydyne, of Sent Maryns, was beheaded.”—*Chron. of Grey Friars, p. 19.*

“The White Hart” as now existing is not the same building that afforded quarters to Jack Cade; for, in 1669, the back part of the old inn was accidentally burnt down, and the inn was wholly destroyed by the great fire which happened in Southwark in 1676.

The Records of the Court of Judicature inform us that John Collett, esq., was then the owner of the property, and Robert Taynton, executor of was the tenant.

“The White Hart” appears, however, to have been rebuilt upon the model of the older edifice, and still realizes the descriptions which we read of the ancient inns, consisting of one or more open courts or yards, surrounded with open galleries, and which were frequently used as temporary theatres, for acting plays and dramatic performances in the olden time.

A popular writer of the present day, in one of his earliest productions, has given us a capital description of the Borough inns, and of “The White Hart” in particular; and I hope my readers will not quarrel with me for recalling to their recollection “The Pickwick Papers,” and their old acquaintance Sam Weller.

“In the Borough, especially (says Mr. Dickens), there still remain some half-dozen old inns, which have preserved their external features unchanged, and which have escaped alike the rage for public improvement and the encroachments of private speculation. Great, rambling, queer old places they are, with galleries, and passages, and staircases wide enough and antiquated enough to furnish materials for a hundred ghost stories. . . . It was in the yard of one of these inns,—of no less celebrated one than “The White Hart,”—that a man was busied employed in brushing the dirt off a pair of boots, early on the morning succeeding the events narrated in the last chapter. He was habited in a coarse striped waistcoat, with black calico sleeves and blue glass buttons, drab breeches, and leggings. A bright-red handkerchief was wound in a very loose and unstudied style round his neck, and an old white hat was carelessly thrown on one side of the second-floor window of an ordinary house, were stowed away beneath a lofty roof, which extended over one end of the yard; and another, which was probably to commence its journey that morning, was drawn out into the open space. A double tier of bedroom galleries, with old clumsy balustrades, ran round two sides of the straggling area, and a double row of bells to correspond, sheltered from the weather by a little sloping roof, hung over the door leading to the bar and coffee-room. Two or three gigs and chaise cabs were wheeled up under different little sleds and penthouses; and the occasional heavy tread of a cart-horse, or rattling of a chain at the further end of the yard, announced to anybody who cared about the matter, that the stable lay in that direction. When we add that a few boys in smock-frocks were lying asleep on heavy packages, woolpacks, and other articles that were scattered about on heaps of straw, we have described, as fully need be, the general appearance of the yard of “The White Hart Inn,” High-street, Borough, on the particular morning in question.”

A pictorial representation of “The White Hart Inn” yard illustrates this scene from “The Pickwick Papers,” chapter 10.

SEVENTY-TWO REMARKABLE BUILDINGS IN VARIOUS COUNTRIES CONTRASTED.

VERY remarkable the contrast is. Neither height, nor mass, nor cost is absolutely necessary to make a building world-famous. The smallest structure of this marvellous group, which has been brought together by Mr. Cockerell (the Choragic Monument of Lycabates), a spark of beauty, is as widely known and serves as unmistakably to prove its author an artist as St. Peter’s at Rome, or the soaring spire of Strasburg. Let

ANCIENT INNS OF SOUTHWARK.



"The George."



"The White Hart."

this be a consolation and encouragement for those who have at present to deal with only small matters.

The following is a list of the buildings represented, with dates and heights, as collected by Mr. Cockerell:—

1. Victoria Tower, Westminster: 325 feet high.
2. Boston Church Tower, Lincolnshire: 282 feet high.
3. West Front of York Cathedral; built 1500. height, 200 feet.
4. Alexandrian Column at St. Petersburg, the shaft in a single stone, 21 feet diameter, 80 feet high.
5. Column at Paris; in commemoration of the events of July, 1830.
6. Tomb of Theodoric at Ravenna, Prince of the Ostro-Goths, and King of Italy. The dome is a single stone, 38 feet diameter, 15 feet thick.
7. Temple of Bacchus (erected B.C. 650).
- A. Topc Mehal at Agra, India.
- B. Spire of Chichester Cathedral.
- C. Porcelain Tower at Nankin.
- D. St. George's Hall, Liverpool.
- E. Spire of Freiburg in the Brisgau; finished 1830; height, 383 feet.
9. S.W. Spire of Chartres: 493 feet: finished 1514.
10. Tower of St. Mark's at Venice: 330 feet (commenced A.D. 909, finished in the sixteenth century).
11. St. Genevieve, at Paris (A.D. 1780): 274 feet to the ball above the dome.
12. Colosseum at Rome (A.D. 79): height, 155 feet; length, 520 feet; width, 513 feet; oval plan; covers 6 acres.
13. Temple at Baalbec: 117 feet wide by 257 feet long.
14. Temple on the Ilissus.
15. Portico of the Erechtheum at Athens.

- E. Asinelli Tower, Bologna (erected 1100).
16. Pyramid of Chephren, Egypt: 707 feet square at the base; 454 feet high.
17. St. Stephen's at Vienna: 441 feet high.
18. Central Spire of Amiens: 422 feet.
19. Spire at Thann.
21. Church of the Invalids at Paris (A.D. 1700).
22. Temple of the Giants at Agrigento: length, 360 feet by 175 feet; the columns 13 feet diameter.
23. The Parthenon at Athens (B.C. 450): length, 237 feet by 101 feet; columns, 6 feet 2 inches diameter.
- F. Terraccio Tower, Cremona Cathedral.
- G. Monument of London: 202 feet high.
- H. Waltham Cross.
24. Spire of Cologne: height, 510 feet (not yet complete); the church commenced 1348.
25. Spire of Old St. Paul's, London: 508 feet high (destroyed by lightning, 1581).
26. Pyramid of Cheops: 761 feet square at the base; 480 feet high.
27. St. Peter's, Rome (commenced 1513, completed 1614): height to top of cross, 457 feet.
28. Strasbourg: 468 feet high (finished 1439).
29. Spire at Landshut, Germany: 465 feet high.
30. St. Paul's Cathedral, London (commenced 1675, finished 1710): height, 365 feet.
31. Bow Church, London: 210 feet high.
32. Baptistery of Pisa (A.D. 1159).
33. Propylon of Luxor, Egypt: the Obelisk to the right has been removed to Paris; that to the left is still standing: 75 feet high in a single stone.
- K. Ruken Spire (burnt down).
- L. Spire of Lubbeck Cathedral.
- M. Tomb at Mylasa.
34. Antwerp Cathedral: 401 feet high (commenced 1422, finished 1518).

35. St. Peter's at Hamburg.
36. St. Maria at Florence (commenced 1329; the dome finished in 1444); height, 375 feet.
37. Hotel de Ville, Brussels: 374 feet (A.D. 1455).
38. St. Sophia, Constantinople (A.D. 510).
39. Pantheon at Rome.
40. Central Tower of Canterbury Cathedral.
41. Tower of the Winds at Athens (B.C. 350).
42. Chapel of St. Peter on the Mount, Rome.
43. Choragic Monument of Lysicrates at Athens (B.C. 330).
44. Salisbury Spire: 404 feet high (A.D. 1450).
45. Cathedral Tower at Frankfurt: 326 feet high.
46. Pyramid of Mycenae.
47. Bell Tower at Florence (A.D. 1295): 266 feet high.
48. St. Nicholas, Newcastle: 193 feet.
49. Column of Trajan at Rome: 134 feet high. The column, with the cap and base, is composed of nineteen stones, each about 5 ft. high, the plinth being 16 ft. 8 in. square, and the abacus 14 ft. square.
50. Colosseum at Rome (see 12).
51. Temple of Jupiter Stator at Rome (B.C. 100).
- N. Obelisk carried to Rome by Augustus: the shaft is a single stone, 105 feet high.
52. Ickfield Cathedral: the central spire 232 feet high; the western spire, 192 feet.
53. Spire of Norwich Cathedral (A.D. 1400): height, 318 feet.
54. St. Isaac's at St. Petersburg (A.D. 1840).
55. Bell Tower at Pisa (A.D. 1174).
56. Tower at Malines.
57. Pompey's Pillar at Alexandria: the shaft is a single stone of rock granite, 9 feet 3 inches diameter, and 61 feet high.
58. Arch of Septimius Severus (A.D. 205).
59. Tomb of Absalom at Jerusalem.
- O. Tower of Ivan Velike, Moscow.
- P. Temple of Vesta at Tivoli.

THE MOST REMARKABLE BUILDINGS IN THE WORLD, DRAWN TO AN UNIFORM SCALE.—Designed by Mr. (Cookrell, R.A.; and Drawn by Mr. J. E. Goodchild.



THE RESTORATION OF CHICHESTER CATHEDRAL.

THE Executive Committee for the Restoration of Chichester Cathedral have entered into a contract for the excavations and for the raising of the foundations of the four new piers of the central tower to the height of the floor. This contract was taken by Mr. Bushby, of Littlehampton, builder, at 2,853*l*. Mr. Scott, the architect of the works, had been previously requested by the Committee to give in a detailed estimate of the expense of these works. This he did, and it was opened at the same moment as Mr. Bushby's tender. The estimate was 2,800*l*; the tender, 2,853*l*; and the Committee unanimously agreed to accept the latter.

"We understand," says the *Brighton Herald*, "that Mr. Bushby is willing to undertake to execute the whole of these works (which include the pulling down of the remains of the two eastern piers, and underpinning the adjoining walls—a work involving great care and skill) within the space of four months. The whole of the *débris* of the fallen tower, spire, and piers has been cleared away, with the exception of the two bases of the western piers; and these are suffered to remain for the present, in order to illustrate the extreme weakness of their original construction, they having given way about 4 feet from the ground.

We may add that the nature of the material of which the original piers were constructed was of the weakest and most fragile description. It was taken from the Isle of Wight quarries, and consists of a shelly calcareous substance, scarcely worthy of being called stone, which almost crumbles in the hand."

PROVIDENT INSTITUTION OF BUILDERS' FOREMEN.

THE ANNIVERSARY DINNER.

We desire particularly to draw attention to the advertisement announcing that the anniversary dinner of the Provident Institution of Builders' Foremen and Clerks of Works will come off on Thursday, the 6th of June next, at the London Tavern; when the Right Honourable the Lord Mayor Cubitt, M.P., who is one of the trustees of the Institution, will take the chair. We are glad to observe that a good list of stewards is making its appearance, and hope that, ere the event takes place, it will be still further and greatly increased.

EVAPORATION FROM POLLUTED YARDS.

In one of those days, during the past week, when hot bright sunshine and storm were fighting for the mastery, we chanced to visit the back part of some premises, which may be taken as a sample of thousands that are still to be found in the metropolis. The yard was partly covered with broken-brick pavement, the sink was imperfect, and a cesspool and rotten brick drain stretched underneath part of the ground. When the sun came forth, children began to play in this place. The rooms adjoining were crowded with inhabitants—old and young. The soil, both from the drain and in consequence of what had been thrown on the surface, had become completely polluted, and when the hot rays of the sun beat on the ground clouds of steam rose from the earth and dispersed abroad. We need not remark on the poisonous nature of this evaporation; but here was clearly visible to the sight one process by which impurity is dispersed abroad. Although not always so clearly seen, the impurities of such soil are constantly rising, particularly in the summer time, causing a vast amount of sickness and death. The mention of this may lead some who are in search for a dwelling to keep their eyes open to such points, and perhaps induce others to have faults remedied.

THE CHURCH OF ST. MICHAEL AND ALL ANGELS, STAR STREET, PADDINGTON.

THE works at this church (notwithstanding the vexatious so-called strike) are progressing rapidly. The site is not the best that could be desired for the purpose, the church being hemmed in between the houses of the street, and does not stand due "east and west" longitudinally, but "north and south." The structure measures in the gross 96 feet by 80 feet, and in plan comprises a nave, chancel, and side aisles, the latter being the same length as the former, by a width of 19 feet each. The chancel is 37 feet by 30 feet; and at the south-eastern corner is a tower, 17 feet by 16 feet

at its base, to be carried to an altitude of 88 feet, and adapted to receive a peal of eight bells. This tower will be surmounted by a spire, which will give a total height of 136 feet from the ground-line to its summit. The height of the nave, from floor to ridge, will be 63 feet, and the aisles to the wall plate, 22 feet.

The confined site for the church necessarily caused a clerestory to be adopted for the admission of light, the walls of which are 28 feet in height, measuring from the floor of the nave, and are to be pierced by a series of double-light windows. The chancel arch is 49 feet high by 30 feet wide. At the eastern end there is a large window of five lights, the head of which is filled with geometric tracery.

The architect is Mr. Rhode Hawkins. The style adopted is the Early Decorated.

All the external masonry, including the copings, labels, tracery and mullions of the windows, plinths, and bases, are being executed in Portland stone; and the internal moulded work and enrichments in Bath stone. The general facings of the walls are of brick.

Messrs. W. Cubitt & Co. are the contractors, whose practical manager is Mr. Henry Wheeler. Mr. Mark Davidson is the clerk of works.

Dr. Gouldburn has already nominated the Rev. G. F. Prescott, M.A., Trinity College, Cambridge, to be the incumbent.

THE CRIES AT RAILWAY STATIONS.

A CORRESPONDENT writes:—"I observe your article regarding calling out the names of stations on railways, and beg to recommend a practice followed by the Edinburgh and Glasgow Company's officials on the point. At almost every station the station-master has a *starling* or *parrot*, so trained that, whenever a train draws up at the platform, it commences calling out the name of the station most distinctly, and continues to scream it out until the train starts. This is found an economical mode of informing the passengers where they are; and, as this is the season for securing young starlings (which only can be taught), I would recommend you to make the matter public through the columns of your paper." We willingly do so; but suggest, nevertheless, that, until the starlings are trained, railway porters be compelled to speak distinctly.

I AGREE entirely with the remarks on the imperfections of the system of calling out the names of railway stations, which lately appeared in your journal. A traveller's perplexities increase with the distance he goes from home. The London tourist has as great difficulty in comprehending the Scottish porter's *brague*, as the northern tourist has in knowing that of the southern, and that all the more, when his ear is unfamiliar with the correct names of the strange places he is visiting. The most satisfactory mode of remedying the evil appears to be the exhibition of the name, in a "black and white," in some well-known and prominent place. I am aware that a sign-board, with the name of the place painted upon it, is exhibited at each station. But that is not enough: these boards are not seen at all at night; and, even in daylight, they are not readily seen from all parts of the train, as they are generally placed parallel to the line. Of course an improvement would be, to have a couple on each side, placed at an angle to the railway, and to throw the gas-lights upon them at night. But these would not be enough: travellers intending to alight at a wayside station ought to know when they are approaching their destination, so as to be prepared beforehand, as the halt of the train is often very short.

What I would propose is, in each carriage, or rather in each compartment, the exhibition of the name of the next station. This could be very easily managed, by having a glazed opening in each compartment, into which a printed card could be dropped by the guard, or the quondam bawling porter: a supply could be kept at each station: those abstracted from the "down" train would be dropped into the "up" train, and *vice versa*.

W. D. FAIRLESS, M.D.

THE LABOUR QUESTION.

Brighton.—On Thursday evening in last week, the master-painters of Brighton, acting upon their resolution, to pay by the hour, met in order to determine the rate of payment, an increase of wages having been applied for by the men; and on that occasion it was agreed that "the maximum rate of wages for skilled painters be 6*½*d. per hour; payment to be made by the number of hours absolutely worked." The previous rate of painters' wages in Brighton was £1 4*s*. per week; the day's work being ten hours, except on Saturdays, when work ceased at 4 p.m. By the new scale, if the men work the same number of hours as hitherto, their wages will amount to £1 6*s*. 9*d*. If they prefer to work ten hours on the Saturday, they would earn £1 7*s*. 6*d*.; or if, on the other hand, they leave off work at one o'clock on the Saturday, as in London, their wages will still be £1 5*s*. 10*d*., or 1*s*. 10*d*. in excess of the old rate.

Gloucester.—The painters' strike in this city still continues.

Blackburn.—The modification of the shop rules, agreed to at the conference of masters and men on Saturday, has resulted in the termination of this strike. The settlement was carried at a meeting of the operatives on Saturday night, after a lengthened discussion. The men state that they have got all they desired,—a reduction of the hours of labour to 55 per week; and the masters seem equally pleased with the result.

Edinburgh.—A conference has taken place between the Employers' and Workmen's Associations, each Association being represented by eight delegates. The chairman stated that this meeting had been agreed to with the view of putting an end to a disagreeable dispute. As they (the masters), were the first to call this meeting, it devolved on them to make propositions. Mr. Paterson, on behalf of the builders, submitted the following proposal:—"That, from the 15th October to 15th March, the working hours be six or seven hours a-day, as may be agreed upon; and that, from 15th March to 15th October, the working hours be ten per day, or fifty-seven per week, as formerly." This proposition having been declined, Mr. Paterson said he would submit another, to the effect that, if all restrictions were taken off by the Operative Society from those men who were willing to take ten hours; and if they publicly advertised that any one who wished to work ten hours might do so; the masters would have no objection that those who were willing to work nine hours should do so. The general opinion of the delegates was, that this second proposition was unsatisfactory and impracticable. The secretary to the Workmen's Association then submitted the following proposition from their side:—"Seeing that the operatives have already offered to guarantee that no rise of wages would be asked for a period of twelve months, and that this has been refused by the employers; the only other concession that the operatives can make would be an agreement to work an hour longer on Saturday,—that is, to two o'clock; and if the nine hours' system is found unworkable, or in any way injurious to the trade, to meet with the employers after the first term, to consider what would be best to be done in the circumstances." Mr. Paterson said that they would submit this proposition to a general meeting of the Association. The meeting then broke up, it being understood that, if the masters were inclined to entertain this proposition, another conference would be held.

NEW EXCHANGES.

Liverpool.—At a meeting of merchants, brokers, shipowners, and others interested in the purchasing of the old buildings, and the erection of a new Exchange in Liverpool, it was stated that 310,000*l*. of the amount required to complete the scheme had been already contributed, leaving only 50,000*l*. to be subscribed. Of this latter sum a large portion was taken up at the meeting. Mr. W. Brown, late M.P., and Mr. J. P. Heywood, banker, were, it was stated, interested to the extent of 10,000*l*.

Leeds.—The foundation-stone of a Corn Exchange has been laid here. The site lies between Call-lane, Cloth-hall-street, the Calls, and Crown-street. The building is to be of stone, dressed externally, and cased internally with coloured bricks, and will possess two porticoed entrances, the principal one facing Duncan-street, and the other Kirkgate. The ground plan is an oval. The entire building will cover an area of 2,055 square yards, and will be 190 feet long by 136 feet wide, and 86 feet in height from the floor to the cellar. The market will occupy the centre area, and be surrounded by suites of offices in two tiers, the basement forming an extensive cellaring. The upper tier of offices will be accessible by a gallery, which will run round the inside of the building. The portion to be set apart for the corn-factors will contain 960 square yards, and will hold 120 stands for samples. There will also be a business-room. The farmers' sack-market will contain 400 square yards, and a business or reading-room attached. There will be 1,400 square yards of cellaring. The whole Exchange will be covered by an iron roof, which will rise to a height of 75 feet above the floor of the markets. Externally, this roof will have the appearance of an elliptical dome. The architect is Mr. Cuthbert Brodick, the architect of the Leeds Town-hall, and the execution of the building has been contracted for by Mr. Addy, of Leeds, for 12,033*l*. This is exclusive of the roof, which will be constructed by Messrs. Butler & Co. for 2,050*l*. The total cost, including the price of the land, will be about 25,000*l*. Mr. Cairns is the clerk of the works. The building is to be finished in twelve months from the present time.

Newbury.—The following are the amounts of the respective tenders for a new Corn Exchange, which have been accepted by the local Board of Health:—

Mr. Fletcher, masons' work.....	£771	3	6	£. s. d.
" excavators' and brick-				
layers' work.....	886	17	1	
" carpenters' work.....	822	19	0	
" slaters' work.....	76	11	0	
" plumbers' work.....	21	17	10	
	2,699	8	6	
Mr. Samuel Biddis, glaziers' work.....	187	10	0	
Mr. John Hopson, plasterers' work.....	33	4	6	
Mr. Henry Hopson, painters' work.....	38	6	0	
Messrs. Wilder and Sons, iron work.....	107	10	0	
	4,235	18	11	

Mr. Hanson, the surveyor of the Board, has been appointed clerk of the works. The new Exchange is to be completed in nine months.

CHURCH-BUILDING NEWS.

Napton-on-the-Hill.—The parish church of this place, according to the *Northampton Mercury*, has been re-opened for divine service. The restorations consist of the re-seating of the nave and north transept, with additional sittings, nearly 100 free; putting new open roofs to the nave and north and south transepts; six new windows in the clerestory; also a new oak pulpit and reading-desk, and new paving the aisles throughout. The arches and pillars have been improved by removing the many coats of whitewash and plastering. The work was done by Mr. William Watson, builder, Napton, under the superintendence of Mr. J. Crofts, architect, London.

Oxford.—A proposal was to be made at the Convocation, to authorize the Vice-Chancellor to expend 3,900*l.* from the University chest upon the repair and restoration of St. Mary's Church. The proposition originated in a request made by the vicar and churchwardens to the Hecdomadal council of the University and the Provost and Fellows of Oriel, who are rectors, to join in carrying out a report on the subject made by Mr. Scott. The total expense is estimated at 5,400*l.*, and the parish offers to contribute 850*l.*, and Oriel College 1,000*l.* of that sum, leaving 3,900*l.*, sought for at the hands of the University authorities.

Aldershot.—The works at the cemetery here have been so far completed as to admit of the Episcopal portion being consecrated; which ceremony was performed by the Bishop of Winchester on the 6th inst. The ground is nearly 4 acres in extent. There are two chapels, in the Decorated style, each 26 feet by 18 feet, with open roofs, and connected by a covered carriage-way, surmounted by a bell-turret; and under which are the entrances to the chapels; so that carriages can be driven up to them, and mourners, &c., set down under its protection in all weathers. Near the entrance are a lodge and a dead-house. The architect is Mr. T. Goodchild; and the builder, Mr. W. Swayne: the wrought-iron gates were by Messrs. Filmer & Mason: all are of Guildford.

Wrotham (Kent).—The parish church has been reopened for divine service. The chancel was repaired by the Rev. Charles Lane, rector, a short time ago. The whole of the old pews have now been removed, and open seats substituted. The west end arch dividing the tower from the nave has been thrown open, and the belfry chamber fitted with a new window of three lights. A stained window by Messrs. Hughes & Warde, of London, has been placed at the east end, the gift of ten friends of the rector's, whose names are inscribed at the bottom. The figures in the window illustrate the Creed, the first and last parts of which are printed in illuminated letters at the side. There are also two other stained windows in the south aisle; that at the west end, also by Messrs. Hughes & Warde, consisting of two lights; the figures being Christ blessing Children, and the Child Timothy reading the Scriptures; the upper tracery being a group of angels. The other window, which is at the east end of the south aisle, is a three-light window, by Messrs. Lavers & Barrard, of London, and is in memory of a young lady, Miss B. E. Lane, who started the project of restoration, but did not live to see it carried out. The centre figure is the Virgin with St. Agnes on the right and St. John on the left. There is also a figure of Christ, with tracery at the top. The pulpit is of Caen stone, with Derbyshire marble columns and alabaster caps and cornices, the upper part being similar to that in the refectory of Beaulieu Abbey, near Southampton. The whole has been carried out by Mr. J. W. Scales, architectural sculptor, of Walsworth, from the designs and under the superintendence of Messrs. Newman & Billing, architects, London.

Slaughton (Sussex).—The old church here has

been re-opened by the Bishop of Chichester. The repairs, which were extensive, cost upwards of 2,000*l.*, of which the parish is liable to the amount of 700*l.*, to be paid off by instalments in twenty years, and the remainder was raised by subscription. The exterior form has not been much altered, though there are new windows on the south side, and a gallery window at the west. These are in the Early English style of the old windows, which have been repaired; but the greatest alteration is in the interior, which previously was very inconvenient, the blocked-up arch stretching north and south, and dividing the Chancel chapel from the body of the church having been thrown open, as well as several other improvements, thus enlarging the interior. The roof, which is double, has been replaced. The old-fashioned pews, with the exception of two, have been removed, and substituted by 500 sittings of varnished oak. The site of the old Chancel chapel has been set apart for free seats, as well as a great portion of the south aisle and the Rectorial chapel: seats are now erected around and in front of the pulpit, being carved. The gallery at the west part of the church extending the whole width has been re-fronted, painted, and grained, and a perforation has been made in the thick wall that parted the old part of the church from the Chancel chapel to allow the escape of sound from the pulpit to those who may be placed behind the massive pillar in its front. An improvement has been made in the churchyard, and the paths leading round the church and to the rectory have been paved. New burial ground has been taken from a meadow on the east side of the churchyard, to which it is to be added, and measures a quarter of an acre. Mr. Joseph Clarke was the architect; Mr. Parker Ayres, of Dover, the contractor; and Mr. Coleman clerk of the works.

Tenterden.—It has been for some time in contemplation to build a church, school, and minister's and teachers' residences, at Boar's Isle; and it is believed that the first stone of the new church will shortly be laid. 2,500*l.*, besides several acres of land, have been given by three individuals, provided another 1,000*l.* be obtained from private sources. It is proposed to dedicate the church to St. Michael. The style of architecture will be Decorated, and the building will consist of chancel, nave, north and south aisles, south porch, and vestry. For a time there will be no spire, but one will be built over the vestry as soon as the funds will admit of it. The material will be brick, with an external facing of Kentish rag-stone and stone dressing. There will be about 350 sittings (including those for school-children), and all free. The schools are to be in the Gothic style, and built of brick, with stone dressings. They will consist of one principal school-room and classroom, with accommodation for 100 children.

Kirby Moorside.—The chief stone of a new Methodist chapel has been laid here. The architect is Mr. George Styan, of York. Principal contractors, Messrs. Wood & Sons, of Pickering; and Messrs. C. Clarke & Sons, of Kirby Moorside.

Ledbury (Worcestershire).—The buildings in connection with the Ledbury cemetery are nearly completed. The builders are Messrs. McCann & Eversal, of Malvern. The architect is Mr. F. Cockerell, of London. The site of the cemetery is about half a mile out of the town, on the road leading towards Gloucester, on 2½ acres of land. There are two chapels, in the Gothic style. The stone used in the erection is native rubble stone, with Bath stone dressings, interspersed with Etonfield stone, and roofed ornamentally with Broseley tiles. The clerk of the works is Mr. Sketchley.

Daylesford.—The new parish church of Daylesford has been consecrated by the Bishop of Worcester. The building is a small one. The architect was Mr. Pearson, of London. The edifice is Geometrical in style and cruciform in plan, with a nave 15 feet by 30 feet, a central crossing 14 feet 4 inches by 13 feet 9 inches, a sanctuary 12 feet 9 inches by 10 feet 9 inches, and two transepts each 10 feet deep, a lean-to vestry at the north-east, and a deep porch on the south side. The stalls are placed under the tower in the crossing. The tower has a belfry-stage, and a square pyramidal capping, into which rise on each face the pyramidal heads of two-light belfry windows: an over-hanging cornice terminates the tower, and the spire is banded with scale work. The east window is of three large lancets, externally enriched with pyramidal hood mouldings. The north transept has a rose window filling the gable, and two lancet openings below in an arcade. The south transept has two large lancets and a circular window above. The nave is lighted by a west window and two others. Nearly all the windows

are enriched by shafts, both inside and out,—the former of marbles, the latter of red Mansfield stone. Columns of Devonshire and Italian marbles support the tower arches. A carved stone cornice supports the moulded oak ceiling over the crossing. The lower part of the walls of the sanctuary is of alabaster, inlaid with mosaic work in various marbles. The east window has been filled with glass by Messrs. Clayton & Bell. The floor of the church is paved with Maw's tiles in mosaic patterns. There is a good deal of carving, both inside and out, by Mr. Nicholls, of London. All the monuments connected with the Hastings family have been preserved.

SCHOOL-BUILDING NEWS.

Rusholme.—The chief stone of the new Educational and Industrial Schools, to be erected at Rusholme, in connection with Trinity Church, has been laid. They are intended to accommodate 400 children (boys, girls, and infants); and, besides the ordinary class-rooms, the building will also comprise an industrial school, and kitchen and laundry, in which it is intended to instruct girls of a suitable age in needlework, cookery, and other domestic duties. The parish at present contains only temporary schools, totally inadequate to meet the requirements of the population, which consists almost exclusively of the working classes. The style chosen by the architects of the new schools (Messrs. Pennington & Bridgen, of Manchester) is Gothic. The material will be red brick, with arches, and bands of black brick. The probable cost, including the site, is estimated at 2,500*l.* Towards this amount the Committee of Council on Education has granted 598*l.*, and the subscriptions promised amount to about 1,500*l.*, including a donation by Mr. C. C. Worsley of 800*l.*, and fifty guineas each from two churchwardens. There is a balance of between 400*l.* and 500*l.* yet to be provided. Mr. Penk, of Cheetham-hill, is the contractor for the works.

Bishopston (Bucks).—Schools for the children of Bishopston and Hartwell are being built by Dr. Lee, of Hartwell House. The building will consist of two schoolrooms, each 30 feet by 22 feet, capable of being thrown into one, with dwelling-houses for the master and mistress. Materials, red and yellow brick. Estimated cost, 1,200*l.* Mr. Joseph Bonomi is the architect; Mr. James Carter the builder.

CLOSING MEETING OF THE LIVERPOOL ARCHITECTURAL SOCIETY.

PRESIDENT'S ADDRESS.

At the annual meeting held on the 1st instant, Mr. J. M. Hay (in the chair) handed to Mr. Raphael Isaac the prize of two volumes of Richardson's "Old English Mansions," presented by Mr. Wm. Milner for the best design for a fireproof and holdfast safe-door.

The honorary secretary read the annual report of the council, in which it was recommended that there should be awarded a prize for the best sketch-book of architectural subjects taken during the ensuing summer recess, the books to be sent in on the day of the first meeting of the next session. The number of members in the society is 180,—twenty-one new members, of whom eighteen were associates, and three students,—having joined during the session. The accounts showed a balance in hand of 115*l.* 9*s.*, out of which would have to be paid a large bill, owing to the publishers of their transactions.

The following gentlemen were elected by ballot to be officers of the society for the ensuing year:—

President, Mr. J. M. Hay; vice-presidents, Messrs. Wm. Stubbs and George Goodall; council, Messrs. G. F. Chantrell, G. A. Audsley, J. A. Picton, John Hay, and Joseph Justen; honorary librarian and curator, Mr. E. A. Heffer; treasurer, Mr. Francis Horner; honorary secretary, Mr. Wm. H. Picton; delegates to the Committee of Management of the Gallery of Science and Inventions, the president, the secretary, and Messrs. Chantrell, F. Horner, and Weightman.

The President then read an interesting and pertinent address, of which we print a portion:—

"Architecture is a fine art; and, like its sister arts, exercises a refining and elevating influence upon the human mind; but, in order that its influence may be felt and enjoyed, it is absolutely requisite that some knowledge of its principles and its powers be obtained.

This knowledge can only be acquired by study; but its acquisition is like the acquisition of a new sense or avenue of pleasure, or the entering upon a new world. Travel then becomes doubly interesting, and the embellishment of our towns by noble buildings and spacious and well-planned thoroughfares, a desirable object. We have outlived those ages when the study of our art was confined to the guilds

of the Freemasons; when its language was intelligible only to the initiated; when its principles were secrets, and all its work was of mystery. We, on the contrary, invite and encourage inquiry, knowing full well that it is mainly, if not entirely, through the fostering patronage of a discerning and appreciating public that the arts advance, and that the power and foster public taste to such an extent that the artistic powers of the architect would be stimulated to the utmost in order to gratify that taste. But such a taste can only be acquired by individual study, and that of nearly as laborious and extensive a kind to that of the professional. A taste pure, elevated taste, and sound critical judgment must be based on a thorough knowledge of principles and their general application.

Architecture is moreover an art thoroughly conventional and constructive, and demands, in order to judge wisely of its works, even greater critical acumen than to judge of those of painting and sculpture, which are more imitative of nature. You will, however, meet with few who hesitate to hazard an opinion on architectural works, unprepared as they may be by previous study for forming any opinion. I believe that the judging spirit in which the services of the architect are sometimes remunerated, and the generally and not unfrequently absolute refusal to pay for those services, are chiefly attributable to ignorance on the part of a large portion of the public of what the services of the architect are, and the position he is considered to occupy. The architect is considered a sort of angelic creature, living on ethereal food, cheap and choice as the air of heaven; or else, rejoicing in a private fortune, is independent of the fruits of professional labour, and is ready to draw out pretty pictures for any one simply to amuse him. I need not tell you, I need not inform any here, is not this *luna nutra*, but one who, on the groundwork of an expensive education, has spent his youth in study and research, and his later years in executing the great monuments of civilization at home and abroad, and is qualified and prepared to carry into execution the instructions of his client, for which he is entitled to a certain remuneration. If his client be a gentleman of education, and possessing a taste for architecture, he will not have any serious difficulty, for every objection will be intelligible, and every suggestion worthy of consideration. If, on the other hand, his client be ignorant and conceited, there is no means of illustrating the absurdity of his whimsical notions, unless the architect possesses the magic power of calling into existence two buildings, one as desired, and the other as it ought to be. Some of the irregularities with which the profession is charged arise, in a great measure, from a prevalent impression that an architect's commission is just so much money lost or thrown away; and a great saving is thought to have been effected when his services are entirely dispensed with, and a builder employed in his place. An unwise proceeding is sometimes adopted of striking a bargain at something below the regular commission: at other times a greater folly is perpetrated when a man has just that modicum of knowledge of building matters sufficient to engender the notion that he may be his own architect. The most wilfully blind and conceited generally find out somewhat, but seldom know or admit the extent of the folly and extravagance resulting from these practices.

Architects have been exceedingly remiss in not having determined ere this upon a scale of charges and fees, to place in the hands of a client when their services are about to be engaged. The usual commission of 5 per cent. on the outlay is an exceedingly vague one; for, while in some cases, as that of a large warehouse, involving an expenditure of some thousands of pounds, it may be too high, in others, as that of shop-fronts, where a hundred pounds or two only is expended, it is very much too low; for here the same process has to be gone through of making drawings and large details, specifications, supervising the operations, and settling up with the tradesmen's accounts, when fifty times the cost has been incurred.

I need not pursue this subject further, but shall reserve further observations for another opportunity, it having been taken up with great energy by our sister Society, the Northern Architectural Association. We have this evening received their report, and, at a special meeting, to be held shortly, shall take it into consideration. Competition is also a question connected with the power and competency of architects themselves, as a body, to deal with. I cannot believe that there are any insurmountable obstacles in the way of drawing up certain rules, or stating fair and equitable general principles, on which competition ought to be conducted. Were no architect to engage in any competition where such principles or rules were ignored; were no architect to exchange his services for less than the published scale of charges; and were every one who accepted and agreed to abide by those rules and charges, to form themselves into an "Architectural Alliance," as suggested by our indefatigable contemporary of the north, already referred to, it would be much to raise the character of the profession and fortify its position.

It would have been desirable to have seen the only chartered body we have, the Royal Institute of British Architects, take up these questions, along with that of the diploma, with a view to establish them on such a clear and distinct basis as to command their recognition by the whole of the profession throughout the kingdom.

Is it too late for her yet to do so? The periodical return of strikes, or those combinations amongst our building operatives to raise wages or shorten the hours of labour, is threatening to become a serious impediment in the way of building operations.

The masons have the strongest Union; and so uncertain are contractors of how they may be situated six months in advance, that their workman-work is increased in price, and in many instances partially or altogether abandoned.

The question of labour and wages is a difficult one; and one upon which every government wisely abstains from legislating; but though left entirely free, it may be dangerous to push this liberty too far.

The trade of the mason is too important ever to become obsolete. The time, I presume, will never arrive when we shall entirely dispart with it, but the uncertainty resulting from these periodical contests is assuredly transferring much of that employment to the bricklayer which would naturally fall to the mason. Brick architecture offers a wide field for novelty and originality in design. Were manufacturers able to produce at a moderate price moulded bricks, true, and carefully made, and of uniform size, stone dressings might be given up with great advantage to utility of design and improvement in construction. The introduction of ornamental brickwork, though of comparatively recent date, is not a novelty even in our

own country; and it is a department of our art not unworthy of our more careful study. There is a novelty, however, in the violent contrasts resulting from the use of parti-coloured brickwork, as generally seen in modern designs, which is not always productive of the best effect, especially when combined with bold projections, as they interfere too much with the architectural lines. The same objection applies to the very prevalent use of stone of a light colour for quoins and dressings, along with one much darker, for the general facing.

The Architectural Exhibition is a great boon to the profession, as it will afford opportunity of comparing before the public eye the capabilities of styles, which are better tested by the pencil than by the pen. It is proceeding from words to things, from theory to practice. It is to be regretted, however, that there is not more importance attached in this Exhibition to plans and sections, which ought to be as publicly and prominently set forth as elevations and perspective views, as the merit of a design cannot be estimated from the latter alone. Without plans and sections it may be an exhibition of water-colour drawings, but it is not an architectural exhibition.

The prospects of the profession, notwithstanding many evils which only the united action of architects themselves can remedy, are promising and satisfactory. Building operations are vigorously going forward on both sides of the Mersey, and throughout the country generally. In the road old town, and especially in the neighbourhood of the Exchange, old buildings are being replaced by edifices more fitted and adapted to the spirit and enterprise of the present day; and our streets and thoroughfares are slowly, but steadily, undergoing the process of improvement.

It is singular that the system of building in flats, so common in Edinburgh, Glasgow, and Paris, has never been introduced here. It is a great advantage, especially in a large town where, and especially in London, I am convinced that, were the attempt fairly made, it would succeed, not only as a money speculation, but in the houses being preferred as places of residence. Instead of homecoming over a whole district with small cottage property and miserable narrow streets, as has been lately done in the once beautiful township of Everton, we should have buildings about four stories high, giving complete accommodation to a distinct family on each floor. The rooms might be of considerable height, with windows close up to the ceiling, affording ample means for thorough ventilation. A larger population on a given area would be by this plan better housed, and at a smaller cost than in any other, while, at the same time, the external elevation of the buildings might possess an imposing appearance from size alone, very different from that perishable character so painfully impressed on all cottage property.

NEW VESTRY-HALL FOR THE PARISH OF ST. JAMES, WESTMINSTER.

Most persons who have had occasionally to traverse that western arterial thoroughfare, Piccadilly, will have observed a squat, dingy, brick building—in appearance that of a stable or a coach-house—that has stood at the north-western angle of the churchyard there. This was the vestry-room of the royal parish of St. James; now, however, being demolished, in order to give place to an extensive and handsome edifice, to receive the name of the St. James's Vestry Hall.

The old building was erected fifty years ago by the celebrated select vestry of that day, in order to relieve the church vestry across the yard of its occupancy by meetings for secular purposes; and its two rooms continued to serve without alteration (other than that of the mere setting up of a small rater's gallery) for the meetings under the new order of things, when, in 1832, the adoption by the parish of Hobhouse's Vestry Act gave a parochial council of thirty-six elected members. The vestry, however, was not as yet executive. The accession of twelve additional vestrymen, which the Metropolis Local Management Act of 1855 authorized, and the multiplicity of new business which the assumption by the vestry of its executive character brought on, rendered the limited accommodation those two rooms afforded totally inadequate to the vestry's wants, and necessitated the provision of additional committee-rooms and offices elsewhere. The constantly recurring inconveniences arising from the separation of offices determined the vestry, at length, on the erection of a new building capacious enough for the concentration under its single roof of the requisite accommodation for the conducting of all the various parish business with convenience and economy.

The new edifice is to be of two stories, built of brick and Portland stone. The principal front will be to Piccadilly, ranging with the houses on the south side of the street; but, the situation being a corner one, and the side quite open to the east, the Piccadilly front is, with slight variation of detail, repeated in the flank, and will form a somewhat striking object in the approach westward. The general plans are by Mr. Howell, the parish surveyor. The elevation is a modification of a design for the purpose, by Mr. E. Pearce, architect, selected from thirty-nine designs sent in, in competition for premiums of fifteen guineas for the most approved, and five guineas for the second. The builders are Messrs. Geo. Mansfield & Son. Clerk of the works, Mr. Cleverly. The building is to cost 6,000*l.*, though probably its completion will dip deeply into an

additional 1,000*l.* There will be seventeen or eighteen rooms. The chief hall will occupy the first floor. This will be a handsome apartment, 38 feet by 27 feet, with lofty ceiling, coved at the sides, panelled and ornamented, and perforated for ventilation: with a small retiring room adjoining, fitted with lavatory, &c., &c., and a rater's gallery. There are several secondary committee-rooms above, and, on the ground-floor, offices for—1st, vestry clerk; 2nd, clerks in the vestry clerk's department; 3rd, surveyor; 4th, officers connected with works; 5th, receiver of rates; and, 6th, an office for the St. James's Savings Bank. Rooms are also provided for the medical officer of health, with convenience for the analytical examination of articles of food; and for the chemical examiner and gas-engineer, should the vestry appoint such officer.

It has been the aim of those who have taken an active part in the bringing about the rebuilding of these premises, whilst providing just the requisite amount of accommodation for the economic transaction of the parochial business, and keeping the expense of the erection down at a price justifiable, under the circumstances of its cost being a charge on rates, to set up an edifice that shall be worthy the important site it will occupy, and creditable to the high standing of the parish,—a parish that has to raise by rates, and dispense in its various local obligations, some 65,000*l.* per annum.

F. C.

THE ARTISTS' BENEVOLENT FUND.

The fifty-first anniversary of this fund was celebrated on Saturday evening last, at the Freemasons' Tavern, when about a hundred artists and friends of the Society sat down. Mr. Beresford Hope, in the absence of Lord Ashburton, occupied the chair. The Artists' Benevolent Fund was established in 1810, for the purpose of affording relief to the widows and orphans of the members of the annuity fund. During the last year the Society has paid to the widows of artists, 750*l.*, and a sum of 73*l.* 15*s.* has been appropriated to the relief of orphans. Amongst those present were Mr. David Roberts, R.A.; Mr. Millais, R.A.; Mr. Sydney Smirke, R.A.; Mr. Foley, R.A.; Mr. Samuel Cousins, A.R.A.; Mr. George Dodd, Mr. L. Hoghe, Mr. F. Taylor, Mr. B. R. Green, Mr. C. J. Dimond, the honorary secretary (to whom much is due for zealous service in aid of the fund), and many other well-known names. The Chairman, in proposing the toast of "Prosperity to the Artists' Benevolent Fund," referred to the loss that the charity had sustained in the death of Sir Edward Swinburne, bart., who had been president of the Society for upwards of half a century. That most worthy president, he said, was born before the Royal Academy was founded, was a president of the charity when Napoleon I. was on the throne, and when Lord Palmerston had not been more than a year in office. The Society was one which might well adopt as its motto, "Help yourself and God will help you;" and it was founded upon a principle of a prudent not less than of a benevolent character. He appealed to those present, and to society at large, to support the artist as a man, and enable him to fulfil his vocation as an artist, by removing from his home those clouds and embarrassments which too often beset his door, and crippled his energies. Mr. Godwin proposed "The health of the chairman." The chairman returned thanks, and proposed the toast of "The Royal Academy," which was acknowledged by Mr. Smirke. Mr. David Roberts, Mr. Millais, and Mr. Ferrey, also spoke, and a considerable sum was subscribed.

MONUMENT IN HONOUR OF DANTE.

A CONSIDERABLE change has taken place in the intentions of the commission formed to honour the name of Dante Allighieri, on the occasion of the sixth centenary commemoration of his birth. It had been proposed to carry the Loggia di Orgagna all round the Piazza della Signoria, and to transform the locality into a national Pantheon; but this plan was found to involve a great destruction of property and a great expense: it has, consequently, been given up, and a new one projected, which has already received the approval and support of the municipality.

It is now intended to erect a temple in honour of the poet on the very highest point of the Boboli Gardens, and the esplanade of the Portezza di Belvedere has been selected for this purpose. A noble street is to lead up to it lined with handsome residences; and this is to be carried through the gardens of the Conventi di Santa Felicia, which

occupy the slope of the hill at the back of the church of the same name. At present the Fortezza is approached by the Via Della Costa, but the proposed new street will lie behind this. The situation is an admirable one, and the palaces here proposed to be erected will be most healthily and pleasantly situated, and cannot fail to become an advantageous and profitable return for the money expended on them. The prospect of a great public improvement and increased wealth to the funds of the city raise great expectations that the plan will be carried out. The municipality will take the lead in this work of utility, and the Dante commission will hand over to it the profits arising from the sale of the national edition of the poet's works.

No spot could have been better chosen for a monument to Dante than the charming locality now selected, overlooking the Vale of Arno, the city, and the beautiful scenery around. Dante will thus at length occupy *il dilettoso monte*, the object of his early poetic aspirations, and his lofty temple crowning, like an acropolis, the elevated site, while it suggests the glory of ancient Athens, will speak to the admiring stranger of the renovated reputation of the Athens of Italy and of the fame of the immortal poet.

H. C. BARLOW, M.D.

PARK LANE AND PICCADILLY.

CAN nothing be done to relieve the pressure of carts and carriages at the south end of Park-lane? If widening be impossible, could not the line of Down-street be prolonged through Little Stanhope-street and the Mews, into Curzon-street, and the houses set back 15 or 20 feet? This would draw off a good deal of traffic both ways, and afford a direct line of communication through Grosvenor-Square, northwards. From Park-lane to Piccadilly is now a service of danger to both carriages and pedestrians.

"PIC A DELAI."

THE ANCIENT TOWERS AT WINDSOR CASTLE.

SIR,—In your recent impression we are informed that the old Garter Tower, at Windsor Castle, "having now stood since the days of Henry III.,—some full six hundred years,—is to be recased," and that "it will wear a new face, with all its familiar features,—wrinkles though they may be,—taken away." And, further, that in reply to a question put in the Commons on the 2nd instant, by Sir H. Willoughby, in regard to the restoration of the belfry, or "Julius Caesar's" Tower, Mr. Cowper replied,—“He had impressed upon the architect, who had charge of the repairs, the necessity of preserving, as far as possible, the ancient character of the buildings; and he thought the matter might be safely left in that gentleman's hands.” I would suggest that the utmost vigilance is required in these matters, on account of the sacrifices that have very recently been made of our historic building. At Lindisfarne, an unlovely attempt to imitate the celebrated "hanging ruins" has led to the erection of a spurious hanging arch, as described in your columns. At Lanercost, there has been "rough handling" of the famous monastic remains, as the bitter letters in the *Times* detail. At Alnwick Castle, the ancient Percy dining-hall, the falconer's and armourer's towers, with the Norman curtain-wall between them, have been all swept away as mentioned in your notice of this subject; and at the abbey church of Hexham, "the renovations and spoliations" perpetrated were of so outrageous a character as to rouse with strong expression of indignation yourself, the *Eccelesiologist*, and the *Critic*. In all these cases, I presume, "the matter was safely left in the architect's hands."

ARCHÆOLOGICAL.

Books Received.

The Carpenter and Joiner's Assistant. By JAMES NEWLANDS, Borough Engineer of Liverpool. Illustrated by an extensive Series of Plates and many Hundred Engravings on Wood. Blackie & Son, Glasgow, Edinburgh, and London.

AMONGST the recent inquiries for books, which, as a rule, we are forced to decline answering, are two from workmen asking to be directed to a "good carpenter and joiner's book." The best reply we can give them is to bring again under notice Mr. Newland's work named above. It was referred to in our pages during its progress; but it is now completed; and, with the whole before us, we can conscientiously recommend it to all who desire a work of the kind. It addresses itself to many

besides carpenters and joiners, as will be seen when we give an outline of its contents. The first part is devoted to practical geometry, teaching various methods of constructing the angles and the rectilinear and curvilinear figures required in the daily practice of the draughtsman. The second part teaches the nature and use of the various kinds of drawing instruments. The third part is devoted to stereography, comprehending the projection of lines, surfaces, and solids, and the application of this projection to the problems of descriptive carpentry in groins, pendentives, domes, niches, angle-brackets, roofs, hip-roofs, &c. These three parts thus form a complete Treatise on Lines, a knowledge of which is an essential preliminary to the study of carpentry and joinery. The fourth part treats of the physiology, growth, development, and diseases of timber trees; of the mode of felling, squaring, and preparing timber for use, and of increasing its durability. It includes a description of the nature, properties, and uses of the various timber trees which in this country are employed by the carpenter and joiner; and it elucidates so much of the principles of the composition and resolution of forces, and of the strength and strain of materials, as belongs to theoretical carpentry. In the fifth part are presented examples of the construction of timber roofs, domes, and spires; of the framing of timber, the formation of joints, straps, truss girders, floors, partitions, timber houses, bridges, centres, and field, park, and dock gates. The sixth part is devoted to the illustration of joinery; comprehending the mouldings used, the formation of joints, gluing up of columns, &c., framing and finishing of doors, windows, and skylights, and the various methods of linging. The seventh part treats of stairs, staircases, and handrailing; and in the latter, which is contributed by Mr. David Mayer, of Cheltenham, the author develops simple methods of getting out the wreath by one bevel and squared ordinates, the advantages of which he has tested in a long course of practice. The eighth part advances the student in his knowledge of drawing, by instruction in the projections of shadows, in the method of making finished drawings, and in perspective and isometrical projection.

The illustrations are very good and numerous, and extend through a very ample and excellent glossary, which is given at the end of the work.

Mr. Newlands has produced a valuable book.

Rudimentary and Practical Instructions on the Science of Railway Construction. With Illustrations. London: Weale, 57, High Holborn, 1861.

SIR MACDONALD STEPHENSON was the original author of this useful treatise for those entering on the practice of railway construction. The first edition, however, having soon been exhausted, Mr. Weale, with the sanction of Sir M. Stephenson,—who, by the way, presented the treatise as a contribution to Mr. Weale's publications of technical works,—had some useful additions made to it, and it has been re-issued, therefore, anew. The work is arranged in ten divisions,—as on measurement of surfaces and solids, surveying, laying out a line of railway, tunnelling, stations, &c., and the whole is illustrated by upwards of 150 engravings.

Miscellaneous.

THE POPULATION OF ISLINGTON.—The increase of population in Islington has been enormous. By the census of 1851 it stood at 95,154: by that of 1861 it is seen to be 156,000, showing an increase in ten years of 60,846 persons. This is not entirely owing to the new buildings which have been erected there, great as the number of them is: the decadence of some of the streets must also be taken into account, many houses in which, formerly occupied by one family in each, now contain several.

FALL OF A NEW RAILWAY STATION ROOF AT BLACKBURN.—On Saturday, the 4th, just after a passenger train had left the Blackburn station, the girders forming the roof of the new station, numbering fifty to sixty, extending a length of about 100 yards, and having a span of about 100 feet, were blown down and fell with a crash on the line, causing the greatest consternation to all in the vicinity of the station, but fortunately inflicting no personal injury. The accident (it is said) will be a great loss to the contractors, Messrs. Whitehead & Holland, of Nelson, near Burnley, as there is not only a great amount of labour lost by the girders, which had all been placed in position, having fallen; but their falling has so broken them that the greater part are rendered useless.

A DRAINAGE SYSTEM.—We hear of a new system of drainage patented by Mr. Kinipple, which has for its object the abolition of plumbers' work, cisterns, closet appurtenances, pans, traps, &c. It is said to be self-acting, and not liable to get out of order. An apparatus (intended to be applied to about 40 houses at West Ham) was tested at the Poplar Iron Works on the 24th ult.

NEW STEAM REGENERATING APPARATUS.—Mr. J. F. Datchy, of Cannon-row, Westminster, has invented an apparatus to restore the waste steam, after it has been once used in the cylinder of the steam-engine, to its normal pressure, by regeneration; such exhaust steam being from time to time recondensed to the generator to be again employed. The inventor anticipates that the apparatus may work for ten or more years without requiring repair, and that the saving of fuel will amount to 50 per cent. in high-pressure, and 32 per cent. in low-pressure engines. The improved apparatus, it is said, can be applied to all existing engines without even stopping them.

FIRE ESCAPE AND HOSE-REEL COMBINED.—An improved fire-escape has been recently patented by Mr. Henry Marriott, superintendent of the Preston Fire Brigade, and has already been supplied, it appears, to several towns in Lancashire and Yorkshire. We obtain the following particulars as to it from the *Burnley Advertiser*.—It consists of two ladders, one overlying the other, the base of the under one being fixed in a frame which runs upon spring wheels, in which frame is a winch, by means of which the overlying ladder can be slid upward on the telescopic principle. Before hoisting, a strong canvas bag, open at both ends, and of sufficient length, has one end fastened, open mouthed, to the top of the ladder, so arranged that when the ladder is put up to a window or roof any person may get into the sack, head or feet foremost, and slide down into the arms of two men who hold the bottom of the bag in the street below; and this so easily, that twenty persons may be let out of the top room of a five story building and landed safely in the adjoining street, without scar, or even danger, in five minutes.

GAS PIPES.—A Guernsey correspondent, under the name of "Research," asks whether earthenware pipes, as gas mains, would expand and contract as iron ones do. Certainly not. He also asks whether such pipes have not been used in London. Not that we are aware of, although there cannot be a doubt that such pipes would be preferable to iron ones, not only in this respect, but also in respect to non-corrosion. The expansibility and contractibility of the iron gas mains in the first place destroys the integrity of the junctions, which allows the gas to escape; and by reaction with the materials of the subsoil in London, agencies more corrosive than the gas itself are liberated; and not only the exterior of the gas pipes, but that of the water pipes, is thereby rapidly corroded, while an abominable stench is produced, which Mr. Spencer, the chemist, has traced down the sewers to the black mud of the Thames, which, he says, is what gives forth so intolerable a nuisance in the summer. Earthenware pipes, so far as regards these objectionable results, would certainly obviate them; but iron pipes are themselves jointed in some towns on a different principle, which secures them, it is said, against gas leakage.

RAILWAY MATTERS.—The new station for the South-Western and Bristol and Exeter Railway Company at Yeovil is nearly complete. The station, which is in the Gothic style, was built up to March last by Mr. Taylor, and is now being completed by Mr. Bull, of Southampton, under the direction of Mr. Birch; and the roofs, which are of a modern design, have been built by Mr. M. T. Shaw, C.E., of London, under the superintendence of Mr. T. French, assisted by one of Mr. Shaw's draughtsmen, Mr. Neal, under whose direction the whole of the ironwork has been fitted and fixed. The large room is 77 feet in breadth, and the other 53 feet 3 inches; they are supported by cast-iron pillars. Longitudinal skylights have been introduced on each of these roofs, containing altogether about 15,000 superficial feet of glass.—In the recent sitting of the Chamber of Deputies at Turin, the Minister of Public Works gave a satisfactory account of the state of the operations for cutting the tunnel through Mont Cenis. He stated that the machines employed on the Italian side of the mountain cut out in 24 hours rather more than 8 feet of rock in a width of nearly 10 feet. The machines to be employed on the Savoy side are soon also to commence. It will yet be possible, he said, to cut through nearly 10 feet per day on each side. Hopes are entertained that the tunnel may be completed in six years.

ACCIDENT WITH BRICKWORK.—As a number of workmen were engaged in finishing the erection of three large furnaces intended for annealing glass, at the London and Manchester Plate-glass Works, in Sutton; and just as they removed the props used for supporting the arches; the brickwork gave way, and the whole of the building fell forward, completely burying the workmen, eight of whom were seriously injured.

RAGGED SCHOOL STATISTICS.—It was stated at the recent annual Ragged School Union meeting, that there were now 176 school buildings; 207 Sunday schools; number of scholars during the year, 25,264; day-schools, 151; children, 17,230; evening-schools, 215, and 9,841 boys. Attendance in boys' industrial school, 462; girls' classes, 2,714; refuge inmates, 698; attendance at religious services, 4,340. Number of voluntary teachers, 2,972.

SANITARIUM: CEYLON.—We learn from the *Army and Navy Gazette* that Government has decided on building a large sanitarium and hospital for the soldiers on the healthy plains of Newralia, in the centre of Ceylon, at a height of about 8,000 feet above the level of the sea; double that at which the military station at Newcastle, in St. Catherine's mountains in Jamaica, is situated. Captain De Butts, of the Royal Engineers, has been ordered from Kandy to put the design in execution.

TENDERS FOR PIPE, BATH.—A meeting of the local Sewers Committee was recently held to receive tenders for the supply of glazed stoneware sewage-pipes for twelve months. The engineer reported that Messrs. Davidson & West, who had formerly supplied the pipes, had failed. There were seven tenders. The Patent Bituminized Gas and Water-Pipe Company sent a specimen of their paper pipes, and stated that their manufacture was more expensive than earthenware, but as durable as iron at one-half the cost. Their prices were—2-inch pipes, 11d. per yard; 3-inch, 1s. 4d.; 4-inch, 1s. 11d.; 5-inch, 2s. 9d.; 6-inch, 3s. 6d.; 7-inch, 4s. 3d.; 8-inch, 5s.; 9-inch, 5s. 10d.; 10-inch, 6s. 10d.; 12-inch, 8s. 6d. The committee considered that the earthenware pipes, at one-half the cost, would suit the purpose as well as the paper pipes. The following were the tenders for earthenware pipes:—Bourne Valley Pottery Company: 3-inch, 4½d. per foot; 4-inch, 5d.; 6-inch, 7d.; 8-inch, 1s.; 9-inch, 1s. 1d.; 10-inch, 1s. 6d.; 12-inch, 1s. 10d.; 15-inch, 3s.; 18-inch, 4s. The North Devon Pottery Company: 12-inch, 1s. 3d.; 9-inch, 9d.; 6-inch, 6d. H. Doulton & Co., Lambeth, per W. Davey, Bath: 12-inch, 1s. 2d.; 9-inch, 8d.; 6-inch, 4½d. Alfred Tuckett & Co., Shirehampton: 12-inch, 11½d.; 9-inch, 6½d.; 6-inch, 4½d. Gibbs & Canning, Tamworth: 12-inch, 1s.; 9-inch, 6½d.; 6-inch, 4½d. James May & Son, Bath: 12-inch, 1s. 1d.; 9-inch, 7½d.; 6-inch, 5½d. The net prices were quoted in each case. The engineer was directed to lay the tenders before the City Act Committee at their next meeting.

THE PROPOSED NEW CHURCH IN MARLBOROUGH.—Sir: Seeing an account in your journal of last week, respecting a proposed new church in Christchurch district, it forcibly struck me—why not remove one of the City churches about to be taken down?—say, for instance, such a fine commodious church as the interior and exterior of All-hallows, Lombard-street, City. Here you have a place of worship fitted up in every way (except the re-arranging of the seats) for the comfort of the worshipper—namely, a church in which all may see and hear—which, sir, you know well is not the case in every church built after the model of the Middle Ages. For in All-hallows, Lombard-street, as in many of these churches, there is nothing to prevent your seeing the preacher. I know, sir, full well how these churches are everywhere spoken against and witness that we have departed from the spirit of the Reformation, and are called old-fashioned, and—as I was told the other day by a clergyman—are not good enough for the nineteenth century; and you, sir, may be no friend to them. But all I ask is, let any of your most prejudiced readers visit many of them Sunday after Sunday, and then go to All Saints', Margaret-street, and St. Matthew's, City-road. They will at once see how very far superior Wren's City churches (supposing the pews were re-arranged) are for Protestant worship, and the extra amount of comfort in them, to those cold, cheerless, and dark gloomy structures, as the one in the City-road. If the rector and churchwardens of Christchurch were to act upon this suggestion, they would have a much finer church for half the sum they have in hand or propose to spend; and out of the sum stated might be left a large balance for the parsonage-house.

AN ARCHITECTURAL STUDENT.

JAPAN.—In England we make paper of *twine*. In Japan they make *twine* of paper.

THE INCOME OF A PENNY FERRY.—At the monthly meeting of the Birkenhead commissioners, recently held, it was stated that the income derived from Woodside Ferry—a penny ferry—during the month of April, was 2,606½. 0s. 5d. against 2,502½. 4s. 1d. in the corresponding month of 1860. The income for the year ending on the 24th of April last was 30,279½. 15s. 9d. against 30,262½. 2s. 6d., for the same period of the preceding year.

CRYSTAL PALACE.—The Great Flower Show of the season will be held on this day (Saturday), the 18th instant. The entries of the choicest description of plants, which require longer time than ordinary to place in position, are so much more numerous than usual, that it has been found necessary to notify to the exhibitors that the doors of the palace will be open for the reception of flowers at the early hour of three in the morning. To the public the palace will be opened at twelve o'clock as usual. Military and other bands will be in attendance up to seven o'clock in the evening, and there is no doubt that the display of company in the great transept and naves of the palace will rival, if not out-do, the most brilliant of the flowers.

THE DRINKING-FOUNTAIN MOVEMENT.—We learn from the local paper that, at a recent meeting of the Town Council of Wolverhampton, permission was granted to Mr. C. B. Mander to erect a drinking fountain at the corner of the Market-hall, opposite the Townhall. This new fountain has been erected. The basin is of polished white Sicilian marble. On either side are columns of polished serpentine marble, with floriated capitals, supporting a rustic arch, which is terminated with a label moulding, springing from carved bosses. The key-stone is a carved head of Neptune, with a wreath of water-lilies. The water, running in a continuous stream from a water-lily and leaves, in the centre of a covered recess, terminated with a shell, flows through a basin into a dog-trough below. The drinking-cups, which are of goblet shape, are of thin enamelled iron, of French manufacture. The whole of the work, with the exception of the basin, is executed in magnesian limestone. The structure is 10 feet high. It has been executed by Mr. Horsman. It is a handsome gift to the town, and bears the name of Mr. C. B. Mander, its liberal donor.—A new bronze drinking fountain, given by the Bath Band of Hope, has been erected on the pavement at the east side of Walcot Church, Bath. It is in the shape of a vase. In Walcot-street there is now a fountain, the gift of Miss Elizabeth Landon: it was designed by Mr. C. E. Davis, and comprises also a large trough for cattle.

GAS.—The Swansea Gas Company have, at the instance of the Local Board of Health, fixed their maximum price of gas at 4s. per 1,000 feet.—The Macclesfield Corporation and Gas Company have agreed upon terms for the purchase, by the former, of the local gas-works. It is stated that the arrangement is to pay 50,000l. in bonds at 4½ per cent., not to be redeemable for five years, and the Gas Company's expenses of their present bill to be paid for, and the whole concern to be handed over to the Corporation on the 1st of July next.

—The question of cheap gas having been mooted in the City Council of Edinburgh, the Lord Provost incidentally stated that he had looked into the Acts of Parliament incorporating the gas companies, and he had ascertained that although there had been a report circulated to the effect that the Town Council had a right to inspect the books of the gas company, there was no foundation for the statement, although there was a provision, that while there was only one gas company in existence, the dividend should not exceed ten per cent.; but as the Council had no statutory right to inspect the books of the gas company, or to control the dividend, such right had never been exercised.—The revived gas movement has reached Montrose.—The Pennsylvania Railroad Company have their cars lighted with gas. This gas, the *Pittsburgh Chronicle* says, is supplied at Altoona, where the Company make it, the coal being quite convenient for that purpose. The gas is received from the works; pumped into receivers under very high pressure; and, by means of pipes, is conducted from the stationary receivers to the cars, and there enters a receiver on each car, 7 feet 6 inches high, 14 inches in diameter, and which, with a pressure of 500 to 600 lbs., contains sufficient to supply two 6-feet and one 3-feet burners from sixteen to eighteen hours, or one round trip. The use of the gas, it is said, proves satisfactory to the passengers.

A RUBBER AT WHIST.—India-rubber has been put to a new and curious use in making cards, which cannot be defaced easily, and are almost indestructible.

CONVERSAZIONE IN IRONMONGERS' HALL.—We hear loud complaints of the mode in which the invitations were issued, and of the little real use which has been made of the collection of works of art which was gathered together.

THE STRIKE AMONG THE BRICKMAKERS AT FATHERSHAM.—This strike has ended, the majority of the men having returned to their work, while one or two have absconded, and the principal ring-leader has been discharged. This man, together with his wife and family, occupied a "stool," and their earnings for the two weeks immediately preceding the strike were respectively 10l. and 10l. 4s. the family making, in the first week alluded to, 50,000, and in the second, 51,000 bricks.—*South Eastern Gazette.*

WINDOWS IN CHURCH ROOF.—With reference to the mode of lighting adopted in the Holy Trinity Church, Knightsbridge, described by us, Mr. P. Wilson, of Edinburgh, says,—"As far back as 1856 I erected a large church, seated for 1,600 in this city, in which I introduced the same mode of lighting; and, so far as I was aware at the time, the mode was entirely my own invention. Since then I have adopted the same mode of lighting in another church here. Both churches are situated similarly to the one at Knightsbridge, having houses on each side."

THE NEW HOUSES OF PARLIAMENT.—A report has been issued by the Royal Commission appointed in 1841 to inquire whether advantage might not be taken of the rebuilding of the Palace of Westminster for promoting and encouraging the fine arts. With regard to paintings, the commissioners have found that, under the existing conditions of lighting, oil pictures prove altogether unfit for the purpose; and they have therefore restricted the works now in progress to fresco or to the water-glass process practised in Germany. With regard to statues, a committee, consisting of the Prince Consort and Lords Stanhope and Llanover, have recommended, in addition to Gibson's marble statue of her Majesty, already completed for the Prince's Chamber, a series of thirty-seven, comprising Edward the Confessor, Harold, and then from William the Conqueror downwards; twenty on the landing-places to be of metal, the other seventeen of white marble; and they recommend that Mr. W. Theed be invited to undertake two of the latter (William IV. and George IV.), and Mr. T. Thornycroft other two (Charles I. and James I.), at 800l. each. Accordingly the report proposes that the vote this year be 3,200l., instead of the usual 4,000l., for the balances of former grants in hand for payment of works in painting are in advance of those works.

DRILLING OIL-VELLS.—A dreadful account of an accident from gas taking fire at an "oil-mill," as it is called, in Pennsylvania, is given in the *Buffalo Courier*, which says:—"During the drilling of an oil mill at Tidone, recently, a sudden rush of oil, at the rate of seventy barrels an hour, took place, the stream ascending 41 feet above the surface of the ground. Above this mass of oil the gas or benzine rose in a cloud, for 50 or 60 feet. All the fires in the neighbourhood were immediately extinguished, excepting one 400 yards' distance. The fire from this ignited the floating gas, and in a moment the whole air was in roaring flames. As soon as the gas took fire the head of the jet of oil was in a furious blaze, and falling like water from a fountain over a space 100 feet in diameter, each drop of oil came down a blazing globe of boiling oil. Instantly the ground was in a flame, constantly increased and augmented by the falling oil. At once a scene of indescribable horror took place. Scores were thrown flat, and for a distance of 20 feet; and numbers, horribly burnt, rushed blazing from the spot, shrieking in anguish. Just within the circle of the flames could be seen four bodies boiling in the seething oil. It is supposed that a number of others have been burned to a powder, close by the mouth of the well. Some thirty-four were seriously injured, besides others slightly. At the time of the explosion, everything in the neighbourhood—sixty or seventy rods—took fire, and shanties, derricks, engine-houses, and dwellings were at once involved in flames. On Friday morning the oil was still rushing up, on fire, with the same regularity and speed; throwing, it was calculated, at least 100 barrels an hour; covering an immense space with flaming oil,—a loss to the proprietors of the well of from 20,000 to 25,000 dollars daily. No human power can extinguish the flames, and the oil must burn until the well is exhausted."

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VOL. XIX.—No. 955.

The Condition of Edinburgh.

BEFORE going into particulars under the heads mentioned in our last paper on the condition of the Scottish capital,* let us refer to a singular fact supplied by Dr. Stark (whose valuable labours in this direction are well known), in proof of our assertion as to its unhealthiness.† The proportion of deaths above 60 which occurs in every 1,000 deaths of the population, is—

In England and Wales ..	239
In London	266
In Glasgow	192
In Liverpool	112
In Edinburgh	36·54

This revelation is surely somewhat startling. The figures, we suspect, are based on the census of 1841, since which, in all probability, the rate of longevity in Edinburgh has increased. But then, *ceteris paribus*, the rate of longevity in other cities will have increased; therefore the ratio will remain equal. But even this is not the worst. In this lower depth

there is a lower still. Dr. Stark proceeds, in his subdivision of death-rate in the city, until he arrives at the following melancholy results:—

Gentry and professional men	47·23
Merchants and traders	36·53
Artisans	25·28

And this lowest depth, we are informed, is owing to the overcrowded and intolerably filthy state of the closes in the old town, which are scarcely ever free from malignant fever. The late Dr. Allison supports this statement in his treatise on "Contagious Fevers; and Mr. Chadwick has something to the same effect in his General Sanitary Report.

As we have said, this terrific mortality is due, first of all, to the overcrowding. For a number of years back the increase of population in Edinburgh has, from a variety of reasons, not been met with a corresponding increase in the number of houses. Railways, breweries, public works, public buildings, new churches, new colleges, new streets, have been erected on the ruins of dwelling-houses which were inhabited chiefly by the working-classes, and situate for the most part in the densely-populated quarters of the Old Town. Two results arose from this: in the first place, the increasing population were thrust into the remaining houses; and, secondly, this over-crowding produced its inexorable results in an increase of mortality‡.

The Edinburgh people themselves have demonstrated, to our entire satisfaction, that the Old Town is over-crowded to an extent which we may well pronounce alarming and dangerous. Dr. Foulis, a benevolent physician of that city, in a pamphlet which he published some years ago, called attention to the growing evil, which seems still as prevalent in Edinburgh as it is in London, of pulling down dense masses of houses in the teeth of an increasing population. "The population," he says, "has increased during the last ten years by 25,038. This sum, divided by that of the average number of five to a family, will give us 5,000 families living in Edinburgh in 1851 who were not there in 1841. To accommodate these families, one of two ways must be supposed. Either 5,007 houses were

unlet in 1841, or between that year and 1851, 5,007 houses have been built. But what is the fact? We find in 1841, that few houses were empty; and in 1851, instead of 5,007 houses having been built, more than half that number have been knocked down. How, then, he proceeds to inquire, have these 25,038 individuals been accommodated? The question is too easily answered: they have been closer packed." This result, indeed, appears on the very front of the census for 1851. The inhabited houses were 20,946, giving a proportion of 8 inhabitants to each house—a most unusually large number—and may be partly explained on the principle that the Edinburgh houses, which in the Old Town are composed of single floors or flats, have not always been so distinguished; and that a single tenement may sometimes figure in the returns as a single house. But, on the other hand, Mr. Thorburn, a distinguished statistician of the city, has shown by his analysis of the Census of 1851,* that the Old Town, where the evils of overcrowding are most conspicuous, had increased in the previous ten years in the almost incredible ratio of 27 per cent. This is the average of the whole parishes. But the increase of the most crowded parishes was 41 per cent., and of this increase 50 per cent. were males, and 32 per cent. were females.

It is not easy to realize the consequence of these figures. But we may institute a comparison. The most crowded district of London is the sub-district of St. James's, in Berwick-street, Westminster.† We know something of the condition of the inhabitants there; and it has fallen to our lot in the course of events, to make a tolerable acquaintance with their misery. The number of human beings who are crowded together on an acre of ground in Berwick-street, is 432. The number of persons to an acre in the Tron church parish,—that is, the most crowded district of Edinburgh,—is 526. We have been informed, moreover, on good authority, that in a conjoined population of three parishes in the Old Town, there are at this moment 10,000 souls living in a space of twenty acres. Sometimes there are 150 persons to one common stair. Sometimes as many as sixteen families reside on a single flat of a common stair. Dr. W. T. Gairdiner, whom we have already quoted, has compared the death-rate of these districts with that of the more favoured localities of the New Town; and from his researches we are enabled to institute the following most painful parallel:—

Three streets in the New Town.

Annual death-rate per 1,000 living	13
Ratio of males	20
Ratio of females	8
Ratio of children under five	48

Three closes in the Old Town.

Annual death-rate per 1,000 living	33
Ratio of males	45
Ratio of females	21
Ratio of children under five	173

These figures appear to us so terrible that we shall not attempt to increase their natural effect by the obvious contrast.

We might add our own observations; but we have no wish to aggravate what is really admitted to be a painful case. Nor shall we stay to offer even the smallest tribute of unsolicited sympathy. There is a depth of misery, sometimes, when all human consolation is in vain. It is no wonder the Edinburgh people are a religious people. Their pilgrimage lies through the Valley of the Shadow of Death. We can at length understand the principle which once puzzled Lord Palmerston as it did ourselves, and probably every sensible man on this side of the Tweed,—the national terror and humiliation upon the approach of an epidemic. Who can estimate the sorrows and trials of the poor demoralized inhabitants of these deadly alleys and wynds? What a fatal significance those statistics acquire when we come to the children!

It should seem that even the Church has been awakened to the sad story. The Rev. Dr. Begg, whose labours in the cause of social reform we have previously heard of, submitted last year a Report to the General Assembly, in which the evil is described as so vast and multifarious, so chronic and deep-seated, the general public have become so indifferent, and the poor victims so incapable of making an effort for their own emancipation—that, unless the entire Christian patriotism of the country is roused, there is but little hope. One statement occurs in this Report which calls for our assent. It has been more than once laid down as an axiom by the *Builder*; but that is nothing. We are told by the Presbytery of Dumbarton that, generally speaking, the poorest characters and the poorest houses go together; and that the character of the tenant and the character of the tenement exercise a reciprocal influence on each other for good or for evil.

But to proceed. It is in the highest degree gratifying to find that numerous associations for building houses for the working classes have sprung into existence, and have planted colonies here and there in the most densely-populated districts of the city. At Pilrig-street, in the Cannongate, at Rosemount, at Stockbridge, and particularly in the Abbey-hill, large blocks of houses have been erected. These houses have been so recently and fully described in our columns by Mr. Roberts (see *Builder*, p. 682, vol. xviii.), that we shall not recur to them. Unfortunately it turns out that a greater number of houses have been pulled down within the same period. The Free Church College has broken into the Lawnmarket. Shakspeare-square has been sacrificed to the new Post-office; and Lord Cockburn-street—of which we gave recently an engraving*—has absolutely ploughed into the vitals of the ancient and gigantic piles of building. In truth, Edinburgh at this moment stands sadly in want of some power—a power which Earl Derby, to the disgust of the political economists, would supply from the State—that would prevent a wholesale and indiscriminate destruction of working men's houses without some adequate provision for the ejected population. We must confess it is not easy to reconcile political economy with cholera, or with the Irish famine; but this overcrowding—the most desolating sorrow of our large cities—seems to us a case quite analogous.

We now come to the drainage. From time immemorial, Edinburgh has been drained by two well-known streams, the Foul Burn and the Water of Leith. The Foul Burn, which flows eastward, is the ancient outlet of the celebrated North Loch. In all probability it does not discharge more than 200 or 300 cubic feet of water per minute into the sea near Portobello; yet this contemptible sewer has given rise to more inquiry, experiment, and discussion, and has been the object of more public meetings and Parliamentary papers than any stream of equal size in the British Empire. And here is the reason. Upon these barren slopes, between the eastern boundary of Edinburgh and the sea, through which this detestable streamlet meanders, have been made the greatest experiments in modern Europe on the agricultural problem of irrigation. Some fifty years ago an occupier of land in the village of Restalrig began to cut horizontal outlets for the sewage matter across his meadows; and thus began a system of irrigation which has since been extended over 300 acres—in fact, the whole of the land on the east between Holyrood Palace and the sea. Many successive crops of grass are now annually produced there, which yield an enormous revenue to the proprietors of the soil—the Earl of Moray, and Mr. Millar, of Craigmintney. In the very centre of these irrigated meadows stand the cavalry barracks of Piershill.

It has been repeatedly alleged by the inhabitants

* See p. 293, ante.

† Quoted in Fullarton's "Gazetteer of the World," art. "Edinburgh," under the head of *Vital Statistics*.

‡ On this head, see Mr. Maepherson's Report on Houses for the Working Classes of Edinburgh.

* Quoted in the art. "Edinburgh," *Encyclopædia Britannica*.

† Vide Report of the Committee on Metropolitan Drainage.

* See p. 625, vol. xviii. Our illustration conveys a good idea of the closely packed dwelling-houses of the Old Town, in one of its most singular aspects.

that this system of irrigation is at once illegal and injurious to the public health. A report of a committee of the police commissioners, now before us, puts the case in the strongest terms. The contemning proprietors, they say, have no right to the sewage of the city of Edinburgh. But supposing they had, they have no right to create with that sewage a succession of fetid stagnant marshes, so foul, so nauseous, and so disgusting, that no language can describe them. The cholera of 1832 decimated the inhabitants of Restalrig. The meat in the larders of Piershill could not be kept from rapid decomposition. The health of the troops suffered. Ague, marsh fever, erysipelas, were common diseases in the hospital. It was also asserted that the milk produced by the unhappy animals which are fed on this drainage grass, is in the highest degree unwholesome and unfit for food. With a far deeper import it was broadly insinuated, in the same publication, that the palace of Holyrood was from these reasons a most unsafe residence for her Majesty and the royal family. These allegations were met at the time with a counter statement for the proprietors,* from which an impartial observer may discover that there are at least two sides to the question, and that the defenders had not the worst side. The whole controversy has been set at rest by the Royal Commission, who, in their Report,† have pronounced that the irrigation at Edinburgh is comparatively innocuous, and that with proper precautions it might be made wholly so.

We have no great wish to disturb this view of the case; but we think it proper to point out that this Report altogether wears more of the aspect of arbitrary assumption than that of calm judicial inquiry. Mr. Austin and his coadjutors make too much of the Lazzeretto at Milan; and any physician who, being solemnly interrogated, should tell us that the inhabitants of such a piggery are possessed of their natural and proper state of health, we should certainly think either interested or insane. There can be no doubt, reasoning *a priori*, that this spreading of sewage over the outlying meadows of large towns must be, to a greater or less extent, noxious, and must, to that extent, interfere with the normal conditions of existence, and predispose the inhabitants to contagious disease. Our own inquiries at Edinburgh support this conclusion. We have been told by persons on whose judgment we can depend, that in hot weather the smell proceeding from the meadows between the cavalry barracks and the village of Restalrig is sometimes intolerable. We have also heard that cases which now and then occur of slight accidents to the workmen engaged on the irrigation are difficult of cure. We shall probably return to this question. In the meantime let us point out that the sewage ought, at all events, to be distributed by subsoil drains, as the Commissioners suggest in their Report, in place of open ditches, as they are at this moment; and on this head we refer the Edinburgh proprietors to Mr. Alderman Mechi, of Tiptree Hall Farm, in the county of Essex. We shall add here that, on the western slopes of the city, on the grounds of Dalry, another rapidly-extending tract of meadows is subjected to the same system before the sewage reaches the Water of Leith.

We have something more to say about Edinburgh.

THE ARCHITECTURAL EXHIBITION.

THE space we have devoted to the lectures delivered in connection with the Architectural Exhibition has lessened our ability to return to the collection of designs. In truth, moreover, it must be said that opinion of the collection does not improve on continued examination. Of real architecture the quantity displayed is not very large, and good draughtsmanship is, we are forced to say, but sparingly exhibited. Amongst

the exceptions we may place Mr. T. H. Watson's drawings of the morning chapel of St. Paul's cathedral, which obtained the silver medal of the Royal Academy in December, 1860. In our present number we take a second illustration from the Exhibition (357), and proceed to name a few drawings to which we have hitherto not referred. 6, "Godolphin School. Design submitted in Competition." A. W. Blomfield. This would have made a very good building,—Gothic, of course,—with colour sparingly introduced. 11 is a careful lithograph, showing part of the Lady Chapel of Lichfield Cathedral, from a drawing by J. Drayton Wyatt. 19, a set of sketches on the spot of "The Church of Notre Dame, Dijon, France," by Edward l'Anson. Mr. l'Anson is one of the wise men who remain students, and never waste a summer vacation. 75, "Design for Congregational Church about to be erected at Bayswater," John Tarring. Corinthian, with two turrets, and a portico of four columns. 92, "Design submitted in competition for the North Riding Infirmary at Middleboro'," Walton & Robson. The elevation, Gothic in style, is heavy and gloomy, and does not suggest light and thoroughly well ventilated wards. It is to be regretted in a case where plan is everything, that no plan is given. The absence of plans and sections throughout the exhibition is to be deplored. 108, "Mission House, now being built in Bedfordbury, St. Martin's-in-the-Fields," A. W. Blomfield, fitting and appreciable. 118, "New Offices at the corner of Fenchurch-street and Rood-lane, City: erected by Messrs. E. & S. Edwards," Henry Dawson. A substantial-looking building, with red pointed arches, as the fashion is, and a cornice somewhat over heavy. 124, "Principal Staircase, and second or Bedroom Staircase, Amesbury Abbey, Wilts, for Sir Edmund Antrobus, Bart.," J. J. Cole. Italian in style; the detail careful and elegant. 132, "The Diocesan Training College, Winchester," John Colson. Its style is Tudor; the outline pleasantly varied; the upper windows seem too small for healthful chambers. The building is to be faced with Swanage stone, with Box ground-stone dressings, and will cost 7,500*l*. 180, "South-east View of Coombe Cliff House, Croydon," E. C. Robins. A good sound-looking house, Italian in style, with belvedere. The cost is put down at under 5,000*l*. Plan is wanting. 187, "One of the selected designs for the Barnesley Cemetery," J. G. Stapleton, Jun. A chapel in the Geometrical style, with bell-turret at the junction of what would seem to be nave and chancel,—but that in a cemetery chapel this division is not usually called for. 203, "Trinity Church, Shanghai, China," Stevens & Robinson. It is intended to accommodate 600 persons; and as woodwork decays quickly in that climate, ironwork has been used in the construction of the roofs. The effect of the exterior is not ecclesiastical,—rather that of an ugly summer-house. 217 and 236, John Norton, set forth the "Proposed New College, Clifton," a handsome building, in the Geometrical style, having a central tower with overhanging turrets at the angles. Mr. Norton is making rapid and satisfactory progress in his profession. 288, "Design for Drinking-Fountain," V. G. Smith. In this stone and metal, in Medieval forms, are not very happily combined. The water falls from points in a mass of rockwork, in centre of basins, over which is a canopy of metal, supported on four small columns. 291, "Photographs of a portion of the series of cartoons for Eton College, chapel windows designed and executed in stained glass," Messrs. O'Connor. These include some fine figures. 387 to 390 inclusive, mark a tasteful set of drawings, illustrating a design for a house for four brothers, amateurs in literature and art, sent in for competition to the Ecole des Beaux Arts, Paris, and for which first honourable mention was awarded to R. Phénix Spiers. It consists of three blocks (the centre probably intended for receptions and use in common), connected by Loggia. The style is Italian.

ON THE REVIVAL OF STYLES.*

IT will, I think, readily be granted, though the proposition is by no means a mere truism, that, if we are to have good architecture in England, we must have a good national style; and it will also be granted that it is not necessary for such a style to have originated entirely at home; for, by discarding all that can be traced to foreign sources, we shall leave ourselves very few materials on which we can work. The questions we have to consider are these:—"Have we at present any style of our own?" "Are we likely to work out a

new style from our own resources and from the materials we can command?" Ought we to endeavour rather to revive some ancient style? and, if so, in which of those before us are we most likely to be successful?" I assume, of course, that we are desirous of establishing a style applicable to all our purposes, capable of combinations of the highest beauty and grandeur, and opening a sufficient field to the genius of the architect as well as to that of the sculptor, painter, and other artists who may contribute to the perfection of his work.

I am not sure whether we are not apt to draw too nice a distinction between building and architecture, and to take away from the province of the latter such works as our ordinary dwelling-houses, cottages, street fronts, and the like, unless they claim a title to it by adopting the most prominent features of some ancient or Medieval style. But, in truth, every structure is architectural which shows that thought, care, and skill have been bestowed upon its appearance. A very small amount of ornamental detail, if it be well designed, or well chosen, and well applied, will often be sufficient to represent, as it were, a more elaborate system; while a careful study of forms and proportions, even if there be no ornament whatever, according to the common acceptance of the word, may give a building a high place among architectural compositions; and, therefore, I said it was no truism to assume a good national style to be necessary, if we would have good national architecture. For a building may be architecturally good and yet have no feature which marks it as decidedly belonging to some recognized style, or the adoption of which would originate a new style. But, though a few examples of this description may be imagined, and some, perhaps, are actually to be found, it is not likely that the taste of architects, unguided by rules, should concur in the production of such buildings throughout the land.

We must have cheap buildings. Of churches I shall presently speak more at large; but we must have public buildings of various kinds, as well as private, the erection of which shall involve little or no unnecessary outlay; whose adornment or adaptation to style shall form a very insignificant item in the cost, compared with what is absolutely necessary to ensure good work, convenient arrangement, and sound and durable construction.

Now, if there be any style or manner in which these buildings are generally designed, or have been, so long as anything like unity of purpose prevailed; are we to consider it, so far as it goes, to be the national style, with the power of adding such a system of ornament, whether invented or borrowed from foreign or bygone styles, as shall best harmonize with its own principles of construction and composition; so that between buildings of the highest and humblest class there shall be a certain relationship and unity? or ought we to have one style for our ordinary buildings, and another for works (to use the expression of our neighbours) of a monumental character?

And, again, does our ordinary or vernacular architecture belong to, or readily assimilate with, any recognized style, so that the ornaments, general forms, rules, and principles of that style may be adopted and engrafted upon it, without changing its character, or rendering it less fit for its purposes? With regard to the first of these questions,—it strikes me that any essential incongruity between our vernacular and monumental styles would be productive of great inconvenience, and probably offer a serious obstacle to the advancement of either. For a large class of buildings, public and private, will necessarily occupy a place between the two, being neither merely vernacular nor yet altogether monumental. And it is on these that the character and aspect of our great towns will depend. In such buildings something more may be allowed to ornament than in those of the simplest and cheapest class; and yet considerations of economy must not be altogether thrown aside. If there be that congruity between the highest and lowest class which makes their difference to consist in degree rather than in principle, then the architect of the middle class has merely to apportion to circumstances his amount of expenditure in ornament. There is no actual line, or barrier, by which he must be decidedly controlled, or which he must decidedly overleap, so as to attach his work to one or other of two distinct classes, the vernacular and the monumental.

But if there be a manifest break between the two, a clear line of demarcation, on one side or other of which the architect must take his stand, it is not likely that the result will often be, on the

* Statement explaining the Nature and History of the Agricultural Irrigation, near Edinburgh. 1840.

† Preliminary Report of the Commissioners appointed to inquire into the best Mode of Distributing the Sewage of Towns," vol. xxxiii., sess. 1857-8.

* Read by the Rev. J. L. Petit, at the Architectural Exhibition, on Tuesday evening last, Mr. E. B. Lush in the chair.

one hand, pretension, extravagance, and the sacrifice of convenience to show? or, on the other hand, if the lower side of the barrier be taken, neglect and indifference on the part of the architect, as if his employment were beneath his care and consideration?

We must inquire, then, if there be any style which we may call our own, perfectly suited to the wants of the present day; expressive, or capable of being made expressive of the spirit of the age; and sufficiently comprehensive to embrace both vernacular and monumental works, and that large class which partakes of both characters. If we would view the matter in its proper light, we must go back somewhat more than a century. So many of our cheaper structures are of an ephemeral character, and so many of our more expensive ones are built according to the fancy of the architect or his employer, that they cannot be said to represent any national or permanent style whatever. But if we look at several domestic structures, whether insulated mansions, or forming parts of streets, of about the date of Queen Anne's reign; we may find something not at all unworthy to be taken as a national style; combining many artistic qualities of no mean order with dignity, durability, and convenience. There is a house of about the period of which I speak, at the entrance of Camberwell, which I never pass without being struck with the beauty of its composition. It owes little or none of this beauty to ornament, for nothing can be plainer or more simple in this respect. Owing, however, to its detached position, it admits of a ground plan more favourable to variety of outline and a play of light and shade than can usually be obtained in houses forming part of a street. But, both in the metropolis and in country towns, we see houses which may be referred to the same type or style of architecture, more or less enriched, which give no small degree of grandeur, and some picturesque quality to many of our street views.

The style, it is true, became unpopular when a more formal imitation of the Greek models was affected; and still more so, when as a natural consequence of this depressing formality, classic architecture became less in fashion, and the fancy for Mediæval architecture began to prevail. Many fine specimens were consequently pulled down to make way for structures of more pretension, but less real merit; as, for instance, the school at Birmingham; but this is no proof that the style is unsuited to the spirit of the age, or of the English nation, and that it might not with advantage again occupy the position of a national style. To go no further, it harmonizes with the character of the houses we build when we work without reference to style, and are guided solely by the consideration of our own requirements, the state of society, climate, and material.

If there be any fitting system of ornament by which such houses may be enriched, without sacrifice of convenience and adaptation to purpose, and at the same time sanctioned by antiquity, or some recognized school of art, and therefore capable of being carried out according to certain rules, such system may be worked into our national style; and, supposing it has already been applied, it has then become a part of our national style, no matter from what quarter it may have been derived; provided that the buildings on which we have engrafted it; be what we should naturally design with a view to our convenience, and that the style itself, or system of ornament, be conformable with the spirit of the age, and with its advancement in art, science, and general characteristics of civilization. I believe this is the only legitimate sense of the term "revival," as applied to an ancient style. For revival does not consist in the mere reproduction of forms or decorations, which may at any time be obtained by a clever copyist, nor even in the occasional appearance of a work conceived in the true spirit of the period which its architect intended to represent, such as the kitchen at Alnwick Castle, designed by Mr. Salvin, a truly original composition, and one which will bear comparison with any corresponding work of the best Mediæval period; but in the establishment of the style in such a manner that it shall be universally and I may say instinctively employed; that it shall not only admit of, but actually suggest, such modifications as circumstances may demand; that it shall never appear to be forced upon the ordinary or vernacular architecture, but rather to flow from it naturally and readily; that so far from exhibiting any tendency to unfit a building for its proper purposes, it shall even seem to render its adaptation to them more complete; that instead of constantly reminding us of its foreign or remote origin, it shall impress us with the feeling that it might be the growth of our own

age and country (and this cannot be the case, if it bears the stamp of a totally different era in the progress of refinement); and above all, it ought to convey the impression that it has been based on practical grounds, and is not the offspring of mere fancy or sentiment.

We know that two styles are asserting rival claims to the architecture of the future. At present they seem to assume a hostile attitude towards each other, and show but little tendency to coalesce, though it is certain that any style likely to grow and flourish, and mark the character of the age, must combine elements possessed by each. At the same time it is equally certain that, to secure that unity which is essential to the very life and existence of a national style, one of them must occupy a superior position, and the other take a subordinate one. These two styles are the Classic, and the Gothic, or Mediæval. We will give each the broadest definition; considering the Classic to comprehend the Grecian, which its scanty remains present to us under rather a severe, if not monotonous aspect, though a careful study of them shows its artists to have been gifted with powers of imagination as vivid and fertile as those which have been developed in any era of human history; the Roman, which combined the Greek with other elements; and the revived Italian, which was introduced about the fifteenth century, and has more or less steadily held its ground ever since. The Mediæval style may be considered to have commenced on the decline of the Roman, in the fifth or sixth century or earlier; and we may trace its principles through the Byzantine, Romanesque, Saxon, and Norman, till it culminates in that Pointed or Gothic style, which sheds a lustre on the thirteenth, fourteenth, and fifteenth centuries.

With which, then, of these two styles does our vernacular architecture best harmonise? From which of them does it, with most propriety, borrow its decorations?

Let us suppose a house front, forming part of a street, to have two stories above the ground floor, each with four windows. This seems as likely an arrangement as any to suit general convenience.

In the first place, we may pay attention to the proportions between the length and width of the windows, and to the breadth of the spaces which divide them. The probability is that we may satisfy the eye in this respect without the least sacrifice of comfort. As to the form of the window opening, there can be little doubt the rectangular is most convenient, when woodwork is required, as it must be in dwelling-houses; and when the ceiling is flat, and the height of the room limited, the contraction of breadth at the top which an arched window involves may cause an inconvenient diminution of light. But if stone lintels are not to be obtained, and brick or small stones are principally employed in construction, then the head of the window must be an arch. This ought not to form a perfectly horizontal line, both as being apt to sink, which produces an unpleasant effect, and as disguising the construction, by giving an arch the form of a lintel. A decided curve should therefore be given; but the less it deviates from the straight line, the less will be the sacrifice of those advantages which belong to the rectangular form. A segmental arch, comprising a very small arc of a circle, is satisfactory to the eye, easily fitted up with woodwork, and unites the qualities of convenience and constructive truth. It is accordingly very commonly adopted, and is equally applicable to the palace, the mansion, and the cottage.

We have now obtained a front not unpleasant to the eye, but altogether devoid of ornament; although the care bestowed upon its proportions and arrangement entitles it to be classed as an architectural composition. How are we to begin if we want to enrich it? There is probably nothing in the internal arrangement to suggest a division by vertical lines, for the partitions between the several rooms may be arbitrary and irregular. The real lines of the building must be horizontal, as it is evidently divided by ceilings and floors into several stages. If the position of these be marked by good and effective string courses, and the whole crowned by a rich cornice, we are at once in possession of a meaning and telling system of ornament which will give the front an air of considerable richness, even if we go no further. As the Classical style is that in which the horizontal line predominates, we shall naturally be led to look to it for examples of such cornices and string-courses as we require; and we shall find that it furnishes them abundantly, presenting us with specimens which for clearness, brilliancy of effect, and the suggestion of constructive truth, are altogether unrivalled. The Roman mouldings, as

applied to horizontal lines, form a most valuable study, and have perhaps more of effectiveness and variety than the Greek, besides being more generally applicable in a style where the Greek element is so much modified by the introduction of others.

But the vertical line, though subordinate, need not be left wholly unrepresented. The termination of the building, where it joins the adjacent houses, may be marked by some kind of pilaster or coigning. The windows, ranged one immediately over the other, leave vertical strips, which may also be marked by pilasters of small projection, in one or more of the stages. The addition of these is right in a constructive point of view, for they give the wall some apparent and a little real additional strength where the superstructure is heaviest. And although the introduction of these pilasters may seem a step in the direction of Gothic, which exhibits the predominance of the vertical line so as to carry out the principle to the verge of exaggeration; yet it is not at variance with the spirit of classic architecture, in which indeed the same principle has sometimes been expressed a little too prominently. The frequent use of the engaged column is perhaps one of the least defensible features in the Classic, both ancient and revived.

Should the engaged column be discarded, or used very sparingly, it becomes a question whether we ought also to discard those parts of the pilaster which give it the air of a substitute for the column—namely, its base and capital—so leaving it as a mere vertical strip. I can hardly think we are called upon to make the sacrifice. If the pilaster preserve, or represent, the proportion of a classical column (for we must look upon the column not only as a mechanical support, but also as an expression of true proportion, and a kind of modulus for the measurement of the whole building), then it cannot be wrong to preserve those features which are necessarily included when proportion is considered. And so far as they give the idea of vertical support they cannot be wrong, since the pilaster does actually add to the strength by which the superstructure is upheld. But where the arrangement does not admit of the columnar proportion, and the full development of the entablature; or where the object is rather abatement than vertical support, regular base and capital had better be omitted.

Again, the edges of the window jambs might have some simple moulding of a durable character, or the windows may be furnished with dressings, by which an effect of depth is obtained. Further, it may be desirable to have projecting window-sills, wide enough to hold flower-pots and the like. These will give an additional scope for enrichment in the brackets which support them; and the more so, as the weight being small, such brackets may be designed with a view rather to elegance than strength. Those in similar positions, namely, under projections of no great weight, present some of the most beautiful curves that we find in the Roman as well as in the revived Classic. A hood, supported in the same manner, may be placed above the window, giving it some slight protection from rain. In buildings of a more ornate character, the hood may be connected with the window-sill by small detached columns, or engaged pilasters. A balcony might also be attached to a window opening to the floor of the room: this will rest on brackets of an unimportant as well as real strength, proportioned to the increased weight. And a balustrade of stone, wood, or metal may be made to add to the beauty and character of the design. These projections give great life and picturesque character to street views in many continental towns.

Now, here we have arrived at a front of considerable richness, and altogether falling naturally into the style of the revived Italian, which will also furnish us with the means of introducing panels of sculpture, or discs of marble, into such parts of the surface as may still be considered by the architect or his employer to be too deficient in ornament. In all this, you will observe, there is no straining at effect; no going out of the way to meet the exigencies of a style; no sacrifice whatever of convenience; the scale of magnificence and, consequently, of expense, may almost be regulated to a nicety: every addition offers itself in a direct, straightforward manner; and the result, to an unprejudiced eye, will be satisfactory, if the composition be worked out with judgment. Of course, a bad architect could, out of the above materials, produce something very tame and meagre; for there never has been, and never will be, a style, the mere adoption of which will be sufficient to ensure excellence; but I am convinced a good architect would bring out a design full of grace and vigour; and, however common-

place its elements, give it the stamp of originality.

Undoubtedly, it is possible to Gothicism, in a manner, such a street front as I have imagined. We may divide it into bays of one or more windows, and mark the division by buttresses, or strongly predominating lines. We may choose the windows up by mullions and tracery, and give them pointed heads; or we may retain the square-headed or slightly segmental window, without mullions; placing over it a Gothic arch against the blank wall, so as to cut the floor-line of the apartment above; but neither these, nor any other devices by which modern requirements are made to conform to Mediaeval architecture, are suggested by the simple primitive arrangement, nor do they show any congruity with it: indeed, it requires some exercise of skill and contrivance to prevent Gothic details from interfering with the comfort of an arrangement which is really Italian.

Had I chosen for my illustration a front of five or seven windows, instead of four, the door would probably have occupied the centre of the ground stage; and the building, arranged symmetrically on each side, might naturally have suggested a Classic rather than a Gothic treatment. The number of houses without much architectural pretension that are so arranged, presenting a symmetrical front, and for whose decorations the architect has instinctively turned to the classic style, shows that the arrangement cannot be otherwise than generally convenient; but, by choosing a composition that does not form itself symmetrically; the door being placed nearer to one side than the other; I would show that the employment of the classical style does not tie us down to so strict an observance of regularity as to involve any sacrifice in point of convenience. It is true that glaringly needless irregularities are offensive; perhaps, more so in Classic than in Gothic; and, in most cases, it is the part of the architect to combine regularity with convenience: the problem is generally one that can be solved in a satisfactory manner; but, where it cannot, as in the case we have been considering, the want of symmetrical regularity is felt to be no defect. An utter disregard of symmetry is not to be tolerated in any architectural composition, be it Gothic or Classic; though an occasional interference with it, whether it be accidental, as when it results from the incomplete carrying out of a design, partial ruin, or change of architects; or whether it be owing to the exigencies of the building; often gives life and picturesqueness to a composition; and there are many incomplete and irregular fronts,—such, for instance, as that of Rouen cathedral,—which we should be sorry to see reduced to a formal symmetry. But, if we build for the picturesque, we must be careful that our aim be not too apparent; for irregularity ceases to possess the charm of picturesqueness the moment it ceases to appear accidental, or forced upon us by circumstances.

We have now to consider the question, whether we ought to have two distinct and dissimilar styles,—one for secular, the other for ecclesiastical purposes. And here I think the advocates of the Gothic revival have taken a more advantageous stand than those who oppose its application to secular purposes; for the latter seem not unwilling to relinquish the Classic style in church building, so long as they retain it for civil uses; while the former contend that the Gothic is the best, not only for churches, but for all structures whatever. In fact, they evidently feel how necessary is uniformity in a national style. I must confess that, if they can establish Gothic as the only legitimate church architecture of the present day, I do not see how their opponents can long resist their claim upon secular architecture also. Churches must be classed among what we have referred to as monumental buildings; and it is clearly adverse to the progress of art that the architect should have to give up his mind to two sorts of composition, both of them of a high order, grounded on principles that in many respects are antagonistic to each other. The dissonance between buildings of different styles, like the irregularities in the same building that I have just spoken of, if they are clearly the result of accident or necessity, as when they actually belong to different periods, is valuable, both as conducive to picturesqueness and as forming a sort of historical record; but when it is no other than the result of caprice, waywardness of fancy, or want of unity among artists, it becomes unpleasant to the eye and perplexing to the mind. Nor can it be said that it is necessary to have one style for houses or secular buildings and another for churches, in order that we may know a church when we see it. Of the thousands of churches that have been built at

different times, whatever may be their style or date, how few are there that would be confounded with secular buildings, and *vice versa*.

The ecclesiastical character depends very little indeed upon style; and it would be possible to build a church perfectly unexceptionable in composition, form, aspect, expression, and general arrangement, without introducing any one characteristic of any recognized style whatever.

As an instance I will notice a Protestant church at Emmerich, near the Dutch frontier on the Rhine. In date it corresponds with that period to which I have referred, as offering something like a national architecture of our own, namely, the reign of Queen Anne. It is of brick, very plain, and devoid of ornament, and worked in rather a meagre manner, the walls being evidently very thin. The plan is a Greek cross, with very short arms, and no arches across the intersection, which might support a central tower or dome: the whole roofing is consequently of wood. This is high-pitched and hipped; only one of the fronts having a low pediment, which had better have been omitted; a wooden cupola or lantern, of a very ordinary description, crowns the top. The windows are round arched, and arranged in two tiers, for the sake of galleries. There is but little detail anywhere: what there is has a classical character. Now I doubt not that an exclusive admirer of Gothic would pronounce this an extremely ugly building, and would wonder what made me stop in the town an hour for the purpose of examining it; but I confess I was very much struck both with its appearance and capabilities. From a distance I saw not only that it was a church, but a very good church; nor was I disappointed on a nearer approach, when I could judge better of its proportion. Had the walls been thicker, so as to give more depth and effect to the openings, I should have considered it really a grand building. There is a church of much the same form, and probably date, at Eisenach, in Germany, having however square instead of round-headed windows, which did not take from its ecclesiastical aspect.

Another church that I may here notice is one at the Hague, which also has high-pitched timber roofs, and a central turret of the same material. The plan of this church comprehends two intersections by transepts, which, as well as the ends, are apsidal. Externally the style is classical, having large pilasters with regular capitals and entablature: internally there are no details belonging to any style, though the open timber roof gives an appearance of richness. It is decidedly a striking object, and well worthy of study. I should think it not impossible to give it a construction which might admit of a stone central lantern or turret. But even our own Dissenting chapels, of the last century, and the beginning of the present, plain and often tasteless as they are, have a certain character which marks them as set apart for religious purposes; and without being different in style (if they can be said to have any) from the houses on each side of them, are easily distinguishable, and leave no doubt with the spectator as to the purpose for which they have been erected. I must, however, rescue from the charge of tastelessness one at York, built I suppose about the middle of last century, and just as devoid of any pretension to style as the plainest of the houses which surround it. It is nearly in the form of a Greek cross, and has a wide and low central tower, giving the building an outline not inferior in dignity to many good Mediaeval churches.

If it were not for the existence of structures which we are not likely again to require or reproduce—I mean cathedrals of the largest class—I doubt whether the Gothic movement would have proceeded with much spirit, even if it had been commenced at all. It is only by such structures that we can be impressed with a full admiration of the style; and any argument in favour of its revival which rests on the impressiveness of such buildings falls to the ground, if it can be shown that such impressiveness is what we shall probably never again obtain, at least by similar means. If this were a cathedral building age, it might be an age in which Gothic architecture could be revived. But it is not a cathedral building age. We may require and build large churches: we may not grudge handsome and expensive ones: we may increase the number and force of choral establishments; but that pile of building which constituted the great cathedral of the Middle Ages, whose exterior expressed dominion over the adjacent district, whose interior suggested the idea of infinity,—this we are not likely again to call into existence;—not because we are as a nation wanting in the spirit of liberality; for large sums are con-

tinually expended in the restoration of our old cathedrals; and, if any one were to be utterly destroyed, I believe it would be rebuilt upon the same scale of magnificence;—but because we are a practical nation, and feel that cathedral building in these days is not the only way, nor the most effective way, of securing and spreading abroad the blessings of our religion,—that an almost unlimited expenditure in mere externals (for cathedral building amounts to this), however it might have been justified in some epochs of the church, is not so in the present, when other necessities and exigencies call for a different application of our means. It is, I suspect, because this is not a cathedral-building age (for this practical spirit is not confined to our own country and our own persuasion), that our genius seems to flag and languish when we attempt what is especially the architecture of cathedrals; while, in our engineering works, we display a power, and, I will add, a perception of architectural propriety, not surpassed in the greatest works of the Romans.*

A FRENCH CONTRIBUTION TO THE QUESTION OF ARCHITECTURAL COMPETITIONS.†

MR. CESAR DALY, who, as it is not known to our readers, has been endeavouring in many ways to turn the recent competition for the Paris Opera-house to good account, has just produced a pamphlet on the general question of competitions in relation to public works and the progress of architecture, which deserves the perusal of English architects. From the experience in France, which is limited to very few cases, supplemented doubtless by his knowledge of much of what transpires in England, Mr. Daly has deduced arguments in favour of competitions, which certainly are of considerable importance. Without expressing an opinion of our own, we would treat his conclusions as the more deserving of attention because he arrives at them whilst regarding competitions in which the number of competitors is not limited, as essentially preferable to those of the other description. He replies with much force of reasoning to the objections usually made, and finally arrives at the question of the composition of the jury, which he rightly regards as the pivot upon which the whole of his case would ultimately turn, and respecting which he makes suggestions of great value. He has, nevertheless, omitted one point to which our own experience leads us to attach importance; and, speaking for English architects, we should be only glad to reap the advantages of his opinions after taking that element of the question into account. We will at once indicate what the omission is. He makes no provision for ensuring by recompense which would be necessary, that devotion of time and labour, great in amount, which he would admit to be requisite to the satisfactory issue, or to that mode of examination and adjudication which he has sketched out. He has really left little else unsettled; whilst he either has argued in favour of, or shows that he would do so, many arrangements for which we have been for years endeavouring to stipulate, but with little result—even in inducing expression of a claim by architects themselves. Thus he well states the necessity not simply for a public exhibition, but one open for several months, and as the means alike of advancing the public interest in architecture, along with the art itself, and conducing to some return to the competitors not rewarded by premiums or the selection; and it should, further, only have been perceived, that this ordinarily requires greater space than is available in the principal room of a Town-hall, or indeed anywhere except at the Palais de l'Industrie, or the Crystal Palace. Had our friend the opportunities of visiting exhibitions, that fall to our share in England, he would feel, moreover, that the matter of exhibition-space is connected with the performance of the jurors' duties, or as we have often pointed out, that with the greatest anxiety on the part of competent judges, it comes to pass that the examination has to be made in a cold, dark, and dirty room, which the town's business allows to be spared for a day or two,—the drawings packed from floor to ceiling,—sheets

* To be continued.

† Des Concours pour les Monuments Publics, dans le Passé, le Présent, et l'Avenir, par M. César Daly, Architecte du Gouvernement, Directeur-Fondateur, et Propriétaire de la Revue Générale de l'Architecture et des Travaux Publics: dédié à M. Prosper Mérimée, Sénateur, Membre de l'Académie Française et de l'Académie des Inscriptions et Belles-Lettres, Inspecteur Général des Monuments Historiques, etc. 8vo. pp. vi. 47. Paris: aux Bureaux de la Revue de l'Architecture, Place Saint-Michel, 8: 1861.

belonging to one design mixed with those of another,—and that in the presence of such disadvantages, justice is almost impossible, and often greater attention is given to a design which may have fallen into a particular place, than would have been otherwise. Well hung, comparatively with this point of view, as the designs for the Opera-house were, all were not on equality; and it could not be otherwise on the most favourable view of any case as it might be supposed occurring in Lyons, Rouen, or Marseilles. Perhaps Mr. Daly can call to mind, what we do not happen to recollect, whether, in a case which he has omitted to name, that of the competition for the cathedral at Lille, the exhibition was, or might have been, managed, so as to secure his objects. If the public competition system were carried into general effect only in the case of the more important works, as the principal structures required in Paris, we could understand the probability of a government like that of France, taking the course for securing a good decision in those cases; but since it is part of Mr. Daly's object, and is necessary to his extended view of results, to include the works of the provinces, the difficulty in which the subject is still left can be understood by a comparison with the facts of the number and results of competitions in England. We are always very far from hinting an imputation on the manner in which professional judges perform the duties which are delegated to them, in England: we believe such architects to be as competent and upright, as are in their duties the judges at Westminster Hall; but, for proper devotion of time, they would be entitled to remuneration far exceeding the whole sum offered in premiums; and since they not merely do not receive this, but, besides being restricted and hurried, are surrounded with difficulties, the results are reflected in their decisions, perhaps most generally in the award of the second and third premiums, to an extent of which they may be themselves unconscious, but which we have every reason to say would entail upon Mr. Daly, or those adopting his argument, the necessity of providing against the contingencies referred to, by a scale of recompense which is deemed necessary with other able and upright judicial functionaries. If any scheme of a competent and well-paid judicial commission, or several commissions, be workable throughout France, we should be only glad to see the system adopted in England. It might be the cheapest course: but, in this country at least, it is very difficult to demonstrate to any government, or self-appointed authority, how much of preliminary arrangement and outlay is needed, to the end that the work produced may answer the objects, and be creditable to the arts of the country.

Mr. Daly's pamphlet is the result of an "ardent desire" to organize means for giving greater animation to the fire, which, he sees, is too much deadened, of contemporary art. He asks, as to architecture particularly, whether what it has gained in science it has not lost in poetry; whilst he asserts that the mass of the population do not take in it a sufficiently active interest; or that it is even more frequently foreign to them. He says:—

"What is to be done in order to infuse into this art which languishes a greater vitality, to dissipate this lethargy of the people, to excite at once public attention and the emulation of artists, to provoke the emission of new and boldly expressed ideas, to bring out of the shade unknown talent, to have the spectacle of new life in architectural thought, to stand periodically before the picture of the efforts of modern art seeking to disengage itself from the shackles of the past without repudiating its useful lessons?"

There is doubtless not, of agents, one which exists alone, for obtaining such results, but I have signalled urgently, one of the most potent levers for removing those difficulties. It is the system of public competitions substituted for the trust, sometimes blind, of administrations.

I believe to have taken count of all the objections arrayed up to the present time against this system, and I believe also to have answered to them victoriously."

The competitions in France which Mr. Daly enumerates are, that for the tomb of Napoleon I.; that of 1848, for a figure of the Republic; an attempt made in 1852, having reference to the construction of *gîtes ouvriers*; an impromptu contribution of designs for the Halles Centrales, and that for the Opera-house. He alludes only to some others; but we gather from what he says, that they were cases in which the competitors were few, and selected. The competition of 1848 failed, he shows, because the artists in the excitement of a victory, had not their minds in a fitting state for the conception and expression of the true character of Liberty. In the case of the Halles, the official architects, able men albeit, had taken a wrong route; when the spontaneous move-

ment of others became a veritable competition which was the means of setting the question, he says, in the true light. From this last statement we must express dissent. It seems to us, after looking at the vast sheds, of not very tasteful design, which form the main portion of the Halles, and are in process of extension; and looking at the building, with more elegant details, in masonry, which is about being destroyed, that the question was placed only in a different light. Utility was not attained in the one—following the opinions of those best able to judge: we cannot think that the beautiful is reached in the other. Both mistakes are the parallel of those made by architects and engineers in England, and displayed on the occasion of each invention of a process of art-manufacture. It is the same mistake as that which has produced the most unsightly effect in all Paris, the effect of the roof of the Palais de l'Industrie; a building of which the masonry exhibits some really excellent ornament. New or special wants, and new inventions, have not yet found the art needed,—the art which is pliable, and ever ready, of full expression in harmony with whatever demands.

Our author afterwards treats the question:—Why has the system of competition met with little favour from administrations, and what may be called the patriciate of artists. He shows the former have a responsibility, and must be guaranteed against incapacity: whilst, as regards artists of reputation, their feeling is very natural; and it is not necessary to impute to them any want of power. Those who do compete are entitled to our praise; but the author asks whether it is not obvious that in such cases the reputation may be increased? Limited competitions, proposed as furnishing the guarantee to the administration, and lessening any feeling of humiliation in defeat, along with a proposal for "*avants-projets*," and a subsequent limited competition, the author discards as inconsistent with justice, the public interest, and art-progress. An honourable mention would be a sufficient compensation to a young man, not otherwise successful: or, as we may ourselves add, there would be results provided there were the well-organized exhibition. The fundamental reproach against public competitions, that they repulse artists of celebrity, is examined carefully. The fact is mainly admitted; but it is shown that past experience of a want of "loyalty" in the intentions of administrations has to do with the cause. The instance named is that of the competition of 1841, for the tomb of Napoleon I., on which Mr. Daly animadverted in his "*Revue*" at the time. At the present time, the administrations might, he thinks, demonstrate that they were actuated by a different spirit. He alludes to the fact of assistance given by official architects in the preparation of "*programmes*," and other arrangements. He thinks that the "*programmes*" might be more carefully prepared (we do not know whether he feels with us that the minute instructions generally act counter to the intention of a competition, as he well explains that intention); the time given might be made sufficient, and not afterwards required to be extended; the guarantee of a competent and impartial jury need not be wanting; and the attraction of recompenses might be *en rapport* with the sacrifices imposed. Some established architects having competed whilst the system is in a bad state: he thinks that the co-operation of all might be looked for in the future, provided competition were universally appealed to: the incapable might be spared; the men of ability could not refuse. Next as to the administrative responsibility: all satisfaction on this point might, he thinks, be obtained by reserving the right of refusal where the rewarded artist could not prove his competence, and by making an addition to his premium, or by joining with him an experienced architect. The required addition to the premium would be a check on the other side, against the administration. The competition for the monument of the Republic having not answered, because through it was made a demand for solution of a problem containing impossible conditions; and the case of the Halles having shown how a capital error could be recognized and rectified through competition; that of the New Opera-house has gone to show how competitions might serve another object, that of stating periodically and fully the movements of architectural thought. The Classicists and the Gothicists showed themselves in the last case, abandoning servile reproduction and architectural superstition: the bond between the past, and the art which is to come, is the present *eclecticism*, not the end, but the road leading to it. To arrive at the promised land are needed, three guides,—

"Liberty in the present, respect for the past, and faith in the future." Had the recent exhibition, he continues, no other result than that of having shown all the schools of French architecture converging upon the field of Eclecticism, the light cast upon the situation would suffice alone to prove the utility of competition. Houses, constructed, in which a return for money is in question, cannot be looked to for such an important office; neither are the means existent at the Ecole des Beaux Arts. The chapter of Mr. Daly's pamphlet in which this part of his argument appears, and the concluding chapters, deserve careful reading. Of the value of such exhibitions as he contemplates, his ideas are quite in accordance with our own.

As regards the composition of the jury, the author puts forward ideas, rather on the principle than as embodying perfection. He would have the different interests of schools and persons represented. Thus, seeing that there are now the Young Classicists, the Gothicists, and the Eclecticists,—with an advanced guard of seekers and utopians, and a rear of Old Classicists; since there is the "*art officiel*," and the "*art libre*;" since there are the interests of the administration and the competitors; and since there is a general interest of art, opposed to that of the schools; he therefore proffers as "*proposition élastique*," a jury, under presidency of the Minister or the Prefect of the Seine, composed of thirteen members;—namely, two to be elected by the "*Institut*," Ecole des Beaux Arts, and the Conseil des Bâtimens Civils, amongst them, under the idea that there would thus be represented the Classic school and the conservative spirit; one member by the "*Comité des Monuments Historiques*," for the Gothic school; two members by the "*Société Centrale des Architectes*," who would probably not be of the Institut; two administrators and two authors, or *dilettanti*, by the administration; and four, elected under absolute liberty by the competitors. This jury would procure the assistance of those specially acquainted with the uses of the building in question, as might be needed. A jury so composed would, he thinks, not offer the disadvantages of such bodies generally, where responsibility diminishes according as the number of members is large. In considering the mode of proceeding, at the meetings, he recommends the reading of written reports upon each of the projects reserved; and these would be printed in the *Moniteur* with the collective Report. Such publicity, he remarks, would have the happiest results on the progress of art, and would ultimately form a valuable body of history.

As regards the provinces, something more is needed, he shows. The especially local influences have to be guarded against, in one sense; whilst the local wants should be represented.

We again commend the arguments of which we have endeavoured to give the heads, to the consideration of all in this country who take an interest in the question of competitions. Mr. Daly has been a more active pioneer in the early march of the art which he is now able to see arising out of the schools, than the present generation of architects in France may be altogether aware of: for, it takes much writing to get a point advanced; and when the "promised land" is reached, the hand that wrought and the head that guided to the result, may be forgotten like a "leading article," or cased in the hidden monument of "back numbers."

WHAT ABOUT THE LABOUR QUESTION? *

[From the French of M. Chevalier, Member of the Institute.]

THERE are some reforming aspirations we refer to with regret, but which we must, nevertheless, cite, because the history of our times will not fail to register them. Such is the project provisionally adopted in some workshops of suppressing piece-work, and of making every one, indiscriminately, work by the hour or day. Bad workmen must gain by such a system; but skilful and industrious hands, fathers of families, who, spurred on by their love of family, are accustomed to enter on small undertakings, and carry them out to a profitable end, can only lose by it. It is a violence which the man with small claims on our interest wreaks upon him who is entitled to our esteem and solicitude. Let me add here, that I wish I could tear out from the annals of French freedom, the page on which inflexible history has written, how, in an access of savage patriotism, Frenchmen required that English workmen,—their brothers,—

* See page 317, ante.

should be sent out of the country, and,—worse,—had their demand granted!

The Organization of Labour.

IF I were permitted to epitomize "the organization of labour," as understood by M. Louis Blanc, in a few lines, I should say it consisted in the following innovations:—

1. The putting down of all competition.
2. Absolute equality (except during a transition stage) for everybody, without reference to each one's ability or industry.
3. The abolishing of all profit on capital beyond the legal rate of interest.
4. The election of chiefs and under-chiefs of all works, by those under them.

I believe in my conscience, that there is sufficient in this epitome to enable any one to adjudge it who possesses the least knowledge of the life of our workshops, or who knows anything of the human heart, and the springs of human action.

With such an organization of labour, production would rapidly slacken: there would be less wealth to distribute, and in consequence very much more misery.

It is easy to see the cause: nobody would be directly interested in putting himself to any inconvenience: nobody would be urged on by the rivalry of his neighbours. M. Louis Blanc believes that his "social workshops" would be endowed with an immense power of expansion, and that no existing industrial undertaking could sustain for any time a contest with them. I appeal to everybody who has been at the head of a workshop. I will at once admit myself a convert to the new theory, and become its enthusiastic apostle if there be found three among all the inhabitants of Paris, accustomed to its industrial habits, who will maintain that a workshop conducted on such principles, could sustain general competition, or last three months without becoming bankrupt.

An absolute equality in distribution without reference to work, would be an immense injustice. M. Louis Blanc has adopted the principle, because he believes that a sentiment of duty is a sufficient spur to induce me to carry on industrial works with skill and assiduity. This is his capital error, an error which does him honour, since he derives it from a bosom so devoted to the public welfare, but an error, nevertheless, which is truly remarkable in one who has studied morals and history. Industry, like all other social institutions presupposes certainly the sentiment of duty. But it supposes also still more the sentiment of personal interest. Both law and religion recommend a high sense of duty, and do honour to the sacrifices we make for it. Society would soon be one mass of corruption, if self-sacrifice and abnegation failed to receive the homage of mankind. Erect statues, then, to Cincinnatus; make offerings of palms to the martyrs; but do not fancy that in the customary accidents of life, in matters that but touch the dimmer-tale, mankind as a body imposes upon itself the reproduction of virtues which great and gifted men have evidenced but on solemn occasions—this one on behalf of his country's safety, that in the presence of the Deity and under the impulse of an exalted feeling of religion. In every day matters men follow the bent of their interest. The human heart is so fashioned. "So much the worse for the human heart," will say M. Louis Blanc. No! So much the worse, rather, for your plan.

"But you mistake," says Louis Blanc. "By my plan every workman is interested in producing quick and well." Yes, certainly; the entire mass of workmen, in its indivisible unity, is interested in an abundant production, and in having the products good; but nobody is personally interested in being zealous and laborious, for the individual cannot turn to account the result of his personal exertions; he only receives the ten-millionth or the hundred-millionth part. It is as though he received nothing. This system annihilates human personality, by sinking it in a confused Pantheism. It makes of each of us what the penal law makes of the convict—a mere number.

Industry belongs to the domain in which grow all our individual sentiments. The spring of production is individual interest excited by personal compensation, and made apparent by competition, just as capital may be said to be its wheels, and it is for this reason that by suppressing individual interest, you disorganize industry in the same way as you destroy a watch by withdrawing from it its spring.

Believe me, we cannot do better than leave in its place every sentiment inscribed by nature on the pages of the human heart. Do not displace

them; you might as well transfer the plants of the tropics to the icy climate of Greenland. Ask not that the sentiments which animate us in the public forum when discussing the interests of the country, or in those solemn moments when our thoughts are absorbed in the worship of the Supreme Being, shall accompany us, and alone influence our thoughts when occupied with our every-day business, and when intent only on our personal interests. The thing is not to be had. It never was so, never will be so, simply because it never can be so. Even Cincinnatus, the model of patriotic disinterestedness, when he sold his grain, probably tried, like anybody else, to get a good price from the purchaser. The first Cato—the man of duty as a politician—was, in his private affairs, very careful of his interests; and St. Paul, assuredly a man of self-devotion, would have shown perhaps less alacrity when making his tents, if he had not felt that his daily bread depended on his daily labours.

True equality, that which our fathers proclaimed in 1789, amid the applause of the whole world, owns nothing in common with the phantom which is often offered to the eyes of a bewildered populace. "The French are equal" means that the French nation is one, that public distinctions appertain to talents and service, whatever may be a man's birth. It means that the State owes to all interests an equal regard; that it is bound to protect equally the lands of the soil, the income of that, and the work of that third who has neither lands nor income. The meaning of this generous and fruitful equality is, that by the education it diffuses, the State should prepare every citizen to be useful to society and to himself, and that a vast and liberal system of national teaching should seek out in the hamlets no less than in the cities, under the thatched roof and in rags as in the palace under broadcloth, the superior natures which society so much needs, to develop their powers, and to make them worthy of becoming the depositaries of our country's destinies. But the notion of submitting the whole of society to the same sort of material existence, whether we have to deal with the highest state functionary or the lowest farm labourer, is one of those illusions which can scarcely be tolerated to a young collegian whose imagination raves about the black broth of the Spartans at moments when he is out of his refectory, and under no feeling of hunger. Just fancy the President of the American Republic, instead of occupying the splendid palace of Washington's successor, lodging in a numbered attic, like some impoverished workman, eating the common pittance from a common mess-tub, seeking his relaxations from public cares in some public playground in games that amuse the mass! Just conceive him pondering upon the gravest interests of the country amid cooking utensils, washing-tubs, and squalling children! Surely such an equality would be but the degradation of all that is high and noble on earth.

This system, like a great many other ideas that have of late been floating on the surface, is but a passionate reaction against our old inequality. It would set up the oppression of superior natures by common ones,—of active, intelligent, devoted men by egotists, fools, and idlers. To use an expression which has been sanctioned by the Provisional Government in 1848, it would be the "exploitation" of good workmen by the bad. It was surely not for such a result that we achieved the revolutions of 1789 and 1830; and certainly it should not be the ultimate aim of the revolution of 1848.

That competition secures cheapness is a fact everybody admits. And what does cheapness mean if not the emancipation of the poor? Competition is the spur of industry; it is by competition that we discover and introduce into general use the improvements so essential to the mass of society. Suppress competition, and the fierce activity which is the characteristic of modern industry, will give place at once to torpor and apathy. Competition is the industrial side of liberty,—that holy liberty for which our fathers were so enthusiastic in 1789, and which they conquered at the price of so many sacrifices and heroic labours.

But, according to M. Louis Blanc, competition is the scourge of society. According to him, not only is competition mischievous to the workman, but fatal also to his employer. Competition, it must be admitted, has its evils. The arena of competition is strewn with ruins. How many reasonable expectations have been there disappointed? How often has the future of families been there annihilated? I do not pretend to conceal that I deplore all this. But has not liberty, too, had her disasters? Her sacred soil

has been profaned by many an infamous act, stained by not a little of innocent blood. The guillotine was erected to honour, to hallow her name—for have we not heard of St. Guillotine? Atheism was for days enthroned in her precincts, and monsters worthy of the execration of the human race reigned supreme. Must we, therefore, hold liberty accused? Then why shall we hold the principle of competition responsible for the falsehoods and misconduct enacted in its name?

Men abuse everything—the best things and the finest principles: but we are also abusing ourselves, if we lend ourselves to the illusion that we can ever arrive at the Social System except through crime and violence. The earth will always have its good and bad. The important is to see that the good are not systematically sacrificed to the bad, and that, on the contrary, what is right shall triumph over evil. Now, everything considered, this is what takes place when industry fights under the standard of liberty or of free competition; for I cannot too often repeat that competition is but the industrial aspect of liberty. Competition acts as a spur to urge on society to a state of things where the quantity of products shall be sufficiently great that each may have the part which humanity assigns. It is under its pressure that all industrial improvements spring up, and the specific and absolute characteristic of every industrial improvement is to multiply the products arising from the same amount of labour. The spur is sharp, and at times inflicts cruel wounds: but it is for us to see how far it is possible to render these wounds less painful, and to heal them without blunting the stimulus, or stopping for an instant its beneficent action. To suppress it, as M. Louis Blanc proposes, would be simply to decree an eternity of misery for the majority of society. The onward progress of industry would be pulled up short.

Neither as a people nor as individuals must we flatter ourselves that we can erect on this earth homes of pleasantness, where we may pass our lives in a delicious sleep, blessed with a succession of happy dreams. We are here to do battle: to live under constant test: and progress is the result of those trials and contests. For society, I will not say to progress, but to subsist, the social system must be conformable to the fundamental conditions of human nature.

It remains to be seen whether we may not limit the proportions of that evil which we just now admitted as the offspring of unlimited competition; and I must confess myself delighted to enter at last an arena in which I can occupy common ground with the mass of Socialist authorities, and it may be, even with M. Louis Blanc.

I have insisted on the necessity of upholding competition in the interest of the workmen themselves; but it is no reason because a principle is good, or even excellent, that we should follow it blindly to its furthest consequences, without looking at what we are doing. Those who are charged with the public care of society have to keep in view many principles with equal claims on their regard, but which, while appearing to exclude one another, are each entitled to their fair action. We may, thank Heaven! balance one against another: even the principles which apparently exclude one another, and employ them as, in mechanics, we employ forces more or less divergent, but which resolve themselves at last into a single force—the result. Just as political liberty must be married to the principle of order, without which it is exposed to serious backslidings, so we may provide against the more prominent evils of competition, by applying to it a principle which has been so justly lauded by all the schools of Socialism—I mean the principle of association.

Thus M. Blanc is quite right in recommending workmen to live in common if they would have the full fruition of their labours.

The associative system, when applied to consumption, gives a very remarkable economy, and with the same amount of resources gives a much larger amount of well-being and enjoyment. By association the means which, isolated, amount almost to destitution, may be made to supply a very tolerable existence.

But this is not the only benefit we may derive from the principle of association. Association is possible even in production; nay, it is there more desirable than even in consumption. Before entering on any explanations on this subject, I feel the propriety of showing that this is no temporary concession to the growing feeling on the subject. So far back as 1841 I thus expressed myself:—

"The task of the dynasty at home—a task both long and difficult, worthy of occupying generations of kings and statesmen,—is the organi-

zation of labour, if I am permitted to use a phrase which has been so largely abused. This liberal and organizing policy is opposed to the warlike system. It necessarily supposes peace; and is possible only by peace."

But this organization of labour, what is it, and what can it be? It is not the organization of Louis Blanc, for, as I have shown, ends in feebleness and tyranny: in feebleness, since, instead of multiplying products, it limits the quantity by breaking the very spring of production; in tyranny, since higher natures would be coerced, enslaved, used to others' purposes, and the drones of the hive obtain a right to enjoy the honey painfully collected by the industrious bee. The true plan of association should have for its essential basis that the wages of individuals must depend on the number and extent of individual services.

"Be more precise," the reader will say: "time presses, and the house is on fire."

I do not believe in the general conflagration some threaten us with, for our workmen must feel that, if so extensive, it would consume everybody's ruin, that of their own included. On the other side I must confess that I look now in vain to find anywhere a plan which may present us in a fit form this organization of labour. We shall reach this discovery, but as Columbus discovered the New World after praying in vain for a ship, and then undergoing long and perilous navigation. The task is difficult, and will hardly be achieved except in the course of generations.

But though there is no plan yet out after which we may venture to regulate workshops and fix the rights of every individual concerned in them, let us not therefore despair, nor make ourselves out poorer than we are. And first of all, let us clearly define what we are about, and understand fully what is this "organization of labour."

This phrase, which has attracted to itself so many vague and earnest aspirations, has never been clearly defined by those who have made it fashionable, and it is to this circumstance, perhaps, that it owes a great part of its success. Mankind, and especially the unfortunate, attach themselves by preference to whatever is mysterious, because their exalted imaginations see amid the clouds which envelope their idols whatever may soothe their woes or turn them into joys.

The organization of labour, taken in its fullest sense, consists in such a system of institutions as offer the labourer an effective assistance in all the positions which he has to pass through from the moment of his birth to his death. It is, then, not only an institution by whose favour his labour in the workshop is secured a fair recompense, but also all that is necessary to protect his infancy, to shape his youth, to encourage his manhood, and to shelter his old age. Well, our modern society, which dates but from 1789, and took then a motto it should never lose sight of,—*liberty*,—offers numerous elements for filling the compartments of this vast edifice. We have for infancy the *crèche*, the *salle d'asile*, and the school; and we have for youth the school, apprenticeships, and the legal inspection of the labour of minors. For the industry of a ripe age we have a great variety of tutelary agencies,—savings banks, benefit societies, prompt, impartial, and cheap justice by the agency of the *prud'hommes*, gratuitous courses for adults, &c. All, however, I will say on this matter is, that since 1789 we are in the way, and as yet only in the way, of forming an organization of labour worthy of the envy and admiration of our neighbours.

As to workmen sharing in the profits of the establishments which employ them,—a matter in which many consider the whole question of the organization of labour to consist,—I hold that the question involves a revolution in our manners. I admit that political revolutions, when they attain the excellence of their aims, introduce into manners transformations of a corresponding character. I think it possible, then, that this sort of participation may settle itself into our national customs; but it will require great caution to save it from impairing the just rights of property. I shall not essay, even vaguely, to indicate the extent of this participation, nor to point out the conditions or forms it ought to take, so that it might assist the improvement of the arts, and keep within the attributes of that equity which is as much the interest of workmen as it is the right of their employers. These are problems which I confess to be beyond my powers.

But certainly this participation is destined to change the character of our industry by changing that of the mass of our workmen. It will give the latter a dignity, a love of order, a regularity of conduct, to which they would not be likely to

attain in any other manner. The silent warfare which often exists between master and man, and which produces so many disorders, so many little injuries, so many losses of active concurrence, will then disappear as by enchantment; and it is especially these motives of moral, political, and social order which induce me ardently to desire that the principle may prove successful.

Workmen must not, however, expect immediately from this participation any considerable increase in their wages. Though it be unquestionable that the association of all who are engaged in a workshop, from the chief manager to the humblest drudge, should have the effect of ultimately making our industry considerably more productive, it is not less true that time is a necessary element in the amelioration. So long as capital shall differ little from what it was, so long as the quantity of products shall not be sensibly greater, the wages of the workman, composed of a fixed salary and of the addition arising from a participation in the profits, must differ little to-day from what it was yesterday. This is inevitable so long as liberty exists in society; and if we attempted to violate it, the workman, far from gaining an increase, would find himself a loser, under that logic of events stronger alike than armed mobs or decreeing governments.

And while speaking of the influence of capital on labour, let me say here, that our administrative system, among other defects, offers us that of being "regulative" to an excess. With great pretensions to liberty, we are the people the most under regulations as to our industry, and therefore the least free, in Europe. A compact despotism sits over France in the shape of administrative ret-tapism. The despotism of the bureaux is becoming every day more flourishing; and the last thirty years have established its roots deep in our soil. We are obliged to give it an account of all our projects, and to ask from it a permission for all our acts. It hears our prayers with indifference, turns and turns them again, and at its own convenience sends them from one office to another; it exhausts our patience, condemns our activity to rust, and makes us hopeless about the most legitimate of our projects. A few years ago somebody published the series of formalities necessary for a proprietor having a field bordering a river to obtain leave to keep a small boat. From forty to fifty despatches were necessary; and in following the given routine, a time was consumed equal to the siege of Troy. This monstrous abuse of centralization and of our regulation mania is of infinite mischief to the public future. It is, besides, opposed to all political liberty; but, to confine ourselves only to its material effects, it is enough to say that it robs us of half an hour or an hour daily on eight or nine hours of useful labour. The result is the same as if we stripped society of an eighth or a tenth, or at all events a sixteenth, of its capital,—of that which gives us wealth, ease, and subsistence. Let every reader draw his own conclusion.

Another view worth our reflecting upon. Wages may be translated as so much satisfaction of our wants; for the workman does not labour for the satisfaction of handling a piece of money which represents his labour: it is to eat, to drink, to clothe, or lodge himself. If salaries cannot be augmented by law, it is certain that, by fiscal regulations, we can diminish the amount of articles of first necessity which he can procure in exchange of his wages. The effect is the same as if the salaries were diminished, or as if a law were in force, which confiscated and sank at the bottom of the sea a part of the capital which feeds the industrial activity of the nation.

I have insisted already, that the skill of the labourer, his zeal and his taste, are rare and precious portions of the public capital. Lyons, through the munificence of two of its citizens, M. Eynard and Major-general Martin, is enriched with a school, where an admirable mode of teaching and excellent plans of studying tend to secure the population these priceless advantages. It would well become the Government to give each of our great towns similar institutions.

Let me repeat, then, in conclusion, that all these improvements can only be secured by the cordial concurrence of all classes, and under circumstances at once opportune and well defined. They are like those beautiful crystallizations, with regular prisms and delicate pyramids, which require for their formation perfect calm, and which any disturbance would at once reduce to a shapeless mass. Let me give our workmen a word of advice. There was a nation whom God chose for His own to make them His chosen people. They had been enslaved by the Egyptians. God broke their chains, and promised to lead them into the

promised land; but He kept them forty years in the desert, in order to prepare them to enjoy worthily the milk and honey which the land of Canaan was to give them. We, too, have an intermediate station, where we must all rest before reaching the great ameliorations we are all aiming at, and which, it is to be hoped, will make France the model of the nations as regards the well-being and respectability of the working-classes. Patience is the quality of the strong; impatience is that of infants.

And if there be persons who aim at exciting your discontent in the wish to precipitate improvements, or the changes they mistake for them, seeking them at any price, even at that of overthrowing the principles on which societies have always been based—property and family,—let us answer them with the words which a workman, who afterwards became a distinguished statesman and philosopher, Franklin, addressed to his fellow-citizens:—

"If anybody says you can enrich yourselves in any other way than by industry and economy, do not hear him: he is a public poisoner."

LIVERPOOL ARCHITECTURAL SOCIETY.

A GENERAL meeting of the members of this Society was held on Wednesday evening, 15th; Mr. James M. Hay, the president, in the chair.

Mr. W. H. Pictou, the secretary, read a letter from the Architectural Association, enclosing copies of resolutions unanimously passed by the Association, and expressing a hope that the Liverpool Society would see the desirability of united action in reference to the architectural department in the forthcoming Great Exhibition.

Mr. Horner moved—"That this Society fully concurs in the views expressed in the resolutions adopted by the Architectural Association now read, and will be happy to co-operate in promoting the due representation of the art of architecture in the proposed Exhibition of 1862; and will gratefully accept the good offices of the Architectural Association as a medium of communication with the commissioners for the Exhibition."

Mr. Justin seconded the motion, which was unanimously passed.

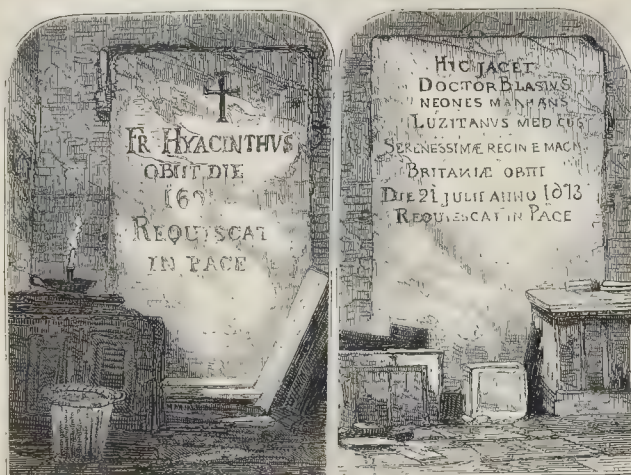
The President said, the next subject would be the communication from the Northern Architectural Association, suggesting an architectural alliance or union of the various societies throughout the kingdom.

Mr. W. H. Pictou read the letter from the Northern Architectural Association, which stated that they had received favourable replies from every society with which they had communicated; and that they hoped, if the Liverpool Society approved of the outline of the proposed alliance, they would send delegates to the conference to be held in London, on the first Tuesday in June, to consider the details of the scheme.

Mr. Boulton moved—"That this meeting cordially concurs in the general desirableness of forming an Architectural Alliance on the basis sketched in the proposals of the Northern Architectural Association." After much discussion *pro* and *con*, the resolution was carried.

HIGHBURY BARN TAVERN.

THIS well-known place of amusement, at the northern end of Islington, has undergone a great alteration during the last two months, since it was given up by Mr. Hinton. The interior of the tavern has been scooped out, and a different and enlarged inside given it, to meet the elasticity of public patronage. The grounds are much reduced; and yet, at first sight, owing to the manner in which they are laid out, there does not appear that reduction that would be supposed, when we say a roadway has been taken out and runs down the centre of the property, one side of which is to be laid out for building on: in fact, three shops are already commenced. The new road necessitated the pulling down of the large dancing-saloon, which was constructed entirely of timber framing, and externally covered with lath and plaster. The new proprietor, Mr. Giovannelli, has had this saloon reconstructed; but the Building Act not permitting the former external work, and requiring too great an outlay to make the walls of brick, on account of the height, it was determined to enlarge the room by adding aisles all round, and continuing the line of roof down; consequently lessening the height of enclosing walls considerably. This saved expense and time, and gave a larger room. The roof is supported with timber uprights, finished as square columns, with caps and bases,



Remnants of old Somerset House.

and these divide the room from the aisles; the floor of the latter being a step higher than the former; adding more to the effect than otherwise. The room is about 114 feet long, 72 feet wide, and 46 feet high, and communicates by a large opening with the old dining-saloon. Mr. Clarke, of Green Lanes, was the builder; and we must give him credit for the rapidity and cleverness with which the whole has been done. We must give the foreman of carpenters, too, a word of praise, for the skill and practical knowledge he has shown in carrying out a difficult piece of work.

RELICS OF OLD SOMERSET HOUSE.

PRESERVED in the vaults below the quadrangle of the present building are the monumental slabs which form the subject of the annexed engraving. Entering the Audit Office, on the east side of the square of the present building, from the level of the Strand, we descend by a deep staircase to vaults of such strength as to cause an impression that time will be of little avail in its action on them. An area extends round the square, and one sees with surprise what a great height of this building lies below the Strand. It is a long walk round to the western area. In all directions are vaults filled with stores of coal and other commodities. In one of these, lumbered up with old wood-work, there are fixed in the wall six tombstones which formed part of the pavement of a private chapel which was licensed for the use of the household of the queen of Charles I. The inscriptions on the stones show that the place was used as the burial-ground of Roman Catholics.

At the building of the present Somerset House these stones were placed in the position in which they now are; and they are, probably, all that remains of the Somerset House of the past.

The oldest of the slabs, not drawn, bears the following inscription:—

"Cy Gist le corps de defuncte
Catherine Guiermet vivante
Femme Jehan Bivetez
Potage de Reyne de
La Grand Bretagne laquelle
Deceda le vii. May 1633.
Priez Dieu pour son ame."

COMMISSION ON THE EMBANKMENT OF THE THAMES.

THE Royal Commissioners have been holding meetings and examining witnesses during the last week or two. At one of the recent meetings, the plans of Mr. A. Brooke, C.E., Mr. E. B. Walsley, Mr. Weller, Mr. C. Aicken, Mr. Bardwell, and others, were considered; and the next was chiefly occupied with the plan of Mr. Bird, C.E. Mr. Bird explained that his scheme consisted of an embankment with a railway, docks, &c. The embankment was proposed to be on the north side, from Westminster Bridge to Queenhithe Dock. The embankment would be 3 feet above Trinity

high-water mark, with wharfs, a road, and railway. The docks to be retained within the embankment, the water level in them to be maintained by a compensating reservoir at Fulham. A railway to commence at Queenhithe Dock, passing under Blackfriars, Waterloo, and Hungerford Bridges, and then passing at the end of Manchester-buildings, through Parliament-square, up Victoria-street, in a covered way, to join the Victoria station of the London, Brighton, and South Coast Railway. The estimated cost of the works would be 700,000*l.*, with borrowing powers taken in the Bill for a million. He proposed to form large docks near Waterloo Bridge, Temple Gardens, and Blackfriars Bridge, for the accommodation of the barges, instead of lying in the river. He also proposed to form what he called a "compensation dock" on the Middlesex side of the river, opposite to Battersea church. That dock would cover a space of 22 acres, and he proposed that the water there collected should at times be let out so as to increase the scouring power of the river. The cost of the land and walls were all included in the estimate he had put in. He did not think that any space taken from the width of the river below Blackfriars Bridge would be permitted; and to meet the trade, which was very large up to Queenhithe, he proposed to erect a river wall, which would give accommodation to the owners of the wharfs to carry on their trade there. It would give the wharfingers a dock in which their barges could lie out of the wash of the steamers, and yet enable them to get out when they required. In forming his plan he had consulted the wharfingers, who carry on a large trade about Paul's Wharf, and they told him that if he could form a dock there they would support the plan; but if not, that they would oppose it by every means in their power, as it would entirely spoil their trade. He proceeded to explain his scheme by reference to numerous drawings. With regard to compensation to wharfingers, he had made a provision in a Bill to be submitted to Parliament, by which any land embanked should be made over to the occupiers, reserving the right of entering upon it for the repair of works. He had put down 700,000*l.* as the total expense, but he believed that the railway would be quite self-supporting. The sewer would be about 7 feet in diameter, but it could be enlarged if deemed to be necessary. The next plans brought under notice were those of Mr. Evans, Mr. A. Doull, Captain Plummer, and Mr. Bush.

At a more recent meeting the commissioners considered the plans of Mr. Page, Mr. Bazalgette, Mr. Carmichael, Mr. John Turner (of Dublin), and many others. Very little appears in any of the schemes the germ of which is not to be found in the plans of Trench, Martin, and others, proposed many years ago. Mr. Page said, that in 1842 his plan was reported on by the commissioners as the one that ought to be adopted. He had come to the conclusion that a solid embankment was unneces-

sary. He proposed to have a series of small arches forming a roadway, supported by columns, from Westminster Bridge to Blackfriars Bridge, on which should be a railway, with docks for the admission of barges. He did not think it at all necessary to have an embankment for the purpose of putting the low-level sewer into it, as that could be put in front of the roadway at low-water mark. He proposed by his present plan only to take the roadway, and, if thought necessary, a railway upon it to Blackfriars Bridge, and it could be easily extended from that point to Queenhithe. He would devote about 37 acres of water area to docks. The total estimate for the construction of the works would be 450,000*l.*

Mr. Bazalgette proposed to construct a roadway 100 feet wide, commencing at Westminster Bridge to Queenhithe, and from Queenhithe to the Bank, 60 feet wide. By means of that roadway persons could pass along the roadway either to the Bank or to London Bridge station, which would materially divide and divert the traffic now passing along the Strand. He also proposed to form docks along the present line. He had formed an estimate of an embankment with docks and without. The cost would be 1,260,000*l.* On the south side he proposed to have an embankment, also, with an extension to Cannon-street and the Bank, amounting to 1,492,000*l.* If there was to be a solid embankment from Westminster Bridge to Blackfriars Bridge, the estimate for structural works would be 586,700*l.* If there was to be a solid embankment, there would be a saving of 50,000*l.* over the construction of docks. Then, for the purchase of wharf property along the line he set down at 750,000*l.* That sum would fairly represent the purchase of that property. To that add embankment of the south side of the Thames, which would make a total of 2,389,000*l.*

Mr. Carmichael said he felt satisfied, from considering the question of an embankment on the north and south sides of the river, that the lines laid down by Mr. Walker were those which might be most advantageously followed. He proposed to extend the embankment into the river on the north side, so as to stop the first and second arches of Waterloo and Blackfriars Bridges, with an embankment on the south side.

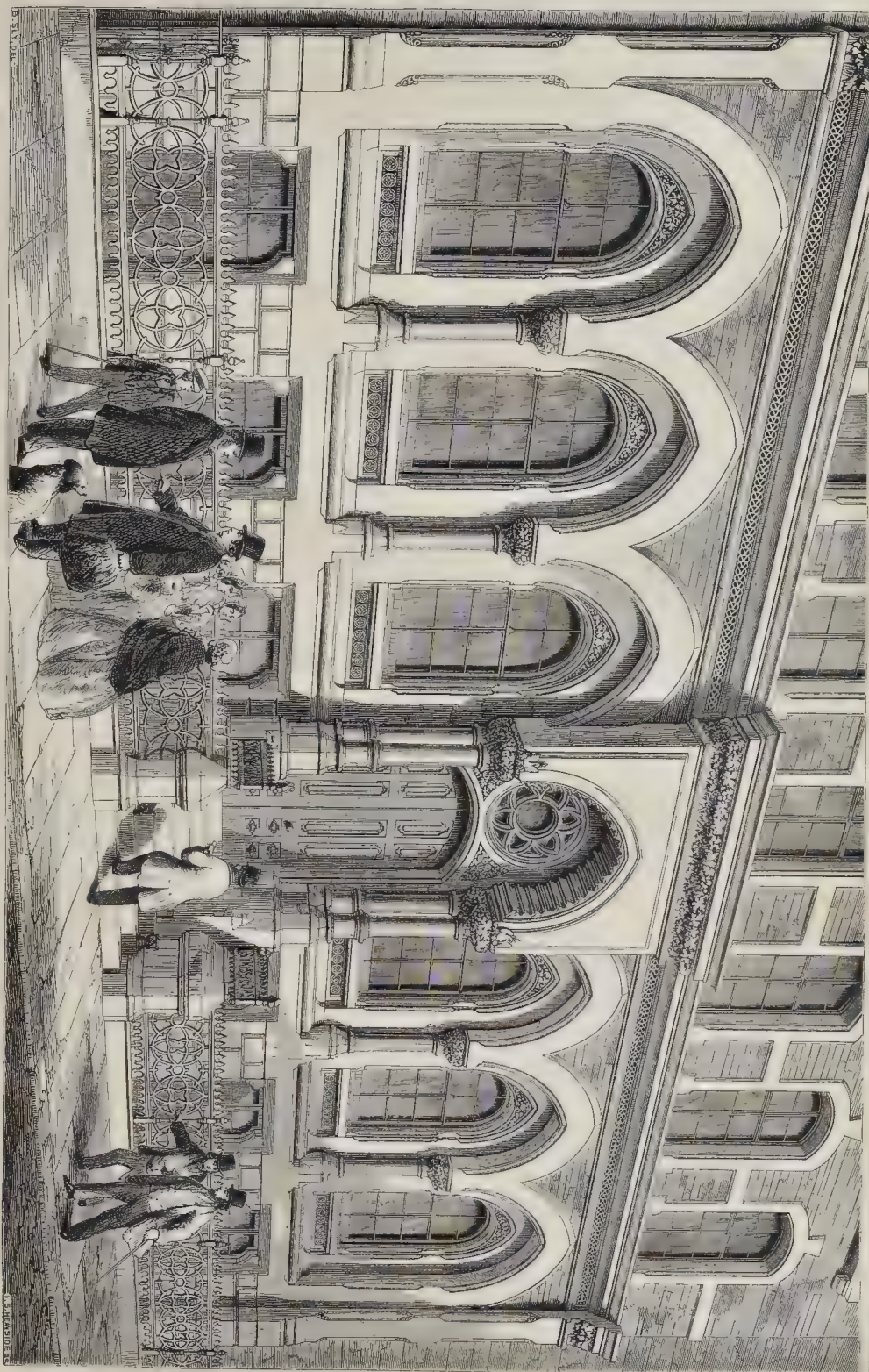
Mr. Turner's plan embraced provision for the sewage, a wide roadway, and the improvement of the river. He proposed to have a low level street for heavy traffic, 33 feet wide: above that would be a roadway and promenade 90 feet wide, and facing the river a landing quay 27 feet wide. The embankment would commence at Westminster Bridge, but only for pedestrians until they got to Whitehall-place, from which point carriages would run on a road 90 feet wide up to Blackfriars Bridge. The whole construction would be in iron.

Much has been said about the necessity for preserving entrance to the various existing business premises, and this, of course, for the main part must be attended to. We shall not be sorry, however, to find this altogether given up adjoining the Houses of Parliament, where every endeavour should be made to provide a fine feature. The southern side of the river should be brought more immediately into London by increased modes of access. A wide bridge from Charing-cross, as was illustrated in our pages some time ago, and the re-arrangement of the land at the foot of it on the south side, would raise the value of the property there immensely, and give a wonderful addition of available ground to the metropolis.

WAREHOUSE, WELLINGTON-STREET, LEEDS.

As a second illustration of the works forming the Architectural Exhibition, in Conduit-street, we have engraved a view of the lower part of a warehouse erected not long ago in Wellington-street, Leeds, from the designs of Mr. George Corson, architect. It will serve, too, as an example of the increasing use of carrying now made, as well in the provincial towns as in the metropolis. This warehouse, built for Messrs Sykes & Sons, forms one of a number which have been erected recently in Wellington-street: they stand within a few hundred yards of both railway stations (between them) and of the Coloured Cloth Hall. The cost of the present building, without fittings, was about 3,500*l.* The materials used are Meawood stone up to the base mould, Gipton Wood stone above, and brick with stone dressings above cornice of ground-floor. The pillars of the porch are of Peterhead red granite, polished.

Messrs. B. Woolley & Son contracted for the whole of the works; under whom Messrs. Illingworth and Watson executed the stonework, and C. Mawer the carving.



WAREHOUSE, WELLINGTON STREET, LEEDS.—Front of Ground Floor.—Mr. GEORGE CONSON, ARCHT.

ROYAL HORTICULTURAL SOCIETY.

A FINE ARTS' committee has been appointed for the decoration of the Gardens, South Kensington, with statuary, vases, &c. It consists of His Royal Highness the Prince Consort, Earl Somers, Earl Ducie, Lord Taunton, Sir Coutts Lindsay, Mr. Wentworth Dilke, Mr. Henry T. Hope, Professor Westmacott, and Professor Sydney Smirke. The committee met at the Gardens on Monday, His Royal Highness in the Chair, and were engaged in deliberation for nearly three hours.

Among the prizes to be competed for at the forthcoming grand exhibition of flowers and fruits, June 5th and 6th, on the occasion of the opening of the gardens, are four prizes of 10*l.*, 5*l.*, 3*l.*, and 2*l.*, offered, as we have already mentioned, by Mr. C. W. Dilke, one of the Vice-Presidents, for the best three groups of fruit and flowers, arranged "for the decoration of the dinner-table." The prizes are open to all comers, and the articles may be exhibited in baskets, vases, &c., of any material; *beauty in the arrangement* being the test of merit. Ladies are specially invited to compete, and the council have appointed the following ladies to act as jurors: the Countess of Shelburne, the Countess of Ducie, Mrs. Holford, Lady Marian Alford, and Lady Middleton.

We anticipate some interest from the combination of the designs of the various competitors, and hope the offer may lead to improvement generally in the decoration of dinner-tables. This is a subject on which we have before now made suggestions.

THE PROPOSED FREE LIBRARY FOR THE CITY.

It must have been gratifying to many of the citizens of London to read of the numerous meeting, not long since, of the inhabitants of the Ward of Farringdon Within, which was held in the fine hall of Christ's Hospital, for the purpose of aiding the movement for establishing a free library in the City of London; on which occasion the Ward did itself the honour of passing, by a large majority, a resolution in favour of a free library, amid cheers which made the famous old hall ring again.

We trust that this good example will be speedily followed by other wards, and that ere long an aggregate meeting of the citizens will give a clear expression in favour of the formation of a free library.

As regards the library in the Guildhall; while admitting its great value, and glad to note the efforts which are being made to extend its usefulness, we are afraid that it is very improbable it will ever be made to supply the general purposes of a library for the industrious classes. Its advantages, even when they are extended, will be chiefly to the families and connections of the higher and middle classes of the citizens. Besides these, however, there are, notwithstanding the sweeping changes which have been made, a large multitude within the corporate limits, who could not avail themselves either of the Guildhall, of the London Institution in Finsbury, or of the other libraries in this district. In the census of 1851, the number of persons actually living, within the municipal limits on the *Middlesex side of the Thames*, was 127,869,* a large population, to many of whom a free library would be a great advantage.

While making inquiries for other purposes, we have met with numbers of young men—some from the country,—who were most anxious to gain information. Some, for the purpose of helping them in their business, as brass-founders, &c., &c., have asked us where they could find books, or instructive classes, within such a distance as they could reach after work-hours. To persons of this description we fear that, with all the improvements, the Guildhall library would not be accessible. To a certain extent the Mechanics' Institutions might be useful; but, so far as we have been able to judge, these establishments have not been appreciated by the class which would be much improved by the free use of a good library. The free library would not, however, be the only advantage; for, in such an institution, there would be, doubtless, convenience for lectures, and for the meeting together, in classes, of those who are following various business or other pursuits.

The prosperity of not only the metropolis, but the country, depends on the skill and intelligence of our artisans and manufacturers: let us, therefore, hope that when the proposal is next made to

establish a great means of advancement the central district of the most important city in the world will not, in this intelligent age, do itself damage by refusing a small rate for the spread of knowledge amongst the industrious multitude.

BROMPTON TURKISH BATHS.

It takes some time to inoculate the British public with an idea; but, when once they get hold of it, they work it pretty freely. The Turkish bath—or, more properly, the Roman bath—movement is an instance of this. Establishments are now springing up everywhere. We have lately inspected the arrangements of one of these hygienic institutions (for as such the bath has taken rank among us), situate in Alfred-place, Alexander-square, the centre of a rapidly-increasing and important neighbourhood, where its value will doubtless be duly appreciated. These baths are an improvement upon any we have yet seen in the metropolis. Entering from a corridor, you pass at once into a frigidarium 40 feet square, tastefully and suitably decorated, with compartments for the toilet on either side. Lantern windows running all round, which may be opened or shut as required, serve to secure ventilation. The hot rooms and lavatory are all conveniently upon the same floor. Attention has been paid to secure proper ventilation here also; but we are disposed to think further arrangement will be necessary. Proper ventilation is a first necessity. The rooms are all lofty and capacious, and paved with tiles. The lavatory is fitted up with a complete system of water apparatus; and then there are private baths, with an entrance from the adjoining street.

The public are indebted for this establishment to two of the resident members of the medical profession, in whose charge we wish it success. We are not amongst those who think the bath may be adopted without advice by all, but have no doubt of its value to many.

PROPOSED DEMOLITION OF ANCIENT HOUSES IN REDCROSS STREET.

NOTWITHSTANDING the desirability of improvements one cannot help feeling regret at the removal of venerable remnants of old London. Many have already disappeared, and others are doomed to follow. The houses which it is now proposed to remove present a most picturesque appearance in combination with the ancient tower of Cripplegate Church and the screen of buildings in front of it, some of which we have illustrated. Just about this point the Great Fire abated, and the houses which were spared from the conflagration were at that time old. The eyes of Shakespeare and his contemporaries have probably fallen on these gables, and here they may have "heard the chimes at midnight" from the bells of the church in which Milton now lies buried. The great poet and eminent political writer has himself often passed this way. We have more than once looked at these houses with their projecting stories, quaintly-fashioned windows, and small-bulk shops, in the still night, when the moonlight was shining on them, and the deep shadows threw faulty or too modern parts discreetly into shade: this spot then presented a rare picture, which took the mind back to the London of 300 years ago. The picture of the past, however, must be given up for the sake of the progress of the present.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of members was held on Friday, the 17th instant, at the House in Conduit-street.

Mr. R. O. Harris occupied the chair.

Mr. E. D. Jackman was, on ballot, elected a member of the Association.

A question relating to the property of the Association, which was to have been discussed, was adjourned until the next general meeting, on the 31st instant.

Mr. T. Blashill then read a paper on "Originality of Style," which we shall give in full.

At the conclusion a brief discussion ensued, in the course of which the Chairman called attention to the successful manner in which Mr. Smirke had carried out a deep frieze at the Carlton Club. With regard to Romanesque architecture, he did not think it was a healthy study; because, in his opinion, Romanesque was in an impure state. He confessed he should like to see our own English architecture studied, rather than that of foreign countries.

Mr. Blashill thought that, if we were to adhere to our own architecture, without making any attempt to improve it, it would be better to improve upon foreign schools.

Mr. Adams called attention to the eccentricities in the matter of street architecture, and referred to the incon-

gruous pile at the corner of Tottenham-court and the Euston roads as a type of a very inferior order. In the Strand, too, a shop-front had been made to look something like a Greek temple. There was, however, in contrast to these a very satisfactory specimen of adaptation in Lincoln's-inn-fields, where Mr. Field had succeeded in producing an elevation to the Erskine Chambers, at the south side of the square, which harmonizes exceedingly well with the surrounding buildings.

Mr. C. H. F. Lewis thought that a good deal of that which now-a-days was called originally really meant ignorance; and that it was a great mistake to neglect our own Gothic in favour of Continental schools.

Mr. G. B. New urged upon the meeting the necessity of combining practical construction with originality of design. He confessed that, for his own part, he could never consent to abandon the former for the latter, as he held it to be a cardinal rule in architecture that the construction must, under all circumstances, be good. With regard to the observation of Mr. Adams respecting shop-fronts, he wished to direct the attention of that gentleman to a couple of fronts lately put up in Bond-street, which, in his opinion, indicated considerable improvement in this respect. The construction in these instances was really good, and showed that the architect knew what he was about. He (Mr. New) saw no reason why shop-fronts should not be designed with especial reference to the trade or business to be carried on within. With regard to the claims of the rival styles, which had to some extent been put in issue by the paper just read, he owned that he had himself been what might be termed a "stickler" for the Classic; but that lately he had turned his attention more to originality of design.

A vote of thanks to Mr. Blashill for his paper was unanimously passed.*

SUBURBAN AND PROVINCIAL NEWS.

Aldershot.—Among the many new buildings lately completed in Aldershot, according to the *Aldershot Gazette*, is the new Masonic Hall, attached to Tilbury's Royal Hotel, in Wellington-street. The building consists of a room for the use of the Masonic fraternity, and will dine 150. It is lighted by seven windows, the centre being the largest, and with two side lights. Underneath is a bar for retail purposes, divided by partitions into three compartments. Mirrors run the whole length of the bar (61 feet), and the shelving is painted white, mauve, and gold. The architect was Mr. G. Musselwhite, of Basingstoke.

Barking.—A sum of 930*l.* has been raised for the erection—in lieu of the old almshouses in this town, which have been for some years in a very bad state—of others more suitable for the convenience and comfort of the aged inmates. The site is in proximity to the Barking railway station, and the same on which the old almshouses now stand. To complete the range of building as proposed, a further sum of about 600*l.* will be required. The following tenders were obtained:—

H. Martin	.....	£1,650	0	0
J. White	.....	1,023	0	0
J. Rivett	.....	1,020	0	0
W. Ashmole	.....	999	0	0
Fisher	.....	998	0	0
W. F. Stevenson	.....	990	0	0
E. Coates	.....	993	0	0
Hedges	.....	985	0	0
Martin Page	.....	984	10	0
J. Withers (accepted)	.....	970	0	0
Sharpington	.....	947	0	0
H. Smith	.....	895	0	0
D. Corderly	.....	845	0	0

Faversham.—The design of Messrs. Peck & Stephens, architects, Maidstone, has been selected by the committee of the Faversham Mutual Improvement Society for a building which they intend to erect. The Society numbers about 600 members, and in a few months upwards of 500*l.* have been subscribed towards the building fund. Last year it spent 40*l.* upon books for the library.

Wellingborough.—The new corn exchange at Wellingborough has been opened. It is in the modern Italian style. The building will form one side of a small square, approached by two or three short jetways from the main streets of the town. The exchange is entered by means of a stone portico and the ascent of a short flight of steps. The building is surmounted by a tower. The large hall is 80 feet long by 40 feet wide, and 29 feet high. The ceiling is ornamented with plaster panels and mouldings, and pendants at the intersection of the panels, which are the work of Mr. Laycock, of Bradford. The walls are supported by pilasters, with Ionic bases and capitals. The hall is lighted by means of large windows in the side walls, and coloured glass in the ceiling. There are numerous small rooms adjacent to the large hall; but in the front of the building, on either side of the flight of steps, is a large room adapted for offices or committee meetings. An assembly-room, measuring 40 feet by 20 feet, runs transversely the whole length of the entrance; and it is in contemplation to use this as a daily reading-room for the use of the whole town. This room, which is also ornamented, opens into a large balcony. The architects are Messrs. Bellamy & Harding, of Lincoln. The site cost 1,800*l.*, and

* There are in England and Wales only five cities or boroughs which have a larger population, viz., Liverpool, Manchester, Birmingham, Leeds, Bristol, and Sheffield.

* A paper will be read at the meeting on the 31st inst., by Mr. R. O. Harris, on "Carpentry."

Mr. Watkin, of Northampton, took the contract for the building at 3,200l.

Aylesbury.—The foundation stone of the new Buckinghamshire Infirmary was laid on the 1st instant. The new building is being erected immediately in rear of the old one, and will be completed before the old one is removed. The builder is Mr. Conder, of London, and at a total cost of 7,377l.; and the architect Mr. Brandon, of Oxford. In the evening, the whole of the men employed at the new building, numbering about fifty, sat down to refreshment at the King's Head Inn, provided for them at the expense of the Infirmary Building Committee.

Wolverton.—On the 25th ult., a meeting of the foremen and workmen of the locomotive department was held in one of the large shops, at the instance of Mr. J. E. McConnell, superintendent, who addressed them for some time on the subject of building a new mechanics' institute. He stated that the directors had granted a piece of ground for the building; and he had also received the promise, from various sources, of about 500l. towards it. He had consulted an architect (Mr. Street) as to the cost, the estimate of which was about 1,500l. There was consequently about 1,000l. to be raised by the sale of tickets, of the value of 10s. and 1l. each, to be paid by instalments of 6d. or 1s. per week, and which tickets should entitle the holder to have free access to the library and reading-room for one and a half and three years respectively; also to all other privileges, as at present adopted; viz., admission to lectures and concerts at half price; and, in the event of any holder leaving the establishment, he should have the privilege of transferring or selling his ticket to any other person. A provisional committee was elected to carry out the desired object. Mr. McConnell afterwards proposed that the tradespeople of the surrounding districts should be permitted to become subscribers to the 1l. tickets; and also that there should be tickets at 2l. each, to admit the holders to the reserved seats, to all the lectures, concerts, &c., the period subscribed for.

Wolverhampton.—Alterations which have long been contemplated in the Corn Exchange building have at last been commenced by Mr. Cocke-rill, the contractor, under the superintendence of Mr. Edward Banks, architect.

Hallow (near Worcester).—The following were the tenders for forming and metalling about eighteen chains of roadway, for Mr. C. W. Lea, in the parish of Hallow. Quantities supplied by Mr. Robert Hughes, the surveyor:—Wormington, 285l. 10s.; Hayes, 280l.; Coker, 280l.; Walford, 241l. 10s.

Somerset.—The Somerset County Pauper Lunatic Asylum is undergoing extensive alterations, the most conspicuous of which is the new dining and recreation hall. It is 75 feet long by 58 feet wide: the roof is 35 feet high, and partly of glass. It was contracted for and erected by Mr. Pollard. The woodwork is lightly stained and varnished, the iron pillars in the centre painted, and it is lighted by six gas stars: about 3 feet round the walls and the centre of the floor are laid with blue lias, and the intervening space, 16 feet wide, with an ornamental pattern in encaustic tiles. It is heated from one side by two iron gratings, each 2 feet square, communicating with a stove, fitted up according to Mr. Haden's plan.

Hereford.—The tender of Mr. Moore, builder, Newport, for the erection of a mansion for R. S. Cox, Esq., at Broxwood Court, in this county, has been accepted at the sum of 8,789l., it being the lowest of seven tenders. The highest tender (by Mr. Hughes, of Bristol), was 12,050l.; and the other five ranged from 9,989l. to 9,990l. Mr. C. F. Hansom, of Clifton, is the architect.

Hyde.—A new building for the Hyde Mechanics' Institute is to be erected. The building now used as the Mechanics' Institute will be raised to the ground, and on its site will be erected the new structure. Twenty-one tenders were sent in. Nine of the tenders were for the whole of the work connected with the new edifice, the remainder being for different portions of it only. There was more than 1,000l. difference between the highest and lowest tender, the former being 3,600l. and the latter a little over 2,567l. The committee agreed to accept that of Messrs. Joseph Robinson & Sons, of Hyde, being the lowest tender. The architect is Mr. W. Walker, of Manchester. The amount subscribed towards the new building is about 2,019l., leaving a deficiency of upwards of 450l.

Oldham.—The chief stone of the new co-operative mill which is in course of erection in Peel-street, Middleton-road, Oldham, has been laid.

The mill is being erected by the Oldham Building and Manufacturing Company, and will be one of the largest, if not the largest, in Oldham. It will be 100 feet by 280 feet, inside measurement, five stories high, and capable of holding 60,000 spindles.

CHURCH-BUILDING NEWS.

Slowmarket.—On its being resolved in the early part of last year to erect a new chapel for the Congregationalists of this town, the site of the old one was not considered large enough, and the committee resolved to clear away the adjoining houses in Ipswich-street; and last autumn Mr. Barnes, of Ipswich, submitted a set of plans, which were accepted. The principal front of the new chapel will be on the north side of the street. The building will stand about 80 feet back from the road. The plan of the chapel is oblong, with the addition of north and south transepts; and it is intended to seat about 1,150 persons, including 200 children in the transepts. A gallery extends round three sides, the fourth side being occupied by the organ-gallery in an arched recess, 40 feet high. At the end of the chapel, communicating with it, are school premises, consisting of infants' school, 35 feet by 21 feet, on the ground story, to be also used for week-day service, and four class-rooms. Above these is a school-room, 60 feet by 25 feet, opening to the galleries by enclosed lobbies, and having separate staircases for boys and girls at either end. The style of the exterior is Decorated, the materials being Kentish rag-stone with Caen stone dressings. The principal entrance is under an open porch through an arch 15 feet high and 11 feet wide, surmounted by a gable 25 feet high. The interior of the roof of the chapel is divided transversely into three spaces by arched principals of timber, supported by iron columns, which also carry galleries. The centre span is 25 feet wide and 48 feet high, and the two side ones each 9 feet wide. All the timbers of the roof will be wrought and stained, and the ceilings formed of stained boarding and varnished. The clear internal dimensions will be 66 feet by 46 feet, and 63 feet across the transept by 22 feet wide. The total cost will be about 5,000l. The first stone of this building has been laid, and it is now being proceeded with.

Wellingborough (Northants).—The alterations in the parish church approach completion. The old window, immediately over the west entrance, has been removed, and a stone frame put in its place, which is to be glazed with stained glass. When completed the whole body of the church will present one uniform area of open sittings. The galleries are all removed. The pillars supporting the roof in the west part of the edifice have been cleaned. They are of the ironstone of the district, and present a striking contrast to those in the eastern part, which are of white stone, and are probably of a more recent date.

Crawley.—The Roman Catholic church, commenced last autumn by Mr. Ockenden, architect, on the lands, and by the funds, of Mr. F. Blunt, approaches externally towards completion. The entire building is 90 feet by 87 feet, forming a square, with a small green sward in the centre, and a corridor all round. The church is 90 feet by 30 feet; and on the ground-floor are the baptistery, "Our Lady of Sorrow" chapel, three separate confessional cells, "Holy Soul's chapel," sacristy, lavatory, novices' and laundry, committee-rooms, parlours, kitchens, dining-rooms, and domestic rooms, in all twenty-three. On the first floor is the bishop's room, oratory, library, strangers' cloister, and fourteen cells. It is supposed it will cost upwards of 3,000l., when decorations and all shall be complete.

Guernsey.—A new church is to be built near the Roquettes, on the Rohais-road, Guernsey. This church is designed to furnish those who are distant from the town church means of attending worship at a more convenient distance than that one can afford. A great part of the sum required for erection has been obtained by subscriptions.

Worcester.—The partial restoration and embellishment of St. Andrew's Church have been completed. The improvements consist of the rebuilding of the east wall of the chancel, with a new east window, the elevation of the chancel arch some 8 or 9 feet higher, the raising of the chancel floor and roof, and the repairing of the roof and ceiling of the north aisle above the organ. Since these restorations have been completed a carved stone reredos has been added, and the chancel window has been filled with stained glass. As described by the local *Chronicle*, it is a five-light window of the Early-Decorated style, with stone

jambes and architraves inside and out. The panels and spandrels of the reredos have been carved by Mr. Bolton, the artist who has executed the arcade carving in the Lady Chapel at the cathedral. The carvings here consist of foliage, flowers, and fruit, amongst which are the leaves of the ivy and the maple, the leaves and grapes of the vine, the leaves and blossoms of the rose, the passion-flower, and the hawthorn conventionally treated. The chief ornament of the reredos is placed in the centre compartment, and consists of a half-length figure of the Saviour, standing out in high relief, and all but free from the panel. The material of the reredos is the finest Bath stone, with the exception of the panels and the statue, which are of Caen stone. The stained glass in the window is by Mr. G. Rogers, of Worcester. The principal figure is that of our Lord, enthroned in glory, and extending hands in the attitude of invitation, whilst the words, "Come unto me, all ye that are weary and heavy laden, and I will give you rest," indicate that all are welcome to the Saviour. The under robe of the figure is of silver powdered with roses: the upper robe is ruby, and the nimbus around the head is a ruby cross. The Saviour is surrounded by a company of evangelists, saints, and angels: below is an archangel sounding a trumpet, and messengers of God directing penitents to the feet of Christ. The tracery is filled with cherubim and a quire of angels with instruments of music. The *Chronicle* states that the glow of the lower portion of the window is somewhat detracted from by the too close proximity of a building near the end of the church. The present partial restorations have been carried out by Messrs. Bennett, of Birmingham (the contractors for the repairs of the cathedral), under the superintendence of Mr. Perkins, architect. The figure in the reredos has been presented to the church by Mr. Bolton, who carved it.

Alvechurch.—The church of St. Lawrence, Alvechurch, has been rebuilt, except the tower and the wall of the north aisle (which has been buttressed exteriorly); and a new aisle has been added on the south side of the nave. The roof is 55 feet from floor to ridge. The absence of frescoes or colouring of wall surfaces which prevailed in Mediaeval times has been in a measure compensated for by an arrangement in lozenges of red and white, the former brick and the latter stone, cut to brick size, with stone bands or bonding courses. The south aisle is divided from the nave by four pointed arches, with circular columns and moulded capitals. The old arches of the north aisle were taken down and refaced, and new circular pillars in imitation of the old Norman ones were erected, all being in alternate courses of red and white stone. The increased height of the roof has enabled a clerestory to be added, consisting of double and single lights; and there is an open roof, as also in chancel and aisles. There will be three pointed windows in the south aisle and one in the north; and the three lancets of the great east window and that at the west end remain to be similarly decorated. The Early English window of the chancel, and the pointed arch dividing the latter from the nave, are features in the new work: the east window is surmounted by a quatrefoiled opening, and beneath it is a reredos of alabaster, bordered by tile bands of various patterns, quatrefoils, cinquefoils, and the chevron, artistically disposed. There are two lancet lights south of the sacristy and one on the north. The floor of the chancel is laid with encaustic tiles, and the nave floor with red and black tiles. Deal seats, stained and varnished, occupy the nave, and oak ones the chancel: the whole are open, and will accommodate between 500 and 600 persons; 337 free. Exteriorly the new nave roof comes up to the parapet of the tower, giving the idea, according to the *Worcester Herald*, of an object whose body had expanded while the head had neglected to keep pace. The tower must be raised several feet to preserve a proper proportion with the nave, and the intention is to effect this, or to erect a pyramidal cap or spire. The roof of the new church has ornamental ridge tiles, and stone crosses at the gables. Mr. Butterfield, of London, was the architect employed; Mr. Mills, of Stratford, the builder; Mr. G. Walters, the clerk of the works; and Mr. Martin, of Stratford, the glazier. The stone for the new building was had from Bromsgrove and Alvechurch; and the church is heated by Haden's warming apparatus, which cost about 100l. The churchyard has been levelled and laid out, and the base of the old cross is restored, but a new one is to be erected, as a memorial, we believe, to the Clive family: it will be 17 feet 6 inches high.

Aberlour.—The destruction of the parish church of Aberlour by fire having necessitated the erection

of a new building, a design has been prepared by Mr. Petrie, architect, Elgin, and the contracts have been entered into. The design is Norman-Gothic. There will be about 700 sittings. The contractors for the work are—For the mason work, Mr. J. McDonald, Aberlour; carpenter work, Mr. J. Thom, Elgin; slater work, Mr. J. Findlay, Keith; plasterer work, Mr. A. Anderson, Elgin; plumber work, Mr. J. Gordon, Elgin; cast-iron work, the Newmill Foundry; painter, Mr. J. Brown, Elgin; glazier, Mr. C. Donald, Aberdeen; carving, Mr. T. Goodwillie, Elgin. A manse has just been erected for the Rev. Mr. Scott, of the Free Church.

SCHOOL-BUILDING NEWS.

Colchester.—The first stone of the central national school, in St. Helen's-lane, was laid on the 21st instant, by Mr. Charles Gray Round, of Birch Hall. The building consists of three large school-rooms, with galleries and class-rooms attached, all upon one level. The style adopted is Geometric Early English, and the material red brick, with Caen stone dressings. The architect is Mr. H. W. Hayward, of Colchester; and the contractors, Messrs. Rayner & Runacles, of Halstead.

Halstead.—A day school is in course of erection in this town by Messrs. Rayner & Co., under the direction of Mr. H. W. Hayward, of Colchester.

Northampton.—The chief stone of new schools for St. Giles's parish, in this town, was to be laid on the 24th May (her Majesty's birthday), by Earl Spencer, assisted by the Mayor and Corporation of Northampton, the Pomfret Lodge of Freemasons, and the clergy and gentry of the town and neighbourhood. The new schools are intended to accommodate 400 children, and will consist of boys', girls', and infants' schools, with a class-room attached to each. They are to be built of the light-coloured local stone, which will be enlivened by the introduction of bands, in the darker stone of the district, running all round the building. The windows will be of Bath stone, with red brick quoins and relieving arches. The works are advancing under the superintendence of Mr. E. F. Law, the architect. The cost of the building is estimated to be about 2,750*l.* The site alone cost the committee 700*l.* To meet this demand subscriptions to the amount of 2,130*l.* have been promised.

Llanysyddid (Brecon).—The foundation-stone of a national school-house has been laid here, according to the *Hereford Times*. The plans and specifications of the building were drawn by Messrs. Williams & Sons, "architects and builders," Brecon, by whom also the contract for the erection of the building has been taken; and the whole will be completed under the personal superintendence of Mr. J. Williams.

Birkenhead.—The foundation-stone of the new national schools to be built in connection with St. James's Church, Dock Cottages, Birkenhead, has been laid. The edifice, for which Mr. Walter Scott is the architect, and Mr. John Hogarth the contractor, will be in the Gothic style. The infant school will be 50 feet by 30 feet; the mixed school for boys and girls, 47 feet 6 inches by 18 feet; and the two class-rooms, 18 feet 6 inches by 16 feet. Detached from the main building will be residences for the master and mistress of the schools, the space intervening between the houses and the schools being reserved for subsequent additions to the school portion of the building. The frontage will extend upwards of 140 feet, and the side elevation will run 52 feet along Conway-street. Mr. Jackson gave the site and 100*l.*, and Mr. John Laird and Mr. Brassey each 100*l.* 1,000*l.* have been raised: the Government had given 500*l.*; and the contract for the building was about 2,000*l.*; so that there is a balance of about 600*l.* still to be raised.

MANCHESTER ARCHITECTURAL ASSOCIATION.

At a meeting of this association, held on the evening of Wednesday, May 15, a paper was read by Mr. L. Booth, subject:—*Architects and Builders*. In reviewing the condition of the architectural profession and the building trade the essayist referred to many causes which operate injuriously on the interests of both, and endeavoured to show that the interests of the public were injured by the same causes and in the same ratio. Alluding to the subject of cheap building he remarked:—"We live in times and under influences peculiarly favourable to the development of a desire for cheapness in building as in everything else. Nor is there anything in this desire to condemn: it is natural, and the principle involved in it is com-

mercially sound. It is necessary, however, that the word cheap should be clearly understood. There is no such thing as cheap building in the sense understood by those who apply the term to lowness of price, exclusive of other considerations. Cheapness consists in economising labour and materials, by building on the most approved and scientific principles, with the best materials, according to well-matured plans; giving the most complete accommodation; and, with all due attention to appearance or artistic effect, always, as much as possible, making construction conducive thereto." The essayist concluded with a description of the architect's mission as being the benefitting of mankind, morally and materially, and an earnest appeal for energetic and united action to secure its fulfilment. An animated discussion followed the reading of the paper, in which the sentiments of the essayist were in a great measure approved and supported.

THE LABOUR QUESTION.

At an adjourned meeting of the Brighton operative house-painters, the majority expressed their determination to resist the hour system of payment; and resolved upon returning to work upon the following terms only, viz., 4*l.* 6*d.* per day for the first five days of the week, and 4*l.* for Saturday with the four o'clock time. The master-painters have since met in order to determine the rate of payment per hour, an increase of wages having been applied for by the men; and it was agreed that "the maximum rate of wages for skilled painters be 5*d.* per hour; payment to be made by the number of hours absolutely worked." The previous rate of painters' wages in Brighton was 1*l.* 4*s.* per week; the day's work being ten hours, except on Saturday, when work ceased at four p.m. By the new scale of wages, if the men work the same number of hours as hitherto, their wages will amount to 1*l.* 6*s.* 9*d.* If they prefer to work ten hours on the Saturday, they would earn 1*l.* 7*s.* 6*d.*; or if, on the other hand, they leave off work at one o'clock on the Saturday, as in London, their wages will still be 1*l.* 5*s.* 10*d.*, or 1*l.* 10*d.* in excess of the old rate. The bricklayers have since had a meeting, in opposition to the plan of paying by the hour.

At a recent meeting of employers in the building trades, at Edinburgh, the following resolution was unanimously adopted:—"That in consequence of the Operative Masons' Society having refused to accept the reasonable offer of the employers, the former position of the Employers' Association be adhered to, and, having no further proposal to make for a settlement of the present dispute, no special meeting of the Association shall be convened till the operatives either withdraw the strike or bring forward any other measure for consideration."

On the 27th of April, the plasterers at Guernsey issued a circular, demanding an increase of wages of 6*d.* per day, and to be paid on Friday instead of Saturday. Monday, the 13th May, was fixed whence to begin the increase. On Monday morning the men struck, the masters having agreed the week before, at a meeting, not to accord the demand; but they (the masters), assembling on Tuesday, fixed 2*d.* a day; which, when made known to the men, induced them soon after to resume work. The carpenters have nearly all received an additional 3*d.* a day, instead of 6*d.*, as demanded.

SCREEN DESTRUCTION.—ST. LAWRENCE, UPMINSTER.

SIR,—I have to-day visited the ancient church of St. Lawrence, Upminster, Essex, the restoration of which will be begun next week, by Mr. Bartleet, of Brentwood. The church consists of nave, chancel, west tower, a north aisle, and chapel. There is a well-carved and very perfect oak screen remaining (separating the chapel from the north aisle), which still retains its gold, red, and green colouring: the doors remain, one with excellent carving of birds, etc., complete: the whole admits of very easy restoration. I am informed on pretty good authority that the whole of this screen is to be swept away, for what reason I am utterly at a loss to discover, as it is not in the way, does not interrupt the view, or hinder the sound, and is the greatest ornament to the church. Do, pray, raise your voice against the threatened desecration at once; as, in a few days or weeks, it may be too late. A drawing of the screen is given in the "Suckling Papers."

The aisle is a hideous brick structure, rebuilt in 1771, in a most barbarous taste, by Sir James

Esdaile, Knight, the then lord of the manor: this, I hear, is to be rebuilt. "The original founder of this chantry was Sir John Engaine, who made it his burial place; and fancy draws a pleasing picture of the ancient design, warranted by the good taste which invariably distinguishes the buildings of our ancestors from the imitations of modern days." There is a curious little brass at the foot of the screen (to the memory of one of the Lathams, probably), A.D. 1543, but the inscription is hidden by the high pews.

Should this destruction take place, it will add another to the list of screens now no more, but which I have seen standing in all their beauty. Barton (Suffolk) yesterday, Cobham to-day, Upminster (it may be) to-morrow. Where falls the next?

Allow me to add the following extract from a paper on Brassless Slabs, in the Norfolk Architectural Society's Report, 1860; and which may well apply to such cases as the present. "It is much to be wished that architects would take care to preserve these ancient slabs when they repair a church; especially if they mark the grave of the original founder or builder, to whom they are indebted for the building itself, which they so often delight to transform by the destruction of all that he supplied."

AN ESSEX ORGANIST.

PROPOSED ROAD.—KENSINGTON GORE TO BAYSWATER.

SEVERAL notices on this subject having recently appeared, nearly similar to the one communicated, by the writer, to the *Builder*, ten years back; a return to the subject may be allowable.

The necessity for such a thoroughfare is daily becoming more urgent, as the magnificent buildings extend, and the population increases in the most important districts of Kensington, Bayswater, and Paddington: these giant limbs of the metropolis, each of which might be accounted a city in itself, are completely severed by the Park for the extent of a mile and a half; on the north, along the Bayswater-road, from Park-lane to the Queen's-road, Notting-hill; and on the south, from Park-lane to Kensington town two miles. The exclusion is total and complete from sunset to sunrise; and during the day no hackney carriages nor traffic wains are admitted: but even for private carriages there is no traverse route of intercommunication.

The works just now in progress for the Exhibition of 1862, and the new Horticultural Gardens, make it still more essential that every possible facility be afforded for free intercourse; and when it is considered that the Great Western Railway Station, as well as that just completed at Piccadilly, will pour in their torrents daily; no ancient barrier, whether of prejudice or feudal right, ought to be suffered to obstruct public convenience.

It is very desirable to preserve the sylvan character of the parks and gardens; but as to the maintenance of seclusion or privacy in the public parks, that is impossible. We have seen the dull brick boundary wall pulled down, railings substituted, and by the change lightness and seeming extent were gained; the ancient deer park pales were abated; wide roads have been cut for the equestrian orders and their satellites; beautiful flower-walks and shrubberies have been accomplished; and still the park looks equally sylvan, if not secluded, and certainly more attractive. The old "Ha-ha" however, remains, the only characteristic of royal fantasies which are by-gone, and this dyke or fosse divides the park and gardens, which have only two points of communication (for pedestrians) at the Victoria entrance and the Bridge.

As I formerly pointed out, this fosse offers a fair line for the new road; and it so happens that, running from Victoria-gate, Bayswater, to the Prince's gate, Kensington-gore, it nearly bisects the grounds at the half-way interval on both sides.

To save the park from the obtrusion of a great commercial road, it ought, certainly, to be sunk some 15 feet or so; and this could be done without prejudice to the scenery, or offence to the promenaders; and it so happens that the elevation of the ground, just within Victoria-gate, is about 9 feet above the level of the road without. At this point I would adopt the tunnel plan for about 150 feet, inward, from the entrance, directly opposite to Westbourne-terrace. That entrance might be rock-work or rusticated, and either assume the aspect of a grotto, adorned with shrubs and parasites; or else be groined, in the Templar or culminated fashion. Then issuing into the course of the "Ha-ha" that excavation would serve in nearly a direct line to the bridge, avoiding the powder magazine, and cutting through the central lunette, and that without disturbing a single tree, save one or two of the old decaying and scrubbed chestnuts within the lunette itself.

The present wall of the fosse, being scarcely deep or strong enough, should be taken down; and whatever earth was excavated, might be thrown up on either side, say about 3 feet, and graduated to the level without, so as to screen more effectually the causeway and the traffic.

From the magazine over the bridge to the Prince's-gate, the road must be on the surface level; but surely this could be fenced off from the guard-house, the point of emergence, in the same way as the ride is at present guarded by iron posts.

Considering the immense importance of this much-needed route, the facilities, the convenience, the saving of time, and wear and tear of roads and carriages, it can hardly be objected to, on the score of being to the distaste of some few whose imaginations of seclusion might be shocked by a Hansom cab! It could give no offence to the right-minded, nor to the unaffected, who the accomplishment of such a desideratum would popularize even a Chief Commissioner.

It is hardly necessary to premise that, like all other roads, this should be lighted at night; and also, that the best of the police should be extended to it. Such precaution and provision would increase the security of the

park desert; and as there are lodges at both ends, the erection of another for a night-watch, who might exchange his "all's well" with the sentinel, could not cost little, while it added but another stone of patronage to the Ranger.

Q'UONAM.

FURNISHED APARTMENTS AND CHAMBERS.

Sir.—Allow me to express my entire concurrence in the views of your correspondent, "A Retired Tradesman," whose letter suggests a remedy for a want which has long been greatly felt amongst that numerous class in London who are disgusted with the mean accommodation usually afforded by the proprietors of "furnished apartments," unless at the cost of an exorbitant rental. The tawdry, trumpery furniture usually found in such apartments, and the inconvenient arrangement of the rooms themselves, together with the wretched system of attendance, are unceasing causes of annoyance and complaint to the many, whose means or wishes do not allow or incline them to burden themselves with the expenses and trouble of a separate house. But in addition to the necessity for furnished apartments of the nature of those to which your correspondent alludes, there is also a great requirement for well-constructed "chambers," which could be let, furnished or unfurnished, at rents varying from 40l. to 60l.; and a "limited" company, established for such an object, would, I am, in common with many others, convinced, be found largely remunerative. A bachelor myself, I hear many in the same unhappy condition praying that such a company might be formed, and perfectly willing at once to recognise its advantages. Such chambers would be best on a perfectly private plan, and consisting of a parlour, sitting-room, bedroom, dressing-room, and lobby; on the principle, for example, of many of the new chambers in Lincoln's-inn-fields; and the sitting-room should most particularly be large and airy. Much space is now lost in the high price in London houses, in consequence of the want of height of the rooms on the upper floors, which, although fair for sleeping apartments, are not sufficiently lofty for living-rooms. A good landlady or housekeeper should be attached to all the chambers, with proper assistance.

There is at present very considerable objection to taking unfurnished apartments, in consequence of the liabilities attached to the lodger for the rent of the occupier of the house; but this difficulty would be obviated in the case of chambers rented under a respectable company; and I believe, also, that considerable numbers of the occupants of the chambers would be willing to take shares in such a company.

The proposition for such an association has already been extensively circulated in various quarters, and but little further encouragement seems wanting to develop the project, and to enable it to be carried into execution.

SALAM.

THE INTERNATIONAL EXHIBITION AND THE BUILDING ACT.

THE 21st inst. was appointed at the Hammersmith Police Court, for the further hearing of the summons against Mr. John Kell, the builder, for having commenced the works of the International Exhibition, of 1862, 8-10th Kensington, without giving two days' notice to Mr. T. L. Donaldson, the district surveyor, as required by the Metropolitan Building Act.

Mr. W. Donaldson, solicitor, contended that the building was not exempted, and that no building was exempted except those specifically mentioned in the 6th section. Under the 56th section, on which the defendant relied, the Metropolitan Board had power only to modify the rules and regulations of particular cases, but it did not interfere with the jurisdiction of the district surveyor. To show that the jurisdiction was not affected, he referred to several clauses, but more particularly to the 39th section, which stated that every public building should be constructed in such a way as to meet the approval of the district surveyor. In the event of the district surveyor and the builder disagreeing, then the Metropolitan Board had power to interfere. To show still further that the Act did not exempt this building, he said the Royal Commissioners of 1851 obtained the insertion of a clause in their Act to exempt all their buildings from the operation of the Building Act.

Mr. Finch (for defendant) produced a communication from the superintending architect of the Metropolitan Board, dated the 17th instant, addressed to the Commissioners of the International Exhibition, stating that the Board had approved of their plans for the construction of the building.

Mr. Donaldson said he contended that the Board did not supercede the jurisdiction of the district surveyor.

Mr. Finch relied principally on the 55th and following sections of the Act, which stated that applications should be made to the Metropolitan Board in cases of buildings which were inapplicable to the rules and regulations of the Act.

Mr. Ingham wished to know how he showed that this building was inapplicable.

Mr. Finch said, on account of its size, and also for its purpose.

Mr. Kell said, to show still further that the building was inapplicable, he would draw attention to the Act, which specified that the staircases and galleries must be of proof. If that were carried out, it would be impossible for the building to be erected in the time. It was on account of the building being for a temporary purpose that the Board of Works stepped in.

Mr. W. Donaldson submitted that the building was not inapplicable to the rules and regulations, as the 39th section enabled the district surveyor to modify the Act in respect of public buildings.

Mr. Ingham put it to Mr. Donaldson as to whether the Act applied to buildings of a temporary character.

Mr. Donaldson, in regard to that, and that it did not apply to permanent buildings, only.

Mr. Kell, in reference to the Act of 1851, said it was an omission in the present Act that a similar clause was not inserted exempting the building from the operation of the Building Act.

Mr. Ingham inquired whether the notice made any difference, as the district surveyor would have to be called in. The building must be erected under the supervision of the district surveyor.

Mr. T. L. Donaldson (the surveyor) was desirous of having his worship's opinion as to the notice. Works were now going on to an enormous extent, and if he went there he did not wish to have his authority disputed.

Mr. Ingham wished Mr. Finch to let him have a copy of the material parts of the commission. It struck him that the size of the building had nothing to do with the question, nor its being for temporary purposes. The only point which he saw was as to the contents of the Royal Charter, which might take the building altogether out of the Act of Parliament.

Mr. Kell said he thought the complainant was labouring under a slight mistake. The Metropolitan Board required two sets of plans: when approved, one was kept by them, and the other was sent to the district surveyor. Their plans would be sent, and the Metropolitan Board would send Mr. Donaldson a set. He thought the receipt of the plans would be a sufficient notice.

Mr. Ingham said if the plans were sent before the case was again considered, it might affect the bearings of the proceedings.

Mr. Kell said he would undertake that they should be sent.

Mr. Donaldson considered even in that case it would not affect his jurisdiction.

The summons was then adjourned until next Wednesday, for Mr. Ingham to consider the purport of the Royal Charter.

Books Received.

Notes on Art, British Sculptors, Sculpture, and our Public Monuments. London: E. Stanford, Charing-cross. 1861.

THIS very excellent pamphlet reads like a dissertation on the texts given in the last report of the Art-Union of London, which says,—

"The true artist knows full well that accidents and eccentricities do not afford the best subjects for illustration and enforcement, but that which is universal and complete."

And again,—

"More representation, however perfect, will not suffice. Imitation is not art. The artist has a higher mission than to delineate. He must rightly select and make obvious,—originate and convey, to be worthy of the name."

and so on.

The writer of the pamphlet says,—

"Notwithstanding the realistic doctrines, advocated in the country for some time past, having done much towards narrowing the public estimate of the sphere and capabilities of art, by reducing it to that of a practice confined to the mere rendering of an outward similitude of common things, which tendency to exalt to the highest rank of artistic excellence the lifeless transcripts of isolated fragmentary objects has induced a system of study and tone of feeling subversive of the legitimate exercise of its common centre and source—Nature: giving for the time a popular currency to the portraiture of every species of common-place ugliness and crudity; and, so long as its nature and principles are estimated by such a standard must its noblest aspirations remain unfulfilled, its highest efforts uncalled for, and its deeper meanings be perverted by the prostitution of the only source through which its utterances had a kindred response in our humanity and intelligence."

Again,—

"Were the verisimilitude of external nature its sole object, the Baker-street waxworks would be the ultimatum of art, whilst the tendency to such a condition is in the same ratio a retrogression from its first principles; in art, the absolute reproduction of natural objects being substituted for the embodiment of an idea finding palpable illustration by reference to its own class of character, developed in a type of representation which is perfect in her highest passages, rather than a realistic *verisimilitude* teeming with *unreal*, not deprived of *essence*—in short, a conception substantiated by the selected genius of the class, rather than by copy of the individual."

Besides setting forth views of art-doctrine and topics associated with sculpture, the author has two obvious objects; one, as stated in his preface,—to draw attention to the necessity for Legislative interference in the matter of our public monuments, by the institution of some tribunal or council, presided over by a minister of art, to which council all works for public erection shall be referred for approval, the present condition of public sculpture loudly calling for some such system of restriction and surveillance; and the other to urge forward the proposal for obtaining a duplicate for London of Mr. Foley's "Hardinge and Charger." Of the excellence of this noble group, and the desirability of adorning with it the metropolis, we have before now spoken. It will be fortunate if this eloquent reiteration of its merits should lead to that result.

VARIORUM.

"THE Englishwoman's Domestic Magazine." S. O. Beeton, 248, Strand, London. (No. 13, vol. 3; Double Number).—This is really a surprising shilling's worth; and, considering the illustrations and the literary matter given even

* It is understood that the Metropolitan Board of Works, at a recent meeting, came to the resolution that they would not throw the responsibility of expenditure on the district surveyor, but confine it to their own officer. This, however, if correctly reported, must have been done in error. Although clause 36 directs any builder desirous of erecting any iron building, or any other building to which the rules of the Act are inapplicable, to go to the Board for approval, clause 61 directs that plans and particulars of the building so approved shall be furnished to the district surveyor, and thereupon it shall be the duty of such district surveyor to ascertain that the same is built in accordance with the said plans and particulars."

with the usual sixpenny monthly parts, these latter are no less so. Let us just take a glance at the miscellaneous nature of these illustrations. First of all we have what can scarcely be called an illustration at all, inasmuch as it consists of an actual linen collar (beg pardon: we believe it is that interesting article of female attire,—a night-cap), outlined in pattern, for working by ladies. Then come two coloured illustrations of the indispensable "fashions"—"loves of bonnets," "sweet mantles," and sweeter female faces. Next we have a coloured flower design for wool-work. Next, a great sheet of patterns of children's hats and ladies' bonnets, cuffs, collars, and a variety of other things far beyond all but female comprehension.—Another periodical in course of issue by the same publisher (Beeton, Strand) is "The Boy's own Magazine,"—a twopenny,—and hence quite within the usual means of those for whose amusement and instruction it is got up. This is also an illustrated magazine; though, of course, on a much smaller scale; as, indeed, it naturally ought to be. Besides the usual appeals to the vivid fancies of the rising generation, there is matter of another kind, such as stories of the Conquest, Reminiscences of a Raven, Questions for Schoolboys, a Prize Paper on Cricket, &c.

"Miscellaneous Papers on Scientific Subjects." By T. Seymour Burt, Esq., F.R.S. Vol. III., Part 1st. London: printed for the author by Odell & Ives, Princes-street, Cavendish-square.—"The Simplicity of the Creation: a Concise View of a new Theory of the Solar System, the Tides," &c. By W. Adolph. London: Dolman, New Bond-street. We have classed these two pamphlets together; not that they are at all similar in theory or reasoning, but because, in both, the reader may here have good cerebral or mental exercise. They are written by civilly thinking men; and although, had we space, we fancy we could successfully controvert more than one of the theories and hypotheses broached, we bring them under notice because we think that every one at all inclined to speculative exercise of the mental faculties will be gratified by a perusal of such productions, and perhaps all the more so that they may differ in opinion with the respective authors. Such speculations are not so suitable for merely passive and recipient minds, as for those capable of using them by way of mental gymnastics, and of even knocking them about and "punishing" them with more or less rough treatment,—grateful to the authors for the opportunity, nevertheless.—"The Strike in the Building Trade: a Letter to the Operatives." By Nathaniel. Chelmsford: Printed at the Chronicle Steam-Press.—In this little penny tract some wholesome truths are told to the working men,—would they only listen to them; but we fear that much of what assumes the shape of advice is felt by operatives—as it often is by others as well—to be unpalatable, and hence to be turned away from, and contemned, much rather than to be fairly considered—far less adopted and acted on.

Miscellaneous.

CRYSTAL PALACE.—At the flower show on Saturday last, which was well attended, the great points of attraction were the roses and the orchids. A considerable sum was given in prizes, and the day passed off with general satisfaction.

CONVERSAZIONE.—Lord Ashburton, as President of the Geographical Society, and Lady Ashburton, received a distinguished company on the 15th instant, at their residence, Bath House, in Piccadilly. A gorilla amongst the flowers at the top of the staircase startled a few of the visitors. On the occasion of receptions the staircase of this house is particularly effective, and shows how difficulties may be turned to advantage.

LICHFIELD CATHEDRAL SPIRE.—The great spire having frequently been struck by lightning, and recently much damaged by the same cause, the Dean and Chapter have determined to prevent the same occurring again by applying to the spire one of Messrs. Hibbert & Co's lightning-conductors. The same firm have also engaged to point and repair the stonework of the spire as well as fix the lightning-conductor. The work is under the superintendence of Mr. John Faulkner, on behalf of the firm. The method adopted of tackling without the use of ladders or scaffolding is simple: only two men are requisite for the purpose of ascending any height. We believe this is one of the highest spires ever attempted to be repaired without the aid of ladders or scaffolding.

WILBERFORCE MEMORIAL, at SIERRA LEONE.—A sum of 3,000*l.*, raised at the time of the death of the late William Wilberforce, M.P., for the erection of a memorial to that earnest friend of the African race, has been, under the sanction of Chancery, made over to trustees for the foundation of a literary institution at Sierra Leone, to bear the name of Wilberforce, and to embrace a reading-room, lecture-room, with scientific apparatus, and a savings bank.

"PNEUMATIC DESPATCH."—The Pneumatic Despatch Company are proceeding, it is said, rapidly with their trial works. The site selected for the experimental essay is on the bank of the river, closely adjoining the new railway bridge at Chelsea. The pipes are of the tunnel form, 30 inches in height, and the length now in course of erection is one-quarter of a mile. As soon as their operation has been inspected by the public they will be removed, and permanently fixed between the General Post-office and Bloomsbury.

GAS.—Sir W. Alexander, on behalf of the Birmingham gas companies, stated before the Improvement Bill Committee, in order to show that these companies were well able to bear any expense to which they might be subjected in consequence of their having to provide a substitute for the borough culvert as an outlet for their noxious fluids, that they are both in receipt of more profits than they can legally divide. Being limited by their Acts, one to eight and the other to ten per cent. of dividend; and being in the enjoyment of an income more than sufficient for the purpose; they are issuing new shares to their proprietors, with the view of evading the law by spreading their dividend over a larger extent of capital. It is for the Birmingham gas consumers now to try if they cannot get a finger in the pie, and "pull out a plumb" in the form of a good percentage of reduction in the price of their gas.—Mains are being laid for lighting Stapleton with gas. The whole of the contracts having been taken by Messrs. Hale & Sons.—The price of gas has been again reduced at Devises. The charge will now be 4*s.* 2*d.* per 1,000 feet.—The West Malling Gas Company have consented to reduce the price of their gas 1*s.* per 1,000 feet for the next year, and another 1*s.* for the year after that. A threatened returning of meters was consequently abandoned.

THE RENOVATION OF ROSLIN CHAPEL.—The Edinburgh papers are taking up the subject of the renovations at present in progress at the venerable ruin of Roslin Chapel, with some warmth. The *Poet* says he has heard that it is the intention of the noble owner of Roslin Chapel to have the building renovated and adapted to the purposes of a modern place of worship. "This project," adds the editor, "is greatly to be deprecated, and we do trust will ultimately be abandoned. Renovation in the case of an ancient building customarily used for public purposes may be a necessity, as held of Westminster Hall and our church of St. Giles. In the case, too, of ancient architecture, as exemplified in places like Melrose Abbey and that of Paisley, or cathedrals like Glasgow, a modern hand may be employed to keep together what remains, as valuable articles of glass are cemented or ancient cabinets repaired after their original design. But where there is little or no dilapidation, redressing pillars and sculpture, and modern additions, spoil the appearance of a building whether from within or from without. An incongruity is at once discernible: the cobbling and patchwork spoil the effect of what is antique and old; and it is no longer a thing of the past, but a commingling of spick-and-span novelty with what is old. A correspondent of the *Scotsman*, under the signature of "Randolph," even calls this renovation of the chapel a desecration, and compares it to the bedizement of some venerable old grey-haired lady-friend with hair dye, rouge, and crinoline. Another, signing himself "An Artist," says, "Much of the recent work, so far as it is exclusively directed to the preservation of the building, is praiseworthy. It has been excellently well executed. The noble proprietor's original intention has been fully carried out, and it is to be hoped the restorations will now be stopped. The idea of going on with the cleaning (as it is termed) and re-chiselling of any of the pillars except the three eastmost, two of which have unfortunately been already redressed, ought in all possible and legitimate ways to be opposed by every artist and man of taste. Believing these opinions to be universally held by the artistic profession, I hope you will allow them, through the medium of your powerful paper, to be brought under the notice of the Earl of Rosslyn." The chapel, it would appear, is really to be reopened, and that too very shortly, for divine service.

FREEHOLD LAND IN SURREY AND MIDDLESEX.—The Putney-common estate was offered for allotment at the office of the Conservative Land Society last week. This building property adjoins the mansion and estate of Roehampton-park in East Surrey, formerly the seat of the Earl of Bessborough. The land now on sale, with frontages to Roehampton and Pensonby-road, is divided into 30 lots; one of which, designed for an inn, was selected with a very early right of choice. On the same occasion, the sale of 111 building plots at Kentish-town was commenced. The land is situated on a slope, gradually rising from the north-western suburb towards Highgate. A costly system of drainage has been made, under the superintendence of the Board of Works.

RECENT APPLICATION OF COMPRESSED AIR.—We have occasionally hinted at the possibility of small vehicles being moved on common roads by some simply-applied power, such as strong springs, compressed air, hydraulic pressure, &c. A step towards such a desideratum seems to have just been made in France, according to a contemporary; who states that, on the roof of a manufactory at Gennevilliers, near to Paris, is erected a windmill, which works a suction and forcing pump, for the purpose of compressing the atmosphere into strong receptacles, made of iron plates, hooped round, until the air is condensed some eight or ten atmospheres. When one receptacle is full, it is taken away and replaced by another, which is filled as before. Thanks, therefore, to the wind, which costs nothing, a considerable motive-power is collected in some twenty or thirty receptacles. This force is afterwards used as may be required, for putting into movement the different machines used for polishing, planing, and turning a whole series of different articles, generally known as "Articles de Paris."

SUNDERLAND.—The local *Times* gives the census returns for Sunderland, and congratulates its readers on the circumstance that there is an estimated increase on the population, since 1851, of 20,466, the gross population being now, as nearly ascertained, 90,000, an increase of 29 per cent. From the Registrar General's last quarterly return, the same paper states that "the births have risen from 812 in the first quarter of 1860, to 858 in the corresponding quarter of 1861, while the deaths have fallen from 513 in the former quarter, to 486 in that of 1861. To show that this is not owing to favourable climatal or other causes, operating throughout the North-East of England, or the country generally, but wholly to local causes,—in other words to the improved sanitary arrangements made by the Local Board of Health,—it is sufficient (adds our authority), to observe that most of the other large towns here included have deteriorated rather than improved. This is the case in Newcastle, Durham, Stockton, Hartlepool, Gateshead, Tynemouth, and Morpeth, as well as in several country districts."

NEW CONGREGATIONAL CHURCH, NORTH ADELAIDE.—This building, according to the *South Australian Register*, has been so far completed as to be available for the purposes of the congregation, though the plastering and some of the fittings, together with the tower, which is to surmount the entrance portico, are amongst the things which have unavoidably been left undone, the available funds of the trustees being at present insufficient for the purpose. The style selected is Venetian Ionic, with circular-headed Venetian windows, and doors springing from columns with foliated caps. At the western end of the building are a tower and dome and two side-entrances. The chief entrance under the tower forms one of the main features of the front. The building is surmounted by a massive truss cornice and balustrade. Under the church are schoolrooms and vestry, also kitchens and tanks. The interior is in keeping with the exterior. The ceiling is ribbed, each rib ending with a bracket, having a flower in each bay: the whole is surmounted by a modillion cornice. The sizes of the respective portions of the building are as follow:—Church, 92 feet long by 49 feet 6 inches wide, and average 28 feet high to a flat ceiling, space having been provided for future galleries. The schoolrooms, &c., beneath, are the same size by an average of 15 feet in height. The tower and staircase rooms at the western end, and the vestibule and school-room stairs at the eastern end, complete the building, the total length of which is thus made up to 132 feet. The outside will be stuccoed, the basement and the principal entrance fronts rusticated. The floor of the building will accommodate 600 sitters, and the galleries when up will hold 200 more. The building has been erected from the designs and under the superintendence of Messrs. E. W. Wright and E. A. Hamilton.

PARK-LANE AND PICCADILLY.—Sir: If Hamilton-place is prolonged through the garden, flched from Hyde-park, and therefore from the public, great pressure would be taken away from the narrow street, so truly called *Park-lane*.—"BRICK-BAT."

ROYAL AGRICULTURAL SOCIETY.—His Royal Highness the Prince Consort has consented to act as president of the Royal Agricultural Society for next year. The Great Show, we understand, will be held in the Regent's Park.

EXHIBITION OF ART WORKS at LINCOLN.—The Newland Mutual Improvement and Christian Association have decided to hold an Exhibition of Works of Art, &c., in the Temple Gardens, Lincoln. A sum of 200*l.* has already been guaranteed towards the furtherance of the object. The exhibition will comprise oil paintings, statuary models, curiosities, coins, &c. It will take place in a wooden structure. The tender of Messrs. Barnes & Birch, for the erection of the building, has been accepted, and the work will shortly be commenced. It is to be 80 feet in length, with a proportionate width. Contributions of art works from the Kensington Museum and other institutions of a similar kind have already been promised. Earl de Grey and Ripon will be invited to inaugurate the Exhibition, and arrangements are to be made with the various railway companies for cheap trips from all parts of the country.

STREET NUISANCES.—Sir: The "halting places" in our public streets really become a matter of importance to the inhabitants of all neighbourhoods. Of the necessity of such conveniences no one can have a word to say, but their fit and proper places are the concern of all residents; and that they should be constructed with a proper amount of care and attention to be as little annoyance to the inhabitants as possible is the duty of those gentlemen who seek the honour to be our representatives. The adornment and improvement of our great commercial city is professed to be the one great and imposing duty that devolves upon them; and, therefore, care should be taken that no dark spots should be created, like the urinal in Holborn, which is a disgrace to the Sewers Commissioners, a disfigurement to the street, annoyance to passers by, and demoralizing to the ideas of those who live in its immediate vicinity. And yet this place is to be retained in spite of remonstrances from the inhabitants that have from time to time waited on the City Sewers Commissioners, and begging them to remove it, or, as some say, make it a substructure, so that a proper decency may be observed, and accommodation given without being detrimental to the neighbourhood, or annoying to the inhabitants. There can be no reasons why the unsightly erections placed against the two churches in the Strand should be tolerated. There was one erected in the Haymarket; but, by the representation of the inhabitants to the proper authorities, it was removed. Let them take the shape of substructures, which cannot offend the eye, and yet will give the required accommodation to all.—J. SANDS.

THE DRINKING-FOUNTAIN MOVEMENT.—A correspondent of the *Gloucester Chronicle* calls attention to the dormant proposal to place drinking-fountains in different parts of that city. Many months since a fountain was erected at the docks by Mr. Nicks, and instructions were given for the erection of a fountain at the Tolsey by Alderman Helps. The principal figure for this fountain has been cast by the Coalbrookdale Company, but the construction of the fountain was deferred until the completion of the Witcomb reservoirs. The Witcomb works are now finished. A memorial fountain has been placed temporarily in the yard of Messrs. Wingate & Sons, builders. This fountain is 30 feet high: it is fitted with three basins, and has been executed by Messrs. Wingate, from a design by Mr. J. W. Huggall, of London, architect. It is to be erected at Bridgend, Glamorganshire, by the Dowager Countess Dunraven, to record her ladyship's esteem for her late steward, Mr. J. Randall. A large reservoir has been formed, and will afford a plentiful supply of water: a main is being laid down, two miles and a half in length, to give the requisite supply to the fountain, and thence by a continuous main to furnish the inhabitants in the town with good water, in the place of the unwholesome fluid which they are now compelled to use. The style of the fountain is Geometrical. In the principal front a clock will be placed. The basins and some other portions are of serpentine red marble, from the Lizard Head, Cornwall. The stone is Forest, Bath, and Bisley. The metal work is by Messrs. Hart, of London, and the clock and bell are by Bennett, of Cornhill.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—The lecture session of this society was brought to a close last week, at their rooms in Conduit-street; when Mr. H. Ottley delivered an interesting illustrative lecture on "Sculpture." Towards the conclusion of his discourse he passed some strictures on the testimonial mania of the day, which had become a crying evil, and crowded our streets with effigies unsightly in themselves, and derogatory to art, and brought down upon it the deserved ridicule of foreigners. Upon this hint an animated discussion followed.

HEREFORD CLOCK-TOWER.—At the quarterly meeting of the Town Council, held in the first week of the present month, a final selection was made from the two selected designs from the competition of last year, when there appeared for Mr. Edwards's clock-tower (an engraving of this was given in the *Builder*), five votes; for Mr. Clayton's market gateway entrance, with clock-tower over, seventeen; giving a majority of twelve for the latter. Mr. Clayton's entrance was therefore ordered to be immediately proceeded with, and the works are already in a state of progression.

NEW SLATE AND MARBLE WORKS, AT GLOUCESTER.—Among the many recent improvements in this city, are new and extensive slate and marble works erected by Messrs. Ford, Brothers, on the site of some wretched cottages in Southgate-street. In the design, according to the local *Chronicle*, the comfort and health of the workmen have been carefully studied and provided for. The completion of the works was celebrated by a supper, to which Messrs. Ford invited about fifty guests, consisting of their friends and workmen, and the workmen engaged in the erection of the new buildings, when much cordial feeling between employers and employed was manifested.

A NATIONAL BOOK UNION.—The prospectus of a Book-union has been issued, headed by known names, such as Layard, Massey, Kay Shuttleworth, W. H. Russell, Trollope, Lucas, Doran, Sala, and others, with Blanchard Jerrold as honorary secretary. The promoters anticipate that "the London Book Union will be to Literature that which the London Art Union has been to Art." The prizes will be books, instead of pictures. The first prize will be a library of the value of three hundred guineas; the second a library of the value of one hundred guineas; and the rest libraries of smaller value. The books can be selected from any catalogues within reach. The large proportion of prizes will be five-guinea libraries. It is the declared object of the promoters to spread their libraries among the working-classes. They therefore intend to receive the subscriptions, of one guinea, in twenty-one shilling instalments, payable within the year, at the subscriber's convenience. These instalments may be remitted in stamps to the office in London, or paid through a local agent. Every subscriber will receive a copy of a new or standard work of the value of one guinea, and the work for 1862 will be an edition of Shakespeare. An Act of Parliament is about to be applied for to legalise book-unions on the plan of art-unions.

REMOVAL OF A TOMBSTONE.—The Bishop of Ripon has ordered the removal of a tombstone placed at a grave in the parish churchyard of Richmond, Yorkshire. The stone consists of an ornamental cross, with a crown of thorns encircling the sacred monogram "I.H.S." The stem of the cross divides the front of the stone into two compartments, on the left side of which is the following inscription:—"Of your charity pray for the repose of the soul of William Priestman, who departed this life, Sept. 6th, 1860, aged 62 years. R.I.P. Eternal rest give to him, O Lord!" Running down the stem of the cross are the following words:—"Miserere me Deus." The interference has arisen in consequence of the purgatorial doctrine implied in the inscription, which is contrary to the Articles of the Church of England.

CAMBRIDGE.—The Cambridge Architectural Society held their third meeting for Easter Term on the 16th, when the Rev. G. Williams, B.D., of King's College, described some churches in Georgia.

—The Vice-Chancellor has given notice that the Disney Professorship of Archaeology having become vacant by the expiration of the period of tenure of Professor Marsden, the election of a person to fill the office will take place on Tuesday, June 4, 1861. —The Cambridge Antiquarian Society held their second meeting for the present term on Monday, May 13, when Mr. Bradshaw exhibited a copy, on vellum, of the earliest primer printed in England, probably in 1494, by Wynken de Worde, with Caxton's types, containing various autographs of the Parr family; one of them Katharine, afterwards Queen of Henry VIII. Other communications were also made to the meeting.

STREET RAILWAYS IN DUBLIN.—After holding out hopes to Mr. Train that he would be allowed to lay down experimental lines from Dublin to the suburbs, the Corporation have suddenly turned round and opposed his enterprise. They on Monday refused to give him permission to introduce his system.

MRS. FRY READING TO NEWGATE PRISONERS. Mr. Jerry Barrett's picture representing Mrs. Fry reading to prisoners in Newgate, in 1816, is an interesting and clever work. Various portraits are introduced,—Sir Fowell Buxton, Mrs. Fry's brothers, Messrs. Joseph John, and Samuel Gurney, and some others. Compared with the female costume of the day, worn by the seated lady, the Quakeresses had decidedly the best of it. The picture is to be engraved by Mr. T. O. Barlow. The impressions will, doubtless, be popular with a class.

DOVER HARBOUR OF REFUGE.—The annual return respecting Dover shows the total estimate is 650,000*l.*, and there have been 459,000*l.* voted already. In the course of the past financial year the foundations of the pier at Dover were extended 84 feet, and they are now 1,429 feet from the shore: the masonry, also, has advanced; and 1,294 lineal feet are completed to the quay level. 180 feet of the foundation of the sea-wall for the junction railway between the pier and the South-Eastern Railway are completed, and the masonry raised to a height of 10 feet.

ENAMELLED STEEL SHIRT FRONTS AND COLLARS.—The cottony Manchester and the steely Sheffield are at cross purposes. In the Manchester starch laundry they are "getting up" shirt fronts, collars, and wristbands, of "enameled steel!" while, at Sheffield, cotton or linen shoddy is about to be manufactured on the great scale, in shape of shirt collars, fronts, and other fragments of piece-meal attire, in a large building, now in course of erection on an eligible stream there. The great Manchester house who have sent forth their business announcement, anent the steel manufacture, describe it as assuming the shapes of "elastic steel shirt collars, wristbands, and fronts, enamelled white." The gentlemen in steel wristbands and collars, we should fear, will feel much as if they were serving apprenticeships to the great Newgate house in the oakum line. But custom is everything, as the cook said to the eels.

TENDERS

For the erection of a tavern and four houses at Southsea, Hants. Mr. Thomas Burton, architect:—

King	.....	£3,503 10 0
Burbridge	.....	3,566 0 0
Abraham	.....	3,453 0 0
Aylen	.....	3,222 0 0
Bull	.....	3,186 0 0

For repairs to a villa at Croydon. Mr. Eppy, architect:—

King & Co.	.....	£266 0 0
Windsor	.....	219 11 6
Rudkin	.....	205 0 0
Greig	.....	177 0 0

For alterations at the Old White Horse, London-wall, for Mr. Jas. Gullick. Mr. F. G. Widdows, architect. Quantities supplied:—

Heath	.....	£1,436 0 0
Rivett	.....	1,433 0 0
Callow	.....	1,400 0 0
Tolley	.....	1,397 0 0
Serjeant	.....	1,390 0 0
Whelan	.....	1,327 0 0
Green & Son	.....	1,290 0 0

For infant-school, Potter's Bar, near Barul, for the Rev. H. G. Watkins, M.A. Mr. E. H. Lingen Barker, architect. Quantities supplied:—

Goswell	.....	£610 17 0
Hall	.....	550 0 0
Patman & Fotheringham	.....	548 0 0
Williams	.....	493 0 0

For a new Wesleyan chapel, High-street, East Sunderland. Mr. John Tillman, jun., architect:—

Conyers	.....	£1,163 0 0
Young	.....	1,014 14 6
Messrs. Ranken	.....	1,000 0 0
Younger	.....	834 2 3

For taking down a warehouse in Short-street, Lambeth, and re-building, using part of old materials, for Mr. Sandell. Mr. John M. Bryson, architect:—

Neyman & Man	.....	£279 0 0
Chutter	.....	275 0 0
Hemmings	.....	260 0 0
Wiseman	.....	245 10 0
Page	.....	224 0 0

For a new synagogue, to be built in Moor-street, Sunderland. John Tillman, jun., architect:—

Messrs. Ranken	.....	£895 10 0
Waldie	.....	875 0 0
Young	.....	840 0 0
Younger	.....	822 15 1
Lee	.....	800 0 0

* Mr. Younger has agreed to do the whole of the works for 772*l.* 7*s.*

For farm-buildings and steading, for the Rev. Charles Lucas, Filly, Norfolk. Mr. John Daymond Ellis, architect, Norwich:—

Dybol	.....	£880 0 0
Worman	.....	805 10 0

For a house at Hornsey-rise, for Mr. J. Spawforth. Mr. George Truefit, architect. Quantities not supplied:—

Carter & Sons	.....	£1,480 0 0
Woodroff & Percy	.....	1,448 0 0
Johnson & Cooper (accepted)	.....	1,388 0 0

For Tetbury congregational church, Gloucestershire. Mr. Thos. S. Lansdown, architect, Malmesbury:—

Brown (accepted)	.....	1,060 0 0
Cordey	.....	748 10 0

For new swimming-bath, and other works, at Charlton Wharf, Woolwich, for the Marine Society. Mr. G. A. Young, architect. Quantities supplied by Mr. Charles J. Shoppe:—

Myers	.....	£1,091 0 0
Lawrence & Sons	.....	1,780 0 0
J. & C. Rigby	.....	1,697 0 0
Adams & Sons	.....	1,658 0 0
Mansfield & Son	.....	1,540 0 0
Clothier & Thompson	.....	1,642 13 6
Smith & Son (accepted)	.....	1,488 0 0

For a new large warehouse, hemp-house, yarn-house, spinning-house, rope-store, and offices, and repairs to the present buildings, at Shadwell, for Mr. J. J. Frost. Mr. Wm. Dobson, architect:—

New buildings.		Repairs.
Jacobs	.....	£3,270 0 0
Wood, Brothers	.....	210 0 0
Patrick	.....	341 0 0
Ennor	.....	235 0 0
Fleming	.....	212 0 0
Maer	.....	383 0 0
Hill & Son	.....	299 0 0
Hack	.....	220 0 0
Perry	.....	200 0 0

For the superstructure, Albion Schools, Ashton-under-Lyne. Messrs. Paul & Ayliffe, architects, Burnley. Quantities supplied:—

Deduct if Hollington stone is used.		
Eaton	£7,081 0 0
Burton	7,075 0 0
J. & J. Longson (accepted)	6,500 0 0

For erecting new parsonage-house for the district of Christ Church, in the parish of Newark-on-Trent, Notts. Mr. Charles Bally, architect, Newark. Quantities not supplied:—

Stainland & Barrett	.....	£1,430 7 0
Pretwell	.....	1,330 0 0
Lane, jun. (accepted)	.....	1,192 0 0

For the restoration of the parish church, Normanton, near Derby. Messrs. Giles & Brookhouse, architects, Derby:—

E. Thompson	.....	£1,170 0 0
Bingham	.....	1,150 0 0
J. W. Thompson	.....	1,163 17 0
W. & C. Bridgatt	.....	976 0 0

For re-building the parish church, Whittington, Derbyshire. Messrs. Giles & Brookhouse, architects, Derby. Quantities supplied:—

Heath	.....	£2,420 0 0
Watts	.....	2,361 1 0
Powell	.....	2,190 18 0
Heath	.....	2,060 0 0
J. Thompson	.....	2,032 13 8
J. Thompson (accepted)	.....	2,018 0 0

For farm-buildings at Belper Lawn, Derbyshire. Messrs. Giles & Brookhouse, architects, Derby. Quantities supplied:—

Stevenson	.....	£1,604 0 0
Thompson & Fryer	.....	1,309 0 0
Robinson	.....	1,355 10 0
E. Thompson	.....	1,350 0 0
Cash	.....	1,334 0 0
Dunsantony	.....	1,250 0 0
Bridgatt (accepted)	.....	1,184 0 0

For new spring shop at the Sheaf Works, Sheffield, for Messrs. Thomas Turtan & Sons. Mr. M. E. Hadfield, architect:—

Wade	.....	£816 0 0
Chadwick & Son	.....	868 0 0
Carr	.....	761 0 0
J. & A. Craven	.....	746 17 6
Gomersall	.....	746 0 0

For restoration of Beddenham Church, near Bedford. James Horsford, architect:—

Bryant	.....	£635 6 4
Young & Co.	.....	620 0 0
Joy	.....	510 210
Conquest	.....	484 0 0
Reynolds & Son (accepted)	.....	478 0 0

For a Workmen's Literary Institute and refreshment-rooms, &c., at Darlington, for the Stockton and Darlington Railway Company. Messrs. Richardson & Ross, architects:—

Hurworth	.....	£1,599 6 0
Windall & Son	.....	1,598 7 0
Robson (accepted)	.....	1,552 15 6

For mansion at Broxwood Court, Herefordshire, for Mr. Richard Snead Cox. Mr. Charles F. Hansom, architect. Quantities supplied by Mr. J. A. Clark:—

No. 1.	No. 2.	No. 3.	No. 4.	Total.	
Hughes	£3,380	£5,308	£1,250	£10,000
Baker	2,920	4,326	1,101	7,426
Thorn	3,193	3,848	1,061	7,060
Coleman	2,636	3,357	1,143	6,959
Weich	2,938	3,645	1,181	7,765
Griffiths	2,853	3,920	968	7,399
Moore	2,499	3,196	998	6,693

* Accepted.

The Builder.

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Notings in the East of London: the Weavers of Spitalfields.



Ever you go East, good reader? Something is to be learnt by doing so,—the miserable nature of the large mass of constructions around the metropolis, the wretched conditions under which many dwell, and the undesirability of offering obstruction to the proposed clearing away of such places by railway companies and others. Going thither from the West, do not overlook the sight to be obtained,—say between the hours of twelve and five,—from the guarded resting-place in the carriage-way from Cannon-street, Chapside, and Fenchurch-street, to London Bridge. From the Docks come large covered vans, heavily laden with all descriptions of merchandise, the produce of every part of the world; while railway

vans, coal waggons, the carts of the country carriers, carriages of the well-to-do, omnibuses, cabs, and other conveyances, form a struggling mass, seemingly inextricable. In all directions, far as the eye can reach, the footpaths, too, are thronged with countless wayfarers. We would have visitors, when viewing the "Lions of London," not to omit this sight, for nowhere else can be witnessed anything which conveys such an idea of the population, wealth, and industry of the nation. Hour after hour of the day, this vast tide of life continues to ebb and flow; and even in the night there is no stillness there. Noting this indescribable bustle, the incessant going and coming to and from the heart of the metropolis, and remembering that there are many other crowded thoroughfares, some notion may be obtained of the extent of the accommodation required by the millions who cause this overflow. The scene which meets the eye shows the necessity of very speedy changes in the mode of transport of both goods and passengers. The rapid increase of the population, manufactures, and commerce of Great Britain, is the world's wonder. Each week the difficulty at London Bridge will increase; and, without very speedy measures, a main artery closely connected with the heart of London will become congested, causing even greater loss and inconvenience than are now felt.

If an extra number of waggons travel from the Docks to the Borough, for a time the traffic is almost prevented. In slippery weather matters are worse; and if Chapside pavement chance to need repair, the delay causes not only a considerable waste of time, but also loss of money. For these and other reasons it is most necessary to push forward the metropolitan railways as rapidly as possible. At present the various railway termini add to the overcrowding: when, however, the whole system has been fully carried out, the advantages will be evident. The road along the Thames, too, is no less essential.

It is not very easy to make way from the spot mentioned to Fenchurch-street station; but, that being done, you may, on the right hand and on the left, view from the railway the homes of people which are on the road to Stepney. We have sketched a morsel of the heap of rubbish.* Can anything more dis-

pidated or ill-arranged than these dwellings be conceived? Here are masses of houses, small in size, badly constructed, without effective drainage, and in many other ways abominable. From the streets, bad as many of them are, stretch back slums which are worse,—alums in which human life is always in danger. Passing Mile-end, we stop at Stepney; and, wandering thence towards the Mile-end-road, it will be observed that in the Stepney district there are many wide streets and open squares. In some of the latter are houses and gardens which have once been pleasant, but have fallen into decay. This neighbourhood would be healthy if it were supplied with pure water, and the drainage and paving in parts were improved; for, generally, there is ample space for the buildings, and the soil is of that kind which gets rid of many impurities. Having passed the venerable church of Stepney and its curious monuments, some alms-houses of recent construction will be seen, which contrast in an agreeable way with many such establishments. The gardens are well kept, and the sanitary arrangements seem to be good. On the front of the houses is the following inscription:—

"The gift of Dame
Jane Mico, Relict of
Sr. Sam. Mico, Mercer, decd.
Built Anno 1691.
Rebuilt

by the Worshipful Company of Mercers
A.D. 1856."

On the way to Mile-end-road, it may be observed that great improvements are going forward. Most of the houses of the silk-weavers in this locality—notwithstanding the present unfortunate circumstances—present the neat appearance which we have before described as belonging to them. In several directions, the cottages—or, more properly speaking, hovels and huts—are giving way to more substantial buildings. At one point, a large space has been cleared, which it is hoped will be preserved open by the parish authorities. A large number of unwholesome houses, unfit for the occupation of families, has been cleared away; and wide roadways and paved footpaths are laid down, along which will be raised, it may be anticipated, substantial houses.

Much objection has been made to the demolition of the houses of the working classes by men who are earnest in promoting the welfare of the industrious and poorer classes of the community; and we have been amongst the foremost in calling for other provision for the occupants, where this is done. When, however, we consider the onward progress of this capital and the country generally—when it is seen that many of the new dwellings of the tradesmen and middle classes exhibit a marked improvement; and knowing too well that, in these districts the families of industrious workmen are placed in homes which weaken, degrade, and destroy them,—we cannot oppose the sweeping away of such chancel-houses.

No one who has thought with care on this most important subject, can avoid regretting the inconvenience which is felt by many during the time of transition. It is certain, however, that good will result. Thousands who had been living in tenements which, during the last twenty or thirty years, have been pulled down, have found their way to houses in decent-looking streets, which, although, as we have often observed, not what might be wished, are much better than those left; and in many localities we find coalporters, dustmen, and costermongers in houses of such character as they would not formerly have ventured on.

As we have often said, if houses of similar appearance, but differently arranged, were provided, they would be better appreciated by the masses of the working classes, than are the large block buildings which have been reared. However, we pass on towards the Mile-end-road—running from the turnpike gate towards the country, in the Roman fashion of a straight line, as far as the eye can reach.

Formerly, as was the case near the Angel, at Islington, and still is in the City-road, long gardens were in front of the houses: these, fortunately, have not been built upon, but thrown into the roadway, which is consequently very spacious. Portions of this are occupied by stone tramways, along which heavy carriages to and from the docks pass readily along. There are several places of note in this road; but our present course only leads us to mention the almshouse for decayed masters of ships,—a picturesque building,—having the front decorated with carvings of old-fashioned ships, dolphins, shells, and other things emblematical of the sea. There is also the following inscription:—

"This Almshouse
wherein 28 decayed Masters and
Commanders of ships or ye Widows
of such are maintained was built
by y^e Corp^y of Trinity House
in 1695.

The ground was given by Capt.
Hem Mudd of Radcliff and
Elder Brother—whose widow did
also contribute."

The day being fine, several of the ancient mariners,—gentlemanly old fellows,—wearing the blue dress-coats, with bright gilt buttons, which were fashionable in the Prince Regent's days, were moving about. Many a tale of the sea, of its dangers and perils, could these worthies relate. Beyond the gate are two rows of the snug little houses which were often built in William and Mary's reign: carved festoons of marine objects form ornaments in several parts. In the centre is the quaint-looking chapel: the little garden-plots are already gay with flowers, and the grass is brightly green. The neatness and cleanliness of every part are remarkable.

From the gate turning westward is a street in which is a market for costermongers: the oily smell of frying fish, which is common in many eastern parts, unpleasantly taints the air, and the scavengers do their duty very badly. We are told that the want of care in this respect is often observable in the atmosphere. Some of the little streets leading hence are planted with very small undrained houses; and from these run courts, in which life must be a struggle. It will be to the advantage of those who now occupy these places if they are swept away. The closet and other accommodation is generally bad.

With difficulty we find our way to Barnsley-street, a place of evil repute, which was one of the possessions of the miserly Mrs. Emsley, who supplied the poor with tenements which the people say were "not fit for dogs," and met with a terrible death. On the road are the church and schools of St. Bartholomew, Bethnal Green. This church, which is one of the ten or twelve churches built by the exertions of the late Bishop of London in this district, is a spacious building: the spire is, however, yet to be finished. The dwellers here regret this very much, the more especially as all the other churches have been completed. It appears that the Incumbent has offered 100*l.* towards this object, and that 140*l.* besides have been collected: the completion of this work would be a great ornament to the neighbourhood.

The boys' school, girls' school, and infants' school are large, plainly built, but useful structures: they are well attended; and truly such schools, where the young can be taught at very moderate cost, are in this district most necessary. We hear of streets in which every door would be thrown open for the shelter of a thief. We see in little bits of waste land groups of men and boys gambling. We hear terrible language, even from very young children. The chief bulk of the people are, however, decent hard-working persons; many of them earning very small wages, but remarkably intelligent, and anxious to get their children to school and themselves into better circumstances. There are indications of this in various quarters; for instance, in the maintenance of cheap schools and penny banks. The St. Bartholomew schools are well deserving of support, and we hear that a benevolent lady, who has done

* See p. 374.

great good in other parts of this district, has been a liberal friend. The Mile-end town charity schools, in the Cambridge-road, also need support.

In this part of the metropolis, as in others, if the masses of the dwellings are dwarfed and dilapidated, the public-houses manage to keep up an appearance. They are gay with placards of "unsophisticated gin," "reputation ales," and "Jones's gin at 4d. that speaks for itself," or makes others do so in a way not very desirable.

It is a feature of this neighbourhood that many of the streets have no names attached to them, or these are so indistinct as to be almost illegible. This has caused the difficulty in finding Barnsley-street. We have at last reached it, and see that great improvements are in progress, for the property has come into fresh hands. The houses, so far as the walls are concerned, are substantial; but when in Mrs. Emaley's care, the interiors were allowed to go completely to ruin; every room was let to a separate family; and the revenue she must have derived by this means must have been very great. Considering it was not good for the people themselves, many of whom were of very bad character, to live in this way, the present owners had certain of the houses cleared of their tenants. The buildings were put into repair, painted, and papered, and into these some of the most respectable of the inhabitants were glad to remove, taking care not to overcrowd. The other houses are undergoing the same process; and as soon as one is finished it is immediately let. The registrar of deaths will be able, ere long, to report on the results of this change.

Close by are many houses in a most neglected condition; for instance "*Pleasant-place*." This is a square of most wretched and dilapidated houses, as our sketch shows. In the centre some people have planted caravans, in which their families live. At one time it was occupied with gardens, and then to the eye it would no doubt be pleasant enough. It is now a scene of wreck and decay, and there are worse branches from this spot—slums occupied with every kind of filth and refuse.

It is not for such places as these—places disgraceful to this great city, and unfit for the occupation of man—that we should strive to stay the progress of improvement.

We spoke just now of the weavers of Spitalfields, and of their present depressed condition—a condition that is constantly growing worse.

Always bearing with patience suffering and distress—always anxious for employment,—the weavers have gone on from bad to worse, until they now seem to have fallen into despair, and means are being taken to enable a certain number of them to emigrate or remove to some better field for labour.

Years ago we directed attention to the Spitalfields silk trade, and recommended the course which is now suggested: the result of the struggle between hand and steam looms was certain.

Notwithstanding the shrewdness of the majority of the weavers in political and other questions, it was not easy to get them to understand the principles which govern the price of labour. They have from time to time petitioned Parliament for the imposition of high rates of duty on foreign silks imported, but they were not anxious to improve their skill in design; and, notwithstanding the great modern improvements in machinery, they continued using the same kind of looms as their fathers and grandfathers had done. They worked singly or in families, without any general organization; and the pressure of the times, or other circumstances, left them in a measure at the mercy of capitalists.

Although the evils which threatened Spitalfields were seen by many others, the weavers were unwilling to believe in the distress which was coming upon them, and were at times angry with those who, taking broad and general views, endeavoured to lead them for their own good. Nor can we much wonder at this, when we consider

that several generations have been reared to this kind of work; the families of the weavers, originally of a foreign stock, have married one with another, and they are generally, in a most remarkable degree, attached to their homes and gardens. The looms used by the men and women form property in which they take interest, and the general disposition of the workers inclined them to hope for beneficial changes, which in the ordinary course of affairs were not likely to occur.

As a contrast to the condition in which the Spitalfields weavers are placed—large families by their united exertions unable to procure the necessities of life; young girls and boys, by the aid of the old-fashioned machine, unable to earn more than a few pence in the week by the labour of silk-winding,—we look abroad, into various parts of England, and find that, with but few exceptions, the remuneration of the labouring classes of the country has been steadily progressing, and that both food and clothing have been considerably lowered in price. Macaulay has shown that, towards the close of the seventeenth century, all classes were paid less wages. Agricultural labourers received only from 2s. to 3s. a week with food, or from 4s. to 5s. without. In 1661, the justices at Chelmsford fixed the rate at 6s. in winter and 7s. in summer: at this time all the necessities of life were dear.*

In 1730, the daily earnings of bricklayers and mechanics employed, at Greenwich Hospital, averaged 2s. 6d. a day, with bread dearer than at present. Even in 1800, the wages of a good mason in London were only 16s. a week, when wheat was 90s. 6d. a quarter. In last week's London market (May 24, 1861), the best English old white wheat sold at from 68s. to 74s. per imperial quarter; new white, 40s. to 66s.; and red wheat, from 39s. to 67s. The same class of workmen are now receiving 33s. a week, and all kinds of clothing materials, silk included, are greatly reduced in cost since 1800. Mr. Chadwick, of Salford, mentions that whilst the actual money wages paid in the cotton trade have increased during the last twenty years, from 12 to 28 per cent., the working hours of the labourers have been reduced by the ten hours' factory bill, during the same period, nine hours per week, or not less than 15 per cent. In the silk mills there has also been a reduction of six hours a week. Mr. Chadwick states that the number of persons in Lancashire, directly engaged in the various branches of the cotton trade in 1859, was estimated at 400,000 persons; and that the average rate of wages paid to them (including boys, girls, and women), was 10s. 3½d. per week, or 10,653,000l. per annum.

In the silk trades an advance of wages has taken place in the branches in which steam machinery and capital have been entirely employed, equal to more than 10 per cent. In some branches of the building trades, since 1800, the amount of wages has been more than doubled. During the last quarter of a century in the mechanical trades (with but few exceptions) there has been an advance equal to 45 per cent. In the miscellaneous trades, including upwards of eighty classes of workmen, the rate of wages has generally been maintained, and in some instances has been considerably advanced; and it is well worthy of notice, that while the hand-loom weavers of Spitalfields are starving, the demand for card-room hands—whose labour requires little skill, and is easily learned—has led to an increase of wages in Darwen, of fully 100 per cent.

In one mill, where twenty years ago, no hand in the card-room earned more than 6s. a week, now many of them earn from 12s. to 18s. a week, with nine hours less labour. The wages-books of a mill near Blackburn and Rochdale give one instance where a father, son, and daughter, earn 2l. 12s. a week, or 135l. 4s. per annum. In another the father and four girls earn 3l. 10s.

a week, or 182l. per annum. These are said to be ordinary examples; but in many families the earnings range much higher. There is one case, in which five daughters and two sons working in a cotton-mill earn amongst them three guineas a week; whilst the father, working as a blacksmith, earns 30s. a week, showing a total income of 232l. 10s. Higher sums than this might be mentioned. It will, however, serve our present purpose to mention that Mr. Baker, inspector of factories, states that the wages paid to the factory operatives of the United Kingdom in 1856 amounted to upwards of 19,000,000l. sterling; that in no branch of textile labour had wages been reduced since 1833; and that the average increase was 12 per cent.,—in one instance 40 per cent.

Considering this prosperity, the demand which exists in various districts for factory hands; believing that the labour can be easily acquired by persons of ordinary ability; and having seen from time to time, and only very recently, the misery and distress of the hand-loom weavers of Spitalfields, we trust that the means will be forthcoming to try the experiment on a large scale of enabling the families from Spitalfields to remove to places in which their labour may be directed into other channels profitable to themselves and useful to others. Emigration to pastoral districts and colonies has been suggested, and it is reported that those weavers who have succeeded in getting to distant places, have done well as shepherds, and in other walks. The expense of emigration to the colonies to any useful extent would be very great, and we think if the weavers were well to consider the advantages which would accrue to them from turning their attention to the kinds of labour which they might obtain in their own land, they would take the course indicated.

It is, unfortunately, the case that, even in need, it is difficult to prevail on English workmen to change their pursuits. We have noticed hundreds of persons who have been reduced to beggary by the changes in some branches of trade rather than turn their hands to some other kind of work which they were well able to manage. For instance, the stage coachmen and guards, and others engaged on the old roads, refused situations on the new railways. Some potters stuck to their antiquated wheels. A few old ladies even to the present day persist in making their stockings with knitting needles, with a great deal of extra cost, and an enormous amount of unnecessary labour.

In the ornamental and artistic departments of labour this peculiarity is frequently to be noticed, and it may be worth while to mention one or two cases.

At the present time, and for the last few years, the improvements in the printing of colours, by means of lithography and block-printing, has caused injury to the trade of numbers of persons, both men and women, who formerly made a very good income by colouring prints by hand. We have heard of a family who, by the cause above mentioned, were thrown out of work: they were without food and in great distress. The father and two sons were clever with their pencil, and had a good eye for colour. On mentioning the circumstance to an ornamental painter he agreed to give them a trial; offering in the first instance, a moderate amount of wages, and agreeing to raise them as they were able to adapt their hands to work. In less than six months the father and sons were in the receipt of first-class wages. As another example, it may be mentioned that when the publication of the annuals, and the introduction of fine engravings into books, came into fashion, there was a great demand for this kind of engravers. In the studio of Mr. Heath, of the Messrs. Finden, and some others, engravers were employed at very high salaries; and many steel line-engravers were able to earn from ten to fifteen guineas a week. The improvements in wood engraving, and the facility which that style of illustration had for rapid printing, the intro-

* See article on this subject in No. 215 of the *Quarterly Review*, published in February this year.

duction of lithography, &c., caused the almost entire disuse of small book plates. The income of the engravers declined; and, in the course of a short time, it was difficult to obtain employment in this branch at all. Some continued, notwithstanding all discouragement, and did an amount of work for 10s. for which they had been previously paid 25s. Others sought for different work: some, who had in their early days acquired skill as map and mechanical engravers, turned again to that, and in the railway times made a good thing of it. Others took to drawing on wood, painting in water colours, or lithography. Others opened print and stationers' shops, and in various ways found employment which enabled them to keep the "wolf" from the door. We could give many other illustrations, but what has already been said will perhaps induce some of the Spitalfields weavers to take a right view of their position, and endeavour themselves and prevail on others to look around and see in what way they can find employment more certain and remunerative than their present work. It is to be hoped that the influential committee which has been appointed will succeed in obtaining such general support that they may not have the pain of feeling that a considerable proportion of 6,000 or so of industrious workmen are hungry and perishing in the British metropolis.

There are other crafts who might usefully take warning by the sad position of the hand-loom weavers of Spitalfields, and endeavour by the introduction of increased skill, a greater degree of taste in the style of their manufactures, and making available to the fullest extent the facilities afforded by modern science, to improve their condition. Without this be done, their labour will fail to be remunerative, and will be eventually superseded by that of others who move with the stream of intelligence.

Our walk, however, has become a talk, so here we end it.

ON THE OPERATIONS LATELY CARRIED ON AT BAYEUX AND CHICHESTER CATHEDRALS.*

THE preservation of the monuments connected with our civil, or our religious, history is a subject of so much importance, and it is one which appeals so strongly to the feelings of all who are connected in any manner with the architectural profession, that it would be useless here to enter into any explanation of the reasons for my venturing again to call your attention to the contemporary events I seek to place in parallel. A great national calamity has befallen us in the utter demolition of the beautiful spire of Chichester cathedral: it seems to be apprehended by persons able to form correct opinions in such cases that the spire of Salisbury cathedral is in a state nearly as dangerous as that of Chichester was about twelve months since; and some others of our most beautiful Medieval buildings are unquestionably in a very unsatisfactory condition. Under these circumstances it seemed, to me at least, very desirable that an attempt should be made to derive all the practical information it was possible to do from the lessons furnished: on the one hand, by the sad accident which has attended the works at Chichester; on the other, by the successful operations of the same nature executed at Bayeux. Possibly, in this manner we may learn the nature of the danger now threatening Salisbury, and the best means of obviating it; at any rate, it is our duty to compare the technical processes adopted in the respective cases referred to, which have led to such markedly different results.

In the case of the Chichester Cathedral, it would appear that the objects which the original promoters of the restoration proposed to themselves, and which served as the basis of the instructions given to the architect, were "to remove the existing choir fittings, and to open out the choir, in order to afford greater accommodation for the public at the cathedral services;" and it was distinctly understood, as I have been informed, that "the works so contemplated were not to include any structural repairs." The article in the *Builder* of March 2nd, 1861, from which the quoted words not in italics have been extracted, proceeds to

observe that "the ancient stalls, and the Arundel screen, concealed, to a considerable height, the surfaces of the piers under the great arches of the steeple." The piers rose to a height of about 45 feet, from the floor to the springing of the semicircular arches; the openings of the latter being respectively 25 feet 8½ inches and 24 feet 2 inches in the portion of the arches which was able to produce any dynamical action. Above the semicircular arches there were some pointed discharging arches of great strength, if we may judge by the published description of them; but as the weight supported by the two series of arches was eventually brought upon the piers at the intersection of the nave and of the transept, their stability, and that of the superincumbent tower and steeple, was in fact made to depend upon the resistance of those piers to the various efforts exercised upon them. "The height of the extreme portion of the steeple was about 272 feet from the ground; the weight of the superstructure" (from the line of the capitals—I still quote the *Builder*) "was about 5,664 tons; the bearing surface of each pier is stated to have been 83 feet" (or 11,952 superficial inches), though from some dimensions I obtained in the cathedral itself I suspect that the available bearing surface was not much more than 74 feet (or 10,656 superficial inches; or, in round numbers, the crushing weight at the springing line might have varied between nearly 264 and 300 lbs. per superficial inch, acting upon an irregular rectangular pillar, whose height did not exceed nine times the dimension of the smaller side; and it is to be observed that the lower axis of the piers corresponded with the centre line of the wider openings, and to some extent with the line of the action of the prevailing wind, thus offering the greatest resistance in the direction of the greatest external action to produce overthrow.

The piers of the tower (as hereafter I propose to call the piers at the intersection of the nave and transept, immediately under the tower and spire), were portions of the early part of the cathedral; and they were constructed, as we can now too plainly perceive, in the very worst possible manner. They were formed of a species of ashlar casing, composed mainly of a tertiary shell limestone from the Isle of Wight, with, from here to there, stones obtained from other quarries; and the interior was filled in with concrete, apparently made of chalk-lime mortar, and broken stones and flint. Now, the Isle of Wight stone itself is said only to be able to support a crushing weight of from 466 to 566 lbs. per superficial inch, when used in the direction of the bed; although I am myself far from admitting the correctness of the experiments on which this statement was made. Yet as the sectional area of the ashlar coating was not more than one quarter of the whole area of the piers, and the mortar of the interior was so badly made as to offer hardly any resistance;—nay, rather, to act in such wise as to tend to burst the outer casing, and at any rate to fatigue, rather than to assist the ashlar;—the wonder really is that the piers should have supported for so many years, as they actually have done, the weight thrown upon them. It is evident, indeed, even now, that some very serious settlements must have taken place in these piers, and in the arches over them, at a very early period in the history of Chichester Cathedral; for on the eastern wall of the transept it is easy to discover that, when the south-eastern part of the transept was built, the horizontal courses over the arches of the aisle had been deranged by the subsidence of the great piers, and that they had sunk to such an extent, in the immediate neighbourhood of the piers, as to require the introduction of a feather-edged course to bring the masonry to a level line. Some distinctly marked ancient movements may likewise be traced to have existed in the various arches still standing in this part of the cathedral, all of which are of a remote date; but little attention seems lately to have been paid to them, because they had not increased of late years, and because the parts of the piers, which displayed the effect produced upon them, were hidden by the woodwork of the stalls, and by the Arundel shrine. On the recent demolition of the last-named accessory details (the stalls and shrine), the defects of the tower supports were laid bare. Large fissures were found to exist in the piers, and in the south-west one it was found that a large portion of the ashlar casing had actually been cut away to receive the Arundel shrine: the nave arches had likewise been distinctly fractured, in consequence of the subsidence of the piers. From all that I could observe, I feel convinced that this subsidence

had arisen from the compression of the masonry of the piers themselves, and not from any compression of the foundations. A state of equilibrium had, however, been attained; and though it might at any moment have been disturbed, had any new forces been brought to bear on the building, yet that equilibrium might in all probability have lasted for centuries if the works for the removal of the screen and stalls had not been undertaken. The vibration of the steeple has been dwelt upon as a cause of the failure of the tower piers to a much greater extent than I think was justified. It is more than probable that at the precise moment of rupture the effect of the wind may have caused a movement which precipitated the fall; but the steeple had for centuries been exposed to and had resisted the effects of gales more severe than the one which is considered to have produced the catastrophe we so much deplore; and even in the early spring of last year (1860) the steeple had been exposed to a gale exercising a horizontal effect more than double that of the gale of 21st February last. The immediate cause of the fall of Chichester spire must, then, I think, be sought for in the operations lately carried on for the repair of the tower piers.

The various instances quoted by Professor Willis of the fall of other steeples, and the accidents which have lately occurred to some of the great engineering works of the age, might have induced the parties entrusted with the maintenance of Chichester Cathedral to suspect that there was danger in disturbing any portion of structures so badly built, as nearly all Medieval buildings notoriously are. I cannot, therefore, for my own part, refrain from expressing my regret that the committee of 1859 should have adopted as their ruling principle "that the accommodation in the cathedral was alone to be attended to, and that no structural works were to be undertaken." The limited instructions given to the architect under this arrangement compelled him to seek for temporary palliations for any evils he might discover in the course of removing the old works; and were, in fact, his justification for attempting to recase the fissured piers, rather than at once undertaking their reconstruction. Still, when a building has stood apparently unmoved for centuries, it is difficult to believe that a few slight jars, or the removal of some accessory fittings which seem to have only a slight connection with the substantial parts of the structure, would be able to destroy that which had lasted so long; and architects and engineers of the present day who are accustomed to build so strongly as to defy even exaggerated efforts, are too often unaware of the risks they run in dealing with the works of the Medieval architects, who were, as a general rule, very ignorant of the scientific part of their profession, so far as the use of building materials was concerned. The fatal, though easily justifiable oversight made at Chichester, seems to have consisted in the belief that the interior of the piers of the tower, was able to support any notable portion of the superincumbent weight, whilst the exterior coating was being repaired. From the state of the ruins, and the nature of the phenomena which attended the fall of the steeple, it seems to me evident, as I said before, that the concrete filling of the piers had been originally executed with chalk-lime mortar, badly prepared, and placed in contact with materials which were able to abstract from it the water necessary for the crystallization of its hydrate of lime. It is said that shortly before the fall of the spire, dry mortar dust, as workmen would say, poured occasionally from the fissures: thus proving that the hearting of the piers only consisted, in fact, of an incoherent mass of dry rubbish, able to flow over itself in the manner of dry sand. It would have been possible to have ascertained whether or not this had actually been the case, before the repairs had gone to any great extent, simply by boring into the columns in several places in their heights; and some additional strength might have been given to the hearting by injecting liquid cement mortar through the bore-holes themselves, if the interior had been found to be tolerably sound. As it happens, any such measure would have been utterly useless; and, speaking as I now do from the vantage-ground of *ex post facto* knowledge, it is evident to me that the proper course to have been taken, directly it was discovered that "the tower piers were worse than had at first appeared," was at once to have removed them, and to have re-built them in sound ashlar work. *A fortiori*, was it necessary to have needed and centred the tower, and the adjacent arches, when the fresh movements declared themselves in November last? If vigorous measures had then

* Read at the Royal Institute of British Architects by Mr. George R. Burnell, on Monday, the 27th ultimo. Report of discussion in our next.

been adopted, it would have been possible to have saved the steeple; in January, when "it was determined to add centres in all the arches," there was still time enough to have prevented the fall; in February, it was too late to do any good, and the building must have been condemned, even had no gale occurred on the 21st of February.

The story of the repairs of Bayeux Cathedral is strikingly like this story of Chichester, though the measures adopted, and the results obtained, were so different in the two cases. Settlements had taken place in the masonry of the tower-piers of Bayeux some centuries ago; recent repairs and alterations in the fittings had laid bare the marks of these movements, and had disturbed the conditions of equilibrium into which the materials of the piers had subsided, so that at Bayeux, as at Chichester, the old movements were resumed; the materials forming the piers themselves began to yield unequally in the section of the piers; but, at Bayeux, the heaving was sounder than the external casing, and it was the latter therefore which gave the first symptoms of immediate danger. The architects consulted in this case seem at once to have perceived the magnitude of the threatened evil, and there was a unanimous conviction amongst them, that the only course to be adopted was at once to rebuild the piers. Differences of opinion, however, arose as to the manner of effecting this object. The diocesan architect and M. Viollet le Duc thought that the simplest and cheapest plan was to pull down and rebuild the tower from its very foundations; others thought that the original structure might be saved by judiciously executed underpinning; and M. Flachet—whom some people would call merely a railway engineer—had sufficient influence to persuade the public authorities to adopt that opinion. M. Flachet then was employed to execute the work of reconsolidation, and he succeeded in effecting it, in the manner and under the circumstances recorded in the very remarkable book lately published by his assistants, MM. Dion and Lasvignes. Bayeux Cathedral still stands, with the original work of its square tower and octagonal lantern intact; and, according to all probability, it will continue to do so for centuries to come. So efficiently have the recent repairs been executed, in fact, that if this glorious structure should again be menaced with ruin, we may confidently predict that the tower will be exempt from the danger, and that its substructure will bid defiance to the ravages of time, so long at least as the stone used for the pillars is protected from the action of frost. I introduce the latter observation designedly, and shall have occasion hereafter to recur to it.

M. Flachet, in this case, commenced his operations (which perhaps I ought to say were only commenced after some injudicious works had been attempted by the local architect of the cathedral) by forming an artificial and incompressible foundation of concrete, upon which subsequently he erected his centres and needles. The concrete itself was supported upon twenty tubes (of wrought iron, and of 4 feet internal diameter), subsequently filled with concrete, and sunk through the earth in such a manner as not to produce any vibration under the pillars; and round these tubes a general platform of concrete, rather more than 9 feet in total thickness, was inserted between the foundations of the piers. The tubes rose about 3 feet into the concrete, and were carried down into one of the stiff blue clays of the lower oolitic formations, into which they penetrated about 2 feet. Upon the concrete bed, M. Flachet then erected a double set of frames of whole timbers, on either side of the centres originally placed to support the arch, for the purpose of forming the seating of a set of needles carried upon a series of screw-jacks, and made to support the masonry of the square part of the tower, a little above the vaulting of the nave and transept. The tower was carefully hooped with iron bars, keyed up whilst they were still hot, so that their shrinkage actually closed the masonry which had previously been fissured over the openings; and before altering the centres to the form M. Flachet thought requisite, he also surrounded the springings of the arches of the nave with a strong wrought-iron cradle, intended to resist the lateral thrust. The centres were then strengthened and modified, so as to allow the easy underpinning of the piers; and the lateral arches of the nave, choir, and transepts, which had participated in the movements of the piers of the tower were carefully shored up. Every precaution was taken to protect the original mouldings of the vaulting, and the sculpture of the capitals, columns, and bases, by incasing them with rubble masonry, against which the shores were made to act directly. It is to be observed that the needling

was totally independent of the centres of the great arches, and was designed solely to support the weight of the tower and octagon above the line of the vaulting; the arches and the spandril fillings were all that bore directly upon the centres themselves.

I must refer you to the book before mentioned for the detailed accounts of the centres, of the calculations on which they were designed, and of the precautions observed in placing them, in making good the old and the new work, and finally in the delicate operation of removing the scaffolding, centres, and needles. I do this with the more earnestness, because I am convinced that the architectural student who might study the various questions incidentally raised with respect to the dynamical efforts exercised, to the strength of the various materials employed, and to the mechanical powers brought to bear upon the work, would rise from such study with a truer view of the importance of the scientific part of his professional education, than would appear to prevail at the present day. In fact, and at the risk of raising an issue somewhat irrelevant to the subject before us, I hold that a properly qualified architect ought to be a scientific engineer, and that a good engineer ought to be equally an educated architect; or, in other words, that the modern distinction between the two branches of our profession is a very unnecessary one. In works such as the repairs of the piers of the towers of Chichester or of Bayeux Cathedrals, the scientific part of the architect's duties prevails in importance over the artistic part; and I know no better authority upon the subject than the book in question. In our own language, I am not aware that any work can be cited in which the operations for the underpinning of a lofty tower have been so elaborately described as they have been by MM. Dion and Lasvignes, who have moreover had the advantage of practically superintending the works they have so well described.

One very important remark remains to be made upon the general subject of the repairs of buildings, so seriously affected as were both Bayeux and Chichester Cathedrals. It is this: viz, that the cost of the works executed by M. Flachet, for the maintenance of the tower and octagonal lantern of Bayeux was not less than 32,220*l.*; and that M. Viollet le Duc had estimated that the demolition and the reconstruction of the same works could have been effected for a considerably smaller sum. I am somewhat sceptical, I must confess, as to the correctness of M. Viollet le Duc's estimate in this latter case; and the amount of Mr. Scott's estimate for the repairs of Chichester Cathedral confirms me in this opinion, even after making all possible allowances for the prices of labour and materials in the two countries, for the local conditions, and the peculiar characteristics of the two buildings. Be this as it may, it is proved that the cost of underpinning a structure of about 6,000 tons weight (in round numbers the weight of the upper part of Chichester tower and steeple was 5,664 tons; that of the tower at Bayeux was 3,700 tons) at a height of about 50 feet from the ground, must have greatly exceeded 32,000*l.* Candidly, I do not believe that previously to the execution of the works at Bayeux, or to the fall of Chichester Tower, any architect who had been bold and honest enough to have said that such a work was necessary, would have even been listened to. Still more firmly am I convinced that no committee whatever would, in our commercial country, and in our industrial age, have succeeded in raising the funds for carrying such a work into effect. The Committee for the repairs of Chichester Cathedral were then, I think most sincerely, perfectly justified in confining their attention to the improvement and alteration of the internal fittings, and, for the time, in avoiding to entertain the consideration of structural defects. The manner in which the partial repairs actually attempted were executed, was unfortunately one which revived the injurious actions previously observable in the building, and which had remained, as it were, quiescent for so many years. But the limits of resistance of the piers must have been so nearly attained when the slight jars produced during their rearing, and the trifling alterations in the conditions of equilibrium produced by the removal of the stalls, and of the Arundel screen, could determine the crushing of those piers, that a cup so full might at any time have run over; or, in plainer words, any gale of wind, able to produce a long series of isochronous vibrations in the steeple, might have produced the same effect, and caused the piers to crush under their action. I am firmly persuaded also that no architect or engineer, but one who had been practically acquainted with the wretched

style of building adopted by the Mediæval builders, and who had witnessed the failure of modern lofty structures, could have suspected *before the fall of Chichester spire*, the truly awful state of the masonry of the piers on which it rested. There was hardly enough energy displayed in the attempts made to arrest the fall when the imminence of the danger made itself felt; but, apart from the regret all true lovers of archaeology must feel at the loss of the original monument, and at the substitution in its stead of a modern copy, it is, to my mind, questionable whether, in the end, the pecuniary cost of re-building the steeple, as must now forcibly be done, would much exceed the cost of underpinning and replacing the original piers and arches. Without being optimists, or holding the extreme doctrine that "whatever is, is right," it should be to us a source of comfort to know that the actual amount of injury produced to one of the most beautiful monuments of the ecclesiastical history of our country has not been greater than the destruction of the steeple, and the adjoining bays of the nave, choir, and aisles, and that, in common prudence, the parties intrusted with the care and preservation of the building could hardly have adopted a different course from the one they have actually followed. That so serious an accident as the fall of this spire should have occurred without injury to life or limb is, I would add, highly creditable to the clerk of the works and to the builder employed; indeed, both Mr. Thompson and Mr. Bushby conducted themselves admirably under these very trying circumstances.

Before closing these remarks, I would beg to be allowed to call your attention to one or two practical questions connected with the nature of the materials employed at Chichester and at Bayeux. On the occasion of the discussion on the paper read by Professor Willis in these rooms, Mr. A. Thompson dwelt upon the small powers of resistance of the tertiary shell limestone, from the Isle of Wight, which had been used in the construction of the piers. He stated that, when loaded transversely to its bed, this material only resisted a load of about 446 lbs. per superficial inch; but when loaded in a direction parallel to the bed, it was capable of supporting a load of 860 to 1,070 lbs. per superficial inch. Mr. Thompson also calculated that the actual load on the superficial inch on the cross section of the piers was not less than 331 lbs., or rather more than my own rough calculation had indicated. Mr. Thompson did not state whether the breaking weights he quoted were the instantaneous, or the ultimate, breaking weights of the stone; and I mention this omission, because it is one which materially affects the value of the information given. Vicat has shown that stones will frequently yield, after three months, under loads which do not exceed one-third of the breaking weight applied instantaneously; and as irregularities in the texture of stones are very common, it is fair to assume that the safety load they ought to be made to bear should never approach even the lower limit. Mr. Thompson stated that the stone had been used bedwise, and therefore in its weakest direction. If so, I cannot but suspect that some error has crept into his observations; for I am sure that a stone which would crush under a load of 416 lbs. would not support for centuries a load of 331 lbs. As to the hearing of the pier, if it had been executed in good clark lime brickwork, it might have carried a load of about 500 lbs. on the square inch, had every imaginable precaution been taken in its execution; executed as it was in bad rubble, or rather in bad concrete, it could not have supported even its own share of the work, or a load of 331 lbs. Under these circumstances the outer casing must have borne a load far in excess even of the 331 lbs. calculated by Mr. Thompson; and they go far to convince me that the safety limits of the shell limestone must be higher than Mr. Thompson's experiments would appear at present to indicate.

Unfortunately we do not possess any tables of the resistance of English building stones to crushing weights, which can be considered to be perfectly satisfactory. All the experiments recorded, excepting the few mentioned in Mr. E. Clark's account of the Menai Tabular Bridge, have been made upon small cubes of at most 3 inches on the side. In practice, however, the resistances are singularly modified by the joints, and the interposition of mortar between the bearing surfaces; whilst Vicat's experiments upon a small superposed cubes seem to indicate that the number of such horizontal joints considerably modifies the resistance of each of the cubes. Again, the results usually quoted, of late years, of the resistances of building materials have been obtained by the

use of the hydraulic press, an instrument which is very likely to get out of order, and whose indications cannot easily be watched with the accuracy required in investigations of this delicate nature. Mr. Hodgkinson, in his experiments on iron, wood, and some kinds of stone; and M. Flachet, in his observations upon the resistances of the Aubigny, Orival, Caen, and Ranville colites, used a system of levers in the applications of the weights to those materials; and though unquestionably there is a probability of the weights being, in such cases, made to bear unequally upon the exposed surfaces, the danger is not greater than when the hydraulic press is used; whilst, on the other hand, it is far easier to apply the load by slight increments, and to watch its action during even a lengthened period. After all, the most valuable observations upon the resistances of building materials are those to be obtained from observation of the conditions of success and failure of actual constructions, such as Rondelet records in his "*Traité de l'Art de Bâtir*."

I said that I would refer to the selection, by M. Flachet, of the Aubigny stone for the ashlar of his new piers; and I do so because I observe that the Aubigny stone is being employed rather extensively in London, and because I am convinced that its use would be attended with danger. M. Flachet chose this stone because it yielded more satisfactory results under the trials he exposed the various local stones to, so far as their resistances to crushing weights were concerned; but MM. Dion and Lasvignes expressly state that the Aubigny stone yielded easily under the action of frost, if used exteriorly. Any one who may have examined the Medieval buildings in the town of Falaise must also be convinced that the opinion last quoted is lamentably correct; for the Aubigny stone used there has decayed in a frightful manner. I am, however, for my own part, disposed to believe that even when used in the interior of a building the Aubigny stone is exposed "to take on" a decay somewhat analogous to the mysterious decay which we know affects the Purbeck or the Petworth marbles in our own cathedrals; and though the sectional area of the piers at Bayeux is so great as to remove any fear of the decay of the outer surface affecting the stability of the structure, yet I fear that the edges of the various courses will ultimately crumble away like those of the Purbeck marble, and produce an unpleasant series of horizontal lines upon the piers. It may be centuries before this effect is produced; but I confess that, knowing what I do know of the Aubigny stone, I regret to see it used in a building destined, I hope, to exist "not for an age, but for all time."

Finally, some importance seems to have been attached by the persons who were charged with the superintendence of the recent operations for the repair of Chichester Cathedral to the use of blue lias lime in conjunction with the stone casing applied to the piers. In this case, I think that the use of that cementing material was a mistake,—of a minor character, it is true, because whatever lime or cement had been used was a matter of absolute indifference, and would in no wise have prevented the fall of the steeple. In all future operations of the same kind, however, to be executed elsewhere, it seems to me that we may learn a useful lesson from what thus occurred at Chichester. Evidently the rapidity of setting, and the hardness of the set mortar, are the most essential conditions to be required of those materials in works of restoration; and, therefore, I hold that the new casing ought to have been set in Portland cement, rather than in blue lias lime mortar. M. Flachet used large quantities of Portland cement in setting the large ashlar blocks he used in the piers of Bayeux; *à fortiori*, a cement of equal energy, should have been used in setting the thin casing applied at Chichester. In addition to this consideration, there is another practical objection to the use of blue lias lime in the south-east of England, in the fact that there are so few masons, or even bricklayers, who know how to use it; and I am strongly of opinion, from what I actually witnessed in the ruins of Chichester Cathedral, that the blue lias lime there employed had never been properly slacked: its hydration was deficient in many samples.

The fall of Chichester Cathedral, and the danger said to menace the glorious spire of Salisbury, raise one singular subject of discussion which may fairly be submitted to this Institute, which boasts for one of its objects the advancement of the true interests of architectural education, and, I hold by implication, of the preservation of the best models of architecture. It is this, viz.,—whether it be not desirable that some organization, analogous to the one which prevails amongst

our neighbours, for the preservation of the monuments connected with the history of the country, should be introduced in England. The central Government of France contributed not less than 28,000*l.* out of the 33,000*l.* nearly spent at Bayeux. The repairs of Notre Dame at Paris will eventually cost the State no less than 360,000*l.*; and, as the ancient buildings of a country are, in fact, a portion of the intellectual property of the whole nation alike, it does seem to me that their maintenance should not be left to local or casual efforts. No doubt the absorption of the ecclesiastical and caputal revenues of the French churches by the Governments subsequent to 1789, has placed the ecclesiastical affairs of that country on a different footing to those of England. Nevertheless, I cannot conclude without expressing the regret that the attempts now being made to complete the restoration of a monument so closely connected with English history as Chichester Cathedral should depend for their success on the results of a public subscription. At present it would, of course, be in vain to expect any assistance from the State, and our efforts must be confined to assisting the subscription list. This may be done with the more confidence that Mr. G. Gilbert Scott has more entrusted with the execution of the future works,—a fact which ensures that everything which science, skill, and taste can bring to bear upon them will be applied.

EXHIBITION IN HALL OF THE PAINTERS COMPANY.

THIRTY-EIGHT competitors have sent in 160 specimens of graining, marbling, and "decorative art," in reply to the offer of prizes by the Painters' Company. These are now exhibited at Painters' Hall, No. 9, Little Trinity-lane, Cannon-street West, City, where they will remain till the 30th of June inclusive. Admission is gratuitous.

The judges appointed by the Company, assisted by some members appointed by the Council of the Society of Arts, have awarded the premiums as follows:—No. 5, writing on glass, B. Edmett, silver medal and freedom of the Company; No. 17, ornamental pilaster and sanded decoration, William Simpson, No. 102, Mary-street, Hampstead-road, bronze medal; No. 18, inlaid marbling and graining and panel-decoration, Thomas Donatti, in the employ of Messrs. Morant, Boyd, & Morant, silver medal and freedom of the Company; No. 21, inlaid marbling and graining, W. Bette-ridge, in the employ of Messrs. Morant, Boyd, & Morant, silver medal and freedom of the Company; No. 25, Arabesque, C. Kitzrow, in the employ of Messrs. Morant, Boyd, & Morant, certificate of merit; No. 30, practical writing, John Henry Trotter, 8, St. Dunstan's-hill, certificate of merit; No. 31, practical writing, D. O. Haswell, 49, Greek-street, Soho, bronze medal; No. 33, marble columns and inlaid marbling and graining, Chas. Hibble, 22, Grafton-street, Fitzroy-square, certificate of merit; No. 34, graining and marbling, Wm. Jas. Cloake, 7, Gt. Dover-street, Borough, bronze medal; No. 36, practical graining and marbling, John Taylor, 5, Compton-street, Bermondsey, silver medal and freedom of the Company.

The judges have probably taken circumstances into consideration of which we are ignorant, so that we should be wrong to question any part of their decision. We must confess, however, that one or two of the candidates who are not rewarded appear to us to deserve to be so, more than one or two who are.

There are some good specimens of graining and marbling, but of the higher sort of decorative work there is nothing. With reference to the specimen of Writing on Glass (No. 5), to which the silver medal and freedom of the company were awarded, it is to be regretted that the "Commandsments" were made the subject, since the style adopted is as uneccelesiastical as can be conceived. The writing and flourishing are very good of their sort, but then it is a horribly bad sort,—the Christmas piece and show-card sort.

The Company deserve warm praise for the movement. We went so fully into the subject on a previous occasion,* that we need not now recur to it.

PICTURES BOUGHT BY THE ART-UNION OF LONDON.

WORKS SELECTED BY PRIZEHOLDERS.

From the Royal Academy, up to this date.—The Hero of the Day, F. B. Barwell, 168*l.*; The Skylark, J. A. Houston, 10*l.*; Harvesting in the Vale of Conway, W. F. Wulher, 10*l.*; The Fair Person, Robert Baker, 5*l.*; A Herring boat off Scarborough, J. Meadows, 5*l.*; Building a Rick, F. W. Hulme, 40*l.*; The Stirrup Cup,

A. Conper, R.A., 31*l.* 10*s.*; The Trysting Place, F. Chester, 30*l.*; Fishing Vessels off the South Foreland, J. J. Wilson, 25*l.*; Duck Shooting, Abraham Cooper, R.A., 25*l.* 5*s.*; 'Mang the Braces of Balguthrie, W. H. Paton, 21*l.*; Preparing for Dinner, J. M. Bowkett, 20*l.*; Fishing Snack, J. Meadows, sen., 18*l.* 18*s.*; A Windy Day on the Thames, R. C. Williams, 18*l.*; The Stream from Newlands, E. A. Pettitt, 16*l.*

From the Royal Scottish Academy.—Ruined Temples and Convent of La Madonna, George Pettitt, 100*l.*; A Quiet Pool, John Curdie, 25*l.*; On the Crawfordland Water, John Curdie, 21*l.*

From the British Institution.—The Anxious Hour, Wm. Underhill, 100*l.*; Near Portmadoc, H. B. Willis, 40*l.*; The Stream from the Lake, H. J. Boddington, 30*l.*; An Arm of the Scheldt, A. Montagne, 20*l.*; On the River Lieder, J. B. Smith, 20*l.*; Boarding a Trawler, W. H. Doust, 15*l.*; The Thames at Wargrave, H. B. Gray, 15*l.*; Lane Scene near Dover, J. Godet, 15*l.*; French Fishing-boat at Anchor, J. J. Wilson, 15*l.*; Left in Charge, A. Morris, 15*l.*; Drifting from Shore, H. Shirley, 15*l.*

From the Society of British Artists.—Market Day, E. J. Cobbett, 20*l.*; Evening on the Greta, H. J. Boddington, 75*l.*; Merchants encamping on the Desert, W. Luker, 60*l.*; St. Ives Pier and Harbour, G. Wolfe, 40*l.*; Happy Waltonians, G. A. Williams, 30*l.*; A Torment near Dollygill, H. J. Boddington, 30*l.*; The Muleteer, H. Weeks, jun., 30*l.*; Gipsy Group, V. Shayer, 30*l.*; Children and Rabbits, A. Frowie, 30*l.*; On the River Lieder, J. B. Smith, 25*l.* 5*s.*; Park Entrance on a Misty Morning, J. B. Lubbock, 25*l.*; Mending the Net, W. Shayer, 25*l.*; Marathon Beach, G. Wolfe, 25*l.*; Salmon Trout, H. L. Rolfe, 20*l.*; Evening View in North Wales, J. B. Smith, 20*l.*; On the River Clifton, E. Taylor, 20*l.*; A Blowing Day, A. Clint, 20*l.*; View of the Village of Callender, W. W. Gill, 18*l.*

From the Institution of Fine Arts.—The Harvest Field, S. Percy, 31*l.* 10*s.*

Sometimes I let a sunbeam slip,
To light her shaded eye;
A second "butter" round her lip. } C. J. Lewis, 30*l.*;
Like a golden butterfly.

Harvest Scene near Clifton, B. Shipham, 25*l.*; Italian Peasant Girl, C. Nicholls, 25*l.*; Stepping Stones, F. W. Hulme, 25*l.*; Repose, J. C. Morris, 21*l.*; Rydal Water, Geo. Pettitt, 20*l.*; Shipping off the Coast of Jersey, H. H. Taylor, 20*l.*; A Gipsy Summer Haunt, A. F. Rolfe, 22*l.* 10*s.*; A Mountain Tarn, S. R. Percy, 20*l.*; The Pass of Pont-Aber-Gleyn, B. Rudge, 15*l.*; Scene on the Avon, H. B. Grey, 15*l.*

From the Old Water Colour Society.—In Harvest Time, O. Oakley, 52*l.* 10*s.*; Marigold, W. Callow, 20*l.*

From the New Water Colour Society.—Cape de la Heve, T. S. Robins, 30*l.*; Near Castel-a-Mare, J. L. Rowbottom, 30*l.*; Bouvignes, on the Meuse, Mrs. W. W. Oliver, 21*l.*; View of Goodrich Castle, Jas. Fahey, 15*l.*

ON THE REVIVAL OF STYLES.*

If we are to consider the question between Gothic and Classic as a mere matter of taste (I mean arbitrary taste or fashion), we must bear in mind that this is notoriously liable to fluctuation. In the last century, Addison spoke of the greatness (as regards effect) of the Pantheon in contrast with the meanness of a Gothic cathedral; and, though it is not probable that the Gothic style will again be treated with the same contempt; yet it is by no means impossible that the relative estimation in which the two styles are now held will, in the course of time, be reversed.

What appears to me an insuperable obstacle to the general use of Gothic in the present day is that very quality which invests it with the greatest interest: I mean its expression of the tone of the particular period which witnessed its development, its culmination, and decline. And the restorer of Gothic seems to be liable to one of the following predicaments:—Either the style he produces is expressive of the thirteenth, fourteenth, and fifteenth centuries, and not of the nineteenth,—and then it is not Gothic, for Gothic is eminently expressive of the period in which it flourished; or his style is expressive of the nineteenth century,—and then it is not Gothic, for Gothic is expressive of the thirteenth, fourteenth, and fifteenth centuries; or his style has no expression at all,—and then it is not Gothic, for Gothic is an eminently expressive style. Nor do I see how he can escape from the dilemma, except by showing that the tone, spirit, character, state of civilization and refinement, and stage of progress of the present century are identical with that of the Medieval period. If he can prove this, he will overthrow my argument; but I suspect that the more he studies Medieval architecture, and the history to which it forms an adjunct and commentary, the more difficult he will find his task. And I believe this view of the subject has been taken by persons far more intimately acquainted with the matter than I can pretend to be.

It will perhaps be said that the same line of reasoning holds good with regard to all genuine architecture whatever. Unquestionably all great architectural works take their character from the period in which they were produced, and express it accordingly; but this may not be so much from the nature of the style itself, as from the manner of handling it. In Classic architecture, we can in great measure separate the style from the building. The style may in itself have no individual expression, while the building has a great deal.

* Vol. xviii., p. 357.

* By the Rev. J. L. Pettit. See p. 350, ante.

In Mediæval architecture, the style itself is expressive; and therefore, if transported to a period to which it does not belong, it runs the risk of expressing something which does not exist to be expressed, and consequently of being anomalous and out of place. The Classic style, having no peculiar expression of its own, except that of refinement, may be endued by the architect with any expression his genius enables him to invest it with, and will readily receive and reflect the character of the age and people who adopt it.

Moreover, there is a greater affinity between our own age and country, and those in which ancient Classic architecture flourished, than between ourselves and our Mediæval ancestors. Our tastes in art and literature are nearly identical. Take any fair specimen of our literary style,—a leading article, for instance, in any established newspaper,—and we shall find in it the same excellences which we should look for in a good writer of the Augustan age;—clearness, force of expression, a happy choice of words, fluency, and harmony of rhythm, an avoidance of anything quaint or archaic, and an elegance resulting more from instinctive perception than from an elaborate selection and arrangement of our phrases: these are beauties which must be attained in a greater or less degree by every writer who intends to be read. And these are just the characteristics of good Classic Roman authors; so that we might introduce literally translated passages from Cicero, Sallust, or Cæsar, that shall altogether harmonize with our own natural style, and not appear in the slightest degree antiquated or obsolete. We read and enjoy Horace's odes, satires, and epistles as if they were productions of our own day and our own country: we like them for themselves, and not merely as curious relics of the past. Nor should we feel that any poet who might form his style upon the study of these compositions was taking a retrograde step. So in sculpture. The student who wishes to obtain eminence and to advance his art will exercise himself in copying, or carefully studying, the works of ancient Greek, Roman, and Renaissance artists; and though he will not neglect Gothic sculpture, he will not make it the great object of his attention, nor look to it as a standard of excellence.

I am speaking of literary composition and sculpture as arts which may be communicated and advanced, and in which we can mark certain stages, whether of progress, culmination, or decline; and I believe I may say, without fear of contradiction, we are not making a retrograde movement while we set up classic models. Genius and inspiration may show themselves in any age, whatever be its state of refinement; nor can it fail of having an effect upon the progress of mankind; but we must not mistake the genius of an individual for national development. We should not look to Homeric Greece for a type of the Greek language in its completeness and purity; nor should we go back to the days of Giotto and the great Mediæval artists whose genius led up to the Renaissance for models of Italian art in its perfection.

But I must not dwell too long upon abstract points: we will take a more material view of the subject. The difference between the constructive principles of Classic and Gothic architecture is that the former professedly uses the beam or lintel; employing the arch rather as an expedient than as a predominant feature; while the latter may be said to be purely the architecture of the arch, admitting the lintel at rare intervals and on a small scale. But the artistic principles of the styles may be enunciated in a still broader and more summary manner. The Classic gives expression to the solids, Gothic to the voids. Take a Greek colonnade. The columns, capitals, and entablatures are carefully elaborated in their form and proportion, while the opening between them is left to itself, or its breadth determined upon with a view to the columns themselves, not to its own shape. In Gothic work, on the contrary, it is the form of the opening that engages the attention of the architects, the spandrels being the parts that in point of shape are left to shift for themselves. Hence the greater portion of classic ornament finds its place on the surface of the wall, while the soffits and jambs, unless the depth of the arch be such as to give it the character of a vault, are comparatively plain. In Gothic work the decoration is mainly in the soffits—sometimes in the form of delicate and complicated mouldings, sometimes of flowers and foliage occupying the hollows; while the mouldings themselves branch out into foliation and tracery, filling the arch with beautiful patterns and figures. Even in the decoration of the surface the forms of the openings are repeated in blank

arcades and panelling; and the enrichment of the piers themselves has reference rather to arches they support, than to their own importance as solid masses, or to the actual wall above them. The tendency of the Gothic system, as carried out in its works of the highest order—that is, in its cathedrals—is to the construction, or at least the suggestion of a lantern of open-work,—a vast frame of stone, in which the portions of flat wall are reduced to the smallest amount possible, such as the choir of Tournay cathedral, which is so tender that it has been found necessary to connect every part together by ties of iron.

Now in Roman work the pier, or the wall itself, is made to attract attention, while the arch or opening, whatever it may be, is a secondary and subordinate feature. Change all the arches of the Coliseum into square-headed openings, as those in the upper stage, as well as at Pola, actually are, and I suspect the change in its character would be much less than we are apt to imagine.

Now, I am far from pronouncing the Gothic system to be wrong; and it is undoubtedly productive of great elegance, force, and spirit. But I would maintain that the classic principle of giving expression to the walls themselves, rather than to the openings by which they are pierced, is architecturally sound. We build for the sake of what we get by the walls and the roofs they support—namely, enclosure and shelter,—not for the sake of light and air, which we have in abundance without them. It is indeed necessary that we provide a sufficient supply of light and air, as well as means of access; but these are contingent necessities, not the main object of the building.

Again, the tendency of Classic is to breadth of effect; of Gothic to minute subdivisions, and an almost fantastic variety of outline. The traveller on the Continent will probably be struck, as he proceeds southwards, with the increasing breadth which characterizes the towns, villages, and groups of buildings. He cannot fail to notice the preponderance, so to speak, of mass over outline. In a Mediæval town in the north of France, and in the greatest part of Germany, his attention will be caught by the number and variety of towers, spires, pinnacles, peaked gables, and the like; on which great powers of design, as well as care, in the execution of detail, are bestowed, while the mass itself is as much broken up, as may be by openings and projections which cause a constant play of light and shadow. In the south, he will have presented to him large and comparatively unbroken masses, marked by few openings or projections, with just a sufficient number of towers and spires to relieve the monotony of the outline, and these not displaying that architectural care, or elaborate variety, which would make it suppose they were intended to catch the eye, or form principal features in the group. In sketching an Italian village, or monastery with its church, we need not care about marking out all its windows or putting them in their right places, or even giving to a nicety the form and proportions of the belfry, still less its details: in fact, the more slightly we define these, the more truly we shall give the character of the scene. Now, though these southern buildings and groups may be really in date just as Mediæval as the northern ones of which I have just spoken, they have more of the Classic character, which in Italy was retained in great measure through the whole of the Middle Ages: in fact, the composition of a large majority of Italian Gothic buildings, is such as to suggest no definite reason why Gothic details should have been employed in preference to Classic ones, so much does the horizontal line predominate. We may therefore fairly speak of this character of breadth as belonging to the Classic, and that of variety of outline and intricacy, or minute subdivision, as appertaining to the Gothic.

But although the classical style does not peremptorily demand that variety of outline which is so necessary a part of Gothic, it by no means discards it as incompatible with its principles. Many steeples of the revived Italian are as fine in proportion, and as elaborate in detail as any Gothic composition. I may instance the upper part of the tower of Seville cathedral, and many of Sir Christopher Wren's steeples, which show both the fertility of his imagination, and the comprehensive nature of the style he employed. I have, on a former occasion, adverted to the liability to decay incurred by the intricate and minute workmanship of Gothic ornament; and I understand that the condition of the ornamental details on the new houses of Parliament is not such as to induce me to retract what I then said. But I would further remark, that, although the constructive principles of the style are sound and good, so that, in many

cases, the greatest amount of strength is obtained by a given quantity of material, yet the tendency on the part of the architect to make a display of mechanical science has been the cause of much real, as well as apparent weakness in important buildings. The lamentable fall of the Chichester steeple is, probably, to be attributed to the fault, not of construction, but of material. Yet, it is certain that the perilous boldness of many Gothic designs ensures more fearful results from the introduction of a defective piece of masonry, or unsound material, than are apt to occur in Classical buildings.

It may be said that the Gothic style can be worked in a broad and massive manner, as it was in castellated architecture; and to such an extent, that in adapting a Gothic castle, or an imitation of one, to domestic purposes, the difficulty is to avoid making the walls too solid, and the windows too few and contracted, for comfort. But this mode of building was forced upon the architect by necessity, not adopted by choice. The requirements of military architecture rendered necessary this expansion of wall, and contraction of window, and the builder dealt with it as he best could. The harmony which exists between the dark heavy fortress and the light open cathedral is a proof that both were designed in the natural style of the day, while the difficulty we feel in preserving the expression of the style in our domestic buildings, which require larger, and consequently more truly Gothic windows than the Mediæval castles, is a proof that it is not the natural style of our own period. But the less display the Gothic makes of constructive science, and the less aid it borrows from such additions as pinnacles, tracery, and the like, and the greater the breadth and solidity of its masses, by so much the further does it recede from its own principles, and approach nearer to Classic architecture. An adaptation of the style to our own exigencies is not a development of it in its own proper direction, but an appropriation of some of the elements and characteristics of the rival style. We shall never develop Gothic further than it has already been developed, except by erecting buildings far less suited to our wants than Mediæval ones of the most exaggerated character. As it is, we seem to fancy that we can attain the life and vigour which constitutes the charm of the true Gothic, while we can only adapt it to our purposes by curtailing and cutting off the growth of many generations.

On the argument in favour of Gothic which rests on the superiority of decorated construction over constructed decoration, I cannot say much till I find myself better able than I am to comprehend the distinction. Is construction a term applied only to the more subtle contrivances of the architect, and not to a plain solid wall or pier, so that a mere wall enriched with surface ornaments is not a decorated construction? Are such pinnacles as those of Gloucester Cathedral and the Somersetshire churches, which are extremely beautiful in themselves, but in no way contribute to the strength or convenience of the building, decorated constructions, or constructed decorations? Which term should we apply to pinnacles engaged in the sides of towers, or to blank arcades and panelling? If a square-headed window in a classical front has over it a projecting ledge supported by brackets, and covered by a pediment forming a tympanum, I suppose this would be called a constructed decoration; at least, I should call it so. How, then, if a Gothic window has over it a label resting on heads or bosses, and crowned with an angular canopy, crocketed and terminated by a finial, a composition of constant occurrence in the finest work of the fourteenth century? Observe, the two compositions are perfectly analogous: it may be that the one is heavy and ugly, the other light and beautiful; but the principle is the same in both. I do not condemn surface ornament or constructed decoration in Gothic; only when it does occur, let it be called by its right name, and not ignored for the sake of a plausible, but somewhat fallacious argument.

We will now consider what ancient buildings are in existence, belonging to recognized styles, which suggest a mode of construction and arrangement applicable to our wants, and of decoration suitable to our best views of art.

If we look at the Parthenon of Athens, or the Temple of Neptune at Paestum, we are impressed with its wonderful beauty, majesty, and sublimity; and as we acknowledge this to be the result of careful arrangement and adjustment of proportions, together with exquisite design shown in the simplest and smallest details, we cannot but treat with a certain degree of reverence the rules and principles which led to such a result; and, although we consider the plan of the building

itself unsuitable to our purposes, yet we feel that it is well worth our while to study it diligently, and think how we may turn to account the lesson we cannot fail to learn.

If we look at the Coliseum at Rome, and endeavour to forget the purpose for which it was erected, and the scenes which were enacted within its area, we must regard it as a work of almost unexampled magnificence, and at the same time admit that it presents a type of arrangement and ornamentation applicable to all tabulated structures whatever.

If, again, we look at a large Gothic cathedral,—say, for instance, Amiens, Chartres, or Rheims, or, in our own country, York, Lincoln, or Salisbury, we cannot but be astonished by the grandeur of its design, the mechanical skill displayed in its construction, the richness of ornament which is profusely spread over it, and the character of religious solemnity which pervades the whole. Yet we cannot help feeling that it is not a structure likely to be called for or produced in the present day. Its associations belong to an age more sharply and distinctly separated from our own than are even those of Pagan antiquity. Its principles of composition are not adapted, without some modification, even to the large churches we demand, and are rather opposed than otherwise to the conditions required by secular architecture. As records of one of the most interesting phases of art and social progress that it is possible to conceive, the Mediæval buildings of Europe are invaluable, independently of the practical lessons to be derived from them; and to preserve them we must keep them in repair, which we are not likely to do unless we make what use of them we can. Fortunately, most of them can be made available to our purposes to a certain extent, though in large towns it has often been found expedient to destroy the old church and build a new one of more commodious arrangement; while how to make the most of our cathedrals is a problem that has more than once puzzled their restorers.

The architects of the Classical revival, seeing that their style must necessarily prevail in secular buildings, wisely and rightly adapted it also to their ecclesiastical buildings, still without making any material alteration in their plan or structure. They cut off, indeed, some of their superfluous ornament, and reduced them to an aspect resembling the Romanesque, to which style, indeed, we might easily attribute many churches of the revival, if we see them at a distance, and with some we might fall into the mistake even on a closer inspection.

This leads us to enter a little more fully upon the subject of general outline. That the Greeks were keenly alive to the picturesque, and probably had a more refined notion of it than any race of men before or after, we have good reason to suppose. The instinct with which they selected the finest sites for their buildings, and the scrupulous care with which they avoided interfering with the natural features of their scenery, as though hardly a rock could be cut away without offending some deity who presided over it, shows with how deep a feeling they were actuated on this point: a glance at the Acropolis of Athens and the surrounding locality convinces us of this quality of the Greek mind, even if we did not infer it from their love of country, or had not learnt it from Homer, Æschylus, and Sophocles. It is most likely their buildings were designed not only to harmonize with, but to illustrate, as it were, the character of their scenery. Certainly the rock of the Acropolis and the Parthenon seem made for each other: we could not fancy the temple in any other spot; and the rock without the temple would be imperfect. But it is likely that their feeling of the picturesque was of too refined a nature to suggest that they should aim at what we call a striking outline: it may have taught them to prefer one that might have been chargeable with monotony but for some exquisite tact in its composition; and that such buildings as the Choragic monument, formerly known as the lantern of Demosthenes, ought to occupy some low and secluded spot, instead of contributing ostentatiously to the variety of the skyline. Of course, I can only speak from conjecture, for we have not sufficient data on which to ground any theory on this subject. The massive forms, however, and long horizontal lines of their temples, indicate that they aimed at the expression of repose, rather than violent action, and this is confirmed by the character of their sculpture.

Neither have we the means of judging what views, with regard to outline, influenced the Roman architect. The beautiful monument of St. Remy, in Provence, shows that the power of producing good form existed: the monuments at Vienne, on the Rhone, and Igel, near Trier, are

less remarkable for their beauty, though the latter is not wholly destitute of grace. The triumphal arches of the Romans hardly, I think, show the elegance of which such structures might be capable: that, however, of Trajan, on the pier of Ancona, is an exception. The magnificent arch at Orange is more remarkable for the profusion and delicate execution of its ornament, than for any excellence in its architectural design. At Athens there is an arch of Roman construction, I believe of Hadrian's date, of a lighter and more elegant design than the triumphal arches of Rome, but still of no very great beauty. Some of the Roman circular temples may have had a good outline, if the assumed restorations are at all true; and one at least we know to occupy as fine a site as can be imagined, and in its present ruinous condition, to be well worthy of it: I mean the Sibyl's temple at Tivoli. The Pantheon at Rome can never have been a picturesque building. As antiquaries, we may regret the addition of the modern turrets flanking the porch, but in an artistic point of view they could ill be spared. The temple of Minerva Medica forms a very picturesque ruin, and may have been no less so when perfect, but I cannot help looking at this as a transitional specimen. In its use of buttresses, it forestalls one of the great principles of Gothic construction. On the whole, if we were to assume that the general outline of ancient Rome was less varied and interesting than that of modern Rome, and that the effect produced on the spectator would depend rather on masses of building occupying sites of different elevation, than on prominent architectural features, no one could easily find grounds on which to contradict the assumption. But the revivers of the style have taught us that it is fitted for an outline of the greatest beauty and sublimity, and capable of a picturesqueness of composition not surpassed in the best Mediæval period. And this shows that their work was really a revival, and not a mere formal reproduction. In tracing the development and progress of taste in the composition of outline, we shall advert chiefly to ecclesiastical architecture, because it affords us examples in greater number and in better preservation than any other kind; and also because it has less restricted art by mere economical or utilitarian considerations.

I am inclined to think that the circular churches, derived from Roman temples of the same form, are the first which exhibit that kind of outline which is produced by the central tower or dome, and which has characterized churches of the highest class ever since. The Eastern form, however, of the Greek cross, with the dome or tower at the intersection, is evidently a very early one, perhaps the earliest original form of a church that exists; for it does not appear to have been derived, like the basilica and round church, from Pagan structures.

The solution of the problem, how to adapt a spherical dome to a square area must have introduced a new era in architectural composition. The value of the dome had long been recognized as a method of roofing at once firm, permanent, economical, and beautiful; but, so far as we have means of knowing, it had hitherto been used only to cover buildings of a corresponding form, as the Pantheon. The cruciform plan seems also to have been introduced, to a certain degree, for the sake of convenience, into the Roman basilica, and its symbolical meaning would give it an additional recommendation in the eyes of the early Christians; but the roof throughout being generally flat, the square of intersection would be treated in the same way as the arms or aisles of the building, and neither receive nor suggest any additional height, externally or internally. When, however, it was resolved to take advantage of the domical method in roofing the square of intersection, making the other roofs of the building cylindrical or semidomical, according as the limbs of the cross were rectangular or apsidal, then, since the base of the dome had to rest by means of pendentives on the crown of the four arches, its apex necessarily exceeded them in height, and consequently rose above the vaultings, supposing them to correspond with the arches of intersection. This is true, not only when the dome is a complete hemisphere supported by pendentives, but also where it is a part of the same hemisphere to which the pendentives themselves belong, or any other segment of a sphere whatever. Hence the adaptation of a dome to the square of intersection in a cross church requires a superstructure raised higher than the arches, and consequently suggests one raised higher than the walls and roofs, both externally and internally.

Probably S. Sophia in Constantinople was not

the first example of a dome resting on four arches; so bold an experiment could hardly have been tried on so large a scale for the first time. Many of the domical churches in the eastern parts of Europe are small in their dimensions, and have no architectural detail but what might be of considerable antiquity. If we cannot confidently pronounce any particular specimen to be of a date earlier than the reign of Justinian, we cannot positively deny the existence of such at the present day, and I think we may at least assume that those to which we now have access are fair representatives of some of the earliest original Christian structures ever designed.

S. Sophia is somewhat unique among Byzantine churches, and has rather the character of the mosques which surround it, and which were built after its pattern, than of the churches generally erected in the East at that time and for many succeeding centuries. S. Irene, now converted into an armory, is the next in size to S. Sophia of those in Constantinople, but very much inferior in dimensions, the diameter of the dome being, if I remember right, less than one-third. I cannot tell how far the present outline is original; it is perhaps the more pleasing of the two. The outlines of some of the old Greek churches in Constantinople, and in and about Athens are extremely graceful, I may say noble, as giving to structures small in actual scale, an air of dignity and importance. The central dome assumes the form of a circular or polygonal tower, of some elevation, and there is a certain breadth about the composition which prevents any idea of meanness. The actual ground-plan is square, but the upper stage from which the dome or tower rises, is a Greek cross. To the westward is a narthex or porch, which is sometimes covered with another dome, lower than the principal one. The pendentives supporting the dome required themselves the support, abutment, and protection of the walls above the springs and haunches of the arches on which they rested, and by raising these walls above the crown of the arches additional strength was given, and the whole fabric consolidated. Hence the round or polygonal drum of the dome mostly stands upon a square base, slightly raised above the level of the other walls; and when the central dome was adopted, as it soon was, in the western church, at the intersection of a Latin cross, the square base often became a square tower, enclosing within itself a circular or polygonal dome, which then formed only an internal feature. This is an arrangement which prevails through the whole of the south of France, and in parts of the central and more northern provinces. In Italy the central tower is generally a low octagon. As a satisfactory outline was thus obtained, the central tower was used even when no dome or lantern was shown internally.

If a campanile was required, this was provided, not by raising the central lantern to the requisite height, but by building an independent tower, as in the basilican churches. The combination of the central lantern with the belfry tower produces some of the finest and most picturesque effects of outline in ecclesiastical architecture. Such combinations are mostly to be found in the Romanesque period. I think we meet with them more often in Italy than in France, where the central tower first attained sufficient height to cover the lantern, and afterwards grew still higher, and became the highest and principal steeple in the church. Whether this was an improvement, is a matter of taste. For my own part, I am very partial to a fine central tower or spire, but I am not certain whether, on true architectural principles, we ought not to prefer the low massive lantern of the Italian Romanesque, combined with the taller and more slender campanile; the central lantern giving by its breadth dignity to the most important part of the building, namely, the intersection of the cross, and the lofty tower giving the same feature value by its contrast, and breaking the monotony of outline. Add to which, the arrangement is evidently a good one as regards convenience, by detaching the belfry from the area of the church, and allowing walls of any degree of massiveness that may be required. The cathedrals of Piacenza and Parma, the cathedral and another church at Asti, many of the churches in and near Pavia and Milan, and the cathedral of Monza, present fine examples of the above arrangement: some of these are later than the Romanesque era, but retain in great measure the general character of the style. In England we have unfortunately so little unmixt and unaltered Romanesque, or as I would rather call it, Norman, that it is difficult even to imagine a typical example, and such buildings as Tewkesbury, Southwell, and Romsey, show how grand

must have been the outline of a perfect English church of the first class in that period. But Normandy furnishes us with better preserved examples of the style from which we may form an estimate of its general aspect and character. The well-known church of St. George, Bocheville is, I believe, as pure a specimen as can be found, and its outline, simple as it is, seems to admit of no improvement. It may be questioned whether the present wooden spire agrees with the original design; I am, however, speaking of the building so far as the actual masonry and the necessary roofs are concerned. I question whether the development of the Pointed Gothic really improved upon the best outlines exhibited in the Romanesque. We certainly gave greater height, and varied, perhaps confused, the general outline of the building by pinnacles and buttresses. Where the central tower was retained, it was frequently raised to a much greater height than its use as a lantern rendered necessary. The central tower of York, which is open nearly to the top, is an exceptional instance, rather than a type of Gothic central towers, and is unquestionably one of the finest, if not the very finest, in existence. And it is certainly one of those that are least removed from the Romanesque model.

Again, on the Continent, the central tower was altogether sacrificed to the attainment of height in the whole building itself, which, in consequence, often appeared rather a shapeless mass than a fine architectural composition. The profusion of pinnacles employed seems rather intended to disguise the want of design, than to mark, as they ought to do, important points and divisions. Some of the best outlines in Normandy, comprehending the low central tower, and loftier, but less massive western ones, though Gothic in detail, as that of Lisieux, are wholly Romanesque in character, and those which assume more of the Gothic are not improvements: the heightening of the English central steeple, though the effect resulting from it is sometimes extremely beautiful, as at Salisbury, is seldom carried out without some sacrifice as regards internal arrangement or actual security. I am quite aware that we find many ugly buildings, and many buildings of a fantastic outline, that belong to the Romanesque period. In Germany, and even in France, I could point out both one and the other; but it is certain that in that period a very beautiful type of composition appeared, the simplicity of which, and its independence of additional ornament, stamps it with a degree of refinement which is scarcely preserved in the more advanced stages of Mediaeval architecture, when features of mere decoration became abundant. The best architects of the *renaissance* evidently felt this, and in their ecclesiastical structures, for which they found no available precedent in ancient classical architecture, they returned to this Romanesque type, and in a short space of time a large number of churches were erected, showing a full appreciation of those early models. Many would, at a short distance, be taken for buildings of a date anterior to the thirteenth century. The cathedral of Dax, south of Bordeaux, would, at first sight, be pronounced Romanesque: it is, in fact, Revived Italian, except an incomplete Gothic tower at the west end. At a village between Eprenay and Reims I noticed a church at a distance, which I made sure of as a fine Romanesque specimen. On examining it, I found it clearly post-Gothic. I may have been disappointed at the time, but it now proves valuable to me as an example.

When I had the honour of reading a paper at the South Kensington Museum, rather more than a year ago, I showed some drawings of Spanish churches in the Revived Italian style, whose general outline had altogether a Romanesque character. I am still of opinion that these churches might be studied to advantage in the present day, as securing really fine architectural features at little or no sacrifice of convenience, and at no exorbitant expense. In Italy the combination of the low lantern tower with the lofty campanile, was continually reproduced; and still further grandeur was obtained by expanding the central lantern into a spacious dome, which became the predominant feature both externally and internally. Such domes had indeed been more than suggested by the early Byzantine and circular churches, but the revivers of classic art worked them out with an elaborate care in regard to proportion, and often with a success which almost reminds us of the elaboration of the column in Greece. That of St. Peter's, as it is the largest, is, to my mind, the finest example that can be brought forward. I have endeavoured to procure a tolerably true outline, comparing my own sketch with an engraving that appeared to me a very

exact architectural elevation, and making corrections accordingly. Many prints and drawings make it too round and heavy, and most of the photographs I have seen are taken from a point that does not show it to the best advantage. But though St. Peter's is the finest example, it is but one out of a vast number, which exhibit a great variety of forms and proportions, nearly all of them pleasing to the eye, and giving quite as much character to the Italian landscape as the Gothic tower or spire does to the English.

Had the dome been congenial to the Gothic, it would surely have been introduced in that style, a style which certainly is not chargeable with timidity in adopting new forms and combinations. The arrangement of the central part of Ely Cathedral offered opportunity for its adoption. Yet we find an octagon, with a Gothic vaulting adapted to it, in the best way the architect could devise, and that architect was one of more than ordinary fertility of resource.

Without for a moment depreciating the grandeur of a fine Gothic interior, I must observe that the Classic style contains elements of at least equal grandeur, if not greater. The churches of St. Andrea in Mantua, St. Justina, and the cathedral in Padua, are not inferior in solemnity of effect, to any Gothic edifice whatever. Had St. Paul's been carried out according to the design preserved by the model, I can conceive no interior that would have been equal to it. An impression of vastness would have been produced by means totally opposite to those employed in Gothic; and, to judge from the model, even more effective, while the variety of perspective views, and the fine alternation of light and shade in broad masses, would have given a picturesqueness scarcely rivalled in the eminently picturesque Mediaeval styles. If I am right in believing that there is a picturesqueness of repose as well as of action, a picturesqueness depending rather on breadth and mass than on intricacy and multiplicity of parts, then I cannot be wrong in asserting that the Classic may meet the Gothic even on its own ground, on at least equal terms.

Still, if constructive considerations should render a pointed arch desirable under any circumstances, its admission does not necessarily involve that of the whole Gothic system. The pointed arch was used before Gothic was developed, and in localities which were the last to receive the Gothic style. Saracenic architecture has the pointed arch, but it is not Gothic, neither are those domical buildings in Aquitania which employ the pointed arch, without an approach to Gothic moldings, in the support of their pendentives. But even supposing the pointed arch to have belonged exclusively to the Gothic, we may borrow it if we really want it, without professing to revive the style. It is not an architecture to pass away without influencing any succeeding style: we are not obliged to choose between accepting all or none. There is one very important element of Gothic which we should be foolish to reject, and of which, if I mistake not, the Renaissance architects saw the value, and by its means considerably modified the rigidity which might have resulted from a strict imitation of the ancient Classic: I mean, the oblique surface of decoration. The use of this much facilitates the enrichments of our buildings, while we exclude heavy and incongruous ornament, and enables us to retain such beauties of Gothic sculpture as are not inconsistent with a more severe and refined style.

As, in advocating the revived Classical style, I would not urge the rejection of everything which belongs to the Gothic, still less am I anxious to defend the glaring defects which characterise so many specimens of the Classic. I would not perpetuate the cold formality of most of our professed imitations of the Greek, nor the feeble, unmeaning, uninteresting character which prevails in so much of our work that claims a derivation from the Roman. But a discussion upon the defects that may be enumerated in Classical buildings, and upon the causes which, independently of Mediaeval sentiment, have tended to bring the Classical style into disrepute, would occupy a great length of time, and I am not sufficiently master of the subject to enter fully into it. I believe, however, the greatest defects in the style are of a superficial character, and admit of removal. By clearing them away we shall give it a vitality and vigour which its evident congruity with the practical spirit of the age cannot fail to preserve; while the consistent stability of its nature, the very reverse of that restless tendency to change which is one of the essential elements of Gothic, will make it a permanently effective style, at least till the present conditions of society become altogether changed.

PROPOSED PORTRAIT OF THE LATE PRESIDENT OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE Council have nominated the following gentlemen as a committee for obtaining a portrait of C. R. Cockerell, esq., R.A., to be placed in the rooms of the Institute, and for presenting to him an address, on his retirement from the office of president:—

The President of the Institute (chairman); the three Vice-Presidents; the Hon. Secretaries; of the Council, Messrs. B. Ferrey and C. C. Nelson; Royal Academicians, Messrs. P. Hardwick and S. Smirke; Fellows of the Institute, Messrs. A. Ashpitel, G. Godwin, W. Papworth, and J. P. Seddon; Honorary Fellow, Mr. A. J. B. Beresford Hope (treasurer); Hon. Member, the Rev. R. Burgess; Contributing Visitors, Messrs. H. Twining and J. W. Fraser; Associates, Messrs. G. Enoch and T. Roger Smith; and Mr. Robert Kerr, hon. secretary to the Committee.

IMPROVEMENTS IN DWELLINGS.

IN an article entitled "Modern Luxury," which appeared in the *Cornhill Magazine* lately, is shown how much of the utility and comfort of life is sacrificed to what are the orthodox luxuries and ways of modern custom.

I have often thought that it is rather hard the scientific poor, if I may so express myself, should be deprived of the essentials of health and true life, in order that the ridiculous purposes of fashion—for there are fashions of high life, fashions of low life—may be subserved.

Four examples:—"Do not use the bright poker," says my lady, in middle life. "Be content with ill-cooked chop on cold plate," says lower life, rather than that science should teach the crinolined partners of the lower estates of society (every woman has her hoop), that all is not *fit* which is *orthodox*.

Soyer showed us all how much better it is to take a metal dish, with a chop upon it, and cook it over a *gauze*-fitted smokeless gas-burner; on another burner to fry, or to boil, "pommes de terre," than to worry the dame below-stairs to do and dirty a great many things, badly, and out of all time.

The dear old "duke" said—"He" who wants a matter done must do it himself." How true this is, to be sure; all through the world, even with shirt-buttons, airing clothes, &c. Now, what is wanted as an axiom in modern residences for poor bachelors, and poor married folk with their 1004, or 1504, a-year, is such an order of construction, and of affairs and details, that each man, or dainty fingered, large-skirted Eve, may be his or her own servant, if he or she so please.

It is a fact that, now-a-days, servants are most difficult to procure. Government gave "free passage" to "household servants of good character," this at a time when there were not enough already for our household gods. I met a gentleman who was too late to an appointment: he excused himself (a few days since) with—"I have been after eight characters, and failed, to get a cook." Sir, my lady is compelled, rather than single cursedness, to marry such a poor literary or inventive stick as may be the writer of this; well, it is rather hard that our modern builders and architects do not yet see how, much more than they do, they could assist the Eves of the great English human family.

What can be more unscientific than our average ranges and fire-grates; our dust and soot, and clamped walls-end and ashes; the transport of hot water and cold from basement to garret; the transport (not of delight) of the washings up and down stairs—carpeted stairs?

With regard to sound too. Our modern buildings are so made that the literary man or artist, or brainworker of any kind, cannot get out of hearing of the baby-cry. "McFlimsie," in last week's *Punch*, begs "Maria" to keep the child quiet in the other room. This is all part of our modern system of discomfort, which does not enable the brain-worker, who is poor, to fence himself off, during his brain-work, from the rest of his family. In winter he must ask for fire, or water, or cooking. He is dependent on others. But modern science should make things so easy, that bachelor or Benedict could be independent, in the meanest dwelling, of others, for fire, water, cleanliness, or cooking.

This may sound outrageous to some creatures of habit; utopian to others who are slaves to petticoat tyranny; but, as I said in my last, with gas in sound pipes and joints to insure health; with self-relieving hearths, emptying out their own

dust behind, with a sliding contrivance; with water and enamelled sinks and baths; with enamelled cooking-ware and smokeless flame; with horsehair and leather (*qy. Nicholas, of Russia*) *versus* what Mr's Nightingale justly denominates "putrescent feathers in frowy cotton cases;" with ventilation at pleasure, and even a coal fire (or its asbestos semblance) at will; each bachelor may, his own servant, be best served;—"monarch of all he surveys," none disputing his right, no perspiring charwoman or quasi-voluptuous chamber wench disturbing the "serenity of fancy."

The architects and builders of England must rightly appreciate what is wanted to make homes happy, to prevent premature marriage, to fly from thrice-cursed charwoman bachelorhood, to prevent the social evil by marriage, rendered terrible in consequence of modern follies, rendering small incomes useless as producing no health, no quiet, no cleanliness, no comfort.

Our rooms are heaped with useless furniture, and spread with nailed-down carpets. Better by far than this was even the jounced fire, and rushes, and broad hobs, and sink, and rafters, and hearthstones, and chattels hung aloft, of Teniers, Hogarth, and Wilkie.

In your last there is a letter about "Furnished Lodgings." If, sir, anything is contemplated on the "model" plan of this kind, let true comforts be considered,—air, quiet, water, aspect, economy of labour to the resident male and female.

Our modern washing apparatuses, Yankee knife-cleaning contrivances, household roller mangles, gas-warmers, boilers, broilers, roasters, bakers, or enamelled sinks (see your advertisement sheet), and utensils; our cleanly kamphulicon floor-cloth *versus* dust-devouring carpets on stairs, &c.; our aerated—not bread but—*bricks*; our Arnott's ventilators (there are no better); our iron bedsteads (anti-flea as they are); our delicious, wholesome mattresses of horsehair, cocoa-fibre, cork, jute *versus* unwholesome wool; these and many other triumphs of plodding ingenuity and diligence are at hand for the architect to specify, prescribe, or advise. There are many as useful, which are too slowly struggling into light of day. But to use all these items beneficially we must reform, and first point out, and first *feel* before we can reform, our modern systems, our orthodoxies, our customs in-doors and out of doors, so that the architect's labours may be appreciated, and poor young men and poor young women, whether married or single, may be more truly their own masters of food and cleanliness, and comfort in their own homes. Every man's house is his castle. Those who come home tired and sorrow-stricken, wounded in battle of life, want household necessities to their hand, bath to their hand, cooking to their hand.

Let a man, if he so please, wash and feed before he meets his better half (often the worse half); then there will be fewer cases for the Divorce Court. Let each man know, who is a Benedict, that one room at least is a castle to him; that he need not necessarily seek the kitchen if his wife is querulous or washing. I mean no bad compliment to wives or maids; but, in modern homes of the poor or ill paid, bachelors and Benedicts alike are worse served of all, because, *volens volens*, obliged to be served by others. W. RIDDLE.

DINNER TO THE ROYAL ACADEMY AND THE ROYAL SOCIETY.

The Lord Mayor and the Lady Mayoress invited a distinguished party to meet the Council of the Royal Society and the Council of the Royal Academy, on Saturday evening last. Nearly 300 persons were present.

The Lord Mayor, in proposing the toasts of "The President and Council of the Royal Society" and "The President and Council of the Royal Academy," alluded to the prodigious strides which science had made, the discoveries that had been brought to light, and the new means and appliances which had been invented during the present century. They were such, he added, as our forefathers could hardly have conceived to be within the grasp of the human intellect; and if any one had ventured, half a century ago, to predict results in science which had since been actually achieved, he would have been scouted as a visionary or a madman in ascribing to the human mind attributes and powers altogether supernatural. His lordship also alluded in complimentary terms to the progress of art, as attested from time to time by the exhibitions of the Royal Academy and kindred societies. It was a proud day for him to have collected at his table so many men renowned in the departments of science and art; and he felt

that no act of his mayoralty would afford greater satisfaction to his fellow-citizens.

Major-General Sabine responded to the compliment on the part of the Royal Society; remarking on the pleasure they had in revisiting the city of London; where, for half a century after its commencement, its members held their weekly meetings, by favour of the trustees of Gresham College, in an apartment belonging to that body. Since that time, for the last century and a half, the Royal Society had pursued "the noiseless tenor of its way;" holding, in the western part of the town, periodical meetings for the advancement of science, and publishing from time to time its well-known volume of "Philosophical Transactions," which had been long regarded as the national record on such subjects. Such public services, he added, were in other countries usually performed at the expense and under the authority of the State; but, conformably with our habits, were here discharged by voluntary association. He adverted with pleasure to the feelings of mutual regard which had always obtained between the members of the Royal Society and the Royal Academy; and he expressed the acknowledgments of his colleagues and himself in being included among the guests of that festive occasion.

Sir C. Eastlake, in replying on the part of the Royal Academy, said that assembly was a gratifying proof of the estimation in which the arts were held in an enlightened community like the City of London. It was not because the fine arts were connected with commerce that they were held in such high estimation; but, as he was persuaded, on account of their higher recommendations as auxiliaries to education, and as offering to all, by their universal language, the means either of instruction or rational enjoyment. Of the readiness of the civic authorities to encourage the fine arts they had ample proof in that hall, with the admirable productions of sculpture which adorned it, and to which, he was happy to learn, other specimens were about to be added. A few weeks since he took occasion to observe—not on his own authority, but repeating what he believed was the general opinion—that a great improvement had taken place of late years in the street architecture of the city of London, and that it combined in many instances objects of public utility with the requisites of taste. He held an opinion on that subject different, perhaps, from that entertained by most other persons. It was, that solid and handsome buildings, even in irregular array, were more picturesque than those interminable, monotonous lines which were sometimes admired in foreign cities. The very difficulties of site occasionally resulted in novel and beautiful arrangements which were not attainable under other circumstances. It was formerly said that the merchant princes of the city of London were so absorbed in the pursuits and cares of commerce that they showed little consideration for the fine arts; but the history of that and other capitals and their own personal experience sufficiently refuted that assertion. In those countries and cities where commerce flourished a love of the fine arts was the invariable accompaniment of that elegance and refinement of life which were there witnessed. His own early associations were connected with the most agreeable recollections of a genuine taste for art among the merchants of London. The first choice collection of pictures and drawings by the old masters with which he had the happiness to be familiar—he spoke of half a century ago—was in the possession of Mr. Jeremiah Harman, at his house in Old Broad-street, which was the scene of many delightful evenings to some of the most distinguished connoisseurs of the metropolis of that day. Thus, from individual and grateful recollections, and from general observation, he was ever prepared to uphold the taste and love of art which characterised the citizens of London.

The Lord Mayor, when he gave "The Literature of England," coupled with the toast the name of Earl Stanhope.

Earl Stanhope said he was sure he spoke the sentiments of those whose healths they had just drunk, when he said that it was with great gratification they found themselves associated that evening with the chosen representatives of science and art. It was that combination of science and art, and the spirit and liberality of municipal bodies, which had done such great things in former times. It was a combination which was extinct in the last century, but it prevailed in the Middle Ages, and was the means of raising such magnificent ecclesiastical buildings as those they saw at Strasburg, or such splendid public edifices as they admired at Louvain and Bruges. This combination, which he hoped would be revived in the

present day, and which, as it existed in the Middle Ages, had produced those immortal works of art, was far more laudable than the indifference to science and art which in the last century was too often seen. Then the men who raised splendid edifices were often themselves content to dwell in humble abodes, whereas, in the last century, the wealthy thought no degree of comfort or luxury too great for themselves; while they took no interest in the erection of adequate and beautiful public buildings. A better spirit now prevailed in this country; and it was evidenced by the appearance of that noble hall, to which the Lord Mayor of the greatest city in the world had invited men eminent in the arts and sciences, and other branches of intellectual pursuits, to partake of his hospitality.

The toast of "The Literary and Scientific Societies" was acknowledged by Sir R. Murchison.

The Lord Mayor proposed in appropriate terms "The Health of M. Fould," who, he said, had been for many years the prime minister of the Emperor of the French, and who was not only a great statesman of France, but one who had long been at the head of the government department which had the control of all the scientific institutions of that vast empire.

M. Fould, in the course of his reply, said,—I find, at the present moment, two guarantees for the continuance of peace: the one is the treaty of commerce, which will render the connection between the two countries more intimate and enduring. That is an event which will best illustrate the glorious reigns of your gracious Queen and of my sovereign. Another ground for believing in the continuance of peace is that Universal Exhibition which is preparing in London for next year. We, in France, have accepted eagerly the invitation which has been given to us, and we shall endeavour to win as much as we can in the peaceful contest. That great display of the productions of human intelligence and labour can only be conducive to trade and industry, which are the surest guarantee for peace.

TELEGRAPHIC.

THE stretching of telegraphic wires across the tops of houses and streets is exciting some stir in provincial towns. The *Birmingham Gazette* says, on this subject,— "We cannot admit the right of any company [the United Kingdom Electric Telegraph Company is more particularly referred to] to use the streets of Birmingham at its pleasure, without at least applying for permission to do so. Nor will the evil stop here. The Magnetic Telegraph Company are not unlikely to ask permission to bring their wires through the town; and they propose to follow the example of their competitor by stretching their line from house to house across the street. If the Electric Telegraph Company should adopt the same course, some of the principal streets will present the appearance of sheets of copy paper, ruled with anything but faint lines. The disfigurement is, however, by no means the only objection. Telegraph wires not unfrequently break; and so great is the tension to which they are subjected, that if a line were to snap, the falling fragments would seriously injure and probably kill any passenger whom they might strike." In the Banbury Board of Health, too, the subject has been exciting some discussion.—*Le Monde Illustré* gives an illustration and a lengthy notice of Professor Hughes's letter-printing telegraph, an invention which was brought prominently, two years ago, under the notice of English telegraph engineers. Professor Hughes, it appears, has exhibited the working of his instrument in the presence of the Emperor, who "recognised its advantages," and the Administration of Telegraphs is, it is stated, in treaty with the inventor for the application of his system. M. Bergon, Le Directeur Divisionnaire des Lignes Télégraphiques Françaises, has made a report, according to the London *Engineer*, very favourable to the printing telegraph; the sufficiency of its arrangement for securing synchronous action being dwelt upon, as also the low battery power, and the great rapidity with which the instrument may be worked. The printing telegraph, it is further stated, has been worked successfully on the longest French line, that between Paris and Marseilles, about 500 miles in length, without relays. The rate of transmission was about double that by the Morse system; and it was expected that, when the operators became better practised, a speed of from 2,000 to 2,500 unabbreviated words per hour would be attained, as has already been done in America, where the Hughes's instruments are in extensive use.

SKETCHES IN THE EAST OF LONDON.*

*House-tops from the Railway.**"Pleasant Place," New Square. Pretty Lodgings,—for Pigs.**Opening the Way and letting in the Light.*

[* See p. 358, ante.]

THE GROSVENOR HOTEL, PIMLICO.

In our last volume* some particulars were given of the large and handsome hotel which is in course of erection by Mr. Kelk, from the designs of Mr. J. T. Knowles, architect, close to the Victoria Terminus of the Brighton Railway, with which, indeed, it directly communicates.

The building is now more nearly completed externally, and towers grandly over the adjacent houses. The accompanying view represents the road front; but, from the smallness of the scale, scarcely conveys a complete idea of the amount of curving and decorative cast work which the exterior presents. The carved heads seen in the

spandrels on the first floor are in Portland stone, and represent various well-known persons,—her Majesty the Queen, the Prince Consort, Humboldt, Lord Palmerston, Lord Derby, Lord John Russell, and others. The enriched imposts, the perforated window hoods, and the lower balcony, are of bath and other stone. The enriched string, the trusses, and the leafage, are of Portland cement, coloured while "green," to match the stone. The carving was executed by Mr. Dayman, and is for the most part very satisfactory.

The main frontage is 262 feet; the side frontage, 75 feet. The height, to the highest part of the roof of the wings, is about 150 feet. The coffee-room is 69 feet by 36 feet, and 18 feet in height. The chimneys are all finished with Mr. John Billing's terra-cotta terminals, and will have his

iron regulating "throat valves," instead of register doors. Moreover, every stove is supplied with air separately and directly from the exterior, with regulating valves. By these arrangements it is expected that every apartment will be wholly free from all the usual annoyances of smoke and back smoke. The apparatus also affords a system of ventilation for each respective apartment. It is stated that the expenses of these important, but hitherto much neglected details, when included in the contract, scarcely, if at all, exceed the cost of the ordinary modes of fitting chimneys with stoves, chimney-pots, &c.

The hall will be enriched with scagliola columns, and promises to be very handsome. The works are at present retarded by the unfortunate differences between masters and men.

* Vol. xviii., p. 755.

THE GROSVENOR HOTEL, PIMLICO.—MR. J. T. KNOWLES, ARCHT.



GLASS AND ITS DECORATION, WITH PHOTOGRAPHS IN ENAMEL COLOURS.

On the 22nd ult. Mr. F. Joubert read, at the Society of Arts, the following paper, "On a new Method of producing on Glass Photographs or other Pictures, in Enamel Colours."

Of all the inventions to which the genius of man has given birth, and which have been progressively developed and brought, by his industry, to a high degree of perfection and usefulness, the art of glass-making is certainly one of the most interesting and extraordinary; at the same time as it is doubtless one which has tended to increase our comforts and our enjoyments in a degree almost unequalled by any other discovery of modern civilization.

If we look back to the dark ages, and find that in those days even the rulers of the earth had no means of keeping rain and bad weather from their habitations, except by also shutting out the light; we shall be ready to acknowledge the astonishing results, as compared with the present state of things around us, which the persevering efforts of man have, under the guidance of an ever-merciful Providence, been able to accomplish.

Before entering into the description of the process which is more immediately the subject of our meeting this evening, I would, in a concise manner, and, as far as the necessarily limited time I have to occupy this place will allow me, recapitulate the history and progress of the invention of glass itself, and of glass painting which has led to the process before us.

We have no distinct evidence to show what nation first used glass, and we must therefore be satisfied with the various traditions transmitted to us, from age to age, on the subject. One fact, however, seems established beyond the possibility of a doubt, viz., that the greatest antiquity can be assigned to this invention, since the Egyptians and the Phœnicians had both vessels and ornaments made of glass, crude in form, but of a substance so perfect, by whatever means obtained, that it has stood the trial of several thousand years, and may be pronounced to have suffered no deterioration. Might we not, in consequence, assign to glass a place in the list of useful inventions far higher than that which it occupies? for in this we have a discovery, the first inventors of which seem to have attained, at once, the very condition—durability—which humankind is incessantly bent upon obtaining for any produce of its hands.

But still more remote is the mention of glass in the Holy Scripture; for, if the interpretation of the text be a correct one, in the 18th chapter of Job, as also in several other parts of the Bible, is found an allusion to a substance which we imagine must have been glass. Next to this, Alexander Aphrodisias amongst the ancient Greeks, Lucretius, Plavius Vopiscus, and other Latin authors, have left us a correct description of glass. Aristophanes also alludes to glass in one of his plays, and Aristotle brings out two problems on the subject; the first, why is it we see through glass? the second, why can we not bend glass?

Admitting that these two propositions emanate from the celebrated philosopher, they appear to give conclusive evidence that glass was familiar to the Greeks.

But we may, perhaps, even trace the origin of this invention far earlier, and to the remotest period of the existence of man, by associating it with the art of making bricks, which was, it is believed, practised by the earliest inhabitants of the earth; and it is not difficult to imagine how such an art would originate.

Man was led, by his subsistence, to seek a mode of preparing animal food for his use by roasting it over the fire; and having, in the course of time, built rudely a sort of oven made of earth, and the earth having become hardened through the action of the fire, our forefathers would soon discover all the advantages that might be derived from such a process for making brick or pots, and utensils for common use. Specimens of the potter's art in ancient times we have in plenty, and in a variety of forms and shapes, which for elegance have not been surpassed. We need only allude to the Etruscan vases in the collection of the British Museum.

In firing bricks it will not unfrequently happen that some kind of vitrification takes place in the bricks placed in the hottest part of the fire; and one might naturally suppose that one process would lead to the other; but such does not appear to have been the case, at any rate, for many centuries. Later, horn and skins were in use down to the third or fourth century of the Christian era, and oiled paper or mica was also used in lieu

of window glass, nearly up to the time of the reign of Elizabeth. If we are to give credence to the narrative of Pliny, to accident alone, as in many other instances, are we indebted for the discovery of glass. Some traders, being weather-bound, landed on the banks of a river in Syria, and began to prepare a place in the sand for cooking their meals, after having gathered for fuel a great quantity of an herb known there by the name of *kali*, which plant must have contained a large proportion of carbonate of soda, and this, being mixed with the sand, yielded, through the agency of fire, a sort of vitreous substance. Such is one of the accredited versions of the origin of glass.

Glass has at all times, until recently, been thought a substance of great importance; and even amongst the primitive inhabitants of South America and of the Indian continent, who were, when first visited by the early European navigators, found to possess gold and silver ornaments in abundance, it is well known that the first discoverers of those countries who happened to land in search of food or water had no difficulty in obtaining from the natives gold in exchange for some valueless pieces of glass, or a few glass beads which they would immediately use as an ornament round their necks or their wrists. As late as the middle of the last century glass beads, of various descriptions and of all sorts of colours, were extensively manufactured in France, principally for exportation to the colonies of South America and the islands of the Pacific Ocean.*

It may be said that, although glass is an article of first necessity to us, it is at the same time one with the nature of which very few persons are well acquainted; and the learned have even been often at variance as to the exact classification glass ought to belong to. It is not a mineral, since it has never been found in a primitive state in any country; neither can it be placed in the vegetable kingdom.

Glass has become with us an article so singularly cheap and common, that we are apt to lose sight of its immensely diversified qualities; but if only considered from a philosophical point of view, we shall find that few of the substances which we have in daily use, either in a simple or compound state, can be compared to glass in point of importance and of usefulness. Firstly, unlike any mineral, it is inodorous and clean to the fingers, and does not lose any of its weight by usage or wear: it is always transparent, whether in a cold or a red-hot state: it can take any shape whatever while in a state of fusion, and it retains it absolutely after it has cooled: it is capable of receiving the highest polish, and of taking any coloured tint, either on its surface or in its body; and it also has this peculiar and invaluable advantage that it does not retain the taste of any liquid or acid it may have contained: it is the most flexible of substances while in fusion, and becomes harder than any pure metal when once it has become cold: lastly, it is not liable to rust, nor to be consumed by fire.

The applications of glass are now so numerous that it is difficult to imagine any one branch of industry or of manufacture which could be carried on for a single day without the use of glass in one shape or another. To some of the most important amongst the sciences, such as chemistry, physics, astronomy, the use of glass is a matter of absolute necessity; and, in proportion to the gradual and increasing requirements of these last-named sciences, especially astronomy, it will be found that the glass manufacturer has been obliged to perfect his mode of manipulation; and, by the aid of chemistry, has of late years obtained such magnificent results that the field for astronomical observation has thereby been considerably enlarged.

It appears that, although vessels made of glass had been in use for a considerable time previously, it was only about the third century of our era that glass began to be used for glazing windows. These consisted of an infinite number of small panes of various shapes, which were arranged so as to form certain designs for the ornamenting of windows in places of worship; glass having, on account of its rarity then, been almost, if not entirely, confined to that use.

St. Jerome, who wrote in the fourth century, speaks of glass in church windows; and Grégoire de Tours relates, two hundred years later, in the year 525, that a soldier of the army of the King of the Visigoths, who had invaded Auvergne, entered a church through a window, of which he

broke the glass. Fortunatus, Bishop of Poitiers, towards the end of the seventh century, describes with admiration the painted windows of the Cathedral of Paris. St. Philibert, also in the seventh century, had the windows of the celebrated Abbey of Jumièges, on the banks of the Seine, near Rouen, decorated with glass.

At the beginning of the eighth century glass was unknown in England; and it was Wilfrid, Bishop of York, who died in 709, who first introduced glass into England, by sending for some glass-makers from France, according to a record kept to this day. A few years later, St. Bennet, Abbot of Wearmouth, wishing to decorate the windows of his monastery, sent for some glass-makers,—also from France; for it appears, from some authentic records, that the art of decorating windows with glass was practised in several parts of France, especially in Normandy, long before it was adopted in other countries.

It would seem that the art of staining glass was very easily discovered, although no date can be correctly assigned to the period when stained glass for church windows was first used. The practice generally adopted was to make a sort of mosaic design, by placing an infinite number of small pieces of coloured glass together. This was in use for several centuries before the art of painting on glass, properly speaking, was discovered, which seems soon to have extensively spread and to have been cultivated by many excellent artists, to judge by the numerous specimens still in existence on the Continent. But for the sixteenth century, so rich already in artistic talent, was reserved the glory of carrying glass painting to a degree of excellence which has never been equalled since; and the names of Jean Cousin and Bernard de Palissy will be honoured for ever, amongst the large phalanx of glass painters in all countries. The most remarkable painted windows, perhaps, in this country, are the windows of the various colleges at Oxford, which were executed during the seventeenth century by Bernard Van Linge and his pupils. William Price also repaired some of the glass paintings in Queen's College, Oxford; and in Christ Church painted a remarkable composition from the designs of Sir James Thornhill. Besides these may be mentioned the windows of Lichfield Cathedral, and several other very ancient windows in Christ Church, and especially in the residence of the Dean of Westminster, near the Abbey.

Having been, for many years, professionally acquainted with printing in connection with the fine arts; and having observed the immense development the new art of photography has taken, and the large field it has opened for representing all sorts of subjects, of animated, as well as still life; it occurred to me that, if a means could be found to print the photographic image on glass, as easily as it is done on paper, and through the agency of some chemical composition which would admit of employing ceramic or vitrifiable colours, and burning them in, a great result would be attained, and a new and considerable branch of industrial art might thereby be opened. Considering the numerous and various attempts which have, from time to time, been made to introduce a substitute for glass painting in the decoration of houses, I believe it can be said that a want was generally felt for supplying the growing taste for pictorial decoration; for glass painting is an expensive process, and requires also a considerable time to obtain a perfect result. There is a process known as lithophany, or transparent china, or biscuit slabs, which are now made, in Germany principally, and some very good specimens can be seen; but although any kind of subjects, on a small scale, can thus be represented, and with a very good effect, the slabs are heavy and thick, and can never come into use as a substitute for glass painting. Some few years ago, a new mode, which was then termed "pictochromy," was introduced, which had for a short time very great success: I allude to the mode of pasting coloured prints inside a large glass bowl or jar, and applying a thin layer of plaster of Paris, in a liquid state, so as to fix the paper firmly, and create an opaque background, by giving substance to the whole, when seen from a distance. Some very good specimens of this were obtained, and it afforded for a time an agreeable occupation to many a young lady. Another mode has also been tried, and some very pretty results produced, by applying prints obtained by lithochromy, or lithographic printing in colours, on a pane of glass, and varnishing them at the back with copal or some such varnish: these will for some time resist the effects of the weather when placed in a window; and this is perhaps the nearest approach to glass painting in point of effect yet achieved; but practically it

* Immense quantities of such beads are still shipped to various parts of the world, from London and elsewhere in this country.—Ed.

does not answer, for the varnish will not stand exposure to the weather from outside, and the constant cleaning glass requires renders it liable to be injured, so that the design soon perishes.

In the mode which is now for the first time introduced, no such danger or liability need be feared, since the colour has been firmly fixed in the substance of the glass by fire; and, being composed of the same elementary materials, has become part of the glass itself, and can only be destroyed by the glass being annihilated by breakage.

In order that the process may be very distinctly understood, I shall now describe it by reading that part of my specification which relates to the placing the image on the glass, fixing it, and passing it through the fire.

This invention has for its object improvements in reproducing photographic and other pictures, engravings, prints, devices, and designs, on the surfaces of glass, ceramic, and other substances requiring to be fired to fix the same thereon.

For this purpose, I proceed in the following way:—A piece of glass, which may be crown or flatted glass, being selected, as free from defect as possible, is firstly well cleaned, and held horizontally while a certain liquid is poured on it. This liquid is composed of a saturated solution of bichromate of ammonia in the proportion of five parts, honey and albumen three parts of each, well mixed together, and thinned with from twenty to thirty parts of distilled water, the whole carefully filtered before using it. The preparation of the solution, and the mixing up with other ingredients, should be conducted in a room from which light is partially excluded, or under yellow light, the same as in photographic operating-rooms, so that the sensitiveness of the solution may not be diminished or destroyed.

In order to obtain a perfect transfer of the image to be reproduced, the piece of glass coated with the solution, which has been properly dried by means of a gas stove (this will only occupy a few minutes), is placed, face downwards, on the subject to be copied, in an ordinary pressure frame, such as is used for printing photographs.

The subject must be a positive picture on glass, or else on paper rendered transparent by waxing, or other mode; and an exposure to the light will, in a few seconds, according to the state of the weather, show, on removing the coated glass from the pressure frame, a faintly indicated picture in a negative condition. To bring it out, an enamel colour, in a very finely divided powder, is gently rubbed over with a very soft brush, until the whole composition or subject appears in a perfect positive form. It is then fixed by alcohol, in which a small quantity of acid, either nitric or acetic, has been mixed, being poured over the whole surface, and drained off at one corner.

When the alcohol has completely evaporated, which will generally be the case in a very short time, the glass is quietly immersed, horizontally, in a large pan of clean water, and left until the chromic solution has dissolved off, and nothing remains besides the enamel colour on the glass: it is then allowed to dry by itself near a heated stove, and, when dry, is ready to be placed in the kiln for firing.

It may be stated that enamel of any colour can be used, and that, by careful registering, a variety of colours can be printed one after the other, so as to afford a perfect imitation of a picture; also that borders of any description can be subsequently added, without any liability to remove or even diminish the intensity of the colour in the first firing.

It will be easy to perceive that this mode of obtaining an image on glass, in an absolutely permanent substance, and of any description, colour, or size, may prove of considerable advantage and utility for the decoration of private houses, and also for public buildings. Now that, by means of the photographic art, the most correct views of any object or of any building or scene—even portraits—can be faithfully and easily obtained; when we see every day the results of the labours of photographers in all parts of the world, in the shape of beautiful prints; when we can be made acquainted, without leaving home, with the actual costume, habitations, scenery, manners almost, of all countries,—for instance, China and Japan, which have but recently opened their doors to European civilization; when, through the same means, we are able to see, for the first time, and the learned are able to translate from, the graphic reproduction with which photography furnishes us of those early inscriptions engraved on the rocks in Asia, and by the Egyptians on their splendid monuments; I need only point out the usefulness of the mode of fixing those images,

in an indelible manner, for ornamental as well as for scientific purposes.

In large cities, like London, where houses are built so close to one another; in how many places may not the process become available, by enabling any one to introduce, for a very moderate expense, pleasing or instructive images where common plain ground glass is now used, to shut out the sight of a disagreeable object, a dead wall, or an unpleasant neighbour, without diminishing the amount of light more than is convenient.

In the library, fitting subjects might be introduced on the windows by a judicious selection of the portraits of favourite authors, or of famous scenery at home or abroad. In the dining-room, also, appropriate pictures could be selected, such as flowers, fruit, or game subjects, so disposed as to harmonize with the decoration of the room. Even for domestic purposes, for lamps or screens, or any object in glass, the process will be found useful, especially on account of its rapidity, which will enable the manufacturer to execute and to deliver an order at a very few days' notice.

In the discussion which followed, Mr. Philip Palmer would express his obligations to Mr. Joubert for having brought forward this subject of window glass. Important as the subject was, within the last few years it had seldom been brought before the attention of this Society. It was now thirty years since he became a member of the Society; and he recollected that at the first meeting he attended the subject was that of window glass, and he believed the same subject had only been brought before them two or three times since. The Great Exhibition of 1851 afforded an opportunity for bringing this subject forward; and the approaching Exhibition of 1862 would, he hoped, probably furnish another occasion for doing so.

With regard to the antiquity of glass, he might mention that in the British Museum there was a specimen of glass said to be of a date 3,000 years before Christ. Whether that was the fact or not he did not know, but it was certain that some very old specimens of glass were to be seen in the British Museum. He quite agreed with the remark in the paper, that glass was so cheap and common that they were apt to lose sight of its immensely diversified qualities; and, therefore, any attempt to ornament it in this beautiful and artistic manner deserved the strongest encouragement of all lovers of art. There was a period in the history of the importation of painted glass which was personally interesting to himself, and which was spoken of by Horace Walpole. It was matter of history, but was connected with his (Mr. Palmer's) great-grandfather, who imported large quantities of painted glass in 1753-4; and the circumstance gave rise to an amusing chapter in Walpole's letters. With regard to the cost of glass-painting, he did not know that that was a subject which he ought to touch upon in the presence of several eminent glass-painters whom he saw in the room, but he might venture to make this general remark—that a really good work of art must be well paid for; and if they employed first-rate talent, whether in painting upon glass or in architecture, that talent must be paid for; and glass painters were quite as much artists as those who painted upon canvas or paper. With regard to the decoration of glass at a moderate expense for the purpose of shutting out the view of dead walls, or a disagreeable neighbour, Mr. Joubert had contrasted this process with the use of plain ground glass. That had been used for a great many years: enamel patterns had been produced in such immense quantities that the use of the latter had been much larger than that of plain ground glass. The patterns had become so common that architects were always seeking for something new. This process, as it appeared to him, was calculated to supply that want, inasmuch as it enabled persons to select any number of subjects and have them reproduced. Having been connected, as he and his family had been, for a century and a half with the glass trade, he wished to express his acknowledgments to Mr. Joubert for having brought this subject before them; and he would add that he was quite sure all who were interested in the trade would be happy to give him the support which his ingenuity deserved, and to assist in bringing before the public this very beautiful invention.

In reply to Mr. Peter Graham,

Mr. Joubert said, with regard to the size, that the specimens he had exhibited as being burnt, 24 by 17½ inches, were the largest he had yet produced; but he apprehended the size was only limited by the dimensions of the kiln. There would, of course, be a little more care required in manipulating upon a large picture, but there

would be no difficulty in producing a picture of 3 or 4 feet square. The only difference was the greater risk in burning it: the larger the surface of glass to be subjected to any manipulation or firing, the more the risk was increased. As to the combination of colours, if he understood the question aright, it was, what combination of colours could be burnt at the same time. That was a question which he was scarcely in a position to answer with certainty at present. In the specimens upon the table it would be observed that they were almost all of one colour. He thought it better to produce them perfectly in monochrome in the first instance; and, having mastered the difficulties of manipulation in one colour, then to go to the three or four colours. He would call attention to one specimen, having a coloured border with an edging which had the appearance of ground-glass. It was, however, produced by a coating of flux. The coloured border was also added, and was burnt in at the same time with the white enamel—all in one firing; showing that a colour and white enamel could be accomplished at the same time. He had been able to produce four colours in one burning. He had no doubt, with improved manipulation, a variety of colours could be produced at one firing; but all glass-painters were aware that, to attempt to produce perfect copies of pictures, with all shades of colours, would be to branch into another line of art. Instead of being mere printing, it would become regular glass-painting. It had been his object to avoid that from the first. Glass-painting was executed very beautifully in this country; and upon that subject he might remark that an art which flourished two hundred years ago seemed to have fallen into disuse for the last one hundred years, and it was only at the beginning of the present century that glass-painting had seemed to have revived. Although glass-painting was not invented in England, he might say that this was the country in which that art had been kept alive more than in any other. The third question asked by Mr. Graham was, with respect to the size to which pictures could be enlarged or diminished. The camera was the instrument employed both for enlarging and reducing. The enlarging of designs through the camera was practised in Paris more extensively than in this country. In a short time there would be an exhibition here, in which objects would be shown as large as life. This process was in operation at present in Paris, but a large apparatus was now being prepared for introducing it into this country. With regard to the cost of these specimens, as compared with ordinary glass-painting, it was difficult to give an answer to that question, because there was no fixed price for glass-painting with which it could be compared. The operations of the glass-painter were exposed to many accidents. A work which had occupied weeks or months might spoil in the last firing; therefore, the risk being so considerable, was one reason why the price of glass-painting must be arbitrary. Taking the average of the smaller specimens exhibited, he believed they could be sold at about 8s. per square foot. He had no doubt, when this invention was taken up generally by the manufacturers, the cost would be very considerably reduced.

Mr. Bishop remarked that, when he was at Pompeii about two years since, he was shown a piece of plate glass about three-sixteenths of an inch in thickness, which was the earliest specimen of plate glass he had met with.

Mr. Joubert was aware of the fact just mentioned; but there seemed to be some difficulty in establishing the fact that it was really glass. Some learned persons considered it was not glass, but merely a piece of transparent slate or mica that was used in ancient times, which, through the agency of fire, when those cities were invaded by lava, had assumed the appearance of glass. It was a great question whether it was glass.

Mr. William Hawes said they must have arrived at the conclusion, from what they had heard, that here was a new application of one of the newest and most recent discoveries connected with the art and industry of the present day. Photography, a young art, was applied in a new form, and with great facility, to produce most beautiful effects; and they had been told, with a degree of fairness and candour which made them feel satisfied that every word was true, that in the experience of only two years so great a proficiency had been attained, that, whereas the failures were formerly fifty per cent, they were now reduced to not more than one per cent. They had also been told, incidentally in the discussion, that the art of painting upon glass had fallen into neglect for a considerable period in this country, but had again pro-

gressed within the last few years. It was about 120 or 130 years ago that the excise was put upon glass. The effect of that interference was to check the application of glass to the most beautiful purposes of domestic life. About 100 years ago the art of painting on glass re-appeared, and had only recently revived. It was singular that that should be just about the time when the excise was put upon glass. If that fact was incorrect, his reasoning would fail; but he deduced this conclusion from it, that this was another instance that where there was entire freedom of a manufacture from fiscal imposts, men like Mr. Joubert could study and experimentally at comparatively little cost; whereas, if the law put a high duty upon this material, the cost alone would almost have prevented the advancement of such an invention as this. No one could doubt that if Mr. Joubert could produce designs of this kind, at a cost of 8s. per foot, in the present stage of the invention, in a few years' time they would be produced at a price which would bring them into common use.

THE INTERNATIONAL EXHIBITION OF 1862 AND ARCHITECTURAL ART.

THE Council of the Architectural Museum and the Committee of the Ecclesiological Society have sent out a reminder to architectural artists that the last day for applying for space at the International Exhibition is not far distant, although the limit of June 1st will not, it is understood, be absolutely insisted on. After pointing out that the Royal Institute of British Architects has appointed a Representative Architectural Committee to take steps, in concert with the Royal Commissioners, for the efficient representation of architecture and architectural art at the coming Exhibition, they say:—

"The Architectural Museum and the Ecclesiological Society feel that they break no confidence when they state, that it is equally the desire of the Representative Committee and of themselves to obtain the sanction of the Royal Commissioners to the exhibition of architectural art in immediate juxtaposition with that of architecture, and they therefore trust that while the various artists whose performances come under the designation of architectural art, will not neglect to make their separate applications for space before it is too late, they will be willing at a later period to co-operate in any scheme for the arrangement of the exhibition of architectural art which may be decided upon between the Royal Commissioners and the Representative Committee."

BIRMINGHAM ARCHITECTURAL SOCIETY.

THE annual meeting of the Birmingham Architectural Society was held on Thursday evening, the 23rd ult. The report of the Council was of an encouraging nature, the accounts showing a balance in favour of the institution. The following gentlemen were elected officers for the ensuing year:—President, Mr. J. G. Bland; Vice-President, Mr. William Harris; Treasurer, Mr. J. R. Botham; Honorary Secretary, Mr. A. Phipson. To fill up vacancies in the council the meeting elected Professor Chamberlain and Messrs. Charles Edge and Thomson Plevins.

PROPOSED MONUMENT IN MEMORY OF JOHN BUNYAN.

THE committee appointed to erect a monument to the famous author of "Pilgrim's Progress" are continuing their exertions, and a festival, as it was called, was held in the Polytechnic on Monday evening last, in aid of the intention; when, in addition to the interest of a meeting over which the Earl of Shaftesbury presided, there were several relics of John Bunyan, from Bedford, exhibited—his chair, cabinet, pocket-knife, and other things.

As our readers know, the tomb of this celebrated man, in Bunhill Fields, has been allowed to fall into a bad state of decay, and but for the care of a gentleman connected with the ground, who had an inscription cut at his own cost, there would have been by this time no mark visible upon the tomb. For some time past endeavours have been made to obtain means for the purpose of restoration, and also for the purpose, we trust, of raising some more worthy memorial near the place where Bunyan's ashes rest. It seems to us remarkable that in this respect such long-continued neglect should have been allowed, and that there should have been found the least difficulty in obtaining a very large sum for this purpose. There are few persons who, either in school-boy or other days, have not derived both instruction and pleasure from the delightful dream.

The British Museum catalogue of books shows an immense list of editions of the "Pil-

grim's Progress," which are preserved in the library. These are of various dates: some are English and American editions, and there are others in the languages of various foreign countries; millions of copies have been circulated since the time of the first publication. The young are charmed with the adventure, and men of mature years with the wisdom and truth of the imagery. Although Bunyan lies in one of the burial-places of the Dissenters, and himself belonged to that body, yet so generally is his most celebrated work appreciated, that it can scarcely be expected that the proposal will be looked at in any sectarian spirit.

WATER FOR JERSEY.

THE public meeting of the St. Helier Water Company was held on Wednesday last, the 22nd instant, under the presidency of the Mayor, Judges Le Bailly, Le Quesne, and Nicolle, with the Dean of St. Helier, having moved resolutions in a full assembly of influential inhabitants of the island, they were carried unanimously. Subscriptions to a considerable amount were proposed, and the meeting pledged themselves to support the project.

The Messrs. Easton, engineers of the company, and Mr. Harding, attended as deputed by the board of the company, registered in London under the 19 & 20 Victoria. That Act has recently been adopted by the States of Jersey, and progress was delayed until it should be completed. However, it had been sealed a few days previously to the public meeting, and thus the chief apparent deficiency of the prosperous and commercial town of St. Helier, will soon be remedied.

It is strange that in the exceedingly beautiful island of Jersey, where there is an abundance of the purest stream water, a town population of 35,000 inhabitants should be at this day dependent for water supply upon pumps and wells, and more especially since a gas company established there is paying large dividends; but we must recollect that magnificent Paris is in nearly the same condition. The latter has, nevertheless, a large section of its most robust labourers, 20,000 water-carriers, engaged in that occupation. In Jersey, however, it is otherwise, and there is no want of occupation for the sinews of industry. The harbour, the public buildings, and the whole vicinage are improving as rapidly as any town in the British dominions.

SOAP.

IN an address delivered by the engineer of the Glasgow Waterworks, that gentleman remarked, that Mr. Porter estimates the annual consumption of soap at 92 lbs. per individual. The total population of Glasgow may be taken at 460,000; deduct for Gorbals, 110,000; total on the north of river, 350,000. Supposing that only 5½ lbs. of soap is allowed for each person, it will give 72,000, as the annual cost of soap, on the average of the country, consumed by the 350,000 persons, on the north of the Clyde. Since the introduction of Loch Katrine, owing to its softness, careful returns show that nearly one-half of the soap formerly used will now suffice. If these calculations were applied to London, the saving there, allowing for the harder character of the water, would amount to not less than 400,000, per annum, equivalent to the interest of ten millions of money, which it would be worth the while of the Londoners to pay for water equal in quality to that of Loch Katrine.

THE GUARDS' MEMORIAL.

WITH reference to what has been said by ourselves and others on the subject of the present aspect of the Guards' Memorial, Waterloo-place, Mr. Bell, the sculptor, writes to us as follows:—

"I would, in the first place, ask, is it possible for an artist to pass through a more severe ordeal than that his work should be seen in the centre of London in an incomplete state? Nothing can be more just than the observation that the monument at present has but one front of interest. Also that the figure of Honour appears small. But why does she appear small? Because at present the whole pedestal appears a pedestal to that figure. Were, however, the sides and back of the middle pedestal duly enriched with bronze, according to the design, and thus combined with the bronze Guards in front, the pedestal of the top figure would be reduced to the small plinth on which she immediately stands; when she would appear of the just size as a final surmounting the composition. The above decorations of the sides and back, besides enriching these faces and giving

them interest, would break the long sloping line of the pedestal, and present a wholly different, and, I trust, picturesque outline in all views. Also, if these were added, the granite itself would, in addition, be relieved by some details which, taken with the above, would, I am sanguine, redeem the effect from its present crudity. The statues are towards the south, so as to receive the direct sunlight, but the various secondary decorations to complete the trophy of guns at the back, and also the faces and profiles of the sides, would, I am sure, render the monument picturesque even as one comes down Regent-street."

We should prefer it, as we have already said, on the other side of the way, with the face towards Regent-street. If, however, it is to remain in its present position, something more must be done with the pedestal to render the monument an agreeable object. There is but one opinion on the subject.

SCOTLAND.

Glasgow.—The Town Hall at the Cross, erected so long ago as the year 1636, but very much deserted and neglected, and applied to questionable purposes of late, is to have another chance of resuscitation, according to the local papers. It is proposed to convert it into a spacious library for the use of the citizens; and this is to be done through the instrumentality of a joint-stock company.

Leith.—A public meeting has been held here, for the purpose of considering the propriety of having powers conferred on the public authorities for widening the streets, and otherwise improving the town. The Provost occupied the chair, and referred particularly to the necessity of having a new slaughter-house, a larger supply of Lochend water for sanitary and manufacturing purposes, and a public park in North Leith. Resolutions favourable to the purposes of the meeting were unanimously passed.

St. Andrew's.—A new Town Hall has just been erected in St. Andrew's from the designs of Mr. James A. Hamilton. The structure is in the old Scotch Baronial style. The council hall is 38 feet in length by 24 feet in breadth, and 18 feet in height. The great hall is 75 feet in length, 36 feet broad, and 28 feet high. The structure altogether measures about 130 feet by 90 feet. The external elevation is enriched with various shields, devices, and coats of arms, among which is that of the late Sir Hugh Playfair, to whom the improvements in St. Andrews are mainly due, and by whom this building was originated and carried out.

CHURCH-BUILDING NEWS.

Tuddenham.—On Whit-Sunday, Tuddenham Church was re-opened. A new east memorial window has been erected. The subjects of the window are the following: in the centre light are the Nativity and the Crucifixion; in the left, Noah in the Ark, and St. Peter falling into the Sea, the Saviour taking him by the hand; on the right, the Priests carrying the Ark of the Covenant over the Jordan into the Promised Land, and St. Paul taking leave of the Ephesian converts and elders on the sea-coast. The principal tracery-light contains the subject of the Resurrection of the Saviour: the two minor tracery lights contain an angel each, with musical instruments. The work was executed by Mr. F. Preedy, of London. The ancient monuments in the church have been restored. All these have been executed by Mr. H. Day, of Ipswich, ecclesiastical decorator. An altar table, by Mr. Ringham, of Ipswich, has been placed upon a raised dais composed of tiles. Beneath the window is a casing of stone and string course. The east gable has been adorned with stone coping, surmounted with a cross, and the cross on the east gable of the nave restored. The tiles and the stonework of the memorial window, &c., have been done by Mr. Farrow, of Ipswich.

Battle.—The tenders for the erection of two chapels in the proposed cemetery, Mr. Carpenter, of Hastings, architect, were as follows:—

Howell	£825 0 0
Nicholas	604 19 0
Jones & Bridgeland (accepted) ..	577 4 0

For the laying out and drainage of the ground, the following were sent in:—

Bridgeland	£885 0 0
Adds	649 0 0
Howell	620 0 0
King & Son	610 0 0
Sharon (accepted)	550 0 0

Stone.—The parish church restorations have been carried out, under the superintendence of Mr. Street, architect, by Messrs. Gumbrell & Bills, of Dartford; Mr. Lockyer, of Greenhithe

and Mr. W. C. Middleton, of Gravesend. The church is in the Early English style; and many of its features, which had long been hidden by the so-called improvements of other days, have been exposed to view, and the proportions of the building are now quite developed.

Ilove (Brighton).—The foundation-stone of a Congregational chapel and school has been laid at Hove. The chapel will abut on North-place, which will form the direct approach to the suggested new railway station. Villas also are to be erected to the north of the chapel; so that, in time, it will become central. Mr. H. N. Gouly prepared the design for the chapel and school, which latter is already in course of erection. The style is Early English. The chapel is calculated to hold 800 persons; but that will not be commenced just yet. The schools will consist of a principal hall, or school-room, 60 feet by 30 feet, with an additional class-room, 30 feet in length.

Hatherley.—The corner stone of a new vicarage-house at Down Hatherley has been laid by the incumbent, the Rev. W. H. Maddy, who afterwards entertained about twenty of the workmen at dinner. The building has been designed by Messrs. Pulljames & Waller, and will be erected by Mr. Estcourt, of Gloucester, builder.

Coates (Gloucestershire).—The parish church has been reopened. The restorations, now completed, have not affected the general plan of the church. The works just completed consist of an internal restoration, the substitution of a chancel arch for the plain Norman arch, which has been rebuilt in the north wall, to give access to a vestry hereafter to be added. The chancel, which was formerly shut off from the greater portion of the church, is thus opened. A change has been effected by the removal of a western gallery, which concealed from view the stone arch, and by the removal of the old high pews which boxed up the arcade columns, and substituting for them open benches throughout. These are of stained deal, with oak cappings. The chancel has been rearranged, a raised sanctuary formed laid with tiles inclosed within bands of stone in ornamental patterns. The chancel has been re-roofed with an open arch timber roof, and a new east window, with tracery, replaces the debased window formerly existing. The roofs of the aisle and chapel have been stripped of their plastered ceilings, repaired, and restored to their original condition; but, on opening the nave roof, it was found that the timbers were too much decayed to allow restoration, and a new stained deal roof has been erected. The accommodation in the area of the church has been increased from 180 to 211 seats. The cost of the restoration has somewhat exceeded 600*l.*, and an additional 200*l.* will be needed to accomplish the entire restoration contemplated. The contractors are Messrs. Wall & Hook, of Stroud, under the superintendence of Mr. Norton, architect.

Bath.—The tender of Messrs. Bladwell & Ambrose has been accepted for building the new Roman Catholic church here, the foundation of which has been commenced. The site chosen is in a garden adjoining the road leading to the railway station.

Brecon.—The tender of Messrs. James & Price, of Cardiff, was conditionally accepted for the restoration of the tower and transepts of the Priory Church. The Marquis Camden has also appointed the same builders for the chancel, which he has undertaken to restore at his own sole cost. In consequence of further repairs than were at first contemplated being required in the tower and transepts, the subscriptions already promised have been found to be insufficient. The works, however, will be commenced forthwith.

Rhyl (Flintshire).—The foundation-stone of a new church has been laid at Rhyl. The proposed church is estimated to cost about 8,000*l.* Of this sum, 2,000*l.* only have been promised; but so urgent is the need of the church, that the committee resolved to commence at once; and have, accordingly, entered into a contract for the nave and aisles, which will accommodate about 800 persons. The works have been begun; and, on Whit-Monday, the foundation-stone was laid. Mr. Scott is the architect, and Messrs. Bealand, of Brufford, Yorkshire, are the builders. The church will be built in the Early English style; and, when complete, will consist of nave, north and south aisles, chancel, and tower at the east end of the north aisle, with a north porch. The length of the nave will be 90 feet, and the total width of the church rather more than 63 feet; the chancel will be 40 feet 9 inches long by 30 feet wide. The height of the tower and spire to the top of the vane will be 193 feet, and the tower will be 24 feet square, built in three stages. The fittings inside will be of pitched pine, with open roof,

stained and varnished. The inside dressings will be of Bath stone, and the outside of Cefn stone, with intermediate surface of dressed limestone. The windows of the aisles are plain couplets: the east window will be a three-light window, and the west a four.

Lichfield.—A sculptured font for Lichfield Cathedral has just been completed by Mr. James Forsyth, of London.

Frankby.—The foundation-stone of a new church, dedicated to St. John the Divine, has been laid at Frankby. The church is being erected by subscription, together with the parsonage. The cost of the church and parsonage will be upwards of 4,000*l.* Messrs. Hay, of Liverpool, are the architects; and Mr. Thomas, of Oxtow, the contractor.

Chorlton-cum-Hardy.—This village is likely soon to possess a new parish church, according to the *Manchester Courier*. The style of architecture of the proposed new church will be the transition from the Early English. Par-point stone will be used in the erection, and the church will consist of nave, chancel, aisles, and chapels. The building will be surmounted by a spirelet. The interior of the edifice will be fitted with open seats, the aisles paved with encaustic tiles, and the roof will be of open timber, and the shafts of the arches topped with foliated capitals. The new church is to accommodate 600 persons, and 200 of the sittings will be free. The estimates amount to 3,641*l.*, but it is expected the entire outlay will not fall short of 4,000*l.* Messrs. Pennington & Bridget, Manchester, are the architects, and Messrs. Ellis & Hinchliffe, Manchester, the contractors.

Cheetham (Manchester).—The first stone of a new Wesleyan chapel and schools has been laid by Rydal Mount, Cheetham. The style will be Gothic, and the cost about 2,500*l.*, most of which has been raised. Mr. Brown, of Manchester, is the architect.

Prestwich.—The parish church here has been reopened. During several months past various alterations and improvements have been in progress. The chancel has been extended and restored, and has had a new east window put in, with roofing to match the old portion. A new vestry has been built. A new stained-glass east window has been inserted. The stained-glass has been executed by Messrs. Ward & Hughes, of London. It is also intended to insert stained glass in a new window west of the font, the gift of Mr. Percival, of Manchester. The whole of the ceiling of the nave, and the old portion of the chancel, have been restored, and decorated in colours and gilding, in a manner similar to ancient painting found on the old timbers. A portion of the chancel has been re-seated with open oak benches, with carved ends; and one of the recent improvements has been the re-seating the nave in a similar manner, the whole of which re-seating is free. The works have been executed under the superintendence of Messrs. Travis & Mangnall, architects.

STAINED GLASS.

St. Andrew's Church, Denton (Lincolnshire).—In this church a stained-glass window, in memory of the wife of Colonel Reeve, has been placed in the south transept. The stonework of the window consists of three main lights, and a tracery head of the Early Perpendicular style of architecture, the whole of which has been cleaned and restored under the direction of Mr. S. Green. The subject of the stained glass is so arranged that each light, so far as regards the figures, is complete in itself, and at the same time the whole forms one picture, illustrating the text, "Jesus said unto her, I am the resurrection and the life." In the centre light is represented our Lord entering the house of Martha and Mary; in the south light, Martha kneeling down, and behind, Mary is seated in contemplation and prayer. In the north are shown the two disciples who accompanied our Lord on this occasion. The artists are Messrs. Connor, of London.

Crayford Church, Kent.—This singular church, having double naves, with the chancel between, will gradually be filled with painted glass, under the zealous and earnest efforts of the rector. The new east window will first be filled with painted glass by Messrs. Ward & Hughes, the designs and cartoons of which are now being prepared under the directions of Mr. Joseph Clarke, the architect. One of the large north windows will follow, the gift of a lady connected with the parish; and other windows will probably be taken in hand before the works now going on in the church are completed.

Datchet Church.—A window, in three compartments, by Messrs. O'Connor, of London, representing

the Resurrection and Ascension, with our Saviour enthroned above, has just now been placed in the north transept of Datchet Church, in memory of the late John Crake, by his widow.

Gloucester Cathedral.—A scaffolding has been erected in the interior of this cathedral for the purpose of removing the painted glass of the great east window prior to its entire restoration. The glass, we are told, will be forwarded to Messrs. Ward & Co., of London, by whom under competent superintendence, the stained glass now remaining in the window will, it is said, be preserved, and the window completed, as nearly as possible, in accordance with the original design. It is also said to be the intention of the Dean and Chapter to erect immediately two windows of Munich glass in the north aisles. The memorial window to the Rev. Mr. Evans in the south aisle, next the porch, will be completed in June; and the memorial window to be erected by Lady Davey in the south aisle, will be commenced immediately.

Bath Abbey Church.—It is in contemplation to erect a memorial window of stained glass in one of the small windows in the south aisle of the nave of the Bath Abbey Church, to the late Mr. Geo. Norman.

SCHOOL-BUILDING NEWS.

Paddington.—St. John's Servants' School, instituted by the Hon. Arthur Kinaird, M.P., and his wife, was opened on the 16th May, by a public meeting of its friends; the Earl of Shaftesbury in the chair. The principal supporters of this school are Mr. and Mrs. Kinaird. Upwards of 6,000*l.*, out of 9,000*l.* required, have already been raised. The Bishop of Sodor and Man, in his address to the meeting, stated that the intention of the institution was to provide us with a class of superior and trustworthy servants, on whom we so greatly depended for our comforts. The architect of the building was Mr. F. W. Porter.

Ashford (Kent).—The committee of the British Schools, with the advice of the committee of the Council of Education, are about to erect new school-rooms and a teacher's residence, towards the carrying out of which the latter have offered a grant of 586*l.* The committee have accordingly secured an eligible site, near Chart-terrace, and the cost of erection, &c., will be from 1,400*l.* to 1,600*l.*

High Ercall (Salop).—New schools have been opened here. The buildings have been erected midway between the church and vicarage. The schools are intended for girls and also boys until old enough to go to the free grammar school in the village. The buildings are of brick and stone. The style is plain Middle Pointed. The school is surmounted with an oak bell-turret. The cost, including the fence walls, will be about 600*l.* The building has been erected by Mr. James Nightingale, from the designs and under the superintendence of Mr. J. L. Randal, of Shrewsbury, architect.

HASTINGS COTTAGE IMPROVEMENT SOCIETY.

THE Committee of the Hastings Cottage Improvement Society inform the shareholders in their eighth half-yearly report, for the six months ending 10th April last, that the Society has continued to increase and prosper during the past six months. The number of their houses now amounts to about 124, and the number of tenants to about 137. The purchases of fresh property made during the past half-year have not been very extensive or very important. Nine houses have been purchased in the parish of All Saints (in Union Row, and All Saints-street); two in Simeon's Square, in the parish of St. Clement; and three in the parish of Ore, just beyond the pay-gate on the old London Road. The Society's capital has increased during the past six months from 11,950*l.* to 14,000*l.*; and the number of shareholders from fifty-seven to sixty-seven. The average amount of each shareholder's investment continues about the same, viz. 205*l.* The price of each share is at present 107*l.* and will be raised to 108*l.* when the capital reaches 16,000*l.* During the past half-year the Society's total income from all sources has increased from 651*l.* 18*s.* 10*d.* to 767*l.* 16*s.* 6*d.*, and the net income from 389*l.* 5*s.* 11*d.* to 408*l.* 15*s.* 9*d.* The gross rents have increased from 521*l.* 18*s.* 4*d.* to 599*l.* 9*s.* 11*d.*, and the net rents from 376*l.* 14*s.* 7*d.* to 385*l.* 1*s.* 1*d.* The usual dividend at the rate of 6*l.* per share per annum has been paid to the shareholders. The average arrears of rent due to the Society during the past half-year have been about

237., which is a small sum compared with the total rental; especially when it is borne in mind that the rent is paid *in advance*, and that few of the tenants are more than one week (which is in fact the *week in advance*) in arrears. There has been no loss from bad debts; and of the sum now due for arrears it is expected that not more than 37. or 42. will be eventually lost to the Society. The loss from empty houses has been about 164. 16s., of which sum nearly three-fourths were due to the Tackleyway houses, which continued unoccupied for several weeks during the winter months. The Society's houses have been frequently all occupied, and there have seldom been more than two or three empty at the same time. The most notable point in the history of the past half-year, continues the report, has been the laudatory terms in which the Society has been mentioned in the public journals, both in this country and on the Continent (see the *Journal des Débats*, Jan. 19), and (as a consequence of this), the numerous applications for advice and information sent from other provincial towns in which there is an intention of endeavouring to establish a similar society. Perhaps a still greater proof of confidence is afforded by the fact that several of the shareholders residing in London are so well satisfied with the mode of operations adopted at Hastings that they have resolved to try the same experiment in one of the worst parts of the Metropolis, and have themselves advanced the whole of the money required for the purpose.

THE CONDITION OF NEWCASTLE.

CIRCUMSTANCES have prevented me from writing sooner respecting your able and truthful articles on the sanitary condition of Newcastle-upon-Tyne, and I regret that in some quarters the picture of that ancient town has not been kindly considered; and it is with surprise and shame that I find this to be the case; for in no town in this realm, taking into consideration the extent of the population, have so many men, in various ways distinguished, been reared. From this "canny" town have come famous admirals and soldiers. In this place the art of wood-engraving, that marvellous aid to education, was revived. Mathematicians, philosophers, poets, famed painters, and men of medicine, have here sprung up. A Newcastle man translated the Scriptures into the Chinese language. Two more men of the same locality made the locomotive, and established the system of railways, which is doing wonders not only in this land, but throughout the world. It was one of these Newcastle men who planned a railway through the ruinous territory of the Pharaohs, who spanned the Menai Strait, and the vast stream in Canada. Here was reared the inventor and manufacturer of the rifled cannon. There are other celebrities too numerous to mention. It can also be said that in few other towns are there to be found so many useful public institutions, or a greater expression by the inhabitants of liberal principles.

By the skill, energy, and honesty of one man, who in this town was educated in a charity school, great market-places, exchanges, and streets of palace-like buildings have been reared: in these houses drainage and ventilation have been well cared for; and in this respect they contrast strongly with the old portions of the north of England capital. Notwithstanding the general intelligence of the inhabitants, and the good example which has been shown, although pestilence has swept the place, and filled it with mourning and woe, and trade has at times been almost stopped, when, in certain localities, the cholera raged and destroyed human life with greater rapidity than during the Great Plague of London in 1665, these warnings appear to have been useless; and in many respects the town is exposed to the risk of another attack of cholera or any other similar scourge.

It is difficult to imagine how this can be allowed to go on. Amongst the medical men are gentlemen famed for their skill in sanitary science. It has been shown that, by the draining of the Infirmary, the number of cures has largely increased. By means of the Registrar-General's returns the people of Newcastle have an opportunity of comparing their death-rate with North Shields, and towns in other parts of the kingdom where the authorities have done their duty. Every week in Newcastle life is destroyed by the wilful neglect of sanitary measures; and it is certain that in no place, not even in the metropolis, the old part of Edinburgh, or elsewhere, are there to be found any conditions so disgraceful, and contrary to all ideas of decency and comfort.

This seems the more remarkable when we con-

sider the immense revenue of the corporation, which should have been in a great measure devoted to the sanitary condition of the town, and to the improvement of the river, which is in a most foul state. It seems, however, that those who should feel an interest in the well-being of the town and its inhabitants look on with apathy. With one or two worthy exceptions, the local press have neglected their duty in directing attention to the evils which exist, and have even endeavoured to deny the existence of the filth, &c., which are looked at with wonder and disgust by every visitor. However the facts mentioned in the *Builder* may be spoken of in some quarters, there are thousands of people in Newcastle—and those who reside away from them who have relations and friends there acknowledge the correctness of your remarks—who sincerely thank you for directing attention to them, and hope it will be the means of rousing the right spirit of the inhabitants who are not interested in the rotten property or in continuing the dangerous system of drainage (or rather the want of drainage) in so many parts of the town.

A NEWCASTLE-UPON-TYNE MAN.

SUNDAY AT THE CRYSTAL PALACE.

LAST Sunday afternoon I had an opportunity of seeing assembled in the palace and grounds a vast multitude—40,000 people. The day was delightful, for the air was fresh and pleasant: the flowers and beautiful greenery in the foreground and middle distance, and the landscape and the pure grey tints of the grey horizon, together with the many thousands of orderly and well-conducted visitors, formed a picture which has seldom been surpassed. There seemed in this gathering to be people of all classes of the community: there were those clad in the gayest dresses, and others in well-brushed and homely garments, who did not the less in consequence enjoy the matters of interest which are here to be seen. This great assembly seems to have originated thus:—Some time ago, Crystal Palace share clubs were established, chiefly by small bodies of working men. The average price of a share, including transfer and stamps, is about 30s., and this entitles the owner to admission to the Palace on every Sunday. These tickets make the possessors shareholders in the company, and would have a value if put into the market. The subscribers to these clubs pay a small weekly subscription; and as the money becomes sufficient, the shares are bought and balloted for by the members; and, in the course of time, all of them become possessed of shares. Already a number of shares have been distributed amongst the working classes by this means. The number is not, however, sufficient to account for the crowds who flocked to the Palace; but the directors, wishing to encourage this scheme, granted a request on the part of those who have encouraged the club shares, that free admissions for one Sunday might be extensively distributed by the members to their friends. This plan was successfully carried out; and certainly the result of the experiment was such a grand success, so far as the general conduct of a Sunday multitude is considered, that it is an additional argument in favour of opening places of this description on the Sundays, the only day of the week in which numbers of the pent-up Londoners have an opportunity of enjoying them. Sacred music on a grand scale could do no harm here on the Sunday. Some dissatisfaction was experienced by a collection of a penny from the visitors: this, although a voluntary subscription, might, under the circumstances, have been as well done without.

AN ARTIST.

FRAMING MEDIEVAL WOODWORK.

SIR,—All practical workers of wood who visit the Architectural Exhibition in Conduit-street, and especially those engaged in carrying out the designs of architects who excel in Gothic architecture, will be attracted by that excellent piece of workmanship, by Mr. Forsyth, of which you gave an engraving. I, however, was surprised to find none of my own class, and very few of any other class of visitors at that most worthy exhibition; and ere it closes I would suggest to the committee the propriety of keeping it open for a week or two till ten o'clock in the evening, and reduce the price of a single admission one-half.

Before ending these few remarks, I wish to pose a question concerning the proper method of raming chamfered Medieval woodwork. In this bookcase, just under the writing-table, I find some chamfered framing executed in just the same manner that a stonemason would do it, viz., the

shoulders are all square, and the chamfer is continued down in the horizontal part of the framing, and an unsightly little piece of the end of the grain is displayed. Now, sir, I, as a practical man, conceive it to be a piece of bungling on the part of any joiner to show any part of the end of the grain on the face of his work.

The method here pursued, which I find is often followed, may be adopted by the direction of the architect, in order to preserve the Medieval character of the work; but if we are to imitate our forefathers so strictly in one respect, why not in every other? Then we should use nails in the place of screws, and we should have sash-bars as big as story-posts, and panes of glass that we could only see through with one eye at a time.

I.

COMPETITIONS.—THE AGRICULTURAL SOCIETY OF ENGLAND.

A COMPETITOR complains, with justice, that, writing for the particulars and conditions of competition offered by advertisement, he could get none; and thus continues:—

Doubtless, competition is thoroughly English; and one of our noblest characteristics is the love of a "fair field and no favour;" but the slovenly mode in which competitions are usually carried out cannot be beneficial to the public, or otherwise than unjust to the profession. Neither can it eventually be productive of anything but disappointment to both parties.

In this case of comfortably housing the industrious class, requiring no transcendental professional skill, yet of such importance to our metropolis and all over-crowded towns, as well as to their concurrent trades and manufactures; we have a public committee offering a patriotic premium; yet unprepared, at almost the last moment, with the particulars of instructions and conditions of competitions they advertise to supply. May not much of the irregularity of competitions be attributed to this slovenliness, and the uncompensated services of a heavy dependence most dry and tedious to any but professional men; also to the legal profession; who, for the sake of remote contingencies, frequently offer their services as honorary or assistant secretaries, when not one of the Board knows anything of the commonest details of architectural affairs? Much must be attributed to the prevailing ignorance of the actual value of an architect's services; inducing a large portion of the public to consider their remuneration as so much money thrown away, and a great saving effected by dispensing with them as much as possible.

Surely, it behoves all architects to do justice to themselves, at least, by insisting on a fair definition of the extent, class, &c., of the accommodation required, and of the system to be adopted in the adjudication of the premiums. If a fair field and no favour could be insured, many a loyal and conscientious man would strive for the chance of winning credit for himself and benefit for both parties.

A SUBSCRIBER.

CARLISLE CORN-MARKET COMPETITION.

AT the last meeting of the Carlisle Town Council, Mr. Irving moved that 30l. be given for plans of the proposed Corn Exchange, 2/6 to the first, and 1/6 to the next best, and that the plans be advertised for. Mr. Porter said he did not object to a sum of money being offered for plans, but he thought some statement ought to be made of the sum they proposed laying out on the building. Mr. Irving said that with each plan they should desire a calculation as to the cost of the building. Mr. Porter said that was not exactly what he meant. He wanted them to say how much money they intended to expend, and then get plans in accordance with that sum. Mr. Cowing thought it was a waste of time talking about the subject at all. *Everybody knew the plans were all got, and out and out already.* All that was wanted was the money to pay for them. Mr. Irving remarked that if the plans they had proved to be the best, they would be accepted. The motion was ultimately carried.

The advertisement which has been issued offering these magnificent premiums, say the plans, must be accompanied with a detailed estimate of the cost, and that the selected plans are to become the property of the Corporation.

Do these intelligent gentlemen know what is the cost of "a detailed estimate"? Architects degrade themselves and their profession who enter into competitions on such terms, and in the face of the fact that plans are already prepared.

DIVISION OF WAREHOUSES AND BUILDINGS FOR TRADE AND MANUFACTURE.

METROPOLITAN BUILDING ACT, 1855.

MESSRS. GROVES & SONS have erected a large addition to their extensive granaries, at Platform-wharf, Rotherhithe-wall. The builder, Mr. Maers, was summoned by Mr. Hesketh, the acting district surveyor, before the police magistrate, at the Greenwich Police court (Mr. Maude), for having, contrary to the said Act, built and made to the warehouse an addition, containing more than 216,000 cubic feet, viz., 430,000 cubic feet, and not divided by party-walls, in such manner that the contents of each division may not exceed such first-mentioned number of cubic feet.

At the hearing, on the 1st day of May last, Mr. Honeyman, Esq., counsel for Messrs. Groves, instructed by Mr. Kearsey, solicitor, the facts of the case and preliminary proceedings were admitted. A model of the buildings, showing the manner in which the additions had been made, and showing the communications to the several floors of the warehouse, was put in on behalf of Messrs. Groves.

Mr. Hesketh stated that the addition of which he complained was added to an existing warehouse, the extension on the west side containing 3,275 cubic feet, and by one on the north end containing 3,619 cubic feet, and by raising the existing building two stories, containing an additional 52,200 cubic feet, making a total addition of

430,000 cubic feet, of which the parts all freely intercommunicate one with another, and with the previously existing building, the floors being of wood. He considered that he had only power under the 5th section to deal with the addition, which was contrary to the 4th rule of the 27th section, as it contains more than 216,000 cubic feet without being divided by party walls, so that the contents of each division might not exceed 216,000 cubic feet; and he asked the magistrate to make, under the 46th section, an order upon the builder, commanding him to comply with his requisition as to divide the addition.

Mr. Honeyman said that two magistrates, Mr. Burcham and Mr. Elliott, had already given their judgments upon similar cases, and produced copies of their judgments. In the former case the facts were precisely similar to the present case. He then showed on the model the works which had been done, as stated by Mr. Hesketh; but the magistrate would observe that there was, on the east side, a stone staircase, with a doorway from without, by which separate access was afforded to each story, there being no internal communication whatever between the stories, except by going out of one on to this staircase, and thence into another story. He referred to the third rule of section 27, proceeding that relied upon by the district surveyor, which enacted that "If a building in one occupation is divided into two or more tenements, each having a separate entrance or staircase, or a separate entrance from without, every such tenement shall be deemed a separate building for the purposes of this Act." The warehouse is "in one occupation," and therefore each story having a separate entrance from without, namely, from the staircase, is to be deemed a separate building; and inasmuch as none of the separate stories contain more than 216,000 cubic feet, there was no contravention of the Act. He pointed out that in addition to the staircase there was a doorway from without for taking in goods, and they also gave a separate entrance to each story from without. Mr. Honeyman then referred to the definition of "party wall" in section 3, and showed that only a portion of the present buildings occupied by different persons; and therefore this building, being all in the occupation of Messrs. Groves, its division by party walls could not be intended. Counsel further stated that the question was of great moment to his clients, not so much on account of the expense of erecting the wall, but because it would prevent the ventilation through the building, which is so essential in a granary, and, in fact, that Messrs. Groves could not erect the building at all if they had not relied upon former decisions, that no party wall is required.

Mr. Hesketh admitted that Mr. Burcham's decision was given in a case identical in its bearings with the present one, but he could not admit that the magistrate took a correct view of the Act, inasmuch as his judgment went entirely to destroy one of its rules, which the Legislature deemed so important, that in the 56th section, where the Metropolitan Board had power to approve of the construction of iron and certain other buildings, their power to alter this rule was expressly taken away. He contended, both from the context and the general intention of the Act, that the word "building" in the fourth rule, was not governed by the definition of the third rule (the object of which he endeavoured to explain); and that the staircase which was relied upon to give separate access to each story was in fact part of the building.

The Magistrate said that the judgments of Mr. Burcham and Mr. Elliott would have very great weight with him, and that he would reserve his judgment until he had an opportunity of consulting his brother magistrates, and adjourned the case to the 14th May.

At the adjourned meeting Mr. Maude said that he had given much consideration to the subject, and in the judgment which he should give he was allowed by his colleague, Mr. Traill, to say that he had his entire concurrence. He could not concur with the decisions which had been stated to have been given by other magistrates. His judgment was on two grounds against the defendant. In the first place, after carefully considering the bearings of the Act, he did not think that the word "building" in the 4th rule of sec. 27, could be intended to be restricted by the 3rd rule to a part or story of the building, for with the context it reads, "Every warehouse or other building used, either wholly or in part, for the purposes of trade or manufacture," &c. A story of a building could not be said to be a "warehouse;" nor could the words "building, used wholly or in part for the purposes of trade or manufacture," be restricted to a single story. He was more inclined to view, because, as far as he could see, the 4th rule would be rendered inoperative by the interpretation contended for by counsel.

But even if the word "building" is governed by the definition of rule 3, he could not admit that the several floors had a separate entrance and staircase, or a separate entrance from without." He considered the staircase to form a common entrance to all the stories, which was shown to be so, because, if the door at the foot were closed, it would cut off the access from without to all. With respect to the doors to each story, through which merchandise was conveyed, they certainly in one sense would be separate entrances from without, but the rules of law would require in this case that the words, "having a separate entrance from without," should also be interpreted negatively as "not having any common entrance from without," otherwise the Act could be easily evaded.

At a request made on behalf of Messrs. Groves, the case was adjourned till the 29th May, in order to give time for consideration whether they should appeal to one of the superior courts, or comply with the requisition of the acting district surveyor. At the time appointed the parties appeared, and informed the magistrate that Messrs. Groves had agreed to build a party-wall which would divide the warehouse into divisions required.

Mr. Hesketh mentioned that if the magistrates' decision had been in favour of the defendants, he would have had the legal assistance of the Metropolitan Board of Works in obtaining the judgment of one of the superior courts on this case.

SCREEN, UPMINSTER CHURCH.

Sir,—Your correspondent, "An Essex Organist," has been sadly misinformed in reference to the fate of the ancient illuminated oak screen in the parish church of Upminster, which separates the north aisle from St. Mary's Chapel; for instead of being desecrated, destroyed, and swept away, in the reckless manner described, the intention is, very carefully to preserve and case it, during the progress of the enlargement and restoration of the church, and, at the completion of the works, to leave it in its original position.

Some panelled wood-framing, composed partly of oak and deal (grained and varnished) of bad Classic design of

modern erection, and blocking up a portion of the east window, is intended to be removed, and decoration of a more ecclesiastical character substituted.

Whether your correspondent's "pretty good authority," may have mistaken the fate of the grained framing for that of the oak screen, I know not; but "An Essex Organist," may consider, that his authority is not altogether reliable in the matter on behalf of which he solicits your protest.

WILLIAM G. BARTLETT.

THE GREAT EXHIBITION AND THE BUILDING ACT.

At the resumed hearing at the Hammersmith Police Court of the case against Mr. Kelk, the builder of the Great International Exhibition of 1861, at South Kensington, for not giving two days' notice to the district surveyor before commencing the works,—

Mr. W. Donaldson, solicitor, again supported the summons on behalf of his brother; and on this occasion Mr. Fladgate, the solicitor to the Commissioners of the Exhibition of 1862, attended for the defendant.

Mr. Fladgate said that he understood the case had stood over for the Metropolitan Board's approval of the plans. He had now received a formal approval of the plans from the Board, and a copy had been sent to the district surveyor.

Mr. Donaldson admitted the receipt of the plans, which were produced. He argued that the jurisdiction of the district surveyor was not superseded by the Board of Works, and that in every building, whether iron or otherwise, not approved by the Building Act as exempted, the district surveyor was entitled to receive the notice.

Mr. Fladgate, on the other hand, contended that in all buildings which were incorporated into the rules of the Building Act they were bound to apply in the first instance to the Board for their approval of the plans.

The defendant said that, while the commissioners were in communication with the Board of Works, he sent a letter to the district surveyor apprising him of it, and telling him that he did not like to interfere with the two bodies.

Mr. Ingham thought that would amount to a notice.

The defendant said the letter was read on the former occasion. He also said that within ten hours after the letter was sent he received the summons.

Mr. Donaldson said the summons was obtained before the letter was received.

Mr. Alfred Williams, assistant to the complainant, was called as a witness, and stated that he first observed that the works had commenced a month ago last Monday. He called Mr. Donaldson's attention to them on the same day, and a letter was sent to Mr. Kelk, requiring a notice. They had no reply; and on the following Thursday, he (the witness) was desired to obtain a summons, which was granted. On the following day Mr. Kelk's letter was received.

The defendant said the summons was served on Friday evening.

Mr. Ingham said they had no right to begin the works before giving two days' notice.

The defendant said he quite admitted a notice ought to have been given.

Mr. Ingham said he should inflict a nominal penalty of 1s. and 2s. costs.

Mr. Donaldson applied for larger costs, as it was a question of some importance to the complainant.

Mr. Ingham ultimately allowed a guinea costs, which was immediately paid.

Books Received.

Collieries and Colliers: a Handbook of the Law and Leading Cases relating thereto. By J. C. FOWLER, Barrister-at-Law, &c. London: Longmans & Co. 1861.

THE great and growing interests involved in coal-mining seem to justify the publication of a work such as this, in which these interests alone are the subjects treated of. It is the first of its kind, so far as regards this exclusive devotion to mining interests; and is intended not so much for professional purposes as for the use of all concerned in collieries, to enable them, by easy reference, to steer clear of law-breakers, and to transact their business, enter into contracts between employer and employed &c., and be versant with what is right and wrong, legal and illegal, in respect to all such topics as truck, combination, intimidation, rating, inspection, &c.; without a perpetual recurrence to lawyers, and consequent utility for professional advice. It is evidently a useful book.

VARIORUM.

"Jerne; or, Anecdotes and Incidents during a Life chiefly in Ireland; with Notices of People and Places. By a Retired Civil Engineer. London: Partridge & Co. 1861." This is a vivacious and rattling volume, full of sprightly Irish humour, and forms a pleasant companion for a leisure hour. The author has an engineering eye open to the merits of various localities, amongst those which he visits and describes. The volume is illustrated by engravings.—"Statistical Papers based on the Census of England and Wales, 1851; and relating to the Occupations of the People and the Increase of Population 1841-51. By F. A. WELTON, F.S.S. London: printed for the Author by Savill & Edwards, Chandos-street, Covent Garden. 1860." When the new census returns are published by the Registrar-General, these papers on the census of 1851 will be extremely useful for comparison; and we may then have to recur to them as a more fitting time

for detailed notice.—"Journal of the Bath and West of England Society for the Encouragement of Agriculture, Arts, Manufactures, and Commerce. 1861. London: Ridgway, Piccadilly. Part II., Vol. IX." The reports and papers in this volume are of an order chiefly useful, of course, to those engaged or otherwise interested in agriculture. Some of them, however, may be read by others with more or less interest or advantage. There is a short one on stable-fittings, and a more important one on the profits of small farms, by Mr. Darby, of Lytchett, in Dorset. Mr. W. B. Tegetmeier has one on poultry; and there are others on liquid manures, irrigation, embankment of marsh lands, &c.

Miscellaneous.

SLEEP ON THE METROPOLITAN RAILWAY.—A slip occurred a few days ago on that portion of the metropolitan underground railway which lies between Judd-street and Wildest-street, but fortunately without injury to any one, and also without doing any damage to house property. The slip occurred in an open cutting in the road from kerb to kerb. We are not inclined to be in raising an alarm as to the accident; it is not more than might be anticipated as probable in the construction of such a line as this.

BRUSSELS INDUSTRIAL EXHIBITION.—The Lords of the Committee of Privy Council on Education have received from the Secretary of State for Foreign Affairs a copy of a despatch from her Majesty's minister at Brussels, announcing the intention to hold an Exhibition of Industrial Arts in Brussels, under the direction of the Belgian Government. The Exhibition will be opened on the 1st of August, 1861, and will contain designs, models, and finished articles connected with industry, produced either by Belgians or foreigners. Among the productions are enumerated:—Architectural designs and models; designs for the exterior or interior decoration of buildings; for cornices, mouldings, chimney-pieces, balconies, &c.; for altars, pulpits, &c.; for furniture, paper hangings, inlaid floors, &c.; for stoves, grates, lamps, candelabra, gates, vases, inlaid work, glassware, and objects in marble and alabaster. The models may be made of wood, stone, wax, or other substance. There is a special competition for designs for furniture and decoration; and another for metal work.

FIRE-CLAY MANUFACTURES.—A paper on this subject was read recently by Mr. W. H. Stephenson, of Throckley, before the Society of Engineers. Fire-clay is found in Wales, Scotland, Stourbridge, Leeds, Dorset, Surrey, and Newcastle; but the paper, in the main, was confined to the nature, manufacture, and use of the Newcastle quality, as that with which the author is more intimately acquainted. The most valuable property of fire-clay is its plasticity, or the property of forming dough with water, sufficiently soft to take the most delicate impression from a mould, and so deficient in elasticity that even the slightest indentation is lasting and permanent. The most prominent physical properties of clay are its plasticity and behaviour when exposed to heat. Exposed to the most intense heat that can be artificially produced, clay refuses to become liquid, and acquires at most a slight degree of flexibility. Its particles then cohere so strongly together that the burnt mass is hard and sonorous, although still porous enough to absorb water with avidity. Fire-clay is commonly found in the coal measures, at a great depth from the surface, but not unfrequently it lies on the top. At Throckley it lies immediately below the coal measures, its thickness varying from 3ft. to 18in. As a rule, it is very strong and hard, and cannot be worked to advantage without gunpowder. When brought to the surface it is exposed to the atmosphere, and soon becomes comparatively plastic. Difference of opinion exists as to adopting this system, inasmuch as a very large capital is necessary, and it lies dormant for the time being. The clay is ground into a fine powder, preparatory to being moulded into bricks, gas-retorts, &c. With clay in good order, a skilled workman can mould from 2,000 to 2,500 marketable bricks in a day, for which he gets 2s. 6d. a thousand. The bricks are afterwards burnt; a kiln containing about 12,000 requiring about five days for the burning process; and during that time it consumes from twelve to fifteen tons of coals. The value of fire-bricks depends upon their fire-resisting qualities; and these, again, depend upon the proportion of silica they contain. The prices average from 40s. to 50s. per thousand in the Newcastle district.

SOUTH KENSINGTON MUSEUM.—During the Whitsun week there were 19,599 visitors; at the Social Science *conversazione*, Saturday evening, 976; total, 20,575.

CAMBRIDGE ARCHITECTURAL SOCIETY.—The excursion of the Cambridge Architectural Society took place on Monday, the 20th ult. A party of about seventeen started with coach and four, and drove over to Huntingdon, taking Long Stanton, Over, Swavesey, and Fen Stanton on the way. At Long Stanton they examined the church of St. Michael, and its larger neighbour of All Saints. At Swavesey the party were invited by Mrs. Long to view the old Manor-house. The church at Swavesey is in very poor condition. Fen Stanton has had the nave lately restored, but the chancel looks very meagre.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—The fourth *conversazione* of the season was held last week in the Egyptian Hall, Mansion House, under the presidency of the Lord Mayor. The fine-art collection included numerous paintings of high order of excellence by modern artists, with specimens of sculpture by the first living masters. A considerable number of works of art had been lent for the occasion by private collectors, desirous of furthering the object of the institution. The Lord Mayor having opened the business, the hon. secretary (Mr. Otley) read a paper explanatory of the origin, objects, and operations of the Society. A vocal and instrumental concert followed, under the conduct of Mr. Jules Benedict and Mr. Alfred Gilbert.

TENDERS FOR PAVING AT HERTFORD.—At a recent meeting of the Hertford Paving and Lighting Commission, the following tender from Messrs. Ekins & Sons, being the lowest sent in, was accepted, and the whole of the work required to be finished to the satisfaction of the surveyor (Mr. Wilde), by the end of September next: 2½-inch tooled York paving, in mortar, at 9½d. per foot; old paving taken up, squared, and relaid, at 3d. per foot; new Aberdeen granite curb, 12 inches by 6 inches, at 1s. 10d. per foot; old ditto, reset, at 4d. per foot; new West of England ditto, at 1s. 9d. per foot; new York curb, 9 inches by 6 inches, at 1s. 4d. per foot; new large granite pebble paving, 1s. 3d. per foot; ditto, laid in concrete, 1s. 4d. per foot; ditto new small pebble, laid in concrete, 1s. 3d. per foot.

NEWSPAPERS' BENEVOLENT INSTITUTION.—The annual meeting of the members of this institution was held on the 24th ult., at Freemasons' Tavern. Mr. Torry presided, and the attendance was good. The report stated that the subscriptions for the year had been 482, 9s. 6d. This was an increase of 74, 0s. 6d. on the previous year. The donations had been 387, 9s. 8d.; and, after meeting the necessary expenses, a balance of 387, 9s. 8d. remained in the hands of the treasurer. The committee regretted that their funds would not allow them to increase the number of pensioners. It was also a matter of regret that, as the subscription was only 5s. per annum, a larger number of the trade had not joined the institution. The report was adopted. After the business had been concluded, the company assembled in the great hall to celebrate the annual festival in connection with the institution. Covers were laid for 160. Mr. Charles Dickens was to have presided, but illness prevented his attendance, and his place was occupied by Mr. Wilkie Collins. The subscriptions amounted to almost 1000.

ARTISTIC CONGRESS AT ANTWERP.—An Artistic Congress will be held at Antwerp, on the 19th and 20th August next, in the Council-room of the Cercle Artistique Littéraire et Scientifique, to which artists and literary men of all nations are invited. The programme of proceedings indicates the consideration of such questions as that of the establishment of an international legislation for the full suppression of the piracy of works of art. There are also questions of artistic interests, comprising the following:—1st, Is the expression of monumental art in harmony with the manifestations of modern ideas?—2nd, Is not the union of architecture, sculpture, and painting indispensable to monumental art? What reforms should be introduced into the mode of instruction in the fine arts in order to establish that union?—3rd, Is it not in the union of architecture, painting, and sculpture, that monumental art should find the elements of a new style which ought to characterize our epoch? Amongst questions of philosophical interests to be discussed one is, "What affinity exists between philosophy and art?" and another, "Does not art exert a certain influence upon the intellectual and moral development of nations?"

GOVERNMENT TURKISH BATHS.—It is rumoured that Government intends to erect Turkish baths at Aldershot for the use of the camp.

CHATHAM.—The enlargement of Chatham dockyard, which the Government has determined on carrying out, will involve the expenditure of nearly 1,000,000, sterling. On the channel side of St. Mary's Island three large steam-basins will be constructed, each connected with the other by locks. The largest of these basins will cover an area of 30½ acres, with a length of 1,850 feet on its least side, and a breadth of 700 feet, with a depth of 30 feet at neap tides. The river Medway, for some distance below the dockyard, will also be deepened to form a channel 600 feet wide and 27 feet deep at half-tide, which will give 31 feet at neaps and 35 feet at springs, so as to enable large line-of-battle ships to ascend the river to Chatham dockyard.

SEWERAGE AND THE PRUSSIAN GOVERNMENT.—A commission from the Prussian government having visited England during the year 1860, to inspect the sewerage works of the metropolis and other English towns, went over, amongst others, Carlisle and West Ham. Mr. R. Rawlinson, having afforded assistance and so facilitated the attainment of the object of the journey, has received a letter signed "Bernstorff," presenting in the name of His Prussian Majesty's Government a copy of the work on the church of St. Sophia at Constantinople as an acknowledgment of the assistance afforded, showing a satisfactory appreciation of the services rendered. We may suppose that the Prussian government have some idea of moving in sewerage and drainage works.

SALES AT THE MART, MAY 23.—By Messrs. Morris & Son.—A ground-rent held under lease for 92 years, from Midsummer, 1845, on No. 2, Howley-place, Maida-hill West, Paddington, of 15½, per annum—sold for 3000. A ground-rent secured upon No. 3, Howley-place, of 15½, per annum—sold for 2950. A ground-rent secured upon No. 4, Howley-place, of 15½, per annum—sold for 2900. A ground-rent secured upon No. 10, Howley-place, of 15½, per annum—sold for 3000. At Garraway's.—By Messrs. Farebrother, Clark, & Lye.—A plot of freehold building land, situate at Clapham-rise, having a frontage of 58 feet, to Paradise-road, by a depth of 110 feet.—sold for 2300. A plot of freehold building land, situate at Clapham-rise, having a frontage of 58 feet, to Paradise-road, by a depth of 110 feet.—sold for 2350. A plot of freehold building land, having a frontage of 50 feet to Lark-hall-lane, by a depth of 109 feet and 105 feet 6 inches—sold for 2600. A plot of freehold building land, with a frontage of 73 feet, to Lark-hall-lane, and 100 feet to Jeffrey's-road—sold for 5000. A plot of freehold building land, with a frontage of 78 feet by 183 feet 2 inches, to Jeffrey's-road and Little Paradise-place—sold for 6750. A plot of freehold building land, on the west side of Jeffrey's-road, with a frontage of 155 feet 6 inches by 185 feet 10 inches—sold for 1,3600. A plot of freehold building land, with a frontage of 135 feet 10 inches, to the Clapham-road—sold for 1,1700.

RAILWAY STATISTICS.—Mr. Clegborn, of York, the secretary to the North-Eastern Railway Company, has prepared a summary of railway statistics, for 1859, according to which, as appears from the *York Herald*, the capital authorized on 31st December, 1859, was—share, 285,484,181; loan, 98,282,170; total, 383,766,351. The capital paid up at that date was—1. Share, ordinary, 184,560,019; preference, 63,555,179;—248,115,198; 2. Loan, debentures, 80,628,116; debenture stock, 5,619,614;—86,247,730; total capital paid up, 334,362,928. The length of line open for traffic was 10,002 miles, with 1,020 in course of construction. The total number of persons employed on 30th June, 1860, on lines open, was 127,450, and on those in course of construction, 53,928. The total number of stations was 3,601. The number of passengers conveyed of all classes was 149,757,294, exclusive of 49,856 periodical ticket-holders. The miles travelled by these passengers amounted to 2,018,767,803, giving an average of 13½ miles per passenger. The receipts from passengers were 11,118,579, or an average of 1s. 6d. per passenger. The total receipts from passengers, luggage, &c., and mails, was 12,537,493. The weight of general merchandise conveyed was 27,005,737 tons, and the receipts 8,373,283. 12,805,613 head of live-stock had been carried, receipts 609,722. The total receipts from all sources amounted to 25,743,502. The number of trains run was—passenger, 2,233,696; goods, &c., 1,361,152; total, 3,594,848. The average receipts per passenger-train were 57, 12s. 3d.; per goods' train (including minerals and cattle), 97, 14s. 2d.

THE ART-EXHIBITION OF 1861, AT DUBLIN. This exhibition has been inaugurated by the Lord Lieutenant of Ireland, in the large hall in front of the Royal Dublin Society's House. The hall has been furnished with pictures and statuary for the occasion, and the organ built for the Paris Exposition of 1855 gives zest to the whole. The building contains double the number of pictures exhibited in 1853.

THE ROMAN CATHOLIC CHURCH, CRAWLEY.—Sir: Under the head "Crawley," in your Church news of last week, particulars were given of some buildings erecting for the Roman Catholics there, which require some notice. It is right you should know that Mr. Benjamin Ferrey was called upon last week to survey these buildings; it being reported that the chapel was in a dangerous state, and that the roof of the chapel must be strengthened considerably, additional buttresses built in the halls, &c. The buildings are a reproach to the nineteenth century, and have not the slightest pretensions to architectural propriety. The monastery, as it is called, is like a range of common stables.—A. B.

BIRMINGHAM ARCHEOLOGICAL ASSOCIATION.—The annual meeting of the Birmingham and Midland Counties Archeological Association was held in the lecture theatre of the Midland Institute. The report, read by Mr. Harris, honorary secretary, recorded the fact that two excursions were made during the past year; and that, owing to the unfavourable weather, they resulted in a loss to the society. The accounts showed receipts, 757, 17s. 6d., and outstanding subscriptions, 211, 17s. 6d. After the report and accounts had been adopted, a vote of thanks was passed to Sir F. Scott, Bart., for his services as president during the past year, and he was re-elected to that office. The vice-presidents, Lord Lyttelton, Sir J. Pakington, Sir E. A. H. Lechmere, Bart., Sir T. Winnington, Bart., Messrs. C. H. Bracebridge, J. T. Chance, T. C. S. Kynnersley, C. W. Hoskyns, and T. H. Galton were also re-elected. Professor Chamberlain and Mr. C. E. Mathews were elected secretaries, and the latter gentleman was also chosen treasurer. Other gentlemen were appointed on the committee. The next excursion will probably be made to Stratford-upon-Avon, in the early part of June.

COMMISSIONERS FOR THE EXHIBITION OF 1851. The fourth report of the Commissioners, dated the 3rd ultimo, says:—"Out of the total extent of land originally purchased by us in 1852, amounting to 85 or 86 acres, the various appropriations that have already been made for the purposes of the Department of Science and Art, the construction of roads, the Horticultural Gardens, the Exhibitions of 1862 and 1872, and the erection of private houses, have absorbed more or less permanently not less than 70 acres, so that only 14 or 15 acres, or about one-sixth of the land forming the Kensington-gore estate, remain at present unappropriated to the development of the purposes contemplated by our charter; and even four acres of that amount have been temporarily lent for the Exhibition of 1862." A further report from the Commissioners brings the account of their proceedings down to the present time, when the gardens of the Royal Horticultural Society are on the eve of opening, and the second Great Exhibition building is begun. To the Horticultural Society the Commissioners have let 22 acres of the land purchased by them at South Kensington, the centre of the estate, forming an ornamental interior court to any buildings which may be hereafter erected along the fine open roads that have been constructed round the main square or heart of the property. The receipts from the gardens, after paying current expenses and interest on the money borrowed by the society for the formation of the gardens, and by the Commissioners for the erection of arcades to enclose them, are to be divided equally between the Society and the Commissioners; in other words, the rent to be half the profits. In these new gardens is to be erected the memorial of the Great Exhibition of 1851, towards the cost of which the sum of 6,000, has been provided by public subscription. The report contains also the official documents relating to the second Great Exhibition of 1862. The land for it is granted by the Commissioners of 1851 rent free; and of the part of the building which is to be of a permanent character these Commissioners are willing to grant to the Society of Arts a long lease at a moderate ground rent, on condition of the building being used solely for holding exhibitions and for purposes connected with the promotion of arts and manufactures.

VEGETABLE GLUE.—Common animal glue is likely soon to be superseded by paste made of gluten. It looks like glue, and is quite as strong. Gluten, which is to be had at all starch manufacturers, will dissolve in twice its weight of cold water, and may be used in a cold state. A kilogram of this vegetable glue will yield three when dissolved, whereas one of animal glue does not yield more than two.—*Galignani.*

GRAND SURREY DOCK COMPANY AND THEIR WORKMEN.—We understand that the workmen of the Grand Surrey Dock Company have recently addressed a letter to their employers, requesting an abridgement of time and earlier payment on Saturday afternoons. The boon has been very wisely granted to the men who are casually employed at this establishment, and the result is highly favourable to their wives, who are thereby enabled to obtain choicer commodities in the market than under the old system. The men are now about to thank their employers for this concession.—*Orr's Kentish Journal.*

THE BUILDING TRADE IN LONDON.—On Tuesday evening a very numerous meeting of workmen in the different branches of the building trade took place at the Surrey Theatre, convened by the delegates of the trades, to ascertain whether the men were still disposed to persist in their determination to oppose the hourly system of payment, as enforced by a few of the master builders. The chair was taken by Mr. Franklin, who opened the business by expressing his sympathy with all working men. Mr. Potter gave a history of the dispute from its origin to the present time. Mr. Allcroft (carpenter) moved the first resolution:—"That in the opinion of this meeting the system of payment by the hour is pernicious in its influence, because it destroys a maximum day, leaving the workman to the mercy of his employer, by cutting off all the privileges he has hitherto enjoyed." Mr. Wheeler (plasterer) seconded the resolution. Mr. Quilter (painter) moved, and Mr. Davy (carpenter) seconded, the following resolution:—"That the thanks of this meeting be given to those who have so liberally contributed towards the support of our fellow-workmen who have so nobly stood out against the system of payment by the hour, and this meeting further pledges itself to render them every support until the hour system is withdrawn," which was supported by Mr. Finlon, French polisher, and carried unanimously. The meeting separated with a vote of thanks to the chairman.

INCREASE OF THE POST-OFFICE.—In 1759, the gross receipts of the Post-office amounted to 222,076*l.*; the charges paid were 149,345*l.*; and the revenue or profit was 73,730*l.* In 1859, the gross receipts amounted to 3,299,835*l.*, the cost of management was 1,853,953*l.*, and the net revenue amounted to 1,445,872*l.* From this latter sum must be deducted the cost of the packet service, which was last year charged to the Admiralty, and then amounted to 1,069,778*l.* The enormous growth of our foreign and colonial commerce is well shown by means of the public accounts of the cost of packet service. We find, in the Post-office accounts for the year 1686-7, that the charges paid for packets that year were 916*l.* at Harwich, and 569*l.* 12*s.* at Dover. During the current year (1861) the Post-office will have to pay nearly 19,000*l.* for the Dover service alone, and 238,500*l.* for carrying the mails to and from the West Indies; while the entire packet service of the year is estimated to cost no less than 994,956*l.* The Money-order Office, which was established as a recognized branch of the Post-office in December, 1838, has developed itself in so marvellous a manner as to make all comparison out of the Post-office itself almost impossible. In the first year of its official existence this department transacted business to the extent of 624,851*l.*, the number of these transactions being 377,536. Such was the rapid increase of this Office, that the year 1850 showed 8,870,498 transactions, amounting to the immense sum of 16,977,568*l.* Transactions of this magnitude cannot be comprehended without some difficulty, and it becomes a matter of wonder how a department like the Post-office, having so much to do in what may be called its legitimate business, can carry on a gigantic banking business like that of the Money-order Office, under any circumstances; but the wonder becomes greater, when we find that, although, in 1859, there were 13,936,637 transactions, amounting to 26,536,390*l.*, and that, from 1841 to 1860, the total number of transactions had reached 184,150,225, and the amount of money 355,701,779*l.*, yet the losses sustained have only amounted to the comparatively insignificant sum of 5,965*l.*—*St. James's Magazine.*

HARBORNE SCHOOL COMPETITION.—The architectural competition for the new schools and school house, in connection with St. John's Church, Harborne, has been decided in favour of Mr. Naden.

LIQUID GLUE.—The following recipe is given by the *New York Tribune* for making the liquid glue, now so popular in America:—In a wide-mouthed bottle dissolve eight ounces of best glue in a half-pint of water, by setting it in a vessel of water, and heating it till dissolved. Then add slowly, constantly stirring, two and a half ounces of strong aquafortis (nitric acid). Keep it well corked, and it will be ready for use. It is a handy and valuable composition, as it does not gelatinise, nor undergo putrefaction and fermentation and become offensive, and is always ready for use.

"NOTES ON ART."—Sir,—Can you find me a corner to explain that, while sensible of the claims to public notice you assign to my pamphlet, by comparing parts of it to "a dissertation on the texts given in last report of the Art-Union of London," it was actually printed prior to the date of that report; and, as a dissertation is commonly understood as a something founded on and following a previous statement of fact or principle, I am most anxious to free myself from any imputation of plagiarism which may thereby mistakenly arise.—The AUTHOR of "Notes on Art: our Public Monuments."

CLUBS FOR WORKING MEN.—Vice-Chancellor Sir William Page Wood presided on Friday night, the 24th ultimo, at the Clare Market Club, founded by the Rev. C. M. Robins. The meeting was held at the Colonnade in Clare Market, for the purpose of advancing the interests of the Working Men's Club recently formed there, and of getting up similar institutions. The Rev. Mr. Robins, the originator, reported that there were now 70 members. For twopence per week a working man could spend his evenings at the Club, and improve his mind. Lectures were given, and the Bishop of Oxford had kindly promised one.

THE SOCIETY FOR THE PROMOTION OF SOCIAL SCIENCE.—A numerously attended *conversazione*, under the auspices of the Committee of the Association for the Promotion of Social Science, was held on Saturday evening at the South Kensington Museum. The company numbered nearly 1,000. The art galleries, the education museum, the food collection, and the animal products museum were thrown open for the inspection of the assembly. The band of the 1st Middlesex Engineer Volunteers was present, and played several appropriate airs during the evening. The meeting for the current year will be held at Dublin, from the 14th to the 21st of August.

NEW WATER WORKS FOR HOBART TOWN, TASMANIA.—The foundation-stone of the tower connected with the new water works for Hobart Town was laid with great formality and ceremonial, by the Governor, Sir H. E. F. Young, on 6th March last. The mayor, in an address to the Governor, stated the following particulars as to the works. The distance of the main reservoir from Hobart Town is about two and a half miles from St. David's Church. The ground covered by it is seven acres: the sources of supply are various springs, chiefly forming the sources of supply of the Brown's River; and the height of the reservoir above the level of the sea is 440 feet. The quantity of water which the reservoir is calculated to contain is 40 millions of gallons; and the daily consumption of the town is between 500,000 and 600,000 gallons. The quantity of water in store may be increased by the construction of additional reservoirs. The council, added the mayor in conclusion, are assured that your Excellency will feel, with them, the highest gratification, that very soon the health, comfort, and cleanliness of Hobart Town and its vicinity will have been secured, by placing at the absolute disposal of the inhabitants a super-abundant supply of pure and wholesome water for a nominal outlay; an element which Providence has bountifully placed within their reach for their use, health, and convenience, and for which benefit the whole population must feel themselves humbly and truly thankful. Mr. J. N. Gale is the engineer of the works. At a *déjeuner* afterwards given, on the Governor's health being drunk, Dr. Hall addressed the meeting; and, amid other topics, adverted to the question of sewerage, to his (Dr. Hall's) labours with reference to the subject, and the satisfactory state of the public health in consequence of the cleansing showers of the last three months. He also touched upon the question of public fountains, in connection with the projected monument to the late Sir John Franklin, who had taken an interest in vital statistics, when governor of this Colony.

VALUE OF A NEW FIXED DYE.—Ten thousand pounds is said to be the sum offered by a Manchester manufacturer to Mr. Grace Calvert for a new dye that will stand the sun.

HIGHBURY BARN.—Sir: in your impression of the 25th May, you kindly referred to my practical knowledge as foreman of carpenters in carrying out the difficult piece of work at the above place, without stating my name, which you doubtless, were not in possession of. By inserting this in your valuable journal, you will oblige,—A. H. SMITH.

TENDERS

For Ludlow Sewers, Deodorising Tanks, Cattle Market, and Waterworks Extension. Mr. T. Curley, engineer. Quantities supplied:—

Climax	£9,181 0 0
Holmes	8,517 0 0
Craven & Treasure	8,163 0 0
Clifford	8,130 0 0
Edmunds	7,820 0 0
Clarke	7,497 0 0
Moore	7,535 0 0
Mariott	7,924 0 0
Clarke & Piel	7,555 0 0
Brassey & Piel	7,481 0 0
Pearson & Son	7,928 0 0

For Extension of Maltings, Leamington Brewery. Mr. R. Davidson, architect. Quantities by Mr. R. L. Curtis:—

Clarke & Son	£4,861 0 0
Hart	4,321 18 0
Ballard	4,516 8 8
Gascoigne	4,612 0 0
Mariott (accepted)	4,426 0 0

For St. Mary's College, Harlow. Mr. Withers, architect. Quantities supplied by Mr. Poland:—

Macey	£3,584 0 0
Sanders, Brothers	3,581 0 0
Mansfield & Son	3,439 0 0
Holland & Haines	3,416 0 0
Perry	3,676 0 0

For building Three Houses and Shops and a Pair of Semi-detached Cottages, at Brixton-hill, for Mr. Kelly. Mr. Barrett, architect:—

Colc	£2,428 0 0
Tarbutt	2,430 0 0
Glenn	1,994 0 0
Brake	1,927 0 0
Smith	1,920 0 0
Turner	1,998 0 0
Wallis	1,900 0 0

For Works for Mr. Bevington, at Rouppel-park, Brixton. Mr. John Taylor, Junr, architect. Quantities by Mr. Reidall:—

Lawrence, Brothers	£2,047 0 0
Clements	1,935 0 0
Pritchard & Shelton	1,932 0 0
Scott	1,728 0 0
Smith	1,749 0 0
Downs	1,745 0 0
Thompson	1,742 0 0
Deacon	1,741 0 0

For taking down Workshop, &c., and building on the site Two Houses and Shops, at Church-hill, Woolwich, for Mr. Francis H. Bannister. The contractor to be taken the whole of the materials of present structure, and to use such bricks only as approved by the architects. Messrs. W. Gosling & Son, architects, &c.:—

Vaughan	£490 0 0
Thompson	480 0 0
Champion	475 0 0
Taylor	469 6 0
Sonnex	466 0 0
Lidbetter (accepted)	460 0 0

For a New School-room and Class-room, at the Grammar School, Reigate. Mr. Geo. E. Pym, architect, Reigate:—

	Building.	Fittings.	Total.
Nigh	£665 10	£74 0 6	£739 10 6
Camber (not signed)	661 10		
Carruthers	649 0	82 2 0	731 2 0
Hodsworth	585 0	74 0 0	659 0 0
Wesley	549 0	77 1 11	626 1 11
Thornton (accepted)	554 0	64 0 0	618 0 0

For Sheds and Works for the Grand Surrey Canal Company

Holland	£4,244 0 0
Aird	4,025 0 0
Downs	3,870 0 0
Perry (accepted)	3,794 0 0

For alterations and additions to Premises, Nos. 1, 2, and 3, Copthall-court, City, for Mr. T. Hendry:—

Duncan	£1,480 0 0
Harrison	1,357 0 0
Shaw & Piper	1,340 0 0
Deverenz & Son	1,320 0 0
Tracey	1,288 0 0
Davis	1,098 0 0
Hewitt	1,080 0 0
Cubitt	968 0 0

For partly taking down, rebuilding, and altering Shop and Warehouse, at Atherton, Mr. Robert Jennings, architect, Atherton:—

Spencer	£1,242 0 0
Fox & Brother	991 10 0

For erecting a cottage, at Fleetpond, Hants., for Mr. D. McNab. Mr. J. Swan, architect:—

Poole	£613 0 0
Martin (accepted)	500 0 0

The Builder.

VOL. XIX.—No. 957.

Newcastle defends itself.



HEN Hoby was the great boot-maker in Georgian times, and a fussy little gentleman, who was not pleased, said to him with dignity, "Mr. Hoby, I shall deal with you no longer," the renowned fitter called out to one of his assistants, "Tom, Tom, put up the shutters, for Mr. W. W. Jones has taken away his custom, and of course we are ruined." We shall have to give

the same orders in York-street, for the Town Surveyor and the Sanitary Inspector of Newcastle-upon-Tyne have "unveiled the designs with which the *Builder's* attacks on the chief towns of our land have originated and been conducted." They have exposed our motives (and pretty base they show them to be); and they conclude by cherishing the idea that even their "humble endeavours may generate such a spirit of resistance to this arrogant tyranny, throughout all our municipalities, that their citizens, to whom their government is entrusted, with due regard to their own dignity, will no longer tolerate these injurious libels, or allow them to circulate with impunity and unchallenged throughout the country."

This terrible exposure comes to us in the shape of a pamphlet of sixteen pages, headed, "Borough of Newcastle-on-Tyne. Remarks by the Town Surveyor and Inspector of Nuisances, on an article in the *Builder*, headed, 'Condition of our Chief Towns; Newcastle-on-Tyne.'" It is dated from the Town Hall, and signed "Thomas Bryson," and "Thomas Dawson." In forwarding it to us, Mr. Bryson writes,—

"If truth is your aim (of which there can be no doubt) you will oblige [*sic*] by inserting the enclosed in your columns, and thus render the town its due."

We must decline to oblige as requested. Indeed, the remarks are so vulgar, insolent, and unfaithful, that we need give but little attention to them. Of the insolence of the writers we have already given specimens, but may add another. For instance, they say at the commencement, "This fearless writer has exhibited a disregard of facts probably without example, even in the columns of the *Builder*," which for a series of years has assumed to itself the special task of attacking and disparaging all the towns of the kingdom, which have not adopted the 'Health of Towns Act.'" And this, too, although the surveyor admits in his letter that truth is without doubt our aim. And now as to their untruthfulness. We said, in our first article on Newcastle, that "no city in the world, scarcely Sodom or Gomorrah, could have received more potent warnings," whether by various official inquiries, disclosures made by commissioners, or by example elsewhere; whereas, these veracious Defenders of the Dirt assert that we have poetically described the condition of the town as "worthy of the fate of Sodom and Gomorrah," marking the passage with inverted commas, as if it were a quotation. We need keep no terms with persons who can be guilty of such a shameful perversion of the truth as this.

Making a running commentary on some of our complaints (skipping those to which it is not wise to reply), they admit in effect that the conditions we have described do exist, but point out that we have—as may be excused in a non-resident—placed an additional syllable to an entry—Salt entry—in which one of the writers "was one of nine sons of a single family (?) in this street, seven of whom (only!) reached a vigorous manhood and an average height of six feet;"—that we insult both decency and truth in stating that the public privy between the Milk Market and the Swirl is capable of holding half a dozen men and boys on one side, and, perhaps, as many women on the other side: "The place in question was erected in 1848, with eight places for men on one side, and, as an experiment, two for women on the other side;"—that our note of the open sewer running through Pandon Dene, among the garden-houses,—inhabited, in some instances, by their owners and families,—is "distorted," although "the sewer" "certainly still remains uncovered for a short distance between the gardens, but at such a distance from the houses as scarcely ever to be offensive;"—that there is no such person as Mr. Matthew Plummer residing at the junction of Cowgate and Broad Chare, "nor are we aware that a wealthy burgess lived there within the memory of man, nor a town councillor either: Mr. Benjamin Plummer, a councillor, has a metal warehouse there." At such slight straws as these do drowning men catch.

The writers pretend to point out, as we have said, the probable motives which have prompted what they term our "attack" upon the large towns of England; and they do it in 'these words:—

"Exaggeration and misrepresentation do not usually characterize the advocacy of individuals, or of societies, in the pursuit of worthy ends, and actuated by pure and philanthropic motives. What, then, can possibly urge the writer of these articles to persist in an incessant calumnious crusade against so many of our respectable English towns? Are we to believe that the editor of a merely technical newspaper in London can be more anxious for our preservation from disease than we ourselves are? The preventives and remedies are as impudently paraded as nostrums in a quick advertisement, which are only to be obtained, of course, from one dispensary, and are urged upon us with a pretended benignant regard for our interests and protection. May not the well-founded apprehension of losing their salaries, on the part of a concave and its staff of officials, threatened from year to year with extinction, have something to do with these unscrupulous attempts to foist themselves on the public attention and service?"

The General Board of Health, if there still be such a Board,—for it is so long since we have heard anything about it that we are half-disposed to doubt,—will be somewhat astonished to find that we are the exponents of their views, and the preservers of Mr. Tom Taylor's salary.

The Surveyor and Inspector conclude with a flourish of tomahawks, to the effect that they hope the ratepayers will agree with them "in thinking that it is high time that the mawkish sentimentalisms of these pretended philanthropists should be denounced, and their impudent pretensions to superior knowledge proved to be as ill-founded as their unscrupulous language is insulting and unmerited."

It is apparent that these not very wise officials started upon the erroneous supposition that we considered them to blame for the perilous state of their town. We have too intimate an acquaintance with the innermost workings of municipal bodies to jump at the conclusion that the paid officials had necessarily a voice in the matter. We had but little doubt that these individuals had performed the duties intrusted to them to the best of their "limited liabilities;" now, however, we view the matter differently.

Amongst their erroneous suppositions is a belief that a "rapid perambulation of two days,"—so precise are they,—furnished us with all the data we made use of. For a long period we have had our eyes on Newcastle, and years ago alluded to its condition. The existence of evils in Newcastle is a matter of common notoriety. Letters in the public press, calling attention to the deplorable state of things as at present existing, are con-

stant. In the *Northern Daily Express*, writers are ever complaining of the state of the roads and other grievances. Not later than the 30th ult., one writes of a slaughter-house for horses, established in a shed over which the Newcastle and Carlisle railway passes, emitting the most noxious exhalations, and from which the flesh of the animals is sent "to Shields and Sunderland, where it is manufactured into polonies."

The writer continues:—

"How can we wonder at the sweeping strictures on our sanitary regulations which appeared in the *Builder*? It behoves our sanitary conservators at the present time, now that the weather has set in so very hot, to be on the *qui vive* for the preservation of the public health of this large and populous town. Too much vigilance and care cannot be taken in the efforts to keep our town in a salubrious state. This can be done by the proper functionaries exercising ordinary ingenuity. Remember, the cholera of 1833, and that in 1832 and 1833, came in our midst at a time when sanitary precautions were looked on as a myth; and, when the authorities had to battle with this dread visitant, they were staggered at the laxity of the sanitary laws; and before they could remove the cause, or at least mitigate the predisposing causes, the malignity of the disease had almost decimated the population. After the calamity had abated, what was the result? Why our town and neighbourhood were characterized as 'cess-pools,' and a black spot on the planet."

Shall we then remain apathetic, and wait for the fiend that shall rouse us from our lethargy to action? Let us bear in mind the adage that 'To be forewarned is to be forearmed.' The small-pox—that most loathsome of all diseases—is already prevalent in the lower part of the town."

Of course we see all these complaints (does the surveyor?), and are, besides, favoured with a mass of similar information from various correspondents. The *Daily Chronicle*, in an article published last month, says,—

"Scarletina of the most terribly malignant kind has been decimating our infantile population. The poison distilled among the abominations permitted near the quay-side, the mephitic vapours exhaled by the undrained and unpaved streets, which make our suburbs a district of mud-canals, and the accumulations of filth in that high-interest-paying property, the 'back slums,' have poisoned to the death the dear ones in hundreds of houses. The fever fiend has rarely entered a house without leaving one little victim silenced for ever. In many towns have been struck down with such suddenness and violence, that death has ensued before medical aid had a chance of dealing with the disease; and in many instances the case has been pronounced hopeless almost before the parent became alarmed. This state of things would disturb any set of men except those who, like some of the members of our corporation, are too prone to follow in old-fashioned paths, to notice anything which may cause a deviation from their ordinary routine, or involve an outlay to landlords. Being owners of property themselves, they sympathize with their class. The more selfish of them probably reason that if fever kills off the children in their crowded flats, the parents will have fewer demands on their resources, and will be better able to pay their rents."

We might easily fill columns with similar quotations; but our object is gained when we show that we are acting without heat, fear, or favour, in holding up to view all disregard of public health wherever it exists.

Since the publication of our paper on this subject, we have had dozens of confirmatory letters. One influential gentleman, a Justice of the Peace, says:—"I was at that much-vilified city, Lisbon, four years ago, which really now has been so successfully improved in outward cleanliness, that I could see nothing in the old crowded streets inhabited by the very poor which could approach the filth of Newcastle, save perhaps, one single lane. The utter recklessness of aught but greed of gain at Newcastle is thoroughly disgusting. Such a town ought, by the rest of the empire, to be voted under a beneficent despotism for ten years." Another correspondent says:—"The *Builder* has ably sounded one more warning to the Newcastleites; but I fear they are too far sunk in wealthy apathy to give practical heed to it. The place is in a most horrible condition, and I can vouch for the moderation of the description." A third says:—"I must congratulate the *Builder* on having taken in hand a matter of such immense importance, and made public, with unsparring truthfulness, and so much ability, the result of the inquiry. These strictures are not likely to pass without notice; and I hope they will irritate, though nothing can shame, the municipal authorities, who permit this cruel and dangerous state of things." This is testimony that would outweigh, in local as well as in general estimation, that of fifty inspectors of nuisances, bound to please their masters. The press, with

but one exception, is with us; the *Gateshead Observer*, as well as the *Newcastle Guardian*, and the journals we have quoted, being staunch supporters of sanitary improvements.

We shall take up offending or model towns according to convenience and circumstance, unbiased by the fact that they are, or are not, under the direction of the General Board of Health. We may take a leap from Land's End to Berwick-upon-Tweed; or simply step across from Newcastle to her "delectable sister," Gateshead, behind whose short-comings we perceive the former would fain hide her own.

To sum up, we must repeat, with a full appreciation of what has been done in Newcastle, that there are very many undrained chares in the crowded parts of it,—a statement the surveyor admits, for he considers them amply provided for in an arrangement which, he tells us, sends "iron covered carts with low axles, to traverse all such localities every evening, with a bell constantly ringing, to announce their approach and induce the tenants to bring out and deposit their refuse in the carts;"—that there are many chares occupied by merchants having no convenience whatever;—that there are many nettles in constant use—more rails over cesspools;—that it was a glaring error of judgment to fix the site of the new cattle-market in close contiguity to the great infirmary;—that the condition in which the roads are kept—whether under the care of the corporation, or that of a private company, as alleged in the "reply,"—is very far from commendable;—that the water supply is not sufficiently abundant at the season it is most in requisition—the height of summer;—and that the system—if there be any—by which the public health is supposed to be ensured, is generally defective; in proof of which the substitution of an evening patrol of tinkling carts—like those dread processions in the time of the Great Plague, when the bearers cried, "Bring out your dead"—for a hand-to-hand and energetic grapple with the difficulties and expense of thorough and efficient drainages, is conclusive.

Messrs. Bryson and Dawson, who start with a falsehood, and talk so pertly of unveiling our designs, of our base motives, mawkish sentimentalism, and arrogant tyranny, may be very decent citizens, for anything we know to the contrary: they may pay their bills and take proper care of their families; but we have no hesitation in asserting, on the evidence of the pamphlet before us, that they are not in their right places as town surveyor and sanitary inspector of the ancient borough of Newcastle-upon-Tyne.

A SKETCH OF THE SCIENCE OF CARPENTRY.*

THE art of carpentry is defined by Robinson, Tredgold, and others, as the art of framing timber for the purposes of architecture, machinery, &c.; and, in general, for all considerable structures. Considered as a branch of the art of building, it embraces the construction of the framing of partitions, floors, roofs, &c.

It is needless here to enter into a description of the various kinds of timber used for building purposes; the red and yellow fir from the north of Europe being that most generally used in this country. It is easily worked, and very stiff for its comparative lightness; and for durability some authors consider it, under certain circumstances, to last as long sound as oak.

With this slight introduction, I will endeavour to condense the very extensive science of carpentry into as small a space as is consistent with clearness; confining myself to practical remarks only; and, observing some sort of connection in the arrangement of the several contrivances, I will commence with the *ordinary wood lintel*. It is a horizontal piece of timber over a door, window, or any other opening built in the wall, so as to discharge the superincumbent weight. If the wall be very thick, more than one piece of timber will be required in the thickness of the wall. The general dimension is 3 inches thick for an open-

ing of 3 feet, increasing one inch in thickness for every foot, or part of a foot, over the 3-feet opening. When the opening extends to about 12 feet or more, the same beam is more commonly called a bressummer, and brings at once into operation the skill of the carpenter in strengthening the piece of timber by mechanical means, so that it will be able to sustain, not only its own weight, but the superstructure it has to carry. All horizontal beams supported at their ends have a tendency more or less to what carpenters technically term *sag*, that is, to drop in the middle by the force of their own weight. To counteract this influence, and also to gain the greatest effect with the smallest amount of material, recourse is had to several expedients, all tending more or less to strengthen the beams. The simplest form I know of is to cut down a timber, say a foot square in the centre, reverse the grain or fibres of the wood, and screw-bolt them together. The additional strength gained by this is certainly not much. The next in order would be, inserting between the pieces so cut a piece of oak, or wrought-iron, which assuredly strengthens the beam considerably, and is frequently resorted to; but the most scientific manner of strengthening a beam is by *trussing* it,—an operation which at once introduces us to two very important mechanical influences, namely, compression and tension. If two inflexible bars be inclined to an angle, and the other extremities secured to another bar in a horizontal position, and a weight be placed on the angle (or a screw will answer the same purpose), the inclined bars will be in a state of compression, while the horizontal bar exhibits a state of tension.

The simplest form of trussing a girder is to divide it into two halves in the direction of its depth and length, and insert between them bolts, having properly formed skew backs to receive the ends of the struts, which may be of oak, or any other material harder than the beam; and, when fitted, the centre bolt or bolts are screwed tight.

An extra force you will perceive is now added to the beam, which must be overcome ere the strength of the same untrussed can be acted upon. For scantling of girders of various spans, see girders for floors hereafter (which are copied from "Gwilt's Encyclopædia," as are many of the scantlings for other timbers here mentioned).

Floors.—The assemblage of timbers used in the formation of a floor may be classed under three heads—first, *single flooring*; second, *double flooring*; and thirdly, *double-framed flooring*. Before proceeding further, a few words as to plates. A wall-plate is a horizontal piece of timber laid on the walls of a building to receive the timbers of a floor or roof. Templates are short pieces of timber sometimes laid under the ends of girders or other timbers when no wall-plate is required: it should never be less than 3 feet long. Wall-plates and templates must be proportionately larger as the length and weight of the floor increase: their scantlings will in this respect vary from 4½ by 3 to 7½ by 5.

1. *Single flooring* is formed with joists reaching from wall to wall, where they rest on the plates: in common work they are simply spiked to the plate: in better work they are notched to the plate and spiked.

The intervention of flues, &c., will frequently prevent the ends of joists resting on the wall-plate. In such cases a piece of timber called a *trimmer* is framed and secured with a wedge into the nearest joist, which is then called a *trimming joist*: the other end of the trimmer frequently rests on the wall only, but it should be properly notched or secured to an iron corbel, and not go into the wall (this corbelling would also serve very well for corbelling of wall-plates, but a brick corbelling more equally distributes the bearing). All trimmers and trimming joists, on account of being weakened by mortises, should be half an inch thicker than the other joists. Herring-bone strutting is introduced in single floors when the bearing is over ten feet; and, when well fitted and secured, it stiffens the floor considerably. Single floors should not be used for floors beyond a bearing of 15 feet.

The following table of scantlings for joists will be found useful:—

Length, 6 feet	6 in. by 2 in.
" 8 "	2½ " 7
" 10 "	2½ " 7½
" 12 "	2½ " 8
" 14 "	2½ " 9
" 18 "	2½ " 12
" 20 "	3 " 12

2. *A Double Floor.*—This floor is formed of three bearing timbers: a *binding joist* (which is in reality a girder); a *bridging joist*, notched to the

binder; and a *ceiling joist*, also notched to the binder. There are two or three ways of notching the ceiling joists: they are plainly notched and spiked to the under side of the binder, or they are notched to a fillet nailed on the binder; and they may be what is called *pulley-mortised* into them—that is, a chase is cut in the binder long enough to allow of the tenons of ceiling joists being obliquely introduced into them, and driven up to their places.

The scantling for timbers of this kind of floor will be the same as given for double-framed flooring, of which it is a species.

Double-framed Flooring.—In double-framed flooring the binders, instead of resting on the walls, are generally framed into girders reaching from wall to wall.

Bridging joists are the same as described for single flooring.

In a single-joisted floor, the whole weight of the floor being equally distributed along the whole line of the wall, it certainly has the advantage of a girder-framed floor, where the weight is transmitted by the girder on a portion of the wall only; and it is also usually considered that a single-joisted floor is, in proportion to the cubical quantity of wood it contains, stronger than a framed floor. But, as Tredgold observes, when the bearing of the joists becomes considerable, the ceilings of single-joisted floors are liable to be affected by the natural movements of the timber; and at all times it is easier to execute the works required to prevent the transmission of sound in a framed than in a single-joisted floor.

Practically the limit for the bearings of a single-joisted floor seems to be fixed at from 20 to 24 feet; for, although it is possible to obtain timbers deep enough to carry the loads of floors of larger spans; yet the depth becomes so considerable as to render the use of framed floors preferable, even without reference to the danger and inconvenience from the shrinking and warping of the joists.

A span of more than 24 feet can rarely be accomplished with ordinary timber girders, and it therefore becomes necessary to resort to the use of trussed, cast-iron, or wrought-iron girders. Of these the wrought-iron girder, from its lightness and elasticity, is very much used.

Partitions.—The framework of timber used for dividing the internal parts of a house into rooms is called a *partition* or *quartered partition*, so named from the use of small timbers called *quarterings*; and when having a solid basis throughout its whole length, it requires little skill in the formation, and is generally constructed of quartering, which rarely exceeds 4½ inches by 3 inches, unless required for very large partitions. A piece of timber is fixed upon the wall, which is denominated a *cill*, and a corresponding piece above called a *head*, into which the ends of the quarters are framed. Occasionally an oblique timber is inserted in the form of a strut, which gives additional strength to the partition. When the partition is to be lathed and plastered only, the door and end posts for an ordinary dwelling-house are generally made 4 inches by 3 inches, the heads and cills the same, the filling-in timbers being 4 inches by 2 inches, and about 1 foot apart. When the partition is to be what is termed *brick-nogged*, that is, the interspaces of timbers filled in with brickwork, the thickness of the partition will require to be half-brick, and the interspaces of timbers arranged so as to take two or three bricks.

When a partition has to be formed, when it is not desirable to support it from below, it must not be allowed to give any of its weight to the floor, but assist in supporting and carrying the floor above if required. To do this, the partition is formed into a truss, the ends of which are supported upon the main walls of the building.

The principal objects to be remembered in the construction of framed partitions are to throw the whole weight of the partition, and what it has to carry, upon some principal wall or part of the building.

The simplest form of accomplishing this is where the head and cill are secured with iron straps to the angle posts. A king-post is framed in the centre to receive the ends of the braces, the bottom ends being well secured to the cill. The quartering is then filled in, and materially tends to stiffen the framing.

The use of iron rods, with king and queen heads, is much used now, and has the same advantage here as in roof, of screwing the joists of trusses firmly into their position. With these few remarks, which are necessarily incomplete, I will pass on to the next division, which is roofs, where I will more particularly describe the several ways of connecting the ends of timbers together.

* Read by Mr. R. O. Harris, as elsewhere mentioned.

I have not given any scantling of timbers for trussed partitions, on account of the variety of circumstances that influence their construction; for what would answer in one case would not in another.

Roofs.—There is nothing in the whole system of carpentry requires more careful consideration than the construction of the roof; for upon its proper formation depends the stability of the building, and the safety of those for whose shelter it is designed. The first thing I would call your attention to "the pitch" required, and that most consistent with the covering employed, and the vicissitudes of this climate. It should never be hidden from view like an unworthy object not fit to be looked upon, nor ornamented with useless decoration that cannot be seen. A very lively writer of the day observes,—"It seems therefore a gross violation of the principles of taste in architecture, to take away or hide the roof of a house; and it must be ascribed to that rage for novelty which is so powerful in the minds of the rich. Our ancestors seem to have been of a very different opinion, and turned their attention to the ornamenting of their roofs as much as any other part of the building. They showed them in the most conspicuous manner; running them up to a great height; broke them into a thousand fanciful shapes, and stuck them full of highly-dressed windows. We laugh at this, and call it Gothic and clumsy; and our great architects conceal the roof altogether by parapets, balustrades, and other contrivances. Our forefathers certainly did offend against the maxims of true taste, when they enriched a part of a house with marks of elegant habitation, which every spectator must know to be a cumbersome garret; but their successors no less offend, who take off the cover of the house altogether, and make it impossible to know whether it is not a mere screen or colonnade we are looking at." He further says,—"A house without a visible roof is like a man abroad without his hat; and we may add that the whim of concealing the chimneys, once so fashionable, changes a house to a barn or storehouse. A house should not be a copy of anything. It has a title to be an original, and a screen-like house and pillars like candle-sticks are alike solecisms of taste." Referring again to the inclination of a roof, I will here mention the angle of inclination with the horizon adopted in different countries. In Greece it was from 12° to 16°, in Rome usually 23° or 24°. In England high-pitched Gothic roofs are seldom more than 60°, or equilateral. A very good inclination, and one very commonly used, is to make the height of the roof two-thirds the span. A high-pitched roof will, undoubtedly, shoot off the rain and snows better than one of a lower pitch. The wind will not so easily blow the rain in between the slates, nor will it have so much power to strip them off. Taking roofs generally, we may divide them into three kinds:—1, the gable-ended roof; 2, the truncated roof; 3, the curb or Mansard roof. Each of these may have its ends cut off to the same inclination as its pyramid. In a square building, would form a pyramid. In an oblong roof the angle formed at the top is called the *ridge*, and that formed by the meeting of the sides the *hips*.

1st. **The gable-ended roof.** This is the simplest form of roof for buildings of small span. They are formed of wall plates bedded upon the wall, to which the common rafters are notched, and spiked in Gothic roofs. They are mostly continued to the exterior of the wall, to which a trough gutter is fixed; the upper end is cut so as to abut to the ridge-piece, to which it is spiked. There is generally a space of 1 foot between each rafter, and to every fourth or fifth rafter is attached a tie, generally termed a collar: it is halved and dovetailed to the rafter, and secured with oak pins or screws. If it were required to hip this roof, the wall plate would be continued round the wall and secured where they lap over each other at their ends by being halved and firmly screwed together. They are further secured by the angle-tie, which is also halved and dovetailed to the wall-plate, and a small timber, called a dragon-beam, receives the foot of the hip-rafter. Their angle-tie and dragon-piece are not used in Gothic roofs: being seldom or neverhipped, there is no occasion for it. When the ceiling joists are required, say half way up the roof, the ceiling joists may perform the office of collars, and when the rafters are plastered to the whole height, the collars or ties may be about 5 feet apart. It is not advisable to use this roof for spans exceeding 15 feet, or 20 feet at most. The bearings of the rafters may be further shortened by using a purlin notched to the top of the collars.

When the span of the roof exceeds 20 feet, it should be formed of trusses quite independent of the rafters. The simplest form of truss is that with a single king-post, a tie-beam, a pair of principal rafters, a pair of struts, purlins, common rafters, &c.

The tie-beam extends from wall-plate to wall-plate, to which it is coggled; so it ties the wall in at the top, and receives the outward thrust of the principal rafters, and so converts it into a vertical pressure. There are many ways of connecting the principal rafters with the tie-beam. I will give but one, which is called in carpentry the *true joint* for a rafter foot, and is used by the best London carpenters for all oblique thrusts. It is secured by a wrought-iron strap with wedges, or by a screw-bolt going through the two timbers. It becomes necessary to provide for what is termed the sag or sinking of the beam in the centre, and for this purpose the king-post is introduced, which is suspended as shown from the apex of the P. rafters, and from this is suspended the tie-beam. It is further secured with a wrought-iron strap and wedges at the lower end, which is framed into the tie-beam. The head and foot of the king-post, you will observe, has abutments for securing the heads of the principals, and for struts which divide the bearing of the principals. These projections are termed joggles, into which the rafters and struts are firmly framed, and bound with an iron strap having three branches to secure the rafters and king-post. Sometimes the king-post is exchanged for two queen-posts, when the span of the roof is increased, and the tie-beam requires suspension from more than one point. This introduces the collar-beam, to retain the queen-posts in their position, and another timber at the bottom, called a straining sill. The auxiliary or cushion-rafters, to which the purlins are fixed, have been used by some architects for additional strength.

This mode of trussing answers well for a truncated roof, where the collars may be cambered to a fall for the lead covering.

The next form of roof I will draw your attention to is the *curb roof*, that invented by Mansard, sometimes called the *Mansard roof*, after the name of its inventor—essentially a French roof—and a very good one it is. When sleeping apartments are required in the roof, it certainly affords more space than any other form. Its construction in every way meets the requirements of science. It forms ample means, by its dormer-windows, &c., for appropriate decoration, and is well contrived to bear the vicissitudes of this climate, and deserves to be more generally used.

It is formed of two pairs of inclined planes, not dissimilar to four sides of a regular octagon. The upper rafters are called curb-rafters, and a plate receives their ends, and is called the curb-plate. When the bearings of the top incliners are long, they may be formed into a king-post truss; the space between the two ties being the height of the story; and in large roofs would form the partition dividing the rooms; and the system of trussing explained, described for partitions, can be well practised in this form of roof. I will conclude these very incomplete remarks on this class of roof, by calling your attention to one or two specimens of the finest roof carpentry in this country.

One is the roof of the Birmingham Theatre, constructed by Mr. George Saunders: the span is 80 feet, and the trusses are 10 feet apart. It is one of the boldest and lightest roofs in Europe. The contrivance for taking double hold of the wall, which is very thin, is excellent.

Similar to this in span, and probably a finer specimen of carpentry and appropriation of the roof space, is that of Drury-lane Theatre, 80 feet 3 inches in span, and the trusses 15 feet apart, constructed by Mr. E. G. Saunders.

"It is probable," says Tredgold, "that this roof has not its equal in the world for lightness, stiffness and strength." (The scantlings of the timber, &c., are given in Tredgold and Gwilt.) The main truss is so judiciously framed that each of them will safely bear a load of nearly 300 tons.

In Gothic roofs the general principles of framing are somewhat different from what I have described. In these the timbers are generally unwrought, and hidden from view: in the Gothic roof it is different: the timbers are carefully wrought, sometimes beautifully moulded and carved: they exhibit also a system of trussing of the highest order; and the roofs of Westminster Hall, Hampton Court Palace, and Eltham Palace, Kent, are among the finest open-timbered roofs in Europe.

Taking Gothic open roofs generally, they have a tendency, from their construction, to exert an outward thrust on the wall; to counteract which,

the walls require to be made thicker and further strengthened by buttresses where the trusses rest upon the wall; hence the roof with a tie-beam and a medium pitch has the advantage of a high-pitched Gothic roof, in having greater strength with a smaller quantity of material.

I will here introduce one or two of the principles of the Gothic roof, as executed at the present day: the simplest form is, putting a collar about half up about every fifth pair of rafters, or to each pair if money will admit: it is a common form for old chancel roofs in small parish churches: it may be considerably improved by using a pair of struts, as shown, which brings the tie of the roof nearer the wall plate: these may also form trusses upon which to bridge the purlins, and they receive the common rafters, as in other roofs. The first of these examples may be further strengthened by the introduction of a circular brace, which takes the form of a Gothic arch, and is firmly screwed to the collar and principal rafter, and frequently has a bearing much below the wall plate. Hence, the wall above acts as a dead weight to counteract the thrust common to its construction. It will be readily seen what an important part these circular braces perform: upon their stiffness depends the proper tying in of the walls at the top. This bracing may be used in many forms, but the result must be the same, or it does not fulfil its office. It affords ample scope also for ornamentation, which our ancestors appear to have well appreciated.

To give you anything like an account of the complicated ingenuity displayed in the different ages of Gothic carpentry is far beyond the limits of this introduction to the science generally: in fact, a large volume, and a very popular one too, on Gothic carpentry, as worked at the present day, I think, is much needed.

Before quitting this subject, I will mention the *hammer-beam roof* and the *low-pitched roof* common to late work. These were often formed—I may say generally—without any truss or assemblage of girders, purlins, and rafters, of sufficient scantling to bear their own weight, and what they had to carry: frequently the ceilings of these roofs are beautifully panelled, and very effective.

The hammer-beam truss consists, in its simplest form, of a pair of principal rafters and collar, with two beams projecting from the wall at right angles to the wall plate, and from which the truss is braced, as before described.

With these passing notes, I must conclude my brief sketches. I could have written much more on the subject had space permitted; and, in endeavouring to simplify my subject, I fear I may have been tedious to our senior friends. However, I trust, it will elicit some discussion for our mutual benefit.

I have purposely omitted a very beautiful system of carpentry, practised by the French engineers De l'Orme and others, thinking it a subject worthy of a separate paper.

EXHIBITION IN AID OF THE FEMALE SCHOOL OF ART.

A VERY interesting collection of water-colour paintings, designed to illustrate the history of the art in Great Britain, is now on view in the rooms of the Society of Arts, in the Adelphi, in aid of the building fund of the Female School of Art. It consists of 218 pictures, more than half of which have been lent for the purpose by Mr. William Smith. Nearly all the early masters are represented; and of modern works it includes Corbould's "Scene from the Prophet," Louis Haghe's "Choir of the Dominican Church of S. M. Novella, Florence," and a water-colour version of John Lewis's "Edfou, Upper Egypt," now in the Royal Academy Exhibition.

On the 1st instant, the distribution of the medals and prizes of the Female School of Art and female students of the Metropolitan Schools of Art took place in the theatre of the Museum of Geology, Jermyn-street, by the Earl Granville, President of the Committee of Council of Education. A large number of students obtained medals.

Mr. Bowler explained at some length the principles on which the prizes were distributed; and—Mr. Redgrave pointed out the advantages which had resulted from the establishment of schools of art throughout the country. Afterwards,

Earl Granville made an eloquent and genial address, and said, with respect to the general results of the teaching of the schools of art, that it was impossible to walk through the streets of London, look into the shops, and see the productions of every art and manufacture, remembering what these were some few years ago, without feeling con-

vinced that these schools had done a great deal in improving the taste of the producer and of the purchaser; and he trusted that at the International Exhibition of 1862 this improvement would be appreciated not only by Englishmen but by foreigners. Mr. Fould, who was remarkable for his great taste and knowledge of art, had been for some weeks in this country; and he had stated that he was greatly astonished with what he had seen; and, making every allowance for the usual politeness of a French gentleman, he said that "The time would come when Frenchmen would have to come to England to learn the arts of design and decoration."

THE ANGLO-ROMAN OR TURKISH BATH.

"What have you to tell me of the firm yet soft græstia—the sunny bath?"—*Pliny*.
"But, ye gods! what pleasure was there in entering those obscure and vulgar baths?"—*Seneca*.

A few remarks through you, Mr. Editor, on the subject indicated in the above quotations from Pliny and Seneca, may not be uninteresting to your readers; the more especially as the subject may be said to vie with the Gorilla in attracting universal attention in this land of ours.

And why? The one, as said by some, is going to enervate and demoralize the sturdy Briton, even as of yore it is said to have done the Romans, and which called down most justly the fierce denunciations and terrible satire of Seneca. "Since," says he, "dainty baths have been invented, we are become more nasty." But what shall be said of the other subject? According to some, through "natural selection" in the "struggle for existence," we British and other similar bipeds—commonly called men—are splendid developments of anterior existences; and to the five divisions of Blumenbach is added a sixth—that of the *Gorilla*; because, forsooth, the nigger of the Ethiopian type is made out to be a sort of "go-between between the Gorilla and the Caucasian." Can we be surprised that the Charles-tonians affix to their play-bills, &c., "No coloured persons or dogs admitted," when a so-called philosophy affirms the nigger to be a kind of *non-descript*? Oh, that Terence were among us still, to electrify us, as he did the Romans of old, with his noble words: "Homo sum, nihil humanum a me alienum puto!"

No wonder some are alarmed about these two subjects, and take to themselves credit for saying that most assuredly our gradual downfall has commenced, and that, after all, nothing is more likely than that Macaulay's New Zealander will yet stand on a broken arch of London Bridge to sketch the wonderful results of degeneracy, as will be evinced in the ruins of St. Paul's and that marvel of British pride—London. But we live in far different times from the Romans of old. It is an utter impossibility that anything approaching to their degeneracy can overtake us; and the reasons for this are so patent, that I will not waste your valuable space in detailing them.

The Romans, as we all know, carried their baths to the very highest pitch of excess all over their empire; and in them were carried on all the orgies and saturnalia of heathendom. Many ruins of their baths are found in this country, but the principal one is perhaps in the ancient Roman city of Uriconium, now called Wroxeter. Their method of heating was by means of the hypocaustum, or series of flues under the floors, in a manner well enough known to most of us. This has been perpetuated in the East to the present time.

David Urquhart was, I believe, the first to call attention to the value of the Turkish bath in this country, in his work, "The Pillars of Hercules," a most interesting book, written in the nervous style peculiar to that learned gentleman. The Hamâm, or purely Turkish bath, would undoubtedly have a tendency to enervate and destroy the vital energy of this great nation. What we want is a bath very different from that—a bath that shall energize, not enervate. How can we obtain this? And if we can obtain it, it should be called the "Anglo-Roman bath," not the Turkish bath. However, it sometimes happens, there is not much in a name. It is evident the great desideratum lies in the construction—not of the decorative or artistic portions, though these should by no means be neglected—but rather of the heating apparatus, walls, floors, and ventilators of the rooms. The hypocaustum of the Romans was first employed in this country, and still is to a great extent. By this, the noxious and mephitic atmosphere of the rooms is heated; producing, as a natural consequence, general debility, nausea, giddiness, headaches, and many

other ills, necessitating the use of clogs to walk in, and generating feelings of fear; whereas entire repose, pleasurable emotions, and a general invigoration, should be the all-absorbing feelings, not only at the time, but afterwards.

An improvement of the hypocaustum has, however, taken place, by carrying a flue some 4 or 5 feet high around the warm rooms against the walls, producing too often the like results, but in a less degree. I see in the 110th report of the Newcastle-on-Tyne Infirmary, being the report of the current year, the house-surgeon speaks of some severe accidents which have occurred from the above-named heating principles in the bath in that institution. Now, his testimony (notwithstanding these drawbacks), to the great value of the bath for neuralgia, sciatica, catarrh, gout, influenza, bronchitis, dysentery, dropsy, scrofula, rheumatism, and numberless other ills to which flesh is heir, is most invaluable, coming as it does from one of the largest infirmaries in the kingdom; and I would refer your readers to the report. The accidents spoken of arose from the heated floors; and one case was so severe, that for some time life was despaired of. Now, this being the case, there must be something radically wrong in the present system of constructing the bath. First of all, the great desideratum is to do away with the flues, and to obtain pure fresh air, heated to the required degrees, but not as is technically called *burnt*. Secondly, to avoid ventilation by cross draughts in the side walls. Thirdly, to secure a floor capable of being walked on with the naked feet. Fourthly, to get a subdued light from above, and not in the side walls. Fifthly, to use only such artistic effects as shall cause the greatest feeling of repose, but not luxury; and, sixthly, to avoid, as most pernicious, having any of the rooms in cellars or deep basements. It is evident if these things can be attained, perfect, free, and even luxurious respiration, restored health, and greater energy in every respect must be the result. The exceedingly numerous breathing valves of the skin will be unstopped, and a greater amount of pure oxygen conveyed into the system, to say nothing of the impurities carried off from the blood. It must be *prima facie* understood that the bath should not by any means be indiscriminately used, as it would in some cases not only increase disease, but even induce disease, by trying the vital functions more than they in such cases could bear. These, however, are purely exceptional cases. The same remarks will apply to horses and other of the inferior animals. For horses the Anglo-Roman bath is an invaluable acquisition, and should be attached to not only every racing and hunting establishment, but to any establishment, whether commercial or otherwise, where a number of horses are kept. This has been admirably set forth by the Hon. Admiral Rous and others. Thus the Anglo-Roman bath is good for man and beast, and all who aim at this object are benefactors to the human race. David Urquhart, Erasmus Wilson, and Dr. Brereton in this country, and Dr. Barter in Ireland, have striven right earnestly in this direction, and the latter has obtained a patent for his method of heating; but such being only a modification of the hypocaustum and large side flue is certainly not what is desirable, although it is a step in the right direction. The evils complained of still exist in a modified degree, from the fact that it is not pure air the patient or bather breathes.

Another patent has been taken out by Dr. J. A. Bolton, whereby he professes to have obtained the great desideratum of heating the rooms with pure fresh (but not burnt) air. This is in active operation in the town of Leicester; and, from the reports of numerous engineers and physicians, &c., as well as my own observations, I can speak well of it in respect of the great desideratum,—pure fresh air; and therefore recommend it to attention. It would be useless here to explain Dr. Bolton's method. That gentleman was his own architect and clerk of works in the construction of his bath, and will be happy to explain to any and all who may visit him or write him, the means by which he has obtained the great requisite; and I may say these are extremely simple. In his tepidarium, at a distance of 33 feet from the hot-air apparatus, a lucifer-match held over the opening of the hot-air ducts instantly ignites without friction. At a similar opening in one of these hot-air ducts in his calidarium, a pound and a half of breakfast is deliciously cooked in ten minutes. At any of these outlets you may inhale, by a deep, forced inspiration, as much pure fresh air as the lungs will hold, whilst the thermometer, swinging by a wire from your teeth, stands at 220° Fahr. Air at this temperature, diffused through two

rooms, 16 feet by 16 feet and 17 feet high, maintains the thermometer at 112° and 150° respectively, at the small cost of 8d. per day. This heat, by means of slides, is increased or decreased at pleasure.

It would be utterly futile to attempt to answer objections against the use of the bath, such as the danger from the sudden transition from a hot to a cold atmosphere, and many others; as these objections are completely annihilated by the arguments of David Urquhart, Erasmus Wilson, and a host of others; and, practically, in the report for the present year of the house-surgeon of the Newcastle-on-Tyne Infirmary. To these several works I commend your readers.

Having thus, in some measure at least, answered the remarks of Pliny and Seneca, quoted at the head of this article, I cannot conclude without hoping that, ere long, every town in the kingdom will have its Anglo-Roman bath, not only for the rich, but also for the working classes; for, depend upon it, it would be a great moralizing agent, and do quite as much, if not more, for them, than the teetotal societies. Let us also hope that every private house of any importance will have its suitable bath; so that, like Andromache of old, as told us by Homer, each fair matron of our land may bid

"Her fair-hair'd handmaids heat the brazen urn,
The bath preparing for her lord's return."

seeing that, for a cost of about 70*l.*, any house of ample size may have its Anglo-Roman bath.

FRANCIS DRAKE.

ON THE RESTORATION OF ANCIENT BUILDINGS.—ARCHITECTURAL EXHIBITION.

On the 28th ultimo, a lecture on the "Restoration of Ancient Buildings" was delivered by Mr. Street, the main object of which was to urge that,—

Our first duty is, beyond all doubt, to be as jealously conservative as possible wherever we have to deal with anything old. Not conservative in the sense of putting up a new copy of old work—such as is in progress at St. Mary Magdalene's, Taunton—but conservative in the much truer sense of keeping the old work in its old place, with its old tints, its old weather stains and lichens, and even its old defects.

After some introductory observations, the lecturer commented on the destructive system of restoration pursued on the Continent, and then proceeded:—

At Winchester a most inexplicable work of the same kind is in progress. Here the main beauty of the old work was its colour: it never was a very grand façade, and had many of the usual faults without the best features of Perpendicular design; but time had done its work, and the west front was in colour and general effect fairly in harmony with the rest of the building, and a work for Englishmen to be proud of. Now, as you go along the railway to Southampton, you see the new tower and spire of a church, and beyond it what seem to be the equally new gable and pinnacles to the cathedral; and I hear that they propose to polish up the whole west front in the same way to match the gable; then, if funds last, I don't see why they should not undertake the side walls, and finish up with a refresher over the whole surface of the fine Romanesque central steeple! When all this is happily consummated, the good people of Winchester will, I suppose, be happy, and their grandchildren may hope to see the cathedral again in its old colour and with its old effect. I cannot imagine that the stone-work required scraping; for not only is the stone at Winchester generally in very fair condition, but, at the same time, I have but little doubt that the putting a new face on it will render its future decay more probable and rapid than any other course that could have been adopted. The castle, and much of the exterior of the cathedral, at Norwich, are other examples of destructive restoration; and here the walls have been so plastered with cement, coloured to imitate the stone in the most elaborate way, that I fear most of the original work is absolutely destroyed.

Destructive restoration is accomplished also by the removal of furniture or fittings of old buildings as often as by the alteration of old detail. For instance, there used some years since to be a number of very fine oak-carved stalls or desks ends of the fourteenth century, in the choir of Wells Cathedral: their places are now occupied by new work and designs, and on a recent visit I could find no trace whatever of any of the old ends, whilst the vergers absolutely refused to allow that there

ever had been any such work as I described in the cathedral. Similarly I remember seeing the fine wooden gates of the screen at Dorchester in a builder's yard at Oxford; copies of them having been erected in their place to save the trouble of restoring the old gates, and, probably, without the knowledge of the architect. So, too, some one once sent, as a present to the Oxford Architectural Society, a fine seat-end, which I recognized as having been taken from a church in Staffordshire, probably during some repairs; and in these cases we architects are by no means always in fault; for there are some clerical and other restorers who take strong fancies and strong dislikes. One man cannot tolerate his old chancel screen: another does not like poppy-heads; and each of them banishes his enemy when he has him in his power during the work of restoration! And then there are, or at any rate there have been, some antiquaries who seem to think it no theft to pocket a curiosity, and have no compunction about giving the last wrench at an old brass. So of late years the grand St. Maur brass at Higham Ferrers has suffered; and, at the present moment, the church having been shut up unused for a couple of years, one of the older brasses is all but pulled off the stone, and will probably, unless more care than hitherto be taken, have disappeared altogether before the restoration is complete.

I was told the other day of a curious example of the effect of careless or ignorant restoration on the south doorway of the north wall of the choir of Lincoln Minster: the central shaft was of later date than the jambs; and the latter, having become decayed, have now been restored in imitation of the central shaft. The result, of course, is unfortunate in every way; and the story which the old doorway told has now a third chapter added, which makes the whole unintelligible.

So far, all the examples of destructive restoration have been such as all will agree in condemning. There are more examples as to which we may well be more cautious in the expression of an opinion, because, though they are among the really destructive works, they are also among the best, the most careful, and the most sumptuous of restorations. Take the most remarkable example—the Chapter-house at Salisbury. Here we see the whole interior restored with new polished marble shafts, new stonework wherever the old was damaged in any way, walls and roof covered with new painting; and, finally, the whole of the sculptures from Old Testament story, which fill the spandrels of the arcades, restored, repaired, and renewed, in the most elaborate manner, and then covered with painting. Now, independently of the question whether the Chapter-house be or be not now in exactly the state in which it was left in the fifteenth century (and, as far as the colouring is concerned, I doubt it vehemently), such an elaborate restoration is very dangerous. I believe it to be quite impossible, and very wrong, ever to attempt the restoration of sculpture. If you have a piece of old sculpture so damaged as to interfere seriously with the purpose of the right thing to do is to move it bodily to some other place, and there carefully preserve it; whilst, in its place, you insert an entirely new and original work.

You have no more moral right to touch up or patch the work on which an ancient sculptor bestowed his art, than you have to touch up, finish, and repaint the work of a Giotto or a Fra Angelico. They are all works of individual artists; and because their names happen to be known, we are not relieved from the duty of preserving them exactly as they have been handed down to us.

In the Chapter-house at Salisbury no absolute necessity for the restoration of the sculpture existed. The old sculpture, damaged as it was, gave us, nevertheless, the exact measure of the artist's power; had all the interest which the certainty of antiquity imparts; and presented to us in every part the sculptor of the fifteenth century. Now it is difficult to know what to trust: the work has been done with singular care; yet I am confident that it must be impossible to repair and patch any old work without at the same time running great risk of having the old work chiselled, filed, and fitted to the new; whilst the final operation of painting has effectually concealed much of the delicacy of the sculptor's work. Suppose, for an instant, the same system adopted elsewhere, and our royal tombs at Westminster, our unsurpassed sculpture at Wells, our sculptures round the chapel at Ely, and elsewhere, all carefully and painfully repaired, restored, scraped, and repainted, and I think you will be

affrighted at the idea. The truth is, that most of us at the present day had better, when we want to show our knowledge of sculpture, do so in our new work; and, when we wish for colour, paint also our new works, and not our old. The question of the application of colour upon architectural work is not to be settled in a sentence; but, fond as I am of colour in its right place, I should generally dread very much to hear of its being applied to any old building for which I had much affection. Would any of us tolerate the idea of Westminster Abbey being given up to the colourist? I think not; for, though the proportions, the mouldings, the traceries, would remain all as they were before; the marks of age, all that makes the church venerable, or connects it to the eye with the associations of the past, would have disappeared at once; and we ought never to forget that in all restorations this evidence of antiquity is the one thing which, above all others, must never be destroyed on any account; and, just as in all destructive restorations, no account whatever is taken of it, so in all restorations well carried out this is the one thing which, above all others, is most taken into account. The first mode of restoration is fairly called Destructive: the second and safer mode is rightly called the Conservative; and I will now endeavour to show how this mode may without difficulty be generally carried out.

The mason must be attentively watched in his mode of doing his work: he should (if the old work be good) attempt, as far as possible, to assimilate his own to it in every way—in the bond of the masonry, in the mode of dressing or working the stones, and in the general character of the works. He should be allowed to indulge in no such ingenious devices for spoiling masonry as black mortar or ruled joints; and whether the work be new or restored, he should be compelled to do it at least as solidly and substantially in all respects as the old work.

Where old buildings are so decayed as to be capable of repair only by propping or by rebuilding, the former is generally the better of the two plans, as still leaving most of the old work intact. When rebuilding is decided upon, if the stone is not decayed, and the work very good in its character, every stone of the old work should be marked as it comes down, and should be re-erected in its old place, and with as little disturbance as possible to the old work: this is the true conservative course; but I am not sure that any good example can be given for the course (so often taken now) of rebuilding entirely new work in imitation of old work which has been completely destroyed. At Doncaster, for instance, after the fire, it was made a great point that the steeple (I am not sure about the church) should be accurately restored in the new building. The architect's hands were tied by the condition, and he has given us a steeple and a church which are evidently compromises. They are not really a copy of the old work, and yet would probably have been still better than they are if they had not pretended at all to be a copy. At St. Mary Magdalene's, Taunton, the steeple is being rebuilt in exact conformity with the old work, and an enormous amount of architectural superintendence given to that which is after all only the proper work of an ordinarily intelligent clerk of the works. Finally, at Chichester, the central steeple is a ruin, and the people of Sussex have come forward nobly with a large part of the funds required for rebuilding it. But the first condition one hears is that the steeple is to be rebuilt as of old; and one asks with some astonishment whether it can really be purposed to erect a copy of the late spire upon the copy of the early tower! Surely it would be tenfold better, if copying there must be, to confine it to the tower, and to make the whole steeple uniform in its style. There ought to be no difficulty about making a spire at least as good in its outline as the old spire; and the rebuilding of an exact copy of it, with nothing but new materials, would not, to my mind, be a restoration at all. Nevertheless, the spirit which prompts this desire for exact fac-similes of old work is one full of good, and marks that intense love for our old buildings and old customs which still, I hope, marks the people of England above all others at the present day.

In matters of detail conservative restoration is often possible when it is not practised. In stained glass, for instance, Mr. Ward gave an example some time ago in an old window which he restored for a church in Berkshire which I was restoring, of the best mode. A good deal of the glass had been destroyed: the leading still in the main remained; and he released the whole of the glass, filling in the vacant places with plain glass

opaquely painted; and the result was that, at a small expense, we had the whole work, and nothing more, permanently preserved, with nothing conjectural, and with a good effect which I should, I confess, scarcely have anticipated. This work was done under Mr. Winston's supervision.

There are many other points on which a restorer should take special pains to conform to the old example. Wherever old levels of floors can be discovered, they should be most carefully copied. Old levels are generally well arranged, and not unfrequently with great peculiarities. As, for instance, the laying a floor on a gradual slope up from west to east. Then again the local fashion as to such seats, &c., in churches, is generally preferable to any other, especially where any example exists in the building under restoration which is at all worth repetition.

Painting on walls should, generally speaking, be carefully cleared; and, where it consists of figures and subjects, should not be restored. If the work be rude, it can hardly be restored in a rude fashion without being absurd; if its character be good, then it is, as I have said elsewhere in reference to sculpture, a pity to touch it, lest we destroy any of the characteristic touches and fire of the old artist. I have the authority of Mr. Layard—than whom no one has more zealously exerted himself in the cause of Early Italian art—for saying that the greater portion of the damage which is done to the old Italian frescos is inflicted by their restorers, who recklessly paint and repair every damaged work for which they can induce any one to pay. And the fact is the more startling when we consider that the existing Government of Italy is engaged in putting down the religious orders, turning them out of their houses, and converting the convents and churches, which contain the most glorious works of art in the world, into stables, barracks, and schools; so that the restorers must be actively vicious indeed who outdo such a Government in destructiveness!

There is one common reproach in the mouths of these who have no feeling for our national antiquities, to which a few words of answer are necessary. They assert that all this work of restoration is unreal and untrue, inasmuch as both our religious life and our civil life are quite unlike what they were: they say that the old buildings of each class are consequently quite unfitted for our use on religious and on utilitarian grounds. In short, Lord Palmerston's "Civis Romanus sum" is interpreted literally by them, as it is by his lordship, to mean that Roman architecture is the only art fit for English citizens, and that we ought no longer to put up with any revival of English art. The charge is ingenious, but untrue. Take our churches,—and in what respect is it necessary to alter them materially for modern use? As far as the church is herself concerned, I may safely answer, hardly in any single respect need they be altered; for, whilst Ely and Sherborne, and a host of smaller restored churches show the perfect liberty which she enjoys and allows in their restoration on the most gorgeous scale; we hear now, week after week, of gatherings in our cathedral nave, either in Westminster or Exeter, to bear sermons; or, as last week, at Ely and Peterborough, to join in choral practice; so large, that even their spacious areas are not ample enough to hold the crowds that throng through their doors. And is it possible that this English nation, which prides itself so much upon its practical character, should be so impractical as to go on, year after year, ever more and more actively at work, restoring and refitting old churches, if those old churches are not the most convenient and the most suitable buildings that could be devised for their sacred purposes? * * *

No work, perhaps, affords better training for an architect than the study which is involved in the attempt to become a thoroughly good restorer of ancient buildings. He cannot do his work even passably well without a hearty love and reverence for them: this love and reverence cannot be mere abstracting, but must be followed up by active work, active study, sketching, measuring, making notes, and thinking well upon and among them. This can never be done so well at any time as at first; and yet I grieve to say that a large majority of young architects go on year after year without apparently even so much as thinking of the necessity of studying old buildings for themselves, or taking the slightest active interest in any work beyond that which is put before them in their office. Now what must be the fate of buildings restored by a class such as this? Is it possible that they can be well, scientifically, or in any respect, properly done? Obviously not. Yet, I am within the facts in what I say: I have over and

over again had applications from assistants in want of employment; and it is a most painful fact that a very large majority of them have never studied or sketched any old building; or if they have once done so have done it once or twice only in their lives in a way so disgracefully careless as to make the hair stand on one's head at the idea of its being called study at all. Yet every one of them would undertake to restore a church with as much *sans-froid* as it has been said one of our statesmen would display in taking the command of the Channel fleet. We want, also, educated clerks of the works and educated builders; and let me say, without any lack of respect for the class, that, generally speaking, it is much safer to entrust works of restoration to local builders in only a moderate way of business than to large contractors, who seldom themselves see the work which is being executed, and who do not find it worth their while to enter carefully into those minutiae which every restorer of an old building is bound to attend to. Our educated architects must educate themselves, not in Continental examples or from Continental books, but from English examples and English books. Whatever may be the value of foreign study to the architect (and from some points of view it cannot be overrated), nothing is more certain than it will be of no help whatever in finding out the meaning or intention of ninety-nine out of every hundred of our old English churches and houses. They are thoroughly national, and all their peculiarities are national peculiarities. They have also provincial peculiarities, so that none can expect to understand them thoroughly, without mastering all their provincial as well as all their broader national peculiarities.

The Pugin travelling fund will, I hope, soon be in existence to encourage men in this branch of their studies; though, if the entire truth must be told, our art will not prosper as long as our students require a premium to induce them to study it. For myself, I should be ashamed of any young student of architecture who is content to waste his time and his holidays in indolent and selfish amusements, when he might, knapsack on back, be at work from day to day, for a month or two in every year at the least, walking from one spot to another of this glorious country; gathering as he goes the information which will enable him in time to distinguish himself in his art; whilst the act of obtaining it is as full of real pleasure as deer-stalking, climbing Alps, or any other athletic work.

This, then, is the sum of what I have to urge; that only after diligent study of our old buildings should we ever venture upon undertaking the charge of their restoration; and that the great end and object of all our restorations should be to preserve the old fabrics in all their old beauty of colour and design for our children's enjoyment. In our new works we have plenty of scope for the most ample originality, if we are capable of it. But we don't want to see Venetian Gothic windows introduced into our cathedrals or our castles, where they would be out of all harmony with everything that surrounds them, and standing evidences, not of our knowledge and our skill, but of our childish conceit and affectation of superiority to the men whose work we so obviously despise though we pretend to restore it.

THE WORKING MEN'S EXPEDITION TO PARIS.

AN invasion of a very agreeable nature has been made of the above famous city by a body of over 1,700 Englishmen, chiefly belonging to the working class. Mr. T. Cook, of Leicester, has written a very agreeable account of the excursion. From this we gather that the party were well received at Paris; when, after a little difficulty in the first instance, they were comfortably lodged by the hotel-keepers at a moderate cost. Thinking that the example thus set of visiting Paris will be the cause of large numbers of skilled artisans going to the French capital during the summer, it will be useful to give our readers some idea of the expense. Mr. Cook says that it was possible to cover all expenses for the five or six days of the excursion with 25s. to 30s.; and this was done in many instances, whilst others had to pay a little more than they anticipated. Mr. Cook remarks that few paid more than his own personal party of friends, who, ten in number, had to take the accommodations of an excellent hotel, where was paid full price for bed and breakfast; but the whole charges, including lights and attendance, amounted only to 17. 16s. each person, to which is to be added about two francs, or 1s. 8d., for dinner at a restaurant,—and the whole living expenses

were under 45s. each. On the whole the conduct of the hotel proprietors was satisfactory, although a few forfeited all future confidence by excessive charges; and it was pleasant when the party came away to see ladies loaded with splendid bouquets by their Parisian hosts at parting. So pleased was one party of Yorkshire working men with their landlord, that they presented him with some fifty francs in excess of his bill.

It seems that no very definite arrangements were made, so that no large parties were formed; but groups circulated through every department of the suburbs.

There was but one special arrangement made during the stay at Paris, and that was most cheerfully acceded to by the Prefect of the Seine, in compliance with a suggestion of Sir Joseph Paxton and Mr. Layard, and a request made through Lord Cowley, for the opening of the Hôtel de Ville—a privilege most thankfully appreciated—between the hours of 10.30 a.m. and 4 p.m. on Wednesday. It seems that the great want of the excursion was a well-understood place of rendezvous, from which, as from one common centre, the visitors might have circulated in every direction.

The president and treasurer of the organization met, early each morning, with the committee, in a little shop which had been granted as an office by Mr. Gealing, clerk to the Rev. A. Gurney, in a passage leading off from the Rue Faubourg St. Honoré, adjacent to the English church, of which Mr. Gurney is the minister. The recognitions and friendly feelings appeared to grow and strengthen from day to day; and not the least hearty appeared the courtesy and bearing of the Emperor and Empress when they were recognized and cheered by the groups of British visitors. The Emperor, when driving through the Champs Elysées and the Bois de Boulogne, was twice hailed by their lusty voices; and on both occasions he ordered his carriage to stop; and, standing upright, graciously acknowledged their cheers.

At Boulogne, both on arriving and departing, the excursionists were enthusiastically received; and the arrangements for travelling seem to have been excellent.

Of the 1,700 visitors to Paris, Bradford gave nearly 200 passengers; Leeds, Sheffield, and York, with their respective localities, about 100 each; and had a fair arrangement been made for Lancashire, another train of 500 would have been easily made up. Bristol and Bath sent about 40, though there was no special train from those cities to London in connection with the excursion.

Respecting this interesting event, *Galignani* remarks—"The residents of the French capital must have been struck during the past week by the great number of respectable-looking Englishmen, evidently strangers and sight-seers, who were to be met with in the public thoroughfares. Many were accompanied by their wives, equally well dressed with themselves; and all were perceived to conduct themselves with an unvarying propriety, which spoke well for their sense of personal dignity. These were the English workmen whose visit the public press has been for some time announcing; and it must be admitted that their appearance, conduct, and evident intelligence were calculated to produce a strong impression on their fellow-operators in France."

Besides the Hôtel de Ville, Versailles, the Louvre, the Luxembourg, the Gobelins, and the Hôtel Cluny, were duly visited; and notwithstanding the great number who went through the rooms at the same time, no confusion whatever arose. In manufactories and private establishments the same readiness to oblige was manifested; and, as regards the French workmen, they showed the most friendly sentiments, and fraternized with the Englishmen whenever occasion presented itself.

There is much to improve and instruct the English workmen in such an excursion as this, without taking into account the pleasure; and nothing will help more to preserve friendly relations between the two countries than the opportunity of meeting together, and being enabled to compare their respective skill. We must not forget to mention that the gentlemen who lent their assistance to the scheme; procured a list of houses where the visitors could be received; and the charge for their bed, breakfast, and dinner. The result was that the whole party made out lodgings for themselves without difficulty, and without the mishaps which marked the visit of the Orphéonistes to London. We hope, ere long, to have an opportunity of recording a return visit of workmen from France to London; when, no doubt, the mistakes which occurred with the Orphéonistes will be avoided.

THE COMMISSION FOR IMPROVING THE SANITARY CONDITION OF BARRACKS AND HOSPITALS.

WE have before us the "General Report," just published, of the commission appointed for the above purpose, and must find an early opportunity to place some notice of it before our readers. It is a very valuable document, and should be studied carefully by all who are concerned in the design and construction of barracks and hospitals. The commissioners adopt entirely the views set forth and advocated in our pages, especially in respect of hospitals, at a time when they were elsewhere ignored. Journalists, it would seem, may look for no higher reward than to see their opinions put forward authoritatively by those in power, and brought into practice. We have the satisfaction of knowing that our pages, in conjunction with the endeavours of Dr. Robertson and the admirable Miss Nightingale, have made known throughout the country the right principles of hospital construction, and have prepared both the medical and architectural profession to make right use of the accumulated information on the subject, now sent out by the commissioners appointed by the Secretary of State for War.

THE HORTICULTURAL GARDENS, SOUTH KENSINGTON.

A MOST successful fête on Wednesday last inaugurated the new gardens of the Horticultural Society. By enormous efforts on the part of all concerned, the gardens were brought into a state of great beauty, and a vast crowd of fashionable visitors attended. His Royal Highness the Prince Consort, with whom were the Prince of Wales and other members of the Royal Family, formally opened the grounds, receiving an address, and planting a seedling of the mighty *Wellingtonia gigantea*. In the course of his reply to the address read by Dr. Lindley, on the part of the Council, the Prince said,—

"We already see to the south, rising, as it were, by magic, the commencement of a noble work entirely the result of the voluntary efforts of that public; and this garden, itself the offspring of the Great Exhibition of 1851, will hardly be completed ere that exhibition shall have been rivaled, and, I trust, even surpassed by the beauty and success of that which we hope next year to witness."

This garden will then open an additional source of enjoyment to the thousands who may be expected to crowd the new Crystal Palace of Industry. Nay, we may hope that it will, at no distant day, form the inner court of a vast quadrangle of public buildings, rendered easily accessible by the broad roads which will surround them—buildings where science and art may find space for development, with that air and light which are elsewhere well nigh banished from this overgrown metropolis.

If the works before us are still incomplete, this must not be attributed entirely to the short space of time allowed for their execution, or to the exhaustion of the funds set apart for them. It results also in great measure from a well-considered purpose on the part of the society and the commissioners, rather to present the public with a framework, to be gradually filled up, as individual taste controlled and harmonized by the general superintendence of the authorities, might direct, than at once to display a complete creation, which, however attractive for the moment, might pall upon and grow stale by habit.

Unrivalled opportunities are here offered for the display of works of art, and for the erection of monuments as tributes to great men and public benefactors. The memorial of the Exhibition of 1851, the result of private subscriptions, will be the first erected in these grounds; and, adorned with a statue of the Queen, will soon rise in the centre of the garden.

As our readers already know, Mr. Sydney Smirke, R.A., has acted as the architect for the north and central arcades. The north arcade is 600 feet long, 22 feet high, and 26 feet wide, having been designed in the style of the arcade at the Villa Albani at Rome. The capitals and shields in terra cotta have been designed and modelled by Mr. Godfrey Sykes. The central arcades are based upon examples of Milanese brick-work, of the fifteenth century. They are 390 feet long, 20 feet high, and 24 feet wide. In both arcades red brick has been largely used for the purpose of obtaining colour in harmony with the general aspect of the gardens. The decorations of the friezes and spandrels of the arcades when completed will consist of sculptured stone-work, encaustic terra cotta, and encaustic tiles, &c. The south arcades were designed by Capt. Fowke, R.E., after the cloisters of Saint John Lateran at Rome, erected in the twelfth century. They are 1,950 feet long, 20 feet high, and 27 feet wide. In these the pillars are of terra cotta, modelled by Mr. Godfrey Sykes, and manufactured by Mr. Blanchard, who has also executed the architectural terra cotta in the conservatory. During the Exhibition of 1862, the south arcades will be used for refreshments; after the Exhibition they will be let for stalls for the sale of objects. Capt. Fowke has also designed the Council Room, the temporary entrance, the conservatory, the

hydraulic arrangements, and the band houses. The conservatory is 270 feet long, 75 feet high, and 100 feet wide. The terra-cotta cloisters are the works of Mr. Sykes and Mr. Blanchard. The hydraulic arrangements provide for the playing of five cascades, and a constant flow of water through the basins. The principal cascade will be about 20 feet wide, and will fall from a height of 10 feet. The cascades, when ready will play all day. Mr. Kelk has been the contractor for the whole of the works.

Mr. Nesfield has laid out all the geometric arrangements of the gardens, the planting, the embroidered beds, and determined the present varied levels of the ground. The architectural terraces and steps in the gardens have been erected under the direction of Mr. Smirke; and Mr. Eyles, the Society's gardener, has had the superintendence of all the gardening operations.

The arrangements on Wednesday were all very good, and the show was magnificent. For Mr. Dilke's special prizes for the best groups of three baskets of fruit and flowers for the decoration of the dinner-table, a large number of specimens were sent. The committee of ladies, to whom the duty of adjudicating was given, gave the first prize, No. 15, to Mr. Marsh, Lord Chamberlain's Office; second prize, No. 2, to Lady Rokeby; third prize, No. 3, to Lady Caroline Harrison; fourth prize, No. 4, to Messrs. Elkington. And they highly commended—No. 21, Lady E. Peel; No. 10, Mrs. Jones; and No. 13, Lady Troubridge.

SOCIETY OF ARTS.

Conversations.—The second conversation of the Society of Arts took place at the South Kensington Museum on Saturday evening, the 1st instant. The company was received by Sir Thomas Phillips, F.G.S., Chairman of Council, supported by the members of Council. The bands of the Royal Horse Guards (Blue) and 1st Middlesex Engineer Volunteers attended, and performed a selection of airs during the evening. The conversation was very numerously attended, 3,550 persons being present.

The Exhibition of 1862.—On Wednesday evening last, the room of the society in the Adelphi was crowded, to hear Mr. William Hawes read a paper on the "International Exhibition of 1862." H.R.H. the Prince Consort, presided. The paper was an able and interesting composition. At the close Lord Granville addressed the meeting, as did Mr. Dillon and Sir Thomas Phillips.

The Prince Consort, in closing the proceedings, stated heartily the interest he felt in the success of the coming Exhibition. "Whatever I have done," said his Royal Highness, "to start you in the right road, I have done with great willingness and pleasure. I assure you it is a true privation to me to be prevented by the avocations and duties of my position, from giving the same amount of time and labour to the forthcoming Exhibition that I was privileged to give to the one that preceded it. Gentlemen, you will succeed. You are in earnest; and, being in earnest, you will succeed. I can congratulate you on the steps you have taken: you have an able body of managers, with all of whom I am well acquainted; and from my acquaintance I can say that they are thoroughly conversant with all the work you have imposed on them. You have also an able architect—a young officer of engineers—who, as alluded to by Lord Granville, has to-day shown, by the work which has been opened in the Horticultural Gardens, that he is capable of vast designs, novel contrivances, and is possessed of great taste."

THE LABOUR QUESTION.

London.—On Saturday next, we are informed, a number of the leading building firms in London, including Messrs. Hayward, Mansfield, Holland & Hannen, L'Anson, Ashby, Bird, and others, will commence the system of payment by the hour, in addition to those firms who already pursue it.

Leeds.—The Leeds bricklayers gave their employers notice on the 23rd of June last, that on and after the 3rd instant, they should expect to be paid by the hour, at the rate of sixpence per hour; but a week or two ago, this notice was virtually revoked, and the men now ask to be paid at the rate of 6s. instead of 4s. 6d. per day, after the first Monday in June, and that they shall commence work at seven instead of at six on Monday mornings. The employers have unanimously agreed to accept the original proposal of payment by the hour, but decline altogether to entertain the demand for payment at the rate of 6s. per day, with the hour on Monday morning.

The application of the labourers for an advance of 2s. per week, which would increase their wages to 1l., has also been considered, and the masters have agreed to offer to pay the labourers by the hour, at the rate of 3d. per hour.

Belfast.—A correspondent of the *Belfast News Letter*, signing himself "Secretary, Belfast Carpenters' Society," draws attention to the inequality, as to wages, which still prevails in that quarter. The builders, he says, and other employers, long since conceded an advance of 2s. a week to the carpenters, while some of the railway companies, mill-owners, and others, still pay them 2s. short.

REPORT ON THE MONTHLY RETURNS BY DISTRICT SURVEYORS.

THE Superintending Architect has made the "Fifth Annual Report on the Examination of the Monthly Returns by District Surveyors." He shows that the fees received in eleven districts are under 200l. each, varying from 27l. to 191l. In eleven districts the amounts rise from 210l. to 288l. In six districts they are under 400l. In eleven districts they vary from 400l. to 490l. In four districts they are under 600l.; and in twelve districts they rise from 600l. to 1,036l. The total for the year is 22,791l., received in respect of 15,030 works, of which two-thirds were done within the year.

The expenses of district offices amount to 4,579l. 11s. 6d. The fees remaining due for all arrears amount to 13,946l. 17s. 7d.; and the sums abated or lost are 1,555l. 5s. 8d. The surveyors have not felt persuaded to write off much of the arrearage thus brought forward from year to year in these reports, and hence the total increase.

It seems remarkable how nearly the results of these abstracts approximate each year. Thus, there were—

	Works.	Fees received.
		£. s. d.
In 1855	14,654	19,904 14 11
" 1857	15,330	20,509 11 4
" 1858	15,490	21,738 11 3
" 1859	15,558	22,385 9 2
" 1860	15,030	22,791 2 3

Summary of Abstract.

Works.	Building Operations.	Fees.
		£. s. d.
New buildings in 1860, in respect of which fees have been received	4,765	9,039 6 8
Additions, alterations, and other works in respect of which fees have been received	5,610	6,187 0 8
Arrears of former years received:		
New buildings	2,615	5,443 7 9
Additions and alterations, &c.	2,040	2,321 7 3
Total works and fees ending 31st December, 1860	15,030	22,791 2 3

ECCELESIOLOGICAL SOCIETY.

A COMMITTEE meeting was held at Arklow House, on Wednesday, May 15, Mr. A. J. Beresford Hope, president, in the chair. The president announced that the following memorial had been forwarded to the Institute of British Architects:—

"Gentlemen,—I have been instructed by the committee of the Ecclesiological Society to bring under your notice the practice of unnecessarily substituting new material and fresh carving for the ancient material and original carving, which the committee fear is too common in the restoration of Medieval, and especially of ecclesiastical buildings in France, even when conducted by architects of acknowledged ability and learning. For instances of this practice, I am authorized to refer you to a communication by G. F. Bodley, esq., contained in the *Ecclesiologist* for the current month; while, at the same time, I am instructed to observe, that it is the opinion of the committee that several of the instances therein quoted are referable to restorations conducted during the reign of the late king of the French, and severely criticised in their own country. But the committee of the Ecclesiological Society, exhibit a deeper acquaintance with the principles of Medieval architecture than those of a rather earlier date, are nevertheless impressed with the conviction that the architects of France are still too much addicted to substitute new materials and carving in cases where a true judgment, and a more genuine reverence for antiquity, would have prescribed the retention of the ancient work.

The committee of the Ecclesiological Society feel it to be unnecessary, in memorialising the Institute of British Architects, to point out the frequent and severe losses to archaeology and art which such a system must entail. They entertain the belief that a remonstrance from a body so eminent and so influential as the Institute, if addressed to persons in authority in France, must have very considerable weight. They, therefore, venture to call the attention of the Institute to the circumstance, in the hope that it may feel competent to make such remonstrance in the interest of European art."

A number of architects submitted their designs to the committee. Amongst them Mr. Clarke

exhibited some coloured tracings of tempera painting, discovered lately on the jambs of the east window and over the chancel-arch in Kington church, Herts. The subject of the paintings in the chancel-arch appeared to be the "Works of Mercy." A design, by Mr. Clarke, for a church at Point de Galle, Ceylon, was examined; and the committee strongly recommended a groined roof and a diminution of window-space. Mr. Slater explained the discoveries of Anglo-Saxon openings and details under the whitewash in Deerhurst church, Gloucestershire. He guaranteed the careful preservation of every such fragment. The decoration of the choir of St. Paul's Cathedral, and especially the proposed baldachin, as designed by Mr. Penrose, in accordance with Sir Christopher Wren's sketches, were considered.

COMPETITION.

Guildford New Public Hall.—At a recent meeting of shareholders, a report was read, which stated that, in consequence of advertisement in the *Builder*, the committee had received ten packages, supposed to contain plans, on the disposal of which the meeting was requested to decide. The report was adopted, and it was resolved that the plans be exhibited to the public, in the Town Hall, on Thursday, Friday, Saturday, and Monday, and that a public meeting be called on Monday evening, in connection with the proposed new halls. It was ultimately agreed that the plans should be shown in the Public Hall, instead of the Town Hall, as at first proposed; and it was also agreed to appoint a committee of taste, consisting of nine gentlemen, five representing the new shareholders, three the proprietors of the old hall, and one the town council.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday, the 31st ultimo, at the house in Conduit-street.

The President, Mr. T. Roger Smith, occupied the chair.

Mr. Payne was, on ballot, elected a member of the Association.

The President drew attention to the desirability of establishing a professional library in connection with the Association; and suggested that serial works might be purchased from time to time, which might be lent so as to circulate generally among the members. Such a library would not be expensive in character, or bulky in form; and he had no doubt that much advantage might result from it.

The suggestion met with general concurrence, and the further consideration of the subject stands adjourned.

Mr. R. O. Harris then read a paper "On Carpentry," which he illustrated with diagrams on the board. This paper we have printed in full.

A discussion, of a purely conversational and technical description, ensued; in the course of which Mr. G. B. New, Mr. Paraire, Mr. Blashill, and others took part.

An adjournment until the next evening of meeting was ultimately agreed to; the President throwing out a suggestion, that it would be desirable in the meantime if members would turn their attention to laminated ribs, joints shrinking, testing roofs, and so forth; also examples of very slight but strong roofs. With regard to the latter he directed attention to the temporary roof at the Victoria Railway Station, Finsbury; which, he said, struck him as being a wonderfully clever specimen of lightness, strength, and economy in construction.

On the motion of Mr. Blashill, the following resolution was submitted:—

"That the thanks of this Association be given to those architectural societies which have offered to co-operate in procuring the proper representation of the art of architecture at the Exhibition of 1862; and as, since the passing of the resolution, on this subject, sent to the various societies, a representative committee has been appointed in connection with the Royal Institute of British Architects, which will be the recognized medium of communication with the Royal Commissioners; this Association earnestly advises the co-operation of the architectural societies with the said representative committee."

Mr. Paraire seconded the motion; which, after a short discussion, was unanimously carried.

CONVERSAZIONE AT THE INSTITUTION OF CIVIL ENGINEERS.—The president, Mr. Bidder, held the annual conversation on Tuesday evening last. It was very numerously attended; and a large number of machines and models filled the theatre; while the walls of the reception-rooms were closely hung with pictures.



THE ENGINE-HOUSE, KENSINGTON GARDENS.

THE FOUNTAINS AND ENGINE HOUSE, KENSINGTON GARDENS.

THE war of words which raged for some time as to certain proposed works in Kensington Gardens, that delight of the Londoners, having ceased, many of our readers are probably unaware of what has really been done: the accompanying engravings will serve to explain it. The engine-house, seen at the back of the principal view, and more fully shown in the second engraving, stands at a short distance, within the gardens, from the Bayswater-road. It is about 37 feet square, 39 feet high to the top of the lantern; 48 feet to the top of vane; and is of stone. It is Italian in style, and roofed with Italian tiles. Within there is an engine to draw the water from a well immediately in front of it, to supply a large cistern, conveying water to the fountains, and thence to the Serpentine. In front

of the engine-house are four large reservoirs, of octangular form, whose separate dimensions are about 100 feet by 60 feet. Each of these reservoirs has a small fountain in its centre, about 3 feet in diameter, encompassed with marble. In the centre pathway, running between the four basins, there is a larger fountain of at least 18 feet in diameter. This is octagonal in form.

The front of the whole, as seen in our larger illustration, forms an ornamental façade, enriched with vases of several patterns, filled with flowers. The centre of this façade has two draped female figures, seated, holding vases, from which flow streams; and between these two figures, but projecting forward, is another large fountain, about 18 feet in diameter. The height of this balustraded façade is 8 feet from the water-level. The reservoirs or basins were originally intended for filtering-beds by Mr. Hawksley, the engineer;

but this arrangement has been abandoned. The present arrangement is intended to enliven the water supplying the Serpentine by means of the fountains. The designs of the engine-house and the whole of the ornamental work are from the hands of Mr. John Thomas.

The gardens are now looking beautiful. When William III. bought them, they were but very small,—26 acres. Caroline, Queen of George II., added 300 acres, and they then consisted in the whole of about 360 acres; Queen Anne having added about 30. After the gardens had been arranged for Queen Caroline, the public were admitted on Saturdays only, full dress being required. The Serpentine was formed between 1730 and 1733; and the bridge, designed by Sir John Rennie, was built at a cost of 36,500*l.* in 1826. Kensington Gardens may be regarded as one of the just boasts of London.



THE FOUNTAINS AND RESERVOIRS, KENSINGTON GARDENS.—MR. JOHN THOMAS, SCULPTOR.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE ordinary general meeting of members was held on Monday the 27th ultimo, at the House in Conduit-street.

The chair was taken by the president, Mr. Tite, M.P.

The minutes of the last meeting having been read and confirmed,

The President brought under notice the appointment of gentlemen to act as examiners for district surveyors under the Metropolitan Building Act (1855). The following names were submitted and agreed to:—

The vice-presidents, the honorary secretaries, and Messrs. A. Ashpitel, C. Fowler, J. Gibson, R. Hesket, J. Jennings, C. C. Nelson, J. W. Papworth, F. W. Porter, F. C. Penrose, J. J. Scoles, S. Wood, J. Whichcord, and E. C. Hawewill.

The Hon. Secretary announced the receipt of a great number of books to the library of the Institute, in reply to the report made by the Library Committee as to deficiencies in that department.

Mr. Digby Wyatt, V.P., called attention to a contribution from Mr. John Norton, consisting of Parts I. and II. of "Kunstendkmaler Christlichen Mittelalter in den Rheinlander," by Von Ernest Aus'm Werth. This was, he said, a most interesting work, illustrating the Art Monuments of the Christian middle ages in the neighbourhood of the Rhine. They were all, no doubt, aware that, at Aix la Chapelle, were to be found the only monuments of Charlemagne. Those who might take an interest in the working of metals would find some interesting specimens of the period at the Treasury there, and also at the Treasury at Cologne. These relics of the great masters whom Charlemagne collected around him were most interesting and important, as they formed, as it were, the connection between Byzantine art and that of Northern Germany, which had so important an effect in the establishment of the Romanesque style in Europe.

The President, in proposing that a vote of thanks should be accorded to the donors, said, it was gratifying to find that so many important works had been contributed in reply to the appeal made to the profession generally on behalf of the library. It was most desirable that the library should possess a good collection of technical works; and as books of that nature, though most valuable to the professional reader, were often sacrificed by executors for a few shillings, he ventured to throw out a hint that gentlemen intending to make bequests of books to the Institute should make a testamentary disposition of them, which would prevent that sacrifice to which he had referred. He perceived there was a book in the collection containing a view of the elevation of the front of the Mansion House, by Dance. There was another curious book, by the same author (Batey Langley), which he would be glad to see in their library, but which, he feared, was difficult to obtain, namely, "The Five Orders of Gothic Architecture." The author lived in the early part of the last century; and it would be interesting to see what advance had been made since he wrote his Five Orders of Gothic. At Windsor some specimens of his style might be traced, which were quite sufficient to show how intensely ignorant he was of the subject on which he had undertaken to write. Before calling upon Mr. Burnell to read his paper, he would request the hon. secretary to read a letter which had been received from Lord Henry Lennox, on the subject of the repairs to Chichester Cathedral.

Mr. T. H. Lewis then read a letter from Lord Henry Lennox on the part of the London Committee for the Restoration of Chichester Cathedral, to call the attention of the Institute to this work, and begging their influence in favour of it.

The President said,—Of course the only reply we can make to the letter is, that we will recommend it to our members; but that, as a corporate body, we have no funds which we can contribute to the purpose. There are, however, I am sure, many with hearts and purses large enough to assist in the work, which we can recommend with so much confidence, when we know that it is in hands so thoroughly competent to deal with it.

On the motion of Mr. Beresford Hope, the letter was ordered to be printed, and circulated with the usual notice paper convening the next meeting of members.

Mr. George R. Burnell, C.E., then read a paper, entitled "Remarks on the Operations lately carried on at Bayeux and Chichester Cathedrals." (This will be found in our last number.)

At the conclusion,

Mr. Blake observed, that a circumstance which

might have contributed to the disaster at Chichester had not, he believed, been mentioned in any of the discussions which had taken place on the subject: he referred to the fact that the cathedral had been exposed on three or four occasions to shocks of earthquake. He had been an inhabitant of Chichester for thirty years, and he could speak to one of the shocks, which took place fifteen or twenty years ago, and which was so violent, that it shook the glass out of the windows of his father's house, which was four miles from the cathedral. There could, he thought, be no doubt that such shocks, acting upon a tower and spire weighing between 5,000 and 6,000 tons, must have had an injurious effect upon the structure.

Mr. Gilbert Scott, R.A., said, that, in offering some observations on the paper just read, it was not his intention to go into the history of the gradual failure and catastrophe of the tower of Chichester Cathedral, but to refer to the rebuilding. Mr. Slater was the architect of the Dean and Chapter; but, as the public had come forward and assisted the fund by their subscriptions, he (Mr. Scott) had been asked to act in the interests of the latter, and he and Mr. Slater were acting conjointly in supervising the rebuilding. He thought it necessary to mention this circumstance, as, whatever had come to his knowledge of the previous occurrences, had been picked up accidentally. It was, he thought, most important, inasmuch as the country was studded throughout its length and breadth with beautiful specimens of Mediæval architecture, the restoration of some of which might possibly be confided to their hands, that as architects, they should consider what were the means which ought to be adopted, and what the considerations to which they should give their attention with reference to these buildings. And here he was bound to say, that Mr. Slater had been peculiarly unfortunate under the circumstances in which the works at Chichester Cathedral had come into his hands. If he had been called upon by the Dean and Chapter to report on the condition of the cathedral tower, the case would have been quite different; as, under such circumstances, his attention would have been devoted to that particular point, and he would have taken steps to avert the calamity. But he was not so called upon. He was in the position of a doctor called in to prescribe for a patient with a cutaneous disease, while disease of the heart coexisted, the presence of which he could only detect by the expression of the countenance, but of which he had not been previously informed. He was called in and told that he was to make a new arrangement of the seats in the choir, so that more room might be given to the worshippers; and he was not to turn his attention to reconstruction; because, as a matter of fact, there were no funds for the purpose in the hands of the Dean and Chapter. A committee was formed to re-arrange the interior as a memorial to the late Dean Chantry, and there were no funds disposable for any other purpose. The state of the tower was only brought under notice accidentally, and bit by bit, while the other operations were going on. It might be that, under such circumstances, an architect might discover the mischief, though his attention had not been specially called to it; but if his instructions were merely to arrange the seats in the choir, he was not bound by any professional responsibility to go into the question of reconstructing the tower. This was a matter which ought not to be lost sight of, in considering the nature and degree of responsibility attaching to the architect of Chichester Cathedral. It was however discovered, in the course of the re-arrangement to which he had referred, that some serious mutilations had been committed in reference to the piers which supported the tower. With respect to this tower, as compared with that at Bayeux, he thought they ought not to indulge in any invidious comparisons between railway engineers and architects, because at Bayeux a railway engineer had been successful, while at Chichester a railway engineer had also been called in with an opposite effect. Some time ago, a railway engineer was called in to advise with Mr. Slater, and he made three reports, and a fourth supplemental one; and there was nothing in any of them to tend to any different or more decided course than that which had been adopted by Mr. Slater. The last report was made after the latter gentleman had operated on one of the towers; and it stated that the work had been done in a most masterly manner. While, therefore, they ought to be tender and generous towards those members of their profession who were unfortunate enough to be called upon to deal with such difficult and delicate works; they ought

not, on the other hand, to shut their eyes to the proper means to be adopted, provided they were in possession of full information before they set to work. He happened, very unluckily for his own comfort and peace of mind, that he had had a good deal to do with buildings in the condition in which Chichester was represented to be; and he wished he had never had any thing to do with them, for they had been great disturbers of his peace and happiness for the time being. At an early period in his practice he had been called upon to inspect the Church of St. Mary at Stafford. He found that all the piers were crushing, and that although from time to time attempts had been made to arrest the decay, they had in course of time given way. After he had made the specification for shoring up, two tenders were sent in for that portion of the work, and both by very respectable men. One was for 1,500*l.* and the other for 500*l.* He thought that it would not be fair to bind the person who named the latter sum to do it for the amount, as he felt persuaded it could not be done; so the contractor did other work in the church, and was paid for the shoring by day-work, and it was found to cost 2,000*l.* The course which he (Mr. Scott) adopted with reference to St. Mary's, Stafford, was that which was generally adopted, except at Bayeux. What they did was to go gradually round the surface and insert good stone until they thought they had almost rebuilt the pier. The restoration at Bayeux was, on the contrary, a case of perfect rebuilding; for, as he understood Mr. Burnell, the old work was entirely removed, and new piers built in from the foundations. At Stafford, the first thing they did was to tie round the tower with iron bands, with screws right and left, so as to make them as tight as possible. They then dug round the base of the tower, filling up the cavity, graves and all (the latter often the cause of much mischief), with concrete.

Having shored up the arches so as to carry as much as possible of the superincumbent weight, they began gradually to remove the loose ashlar and to put in new foundations, fixing other temporary shores until they had finished the entire pier. In effecting this operation he was brought to the conclusion that it was impossible to exaggerate the danger and difficulty that existed in providing shoring of sufficient strength; for, in every work of the kind on which he had been engaged, he invariably found that all the shoring he could by any possibility get in was barely sufficient for the purpose. He had seen enormous timbers give way before the tremendous pressure to which they were subjected; and therefore his advice was, that before the ashlar was touched it was absolutely necessary to put up all the shoring that could be brought to bear within the space to be operated upon. In the estimates which he had prepared for Stafford, he provided for the use of whole timber; but the clerk of the works had permitted half-timber to be used, and the consequence was that the tower gave way very perceptibly. Another precaution which he recommended was, that the hardest possible stone should be used, and that under no circumstance should anything approaching to a soft stone be substituted. The next thing to observe was to avoid mortar and always use cement instead. The plan which was adopted was to pour in water first, and then liquid cement, which he had observed to run down the rubble to the depth of 9 or 10 feet, as if it were so much quicksilver. The next work of the kind on which he was engaged was at St. Mary's, Nottingham, where the piers were smaller and higher, but the weight greater and the operation more difficult owing to the smallness of the piers. The works were conducted under the inspection of a very clever clerk of the works, who had given him a complete history of the operation. Here, as at Stafford, he put in ties, or chambers of iron or copper, in every course, to bind the work. At Aylesbury, where he undertook a somewhat similar operation, he was obliged to re-construct the foundations; and then he found that, strong as the shoring was, it showed signs of giving way. This was, at all events, to some extent, satisfactory; because it prevented an employer from saying afterwards that too much money had been thrown away on timber. While engaged on the works at Stafford, a tremendous report, like the noise of a cannon, was heard; and it was found that one of the piers had split up from top to bottom. At Aylesbury they wanted a long shore, and they procured one 2 feet 6 inches square, one of the largest he had ever seen, and yet it was actually bent by the enormous pressure upon it. With regard to the reconstruction at Bayeux, the work was, no doubt, carried out in the most masterly manner, and the

subject was one which every architect would do well to study. The architect at Bayeux had not gone round the casing bit by bit; but had made new foundations and new piers; and he (Mr. Scott) confessed that he was astonished that such a system of shoring as that used had proved sufficient for the purpose. The process seemed to have been to have "needed it" just over the arches, an operation which he would have thought would not have been sufficient to bear the weight of the tower. When the architect had to deal with buildings of the scale of cathedrals, the difficulties became increased, for timbers were after all of limited size, and it became necessary to build ports as at Bayeux. The manner of sinking the foundations by means of wells, or cast-iron pillars, was, he thought, a most admirable contrivance.

Mr. Slater observed that he had very little to say, after what Mr. Gilbert Scott had said so kindly for him. He thought it was a very gratifying circumstance that Mr. Burnell should have brought his science to bear on the subject; and he hoped that his admirable paper would be printed, as Professor Willis's had been. With regard to Chichester Cathedral, all he could say was, that he was placed in a most critical position, and that he had endeavoured to do his duty to the best of his ability. The commission which he had received from the Dean and Chapter was to prepare plans for the restoration of the choir only, and not for structural repairs. There were, in fact, no funds for the purpose; and it was understood that his attention was not to be called to that part of the work. When, however, the defects of the tower became apparent he did all that he possibly could to avert the catastrophe that subsequently occurred. They were not successful; but everything that could be done was done. With reference to Mr. Hills, who had kindly given him his advice, Mr. Burnell had not mentioned his name among those who were employed in the matter. Mr. Hills happened to be at Chichester at the time, and he had assisted him (Mr. Slater) in the steps which were taken at the last to prevent the fall, and it was but right that his valuable services should not be overlooked. While upon the subject of the tower he might state that the work of restoring Sherborne Minster had been carried out in the office in which he had learned his profession; and that, in that case, two piers were taken down and rebuilt, while the other two were found to be perfectly sound. There they had sandstone to deal with, but at Chichester there was nothing but a mass of rubbish. He should like to hear from Mr. Burnell in what state the piers were found to be at Bayeux, because that was a very important element in the discussion of the subject. He repeated that it gave him much pleasure to hear the statements of Mr. Burnell, and also to hear his testimony to the kind and considerate manner in which he had been treated by the profession under the very trying circumstances in which he was placed.

Mr. Burnell, in reply to Mr. Slater's question as to the condition in which the piers at Bayeux were found, said he had not thought it necessary to go into details as he had placed the book relating to the work on the table; but that, if Mr. Slater would look at the plate, he would see that the "heating" of the pier (which was part of the Norman cathedral) was more sound than the casing which had been put round it subsequently. At Chichester, on the contrary, the heating was rubbish, while the casing was good. In both instances it was necessary to underpin or take the piers away.

Mr. Hills said he did not think that the committee which had undertaken the re-arrangement of the choir as a memorial to the late Dean contemplated any works affecting the safety of the spire. The Arundel shrine had, in fact, nothing whatever to do with the structure. He had visited the cathedral ten months ago, and had observed the manner in which the piers had been mutilated, as spoken to by Mr. Scott. Immediately above the back of the stalls he had observed a place where a part of the south-west pier was broken away and bound up with an iron strap; and his opinion then was that it was impossible to ascertain the true state of the piers without removing the shrine. He did not see the building again until some months had elapsed; and, late in the month of February last, when he paid it another visit, he remarked a crack in the north-west pier, which he was informed had been about three months in arriving at the stage in which he found it; and it was then about an eighth or a sixteenth of an inch in width. His own opinion was, that the piers had commenced crushing long before, as they had many marks of

ancient failures about them. The feather-edge course, referred to by Mr. Burnell, had sunk 4 or 5 inches; so that the probability was that in former ages there had been a great failure in the foundations. With regard to the vibration of the spire, he fancied that a good deal of exaggeration existed on that subject. He had repeatedly gone up the spire as high as it was possible to go, in all weathers, and he had never discovered any vibration whatever. The effect of the swinging gallery fixed by Sir Christopher Wren was also, in his opinion, much exaggerated; neither was it at all so heavy as was supposed. He was at the top of the spire (or as far as he could reach) on the Friday before it fell, and he was unable to detect the slightest vibration; neither had he perceived that the swinging gallery was out of the perpendicular. Under these circumstances, it appeared to him perfectly clear that the spire was in a much better state than the tower, and that it had not yielded at all in proportion to what had gone on below. The stone used in the construction of the tower was very well known in that part of the country; and, on the whole, he thought it was a good stone. It had been extensively used in the oldest portion of the cathedral. It was similar to that used at Winchester and the abbey on the Isle of Wight. With regard to his (Mr. Hill's) own connection with Chichester Cathedral, he had reported, as requested, to Mr. Slater; and on that gentleman had devolved the responsibility of what had been done. The steps which it was proposed to take to avert the catastrophe were commenced on the Friday before the tower fell, and they were not dissimilar to those so successfully adopted at Bayeux. In fact, Mr. Slater had Bayeux in his mind at the time, and did all he could to obtain information of what had been done there. The first thing done at Winchester was to "jacket" the piers, in order to prevent them from bulging out, and that operation was only just commenced when the catastrophe occurred. A good deal of temporary shoring had been put up, but the signal which warned them to remove the workmen from the building was the circumstance that four of the shores began to bend in a very serious manner. One of them commenced to bend the night before the fall. They then tried to strengthen it by bolting it and another piece of timber together. Strong planks were used for this purpose; but, before the second piece could be applied, the bend had so much increased (nearly to the extent of a foot), that it was found impossible to get the bolt through it. The remaining shores (three in number) also bent to the same extent, which showed that it would not be safe to go on any longer.

Mr. Digby Wyatt, in proposing a vote of thanks to Mr. Burnell for his interesting and instructive paper, observed upon the utility of bringing under notice subjects of so practical a nature. The discussion, he observed, was also valuable as having elicited the opinions of many eminent men, on those cases which had come within their own immediate knowledge. The description given of the means taken to rebuild the piers at Bayeux had suggested to his mind that it might not be unprofitable to inquire into the relative economy of the operation. In that case the architect had not availed himself of any of the strength remaining in the structure; but, by erecting the peculiar framework described by Mr. Burnell, had removed all the piers at the same time. This operation must, he thought, have been attended with very great expense. In this respect he considered that our own English mode of proceeding, as illustrated by Mr. Scott at Stafford and Nottingham, was creditable to the country; for it was a sensible and prudent plan, and by no means wasteful in a pecuniary sense. It appeared that the foundations at Bayeux cost 2,000*l.*; and they were, he thought, the best part of the work, while the rebuilding of the piers had cost 15,000*l.* He thought from what they had heard from Mr. Scott and Mr. Hills on the subject of shoring, that timber was not a good material; and he fancied that, if cast iron had been used at Bayeux, greater economy would have attended the operation.

Mr. Papworth inquired of Mr. Burnell whether the piers had been entirely removed and rebuilt, or whether the casing only had been renewed.

Mr. Burnell said the piers were entirely removed.

Mr. Ferrey reminded the meeting that the stone both at Chichester and Winchester Cathedrals varied very much in quality; a fact which perhaps would be attributed to the circumstance that when they were built, as now, there were, in all probability, bad and careless builders.

Mr. E. Barry seconded the vote of thanks to Mr. Burnell, and observed that Mr. Scott and others would confer a great obligation on the

Institute, if they could present it with diagrams of the scaffoldings used by them, in order to show what had proved sufficient and what not sufficient. He himself had shown something of the kind, in connection with the New Palace at Westminster; and he believed it was the only one that had been contributed to the Institute, with the exception of that just read by Mr. Burnell.

The President observed that he was sure the vote proposed to Mr. Burnell would be unanimously accorded, and that the Institute would also admit its indebtedness to Mr. Barry for the paper he had read on a kindred subject, relating to his own experience and that of his great father. Nothing could be more useful, in a practical way, than the result of such experiences as those to which Mr. Scott had referred; and he hoped that gentleman could spare time from his many engagements to record them. With reference to his own experience, one case only had come within it, and that was the tower of a church in Essex, one leg of which had become bad. The churchwardens wanted to pull down the whole church, but he begged to be allowed to experiment upon it and was permitted, and succeeded. On that occasion he used 4-inch wrought-iron bars instead of timber shores, which he found to answer very well, and to take up much less room. He hoped that it would never fall to the lot of any whom he then addressed to be called upon to support a great cathedral tower; but if they were, he hoped they would find it in better condition than that at Chichester was described to be. While he was, upon this subject he might say, that on one occasion he witnessed the workmen putting up one of the monuments against the wall in the interior of St. Paul's Cathedral, and that at every stroke of the hammer a shower of rubble and dust came down. He hoped, therefore, that the walls there were not in the same plight as those at Chichester; although he believed there was no fear of them coming down, as the casing was very good.

The vote of thanks was then put from the chair, and carried unanimously.

The following gentlemen were on ballot elected fellows of the Institute:—Mr. Joseph Gale, Associate, of 150, Bermondsey-street; Mr. Edward Appleton, of Torquay; and Mr. Thomas Nicholson, of Hereford.

The President announced that, at the next evening of meeting, a paper would be read by Mr. Seddon, on the Architecture of the Dark Ages.

OXFORD ARCHITECTURAL SOCIETY.

At the second meeting of this society, held on Wednesday, the 15th ult.,

Professor Westwood called the attention of the meeting to a large number of very careful rubbings from the curious crosses and inscriptions which occur in Wales. These he had brought to illustrate the remarks he had to make upon the early Christian monuments of Wales contrasted with those of the Catacombs of Rome. Of course, in number and importance the inscriptions of Wales would not bear a comparison with those of Rome; but still they were very valuable in throwing light upon a subject of great importance and interest; namely, the introduction of Christianity into Britain. The existence of a church in Britain previous to the arrival of Augustine was a fact admitted on all hands; and there was little doubt that the British church still maintained its separate existence long after Augustine had Romanised the greater part of this country.

A short discussion followed as to the connection between the Welsh and Irish crosses; and some remarks were made by the president upon the peculiar form of interlacing ornament, which has generally been thought to have had its origin in the imitation of wickerwork.

At the third meeting on the 22nd ult.,

Mr. Parker read a paper on the fortifications of Oxford. He did not agree in the opinion that there was a fortified town here in the Roman times, but that it was fortified before the Norman Conquest: the early fortifications were, however, earthworks and wooden palisades only. The first stone wall round the city was built in the time of Henry III., as he showed by several references to the Patent Rolls: they were repaired in the time of Edward III. and Richard II., as shown by other Rolls. The original walls are rather low, and probably had woodwork on the top of them, as was usual in the thirteenth century. The part rebuilt by Wykeham to enclose his new college is more lofty and finer than the rest, and did not require woodwork. He showed that by existing remains the wall can still be traced all round the city, and mentioned the situation of the gates and posterns. He then gave the history of the castle,

and the siege by King Stephen, which he illustrated by extracts from the contemporary historians. The existing tower (built in 1071) was used as the belfry of St. George's Church, and probably was saved on that account when the rest of the towers were pulled down by Colonel Ingoldsby, the parliamentary commander, in 1649. He then gave an account of the lines of entrenchment for the defence of the city in the time of Charles I., and showed that two distinct lines were made, both of which may be partially traced.

CAMBRIDGE SCHOOL OF ART.

THE annual distribution of prizes to the students of this School of Art took place recently in the hall of Sidney Sussex College. The Rev. J. C. Ellis presided.

Professor Willis delivered the lecture "On Trinity College," which was given by him before the Prince Consort and the Prince of Wales at the Senate House. The Professor prefaced his address, by remarking that the subject of his lecture might seem rather out of place at a meeting of the School of Art, as it would appear to belong properly to archaeology; but architecture was one of the fine arts; and the best means we had of studying it was by being acquainted with the structures left us by antiquity.

The Rev. W. Emery, chairman of the managing committee, previous to delivering the prizes, entered into a brief history of the School of Art, which was established in 1858, and the original idea of which was due to the Rev. Gerald Vesey, and which had been more than fully carried out by the present honorary secretary, the Rev. W. J. Beumont. The school was opened in November, 1858, and its success had exceeded all anticipation. They had had 100 students in the central school, and 500 or 600 pupils of the National schools, and the number of schools whose pupils were instructed had increased from six to eight.

After the prizes were distributed,

The Rev. Professor Kingsley addressed the students at some length. In the course of his observations he said the drawing-class taught them very much more than merely how to copy anything they saw, though that alone was a great point. They were not aware, perhaps, of the great amount of intellectual power they acquired in learning to draw really well; and he might state from personal experience that Mr. Harley was quite competent to impart that power. By the study of drawing, they acquired habits of industry, perseverance, the power of observation, the power of knowing what they saw, the power of using their eyes,—after all, the basis of all power. Unless they observed and actually knew what they saw, and were able to tell exactly what was the object they saw, they would never make scientific men, men of business, good generals,—a great man, in fact, of any kind whatever. The first object was the art of seeing; then to know thoroughly what they saw, and to be able to analyze it, and combine in their minds a correct notion of its parts. The man who could draw accurately what he saw already possessed scientific power which might enable him to master any science. Schools of Art were beneficial, from the fact that they taught profitable employment of leisure to a class whose leisure hours had not always been profitably spent; and yet from that class came the mothers of the men who were England's strength and greatest glory—he meant the young ladies of the middle classes. One word more: he would strongly recommend a taste for drawing casts and busts. Whatever his friend Mr. Ruskin might say to the contrary, he preferred the human form, especially the human face, to all the sticks and stones in the world. Let them learn to draw the human figure really well. The French far exceeded us in this respect, and the Germans slightly so; but no Englishman could draw the human figure. This power must be renewed. Look at the beautiful Greek statues that were still preserved: were they not evidences of the beauty of form that man might and had attained to, and of what all men would be if they were what God wished them to be? To him a Greek statue was a solemn sight. It made him ask, why are there no people in the world like this now? Because, man's will and man's deeds were against it: God's will was not against it. It was man's folly: the absurd practice of tight lacing; living pent up in dirty towns, upon unwholesome food; acquiring irregular and ridiculous habits: these degenerated the beauty of a race and decreased its strength. The Greek figure of a man showed what man might be if he were what God would have him: let our children be taught to draw such figures, and they would acquire a higher standard of beauty.

MANCHESTER ARCHITECTURAL ASSOCIATION.

A MEETING of this Association was held on the evening of Wednesday, May 23, at the Rooms, George-street; the Vice-President in the chair. Mr. R. Knill Freeman read the paper for the evening, on the subject of domestic architecture. After alluding to the fact, that the architecture of a people has ever been a medium through which we are able to judge, not only of their mode of life, habits, &c., but, also, to a great extent, of their character and intellectual position; and having referred to the state of the country prior to its conquest by the Romans; the adaptation by them in some measure of the arrangements of the Roman villa to the requirements of this arrangement; and the subsequent imitation of this arrangement by the Saxons and Normans; the essayist gave a brief outline of the peculiar characteristics of the castles, manor houses, and towns of the thirteenth, fourteenth, fifteenth, and sixteenth centuries; and called attention to those works which yet remain, in proof of the perfection to which many branches of art were brought. Comparing the towns of the past and present, he remarked:—"Very quaint and pretty must those old Gothic streets have been with their overhanging upper-stories, high roofs and gables, and picturesque chimneys, rows of buildings, in which not only was the general effect pleasing, but care was bestowed on the minutest details. The carving, whether in timber or stone, had a life and vigour about it which we, while the reign of stucco and cement continues, shall in vain search for. The question may here be asked, have we made advances in this department of architecture? Are we, who exist in the present enlightened period, surpassing in excellence and beauty of our towns the productions of what some are pleased to term rude semi-civilized times? Is a greater love of truth displayed in our buildings than was shown in theirs? Do our works as a whole tend more to the refinement of the public than did theirs? Can any one truthfully answer yes? As we walk through our streets are we not painfully struck by the want of taste and art education which is everywhere manifest? On all sides we see shams and false construction, ignorance, and deception." After a short discussion, a vote of thanks was presented to Mr. Freeman for his essay.

CHURCH-BUILDING NEWS.

King's-cross, London.—A few days ago, the ceremony of consecrating the church dedicated to St. Luke, situate in the Euston-road, near King's-cross, and to which one of the newly-created ecclesiastical districts of St. Pancras has been assigned, was performed by the Lord Bishop of London. The church, which is capable of accommodating about 1,200 persons, some 500 free, was designed by Mr. Johnson, of the Adelphi, architect.

Rock (Bewdley).—St. Peter's Church, Rock, Worcestershire (diocese of Hereford), has recently undergone considerable alterations, and been reopened for Divine services. The soil round the outside has been lowered to the floor level. The church has been rearranged as regards the seating; the old materials having been converted into open benches with solid bench ends. The two small galleries at the west end have been removed. The chancel has been re-seated with carved oak benches, facing north and south, and separated from the ante-chapel by a screen of carved oak. The floor of the chancel and sanctuary are paved with Minton's tiles. The walls have been tooled, to show the stone throughout the building. The south aisle has been rebuilt on deeper and wider foundations. The old stonework has been re-used or coped where quite decayed. The whole of the windows, except the west window, have been restored, most of them having required new stonework. The roofs have been thrown open to the old oakwork. The roofs have been stripped, retiled, and ventilated, and a new roof placed over the south aisle and chapel, covered with lead. Other improvements have been effected; and three of the windows have been filled with stained glass, as memorial windows, painted by Mr. Preedy, containing subjects from the life of St. Peter. It is proposed hereafter to fill all the windows with the history of St. Peter's life. The architect was Mr. Preedy, of London; the builder, Mr. J. Griffiths, of Eldersfield; the carver, Mr. Foreyth, of Worcester. The cost of the restoration, exclusive of stained glass, has amounted to nearly 1,700*l*.

Wednesfield.—The new mortuary chapel, in the

parish cemetery at Wednesfield, has been opened. The building is in the Gothic style, with tower and spire; and the cost was about 300*l*. It was erected by Mr. John Plant, builder, from designs by Mr. E. Banks, of Wolverhampton, architect.

Stafford.—The chief stone of a new Roman Catholic church at Stafford, to be dedicated to St. Austin, has been laid. The style will be decorated Gothic, and the edifice will consist of a nave, ending in a semi-octangular apse, and flanked by two aisles, each ending in chapels, one of which will be dedicated to the Virgin Mary. The nave will be supported by ten columns of Derbyshire marble, surmounted by the usual clerestory windows. There will also be three windows in the apse, and one large window in the western end. The dimensions of the building will be 100 feet by 50 feet, and the whole is calculated to seat about 500 persons,—300 in the nave and 100 in each of the aisles. The design includes a tower over the porch at the end of the western aisle, from which will rise a spire 110 feet high. The estimated cost of the building is 2,124*l*, which with extr. work will probably amount to 2,500*l*. Mr. E. W. Pugin is the architect, and Mr. Jeffries the builder.

Wakefield.—The Bishop of Ripon recently consecrated St. Michael's Church, Westgate-common, Wakefield, and laid the corner-stone of the Church Institution new building.—Mr. G. Latham, the contractor for the restoration of the tower and spire of the parish church, has written to the local papers citing the contents of certain documents taken from the ball of the old nave, giving the dates of prior restorations and information connected therewith. These were in 1715, 1803, and 1823. By that now completed the height of the combined structures has increased from 235 to 247 feet.

Harrogate.—The plans for the new Wesleyan chapel, Harrogate, have been submitted to the building committee; and the one sent by Messrs. Lockwood & Mawson, for a Grecian edifice, was selected. It afterwards transpired, however, that the building could not be erected for the stipulated sum, so that the matter will have to be reconsidered.

Bradford.—The foundation-stone of a new chapel, which is to be erected by the Methodist body, has been laid in Sticker-lane. The building, erected from the design of Mr. T. C. Hope, architect, Bradford, will be in the Italian style of architecture, and 51 feet by 33 feet, there being a small apse at the end for an organ. There will be a vestry on one side, and a school and kitchen on the other. The school will be 31 feet by 18 feet, and the large vestry, 18 feet by 14 feet. There will be 260 sittings in the chapel, exclusively of room for the scholars. The school will accommodate 250 scholars. The estimated cost of the building is about 1,200*l*. The various works have been let to Mr. T. Peel, mason; Mr. C. Neal, joiner; Mr. J. Schofield, plumber; Mr. J. Bolton, plasterer; and Mr. J. Smithies, slater.

STAINED GLASS.

St. Swithin's, Winchester.—The widow of the late Rev. W. H. Gunner, M.A., rector of this parish, has caused a stained-glass window to be placed in the west end of the church, to the memory of her husband; and the whole has been carried out under the supervision of Mr. J. Colson, architect; Mr. Gillingham executing the new stonework, and Mr. Powell, of London, the glazing. The design is Perpendicular, in three lights; the central one containing an illustration of Matthew xxviii. 1.—"In the end of the Sabbath, as it began to dawn towards the first day of the week, came Mary Magdalene and the other Mary, to see the sepulchre." In the tracery-lights are four angels, the two outside ones bearing scrolls, inscribed with the words, "Hallelujah!" The smaller openings are filled in with roses, and other enrichments. The side lights and some part of the central one are filled in with a kind of double quatrefoil, in two colours, upon a groundwork of vine-leaves, the border composed of a geometric pattern.

Church of Clebury North.—The parish church of Clebury North has recently been renovated, and the chancel has been enriched by a window of stained glass. The window, according to the *Shrewsbury Chronicle*, consists of two openings, of about 8 feet high; containing, in the right compartment, the figure of St. John, and in the left that of St. Peter. The figures rest on a decorated base, under an ornamental canopy, and surrounded by the usual foliated work. The design and execution were by Messrs. David Evans & Sons, of Shrewsbury. It was erected under the

direction of the Rev. Dr. Butterton, rector of the parish.

St. Michael's Church, Middlewich.—Three windows have been placed in this church during the recent restoration under Mr. J. Clarke; that in the chancel by Archdeacon Wood, by Mr. Evans, of Shrewsbury.

Manchester Cathedral.—A window has been placed in Brown's Chapel, on the south side of the nave. This work was designed and executed by Messrs. Hardman & Co.; and presented by Mrs. Margaret Clowes, of Hawford House, Worcestershire, in memory of her husband and of a son and daughter, all of whom are buried in Brown's Chapel. The window, which is of the Perpendicular style, consists of four lights, illustrating different incidents in the history of John the Baptist. The first light represents the appearance of the angel to Zacharias in the temple; the second, the naming of the infant baptist, where Zacharias writes upon a tablet, "His Name is John;" the third, the Baptist preaching in the Wilderness; and the fourth, the Baptism of our Saviour by St. John.

PROVINCIAL NEWS.

Lewes.—The workmen employed in digging the foundations of the building to be erected in memory of the Hon. Henry Fitzroy, M.P., says the *Surrey Standard*, have, as might be expected on such a site, come across some of those memorials of the past which always, in an old town like Lewes, excite so much interest. The new building is to occupy that part of the High-street on which the old priory of the Grey Friars stood before the Reformation. The workmen, in excavating, have come upon part of the foundations of the Old Priory. On first it appeared to be a wall, about 8 feet long by 3 or 4 feet wide; but, on removing the stone facing, it was found to be a mass of concrete. Two skeletons were also found on the eastern side of the eastern part of the foundation. It is only the other day that the last remnant of the priory of the Grey Friars was pulled down by the London and Brighton Railway Company.

Cardiff.—A local Baths Company has been established here, and the following tenders for the requisite buildings, including the walls of a Turkish bath, have been given in:—

Webb	£2,217 0 0
Watkins	2,393 0 0
Mitchellmore	2,348 0 0
John	2,366 0 0

The tender of Mr. Webb has been accepted. There will be a first-class swimming-bath, 60 feet square; a second-class, 70 feet long and 40 feet wide, with dressing-rooms, &c.; also a Turkish bath, and three first and three second-class hot and shower-baths, with waiting-rooms attached. There will also be a gymnasium in connection with the baths, and probably wash-houses will be constructed.

Hanley.—The streets of Hanley, says the *Staffordshire Advertiser*, are making noticeable progress from a state of almost proverbial irregularity and rustic plainness, to a condition more befitting the dignity of a municipality, though much remains to be done. Among the principal public improvements now in progress are the reconstruction of the south side of the Market-square; the alteration and enlargement of the Albion Works, the property of the Mayor; and the new Mechanics' Institution. The alterations at the Albion Works are extensive, and are being carried out under the direction of Mr. Scrivener, of Hanley, architect. The upper part of Albion-street will in this case be widened about 19 feet. The old buildings formerly occupying this locality, and also those facing Old Hall-street, have been pulled down to make room for new warehouses, which will have a frontage to Albion-street of 192 feet, and will be built with red bricks laid in black mortar, the dressings round the windows to be in moulded bricks of various patterns. The centre block will be three stories high, and 45 feet from the ground line to the eaves. The principal entrance and offices will be built in the same style as the warehouses, and will face the end of Old Hall-street. The new workshops will extend along Cheapside (which will also be slightly widened) to the length of 225 feet. They will be built of the same materials as the warehouses, but will be rather less ornamental. On the completion of the works, the new system of preparing the clay by pressure will be carried out—an improvement favourable, it is said, to the health of the men engaged in this department, and one which will obviate the nuisance of low slipkiln chimneys. In this instance all the kilns will communicate with a tall chimney 120 feet high, and another feature in the new buildings is that the straw place and

packing houses will be made entirely fire-proof. In the case of the south side of the Market-square, there will be, when the alterations are completed, four houses with shops, one of which, it is said, will surpass everything else of the kind in the district. The elevation of the whole will be in the Italian style, and will be constructed of red brick with stone dressings. Messrs. Palmer, of Hanley, are the architects.

THE WORKS IN PAINTERS' HALL.

Sir,—The exhibitors at the Painters' Hall ought to feel much obliged to you for your concluding remarks on the exhibition in your last number.

To my mind, it looks like previous knowledge of style of work, when I find four men in the employ of the Renter Warden of the company exhibitors; that he was one of the judges, and that three out of the four get prizes. In fact, one of the panels has his own monogram in the centre of it—G. J. M., *pro* George John Morant.

No man ought to have been allowed to act as a judge on his own men's work; and this will, I am afraid, be detrimental to the future success of the exhibition.

I am not an exhibitor, and therefore can speak with freedom and candour on the matter.

H. O.

ARCHITECTURE IN SOUTH-EAST AFRICA.

Sir,—I am still one of your "Constant Readers," though in this out-of-the-way place. I am practising as an architect with limited success. To give you some idea of the prejudice one has to contend with, I have inclosed a paragraph from a Colonial paper, having reference to an advertisement emanating from a building committee of Dutchmen, or Boers. The conditions are amusing. What is a poor fellow to do?

JOSEPH FLASHMAN.

Queen's Town, South-East Africa.

"Colesberg.—The building committee of the Dutch Reformed Church offer 25l. for the most suitable plan, and 15l. for the 'next,' of a church, with a steeple, room for galleries, organ, &c., and add, 'that the designs must be in the newest style of architecture, and that no notice will be taken of any plan in the old form of a cross.'"

PARK-LANE.

THE confined state of the southern portion of Park-lane has been under public notice a long time, and the suggestions of your correspondent, "Pic à Déclat," are by no means to be despised. His proposal to open a route from South Audley-street to Piccadilly, *via* Down-street, would, however, in no respect improve Park-lane itself, though it would lessen the traffic; while Derby-street and Carington-place are so narrow as to require considerable expense in widening, and even Down-street is too narrow to become an important thoroughfare. A far cheaper route would be made by opening a short road in a segment of a circle from Park-lane, opposite the end of Hertford-street, into Hamilton-place, which is an excellent street. This route of course would meet with much opposition from the inhabitants of Hamilton-place. Another cheap and useful alteration offers itself, in cutting off the convex curve of the park which swells into Park-lane at the very point (next Pitt's Head-mews) where the houses are advanced forward, diminishing the present roadway to 30 feet or less.

Much of the property in the southern part of the lane is of secondary value (stabling, small shops, &c.), and if the designing surveyor were not greatly enamoured of some grand, sweeping, and costly plan, very considerable improvements could be made at a moderate outlay. But, alas! there the shoe pinches. The Metropolitan Board of Works, with the Main Drainage on hand, and the coal duties bespoken for some years, has no funds wherewith to enter upon these and many other Angean stables. One of the schemes approved by the Board, and intended to be carried out by them some time in the Greek Kalends, is, indeed, the improvement of this very Park-lane, and the opening out of a thoroughfare from South Audley-street, at a cost together of 175,000l. This sum I deem a profligate expenditure, as the work could be sufficiently done for half that amount: the mere cutting of an opening from Seamore-place into Park-lane would cost probably more than 15,000l., and immense changes could be effected in the lane itself for 50,000l.

LAND AGENT.

REMOVAL OF ILL-CONSTRUCTED BUILDINGS, UNDER THE METROPOLITAN BUILDING ACT.

A WARNING.

At the *Greenwich Police Court*, last week, Mr. James Corbett, builder, of Lewisham, appeared to an adjourned summons, at the instance of Mr. Badger, the district surveyor under the Building Act, charging him with contravening the walls of two buildings in a manner contrary to the provisions of the Act of Parliament, and dangerous to the safety of the public.

Mr. Smith, solicitor to the Metropolitan Board of Works, attended to support the summons, and said that in consequence of the many complaints made almost daily to that Board of dangerous buildings being constructed in the metropolis, it had been determined, in order to protect the poorer classes, by whom such buildings were mostly tenanted, to put the provisions of the Act in force. In consequence of representations made by Mr. Badger as to the character of the construction of defendant's buildings, Mr. G. Vuillamy, superintending architect to the Metropolitan Board, had been instructed to make an inspection; and, having done so, he (Mr. Smith) intended calling him as a witness, who would prove that the buildings in question were dangerous to the safety of the public, and ought not to be allowed to remain.

Witnesses were then examined, from whose statements it appeared the complaint was that the walls of the buildings in question were composed principally of broken bricks, or bats; and that the same had not been properly bonded and solidly put together in mortar or cement. Mr. George Vuillamy stating that, in his opinion, from the inspection he had made, there would be danger to the public in allowing the buildings to remain.

For the defence eight witnesses, builders and carpenters, were called, who gave it as their opinion that the work was properly constructed and bonded.

Mr. Maude inquired of Mr. Vuillamy if his opinion of the work was altered after the evidence which had been called.

Mr. Vuillamy replied that his opinion was not in the least altered.

Mr. Maude, after referring to the stringency of the Act of Parliament; there being no appeal against his decision, which he regretted, thinking that the responsibility in such cases ought not to be thrown upon police magistrates; said, the summons had been adjourned, and defendant could have secured the evidence of some surveyor to have spoken as to the character of the buildings. He had not done so; and, after hearing the opinion given by Mr. Vuillamy, he (Mr. Maude) felt called upon to make the order for the demolition of the buildings, as applied for.

BUILDERS' BENEVOLENT INSTITUTION.

On Tuesday, the 28th ult., a general meeting of the friends and subscribers to the above valuable institution for the aged, was held at the London Tavern, Bishopsgate-street, for the purpose of electing four pensioners on the fund from a list of fifteen candidates, such pensioners to be two males and two females. Mr. George Plucknett occupied the chair.

The subscriptions and donations for the past year amount to 1,181l. 6s. 6d.; annual subscriptions, 898l.; and donations, 373l. 6s. 6d.; and 428l. 6s. 7d. stock has been purchased in the Three per Cent. Consols; 389l. 16s. 7d. being for the relief fund, and 38l. 14s. stock for the building fund. The total amount of stock now standing in the names of the trustees is 7,812l. 11s. 4d., being for the relief fund 5,565l. 6s. 9d., and for the building fund, 2,247l. 4s. 7d., with a balance at the bankers' of 49l. 2s. 3d.

The chairman having made a few preliminary observations,

The poll was declared open; and at its close, on the return of the scrutineers (Messrs. Thorn and Cozens), John Brothill, Thomas Barry, Julia Garrol, and Mary Ann Farnell, were returned as the successful candidates.

The Chairman expressed his regret that out of fifteen candidates the funds only permitted them to elect four; for he was sure they were all deserving cases; and, in the inquiries made, much sympathy was excited, owing to several who were formerly in prosperity being now reduced by misfortune to extreme poverty. He wished they were in a position to afford to all the benefits of one institution. He could, however, hold out some encouragement; for the Lord Mayor, with that kindness which was his usual characteristic, had consented to be their president for the following year. This no doubt would be an incentive to their old subscribers, and would probably be the means of producing new supporters. The funds of the institution would then increase, and many of those who were now unfortunate might meet with a happier result. He trusted the time would come when the wants of all would be met, which would materially add to their felicity and happiness, and be highly pleasurable to all. The Lord Mayor had further expressed his intention to take the chair at their next annual dinner.

Mr. J. Bird proposed a vote of thanks to the scrutineers for their share of the labours of the day; which was seconded by Mr. Neate, and carried.

Mr. Thorn replied, and considered it a duty as members of the association. To himself it was a great pleasure to afford any assistance in his power, for he felt that it carried with it the knowledge that he was doing great good. He believed, by the kindness of the Lord Mayor, and that they might soon be enabled to elect four or five from each sex of the list of applicants. He concluded by proposing a vote of thanks to the gentlemen at the table, the checkers.

Mr. P. Cozens also returned thanks, and said it would be much more pleasant to him to be called upon to propose the same duty more frequently, as he knew that he was assisting others who could not assist themselves. He seconded the proposition of Mr. Thorn.

The vote was unanimously passed. Mr. Bird, one of the checkers, hoped that on the next occasion they would be more fully engaged, as a large number of votes were unrecorded. He then moved that a vote of thanks should be given to the chairman.

Mr. Cozens seconded the motion, and it was unanimously accorded.

The Chairman expressed his thanks for the kind expression of the meeting, and said that he deemed his assistance as a labour of love. He felt that he was not of so much advantage to the institution as he desired, but he was ever ready to promote its interest.

Mr. A. G. Harris (the secretary), at the request of the elected, returned thanks to the meeting.

Books Received.

An Account of the Manners and Customs of the Modern Egyptians. By E. W. LANE. Fifth Edition, from a Copy annotated by the Author. Edited by his Nephew, E. S. POOLE. London: Murray. 1860.

The fifth edition of so well-known and entertaining a work as that of Mr. Lane's graphic account of the manners and customs of the modern Egyptians needs no long notice from us; and all that we shall do, therefore, is to refer briefly to the editor's labours, which are admittedly very slight, so far as regards his own annotations. The duty of correcting the press he undertook because important studies rendered it impossible for the author to do so himself, and the editor is of opinion that little or nothing can be added so as to improve the work.

In an appendix, however, the editor has inserted some notes of his own; and from one of these, on Arabian architecture, we may glean a few extracts, which may be of interest in connection with Mr. Fergusson's account of the origin of Mahomedan places of worship; but the editor, though quoting Mr. Fergusson's "Handbook of Architecture" when occasion requires, is either unacquainted with the theory referred to, or at all events he does not allude to it; and his own speculations, if they may be so called, do not lean in a like direction:—

"On the source from which the Arabs derived their architecture, Ibn-Khaldoun says, 'When they ceased to observe the strict precepts of their religion, and the disposition for dominion and luxury living overcame them, the Arabs employed the Persian nation to serve them, and acquired from them the arts and architecture, and then they made lofty buildings.' This was near to the end of the empire. The ascription of Arab art to Persian instruction cannot be too carefully recollected; it explains many difficult points in the style, and deserves further elucidation. The origin of the Arab style may properly be traced to Sassanian as well as to Byzantine sources. Ibn-Khaldoun's remark that the architecture arose with the decline of the empire is exactly borne out by facts.

Besides the Persians, the Arabs were indebted to the Copts for assistance in building; and it has been remarked by Mr. Lane, in this work p. 247, that in the present day there are many architects, builders, and carpenters, among the Copts, all of whom work. When the Kaaba was rebuilt by the trace of Kurysh, in the youth of Mohammed (and it is a tradition that the Prophet himself assisted as a labourer in the work), we read that 'there was in Mekke a Copt who knew the art of sawing wood and planing it, and we agreed with them [Kurysh] to make for them the roof of the Kaaba, and Esauod was to help him.' So says Ibn-Is-hak, in the Kit-ul-el-Islam. The disputes of Muslim writers about the builder of the Kaaba, while they leave uncertain the immaterial point as to which of two foreigners executed the work, establish the important fact that it was necessary to get foreign help for so simple an edifice as the square, unornamented, Kaaba, and that the help was obtained from a Copt or a Greek or both.

So again, El-Makreezee is unusually explicit about a pulpit said to have been placed in his mosque by 'Amr, or by 'Abd El-Aziz, Ibn-Marwan, one of the viceroys of Egypt, which was taken from one of the Christian churches of El-Fustat; or, according to some, he says, it was given to 'Abd-Allah Ibn-Saad Ibn-Anee-Sah another viceroy by a king of Nubia, who sent him to present an offering to fix it, and the name of this carpenter was Buktur (a Copt), of the people of Dendarah. In Cairo, the mosque of Ibn-Touloun (to which I shall refer) is also recorded to have been built by a Copt, and this edifice is highly curious as an example of a building, erected in A.D. 876, of which the arches are all pointed, and which contains the first forms of the scroll-work and geometrical ornament of the style of the Arabs that was afterwards brought to such high perfection. But the most remarkable record of the employment of Copts by Muslims is in conjunction with Byzantines.

The Muslim conquerors of Egypt entered a country full of churches and convents, which might be converted into mosques, and would certainly afford examples of architecture for their imitation. After the overthrow of the Copts by El-Ma-moon, about the year of the Flight 216, the Muslims converted a number of Christian churches into mosques, making the entrance the niche for the direction of prayer. The influence of Byzantium on the art of the Arabs cannot be doubted. It was at first the direct use of Byzantine workmen, and afterwards the gradual adaptation of portions of their architecture to a new style. But whence the Greeks of the Eastern empire obtained many of the features of their art, and especially some of those adapted by the Arabs, remains at present an unsolved question. It is probable that the influence of Persia had affected them before it reached the Arabs, and that the characteristics referred to were Persian in origin; just as the same influence more strongly affected the Arabs afterwards. The only persons who, at this day, in Cairo, can execute the scroll-work of the old Arabian decoration are the Greek tailors. Their work in embroidery preserves the style of the art, though more elaborated and Grecized.

It has been observed that the form of the mosque was of gradual development, and not religion, and a supposed imitation of the holy places of Arabia, appears to have been the cause of the open interior court surrounded by porticos. These porticos date early, the simplest form was that which covered the place of prayer, and necessity rather than choice caused its adoption. Thus the Prophet's mosque consisted, at first, of a court walled in, with a covered portico next the niche, the roof being supported on palm-trunks. Osman is said to have built porticos to the temple of Mekkeh, the year of the Flight 26; and this is the earliest recorded instance of this feature of a mosque. They were perhaps in imitation of the three covered portions of the Prophet's mosque, or suggested by the same reason—a shelter from the sun,—in each case; while, at Mekkeh, they

naturally followed the form of the enclosure of the mosque. But El-Azrakee says that Ibn-Ez-Zubeyr found the Temple with only a wall surrounding it, which would bring the date of the porticos down at least to A.H. 61. They were built to afford shade to the people, according to that author."

None of the early mosques possessed minarets; they were added from time to time after their foundation.

The quotations we have here made, it may be remarked, are somewhat condensed by the omission of intervening passages.

We cannot conclude our notice of the new edition of Mr. Lane's interesting and standard work without reiterating a regret which has often been expressed, and by us as well as others, that the old, and we may say the classical, nomenclature of the "Arabian Nights Entertainments," as given in the form familiar to our youthful ideas, should have been so modified—whether upon phonographic or any other principles, or from mere conceit or affectation, by every succeeding writer on Eastern subjects in his own peculiar way, and by Mr. Lane amongst others,—as to disconcert all settled notions whatever on the subject, and to render old familiar friends and places less and less recognizable in every succeeding shape which they assume. One can scarcely help doubting the identity of the Mahometans, or Moslems themselves, with all the twists of phonographic nomenclature into which they have been, and still are being distorted, as into Mohammadians and Muslims, with Mekkeh for their holy city, and darweeshes for their quaint, fantastic monks. In reading of Muslims or Mohammadians, and Mekkeh and darweeshes, one feels as if the whole race of Mahometans, the entire city of Meccah, and the numerous tribes of derwishes, were all of bygone times, and no longer had any existence; and, indeed, not even a past existence seems as it were to be left them; for the new and protean forms of nomenclature pervade the interesting records and the vivid fancies of the past as well as the more matter-of-fact state of things in modern times.

Miscellaneous.

DESIGNS FOR THE AGRICULTURAL HALL, LONDON.—The council of the Agricultural Society have now under consideration designs from six architects, invited to a limited competition.

THE PHOTOGRAPHIC PRINTING MACHINE.—We observe, from a Lyons paper, that the machine which was first brought under notice in Europe by the *Builder* has reached France. It is said to be capable of printing 4,000 photographic positives in an hour from a single negative. The sheet of prepared paper, it will be recollected, is unrolled from a cylinder, so as to take impressions from the negative under a strong light concentrated by means of a powerful lens; the paper having great sensibility, and being capable of taking an impression in a single second. Every sheet carries off 200 to 250 proofs, and these are afterwards developed in a camera. The result is now said to be that photographs which, by the ordinary process, would cost at least 1 s. 6 d. each, can be produced with a sufficient profit for a sous each.

THE NEW FLAGSTAFF AT KEW.—A very fine spar has just been set up in the Royal Gardens at Kew, the gift of Mr. Stamp, at Rotherhithe, which, though a single stick, is nearly twice as high as the surrounding trees. It is a specimen of the Douglas Pine, a native of British Columbia. This noble spar measured, before cleaning and rounding, 159 feet in length, the diameter of the butt end being 22 inches, and that of the top end 8 inches. It contained about 150 annual layers. Such a spar for size or beauty has never been seen at any of Her Majesty's dockyards. On the extreme summit, a star has been placed, with looking-glass facets and points surmounting the vane-staff and reflecting the sunbeams. The rigging was fixed to strong supports deeply buried in the earth, and there loaded with heavy blocks of stone. The dimensions of the spar are as follow:—

Total length of the spar	ft. in.	159 0
Under ground, in the bricked well	11 0	
From surface of ground to cross-trees	67 0	
From cross-trees to topmast rigging	67 0	
From topmast rigging to truck	13 6	
Length of iron cross-trees	15 6	
Diameter of truck	9 10	
Diameter of staff at heel	1 7	
Diameter of staff at top	0 7	
Cabical contents of staff	0 10	
Total weight complete	160 0	
A cubic foot of the timber weighs 58 lbs. 12 oz.		
The age of the tree was probably not much less than 200 years, and its total height 220 feet.		

"GERMAN ACADEMY OF ART."—Under this title, an exhibition has been opened in the Egyptian Hall, Piccadilly. It comprises 120 works; and, although there are no pictures of very high class, it deserves a visit. T. Schmitson's "Hungarian Horses at Play" (33), claims praise for life and vigour; but, if the animals are portraits, both the dogs and the horses of that country are ugly beasts.

ELECTRO-TELEGRAPHIC.—A form of agreement between the Street Commissioners of Oxford and the United Kingdom Telegraph Company has been entered into. Its principal conditions are,—that the Telegraph Company shall have permission to lay their wires through the streets of St. Aldate's, Cornmarket, and St. Giles's; that, under the inspection of the surveyor, the wires, enclosed in an iron casing, shall be laid under the kerb-stones two feet or three feet below the surface; and that the company shall at any time remove the wires from the streets after receiving six months' notice to that effect from the commissioners.—M. Falkenhagen, a clerk in the telegraphic office at Warsaw, has been shot by order of Prince Gortschakoff. He was accused of having detained a telegram for four hours, addressed by the Emperor to the Prince. The telegram, it is said, directed the Prince to act with severity against the unarmed people; and, by acting as he did, M. Falkenhagen gave them an opportunity to return home.—It is proposed to lay down a cable between England and Norway, with a continuation to Russia by way of Gotland.

MONUMENTAL.—Nearly 6,000*l.* have been subscribed in aid of the memorial in recognition of the great public services of Lieut.-General Sir James Outram, K.C.B. It is the intention of the committee to make arrangements for the erection of a statue of Sir James near that of Sir Henry Havelock, in Trafalgar-square; and also for the erection of a memorial to him in India.—The committee for the erection of the Crimean monument at Sheffield have had such success in raising the necessary funds, that they have resolved at once to undertake the work. They have adopted a design, by Mr. G. Goldie, said to be similar in its character to the monument raised at Westminster to the memory of the late Lord Raglan. The Leyden monument at Denholm, in Scotland, is about to be constructed. A portion of Denholm-green will be the site, and has been enclosed, and sheds erected for workmen employed in preparing stone for the erection. It has been resolved to take the stone from Swinton, in Berwickshire. The sculptured figures, by Mr. Handyside Ritchie, will be composed of the same material. The red granite pillars will be from Macdonald's polished granite works in Aberdeen. The farmers in the neighbourhood are carting the materials from Hassendean Station without expense.

THE DRINKING FOUNTAIN MOVEMENT.—At Derby, a drinking-fountain in honour of the Mayor and High Sheriff, W. T. Cox, Esq., is to be erected in conjunction with the new Corn Exchange. The design has been prepared by Mr. Wilson, the architect of the building. The fountain will be fixed in the blank space of wall at the side of the Exchange; projecting about one foot from the face of the building; and portions of the brick-work will be cut away to form the recess. The whole will cover a space of 20 feet high by 16 in width. The design is divided into three principal compartments; the centre one being higher than the two outside; having pilasters and carved capitals, and moulded panels filled in with polished red Aberdeen granite. These will support a moulded cornice, above which are carved on a shield the High Sheriff's heraldic bearings, the whole surmounted by a game cock. The water will flow from the mouth of a dolphin, into a basin of red Aberdeen granite polished. The whole structure, except ornamental parts such as those mentioned, will be executed in Darley Dale stone. The contract has been let to Mr. Robinson, sculptor; the estimate being 150*l.*, and the erection will be immediately commenced under Mr. Wilson's superintendence.—In the massive wall, at Walcot-street, Bath, which shores up the foundation of Bladud Buildings, there has recently been inserted a drinking-fountain. The columns are of red and of grey granite polished; the capitals of marble, displaying aquatic plants. An arch encloses the whole, enriched with suitable mouldings, and panelled with emblems. The variety of stone in this neighbourhood has enabled the architect (Mr. Charles Edward Davis) to combine Venetian red, yellow, blue, and cream-colour in the same composition. There is a granite basin for the public, and a cistern for cattle and dogs. The donor of this fountain was Mrs. Landon, of the Royal Crescent.

HULL DRAINAGE.—At the Local Board of Health Meeting held on the 23rd ult. the following resolution was agreed to unanimously:—"That Mr. Butler, the assistant surveyor of this Board, be paid the sum of 250*l.* in consideration that he has, at the request of the Board, prepared a plan for the drainage of the west district, and in full for all his services rendered above the usual requirements of his office; and that he be released from the services of the Board after the passing of this resolution." The above plan of drainage, it is stated, was adopted by the Local Board so far back as November, 1858.

DREDGING MACHINE FOR THE TYNE.—A powerful dredging machine has been constructed at Glasgow for the river Tyne, where improvements on an extensive scale are at present being carried out under the direction of Mr. J. F. Ure, C.E. This machine has been fitted with engines of about 60-horse power. With machinery and gearing it weighs upwards of 700 tons. There are two bucket-ladders, which are of sufficient length to dredge to the depth of 33 feet; being about 10 feet more than has hitherto been attained. This monster dredger will be towed round the north of Scotland to her destination; being too large to go through the Caledonian canal.

OLD IRON WORK AT HAMPTON COURT.—In reply to a question in the Commons last week by Mr. C. Bentinck, Mr. Cowper stated that at Hampton Court Palace Gardens there were some richly-wrought iron railings put up in the time of William and Mary. These railings were greatly deteriorated by age, and were perishing fast. In order to preserve them they had been removed to London, where they would be restored. They would then be exhibited in the Kensington Museum as English ironwork; and ultimately such portion would be restored to Hampton Court Palace as might be thought desirable; but they would be placed where they could be preserved from decay, which had threatened to destroy them altogether.

SPRING MEETING OF NORTHAMPTON ARCHITECTURAL SOCIETY.—The annual spring meeting of the Architectural Society of the Archdeaconry of Northampton was held this year at Thrapston. The proceedings commenced with a meeting in the Corn Exchange, where the usual report was read and adopted, and a resolution in favour of the Gothic style for the new public offices at West-minster discussed. Mr. Lightfoot read a paper "On Drayton House," which was afterwards visited; and on their return the members and friends dined at the White Hart Hotel. A temporary museum, which had been got up in the Corn Exchange, was thrown open to the public; and the evening meeting was subsequently held there; when the Rev. G. A. Poole read a paper "On the Stained Glass in Lowick Church, and on Stained Glass generally." Papers "On Aldwinckle" were also read, and next day an excursion was made to Thrapston, Aldwinckle, and other places in the vicinity.

THE COPPER TRADE.—A prospectus has been issued of the Commercial Copper Smelting Company, with a capital of 1,000,000*l.*, in 10*l.* shares. The undertaking is formed to meet the demand for a more enlarged and steady market for the supply of copper; and for the immediate attainment of its objects preliminary agreements have been completed for the purchase of the copper smelting works at Caldera, in Chili, and also of the "Bold" copper smelting works, at St. Helen's, near Liverpool. The following statement of the copper produce of Chili and Bolivia during the past year is taken from a circular recently published by Mr. W. P. Robertson, of Valparaiso:—

	Fine Copper.	Total.
From Chili for England.....	Qqrs. 495,659	1,163,720
" Bolivia for England.....	45,925	218,394
" Bolivia for France.....	2,400	3,718
" Chili for United States.....	113,107	423,877
" Chili for Germany.....	9,445	32,573
" Chili for Belgium.....	6,357	26,475
" Chili for China.....	1,387	1,387
" Chili for Peru.....	141	141
Total.....	739,085	1,925,711
Exported from Chili, total fine copper.....	Qqrs. 656,560	
Ditto from Bolivia, total fine copper.....	51,325	
Increase in Chili of fine copper on 1858-59.....	191,539	
Decrease in Bolivia of fine copper on 1858-59.....	5,979	
Total increase of copper ores, &c., in Chili and Bolivia in 1858-59.....	185,560	
Total increase of fine copper in Chili, 1858-59.....	95,560	
Increase of all kinds.....	Qqrs. 374,026	

—A new mode of extracting copper from the ore has recently been patented by Mr. W. F. Daehne, of Swansea, in which sulphate of iron is used for the conversion of the copper into sulphate, to be afterwards lixiviated and precipitated.

SOUTHAMPTON RACE STAND.—The Race Committee at Southampton have resolved to erect a grand stand at a cost of between 600*l.* and 700*l.*, by shares of 10*l.* each. A design, by Mr. Clark, of Newmarket, has been accepted. The stand will accommodate 1,000 people.

THE WORCESTER BOARD OF HEALTH SURVEYORSHIP.—An application by Mr. Purchas, surveyor of the Local Board of Health (says the local *Herald*), for an increase of salary, having been referred to the Streets Committee, it was resolved, after due deliberation, to recommend that Mr. Purchas's salary be increased by 100*l.* a-year.

THE NEW THEATRE AT BIRMINGHAM.—There are now two theatrical establishments in Birmingham, Mr. J. C. Chute having opened to the public (though in an unfinished state) the theatre built on the site formerly occupied by the circus in Moor-street. At the time of opening, workmen were still engaged in removing the scaffolding from the stage. The building, from the front of the pit backwards, had no roof but a canvass of 3,000 persons; about 250 in the boxes, 1,000 in the pit, and 2,000 in the gallery. Mr. Holmes is the architect, and Mr. S. Briggs the builder.

THE BIRKENHEAD DOCK WORKS.—In the Works Committee of the Local Dock Board it was lately proposed that, with the view to the more speedy completion of the dock works at the Birkenhead, the engineer be requested to prepare the necessary drawings and specifications for the masonry at the graving docks at the west end of the Great Float; and that it be recommended to the Board that the said work be let by contract. It was moved, however, as an amendment, that the engineer be requested to report whether he considered it would be an advantage to the Board to let the execution of the graving docks and other works by contract. The committee carried the amendment by a majority of six to two, and this resolution was confirmed by the Board.

THE LABOUR QUESTION AT ADELAIDE.—The following extract from a letter from South Australia, dated Adelaide, 25th March, 1861, has been published:—"Last week the exports from Port Adelaide were 84,000*l.*; and I think the year 1861 will furnish an export of something like 2,500,000*l.*, and this with a population of 120,000 persons. I fear, however, that we shall sadly feel the want of labour. The stoppage of emigration is a great mistake, which originates with the labouring classes—who coerce the Government not seeing that at this moment every miner introduced into the colony would increase the demand for every other description of labour and raise the value of it.

YORK MINSTER IMPROVEMENTS.—The dean has caused a number of the intermediate Purbeck marble columns, which enter into the composition of the piers of the minster, to be divested of whitewash, and they have been varnished by way of experiment. The exterior restoration of the chapter-house, at the cost of the dean, is also being rapidly proceeded with. Amongst the improvements which the dean and chapter have in contemplation, there is perhaps none of greater importance than that of heating the cathedral during the winter months, arrangements for the carrying out of which have just been entered into with a metropolitan company. The contractors have undertaken, at a cost of something like 500*l.*, or 600*l.*, to maintain a winter temperature in the minster not under 50 degrees, to effect which object, according to the *York Herald*, about a dozen stoves, containing plates for radiating heat, will be introduced.

FIGHTFUL EXPLOSION AT THE GOVERNMENT GUNPOWDER WORKS, WALTHAM.—A nest of mills—five or six in number—where the gunpowder is ground by steam-power, were recently ordered to be "cleared for repairs." The men had been at their work about an hour, when one of them, it is said, commenced the removal of the runner in the mill second from the engine-house, to enable him to sweep the powder from under it. Applying a crowbar to force the roller out of position, he saw the powder flash, and remembered nothing further until he found himself being extricated from a stream of water, where he had unconsciously thrown himself head foremost to extinguish the burning of his clothes. After the first explosion, the flame seems to have momentarily penetrated into the three adjoining mills, for scarcely an instant elapsed between the subsequent explosions. The effect of each was most destructive. The iron roofs, sides, &c., were blown in all directions, and large pieces were found many yards off. Several poor fellows were severely injured; but, strange to say, not one was killed on the spot.

ALLEGED MEANS OF PREVENTING WRITING FROM BEING EFFACED.—M. Necht Sennefelder has published a curious process for rendering writing ineffaceable for purposes of fraud. It consists, says *Galignani*, in dipping the paper on which a bill or cheque is to be written for a few seconds into a solution of gallic acid. When the paper is dry, it is fit to be used for writing on with common ink. Suppose any person were, with criminal intent, to endeavour to efface a word from the documents, he would either have recourse to the chloride of potash or the oxalate of potash for the purpose, and would find, to his dismay, that these substances produce a black ring or border round the characters, which it is impossible to efface without destroying the paper.

VENTILATION BY HEAT AND UPWARD CURRENTS.—"A Working Man" suggested, in the *Builder*, of 1st September, 1860, the ventilation of dwelling-houses by means of a pipe carried up the fire-flue so as to have the foul air, within the pipe, heated, and an upward current thus established. This plan, he stated, had been in use by himself for the last ten years, and he knew of no better. He now writes us to draw our attention to the "curious coincidence" indicated by a notice, amongst recent patents, in our columns of 4th May, of a "communication" to a well-known patent agent in Chancery-lane, as to a patent for "an air-duct or passage heated by a fire or steam pipe passing through it in such a manner as to rarely the air within it and create an upward current therein for the purpose of carrying off the impure air" of a building. In the one case the air pipe passes through the flue, and in the other the flue seems to pass somehow through the air-pipe; but the coincidence is certainly somewhat remarkable in these sharpest times of patent-eating and fishing-patents.

GAS.—The price of gas at Devizes has been reduced by the Local Improvement Commission from 4*s.* 7*d.* to 4*s.* 2*d.* per 1,000 cubic feet. The profits last year had been 688*l.*, of which 488*l.* went towards the general expenditure of the town.—The Winchester Gaslight and Coke Company have declared a dividend of 6 per cent. per annum for the last half-year.—The Tonbridge Gas Company have reduced the price of their gas from 5*s.* 10*d.* to 5*s.* per 1,000 cubic feet.—The Stonehaven Company have also resolved to make a reduction of 4*d.* on the 1,000 feet; the price now being 8*s.* This is a reduction of 1*s.* since last October.—At an ordinary general meeting of the Oriental Gas Company lately held in London, the meeting was congratulated on the steady progress of the company. Upwards of eight miles of mains had been laid during the past year in the streets of Calcutta. The chairman said they were told that the natives did not like gas, that it would interfere with the punkah, and that it could not compete with cocoa nut oil. Experience had shown, however, that it did not in the least interfere with the punkah; that it was more than three times cheaper than oil; and that fully a third of their customers were natives. Till last year, 200*l.* or 300*l.* was a common price to pay for the introduction of gas into a private house; and the company had had a customer on whom the first charge had been no less than 2,000*l.* The directors were now enabled to offer fittings at a price which presented a great inducement to persons to take the gas.

THE DURHAM SCHOOL OF ART.—The annual report of this School says:—"The Committee have every reason to congratulate the subscribers and the public on the present state of the School of Art, which in all points, except on one, to be presently noticed, is progressively increasing in efficiency. The number of students is not quite so large as it usually has been; but, from the list of prizes given to members of the School from the Central Board, it may be confidently said that a good result is obtained from the instruction given." There is, unfortunately, a considerable deficit in the treasurer's accounts, and it has been found impossible to give any local prizes this year, from lack of funds. The state of the drawing department is shown in the following notes, communicated by the master:—"Morning class, average attendance, 8; afternoon class, average attendance, 23; evening class, average attendance, 28; schoolmasters and pupil-teachers, average attendance, 6. Schools which receive periodical superintendence:—The Mechanics' Institute, 30 scholars; Wesleyan, 64 scholars, 3 prizes awarded; St. Oswald's, 76 scholars, 3 prizes awarded; Model School, 90 scholars, 3 prizes awarded; Blue Coat School, 133 scholars, 3 prizes awarded. In these schools is taught elementary, outline, and model drawing, with explanatory, perspective, and practical geometry, as applied to the arts.

MISS HELEN McLEOD'S CONCERT.—This young lady is fast making way towards a high place in her profession. In her second concert, given on Tuesday evening last, in the Hanover-square Rooms, Miss McLeod sang Balfe's "Power of Love" and Beethoven's "Adelaide" with great success, besides various duets and quartets with Madlle. Elvira Bebrns, Mr. Tennant, and Signor Ciabatta. Several instrumentalists also assisted to give a pleasant evening to the large crowd of friends who filled the room.

WORKED GRANITE.—Messrs. Freeman write with reference to a paragraph on page 327 in *The Builder*, under the head of "Worked Cornish Granite," the following passage:—"The entire mass consists of six stones, in all twenty-one feet long, and six stones, in all thirteen feet long," should be—"The entire mass consists of six stones, each twenty-one feet long; and six stones each thirteen feet long." "As we are not aware" (they add) "that anything of the sort has been done before; it is a matter of general interest that the fact should be recorded in a work which is so much consulted as *The Builder*."

HOISTS.—G. Johnson, of Wandsworth, asks for space to contradict some reports detrimental to the hoists introduced by him. But as these reports have not found place in our columns we cannot comply. We insert, however, the close of his letter. "As a small but practical example of its application," he says, "I can now refer to a block of buildings erecting on the summit of East-hill, Wandsworth, by Messrs. Adamson & Sons, of Putney, where there is one of my double hoists at work. The building is more than 50 feet high. There are ten bricklayers engaged upon it, and six labourers; namely, two load, two turn, and two carry away; and with them the hoist serves all the materials. By those who regard labour-saving machines as their natural enemies, threats have been held out against me; but I feel sure that the cheaper work can be done the more will it be in demand; and whatever tends to accomplish this will stimulate trade and promote the public good."

THE ALLEGED "PILGRIM TOKENS" OF SHADWELL.—In the form of a pamphlet, two papers, from the "Collectanea Antiqua" of Mr. Roach Smith, vol. v., have been reprinted; the one on "Mutilation and Destruction of Church Monuments," and the other on "The Lead Images, &c., found at Shadwell." Mr. Smith has a very decided opinion in favour of the Medieval date of the singular profusion of fetich-like images, and endless other forms, of rude manufacture, alleged to have been found in excavating the docks at Shadwell; and hence, of course, against the idea that they were fabricated in our own time for sale. It is painful to think that a subject only fitted for free and friendly scientific or archaeological discussion should have been handed over to the lawyers to discuss, more especially in the way it was done; with the *Athenaeum* dragged into the law courts as a defendant, for merely reporting an archaeological meeting, as it was a duty in such a journal to do. The failure to get at the Archaeological Association certainly did not justify the happily no less unsuccessful attempt to make a public journal the scape-goat which was to be responsible for the doings of a scientific society, of whose proceedings it merely gave the usual report.

OUR THOROUGHFARES.—Sir: The numerous accidents which occur daily in the crowded streets of the City, particularly at the crossings where four lines meet, induce me to suggest a remedy, which would tend greatly to alleviate it. Take, for instance, the bottom of Ludgate-hill. Here are four large thoroughfares—Farringdon-street, New Bridge-street, Fleet-street, and Ludgate-hill. At four o'clock in the afternoon, when persons are returning from the City, sheep and cattle from Smithfield, traffic from over the water, and omnibuses from the West-end,—here they all meet; and if it were not for the able assistance of two or three policemen, who stop one line of carriages to allow the other to pass, it would be impossible to get along. Now I would suggest that, at all points of traffic similar to this, two or three houses at each corner be pulled down, and a circus made similar to Regent and Oxford circus. This would allow many vehicles to branch off and leave the main traffic, without causing so many obstructions. Again, let me bring to your mind that near this point there are to be two large railway stations—the Metropolitan, and the London, Chatham, and Dover. If such be the state of the traffic now that accidents are of daily and hourly occurrence, what will be the result when trains arrive and crowds of people and vehicles suddenly issue as if they had opened a pair of flood-gates P—R.

GEMS AT THE ARCHAEOLOGICAL INSTITUTE.—The Archaeological Institute have arranged a very interesting exhibition of gems and intaglios in their rooms, Suffolk-street. It includes fine specimens from the Arundel and Beborough collections.

ARCHITECTURAL PUBLICATION SOCIETY.—The annual general meeting of the subscribers was held on Thursday evening, the 30th ultimo, in the rooms of the Royal Institute of British Architects, when the report of the committee and the accounts of receipt and expenditure were received, and the committee and officers for the ensuing year elected. We are forced to postpone any further notice.

DISCUSSION AS TO FRENCH RESTORATIONS.—We understand that at the annual meeting of the Ecclesiological Society, which will be held in the Gallery of the Architectural Exhibition, at 9, Conduit-street, on the 13th instant, at eight o'clock in the evening, the destructive character of modern French restoration will form the subject of debate. The Ecclesiological Society does not limit the attendance at its meetings to the members of the society.

BLACKBURN.—The foundation-stone of a new workhouse for the Blackburn Union has been laid. The site is on the Pot House estate, south east of the town. The building will cover an area of four acres, contain accommodation for 800 inmates, and cost about 23,000*l*. The architects are Messrs. Oates, of York; and the contractor is Mr. Archibald Neill, of Bradford.—The chief stone of the first co-operative mill and shed in this town has been laid.

NEW BRIDGE ACROSS THE THAMES AT LAMBETH.—The Lambeth Bridge will be situate half way between Vauxhall and Westminster Bridges; and from one-half to three-quarters of a mile in distance will be saved in using this bridge and the fine open streets on the Lambeth side, as compared with the circuitous and crowded route via the Strand. The bill for the new bridge has passed the House of Lords, and has been read a second time in the Commons. The engineer is Mr. Peter Barlow, and the work has been let to Mr. Porter, of Birmingham, for under 30,000*l*.

IMPROVEMENTS IN SPADES AND SHOVELS.—Messrs. Spear & Jackson, of Etna Works, Sheffield, have just patented an improved method of making these articles. They take a bar of solid cast steel, full temper, into which, by powerful machinery, they punch a hole just large enough for the foot of the handle to enter: afterwards they forge and hammer it down to the required thickness and finish. Thus the whole tool (minus the handle, of course), being of cast steel, is uniformly strong throughout; and there being no welding it cannot work loose.

THE ORDINANCE SURVEY.—In a Blue Book recently issued, we have a report of the progress of the Ordinance Survey during 1860. In the previous report, to the 31st December, 1859, it was stated that the six northern counties of England, which have been ordered to be surveyed on the larger scale of 6 inches and 25 inches to a mile, would be finished during the present financial year; but, in consequence of the surveys ordered for purposes connected with the defences of the country, and upon which 390 surveyors and draughtsmen have been employed, the progress in the north of England has been greatly retarded, and the surveys of Northumberland and Cumberland are still unfinished. The progress of the survey was also greatly retarded by the almost unprecedented wet summer and cold severe winter. The progress of the survey of Scotland, and of the revision of the northern counties of Ireland, has been also greatly retarded by the same causes.

NAMES OF STATIONS ON RAILWAYS.—Seeing in *The Builder* several suggestions as to the best means of obviating the inconvenience arising from the difficulty of ascertaining the names of stations on railways, I beg to add my notion to the number already made public. I might propose a general indictment against the railway porters of the United Kingdom, for murdering the Queen's English; but, as that course would be too troublesome, I suggest a simple remedy. It is this:—In addition to the usual announcements, I would require each porter, policeman, or other official on duty, at every station, to have the name of the station in legible gilt or other letters, on the front of his hat or cap (just the same as sailors in the Royal Navy have the names of their ships); and then I think there could be little difficulty; for, as the men are continually moving to and fro during the stoppage of a train at a station, one could scarcely fail to see the name of the place; and the practice of being on the look-out would become so habitual, that the present inconvenience would be annihilated.—A BOROUGH SURVEYOR.

WESTMINSTER ABBEY LIBRARY.—In the great cloister of the abbey, says *Notes and Queries*, is a well-furnished library, considering the time when it was erected by Dr. Williams, Dean of Westminster and Bishop of Lincoln, who was a great promoter of learning. He purchased the books of the heirs of one Baker of Highgate, and founded it for public use every day in Term, from nine to twelve in the forenoon, and from two till four in the afternoon. The MSS. are kept in the inner part, but by an accident many of them were burned. There I saw that pompous and rare book of the "Rules and Ceremonies of the Coronation of our Kings of England. There is a MS. catalogue of the books in the library. In the room called the Museum, at Westminster, is a collection of books given by Dr. Busby for the use of the scholars.

TENDERS

For New School, at Fulham. Mr. A. W. Blomfield, architect. Quantities supplied by Mr. J. A. Barker:—
Dawson £390 0 0
Child, Son, & Martin 897 0 0
Bird 879 0 0
Wright 850 0 0

For building a Brick Bridge, 17 feet span, 21 feet wide, at Beeston, by Harleston, Norfolk. Mr. R. M. Phipson, architect:—

Bull £221 0 0
Botwright 219 0 0
Morley & Worswick 213 0 0
Godbolt 186 10 0
Bull & Holsworth (accepted) 145 10 0

For Hunting Box and Stables, at Barkingham, for Jas. Randall, Esq. Mr. W. Boucica, architect:—
Macey £4,393 0 0
Holland & Harnen 3,545 0 0
Tibbels 3,295 0 0
Conter 3,259 0 0
Munday (accepted) 3,170 0 0

For alterations and repairs at Nos. 8, 9, & 10, Fisher's-street, Red Lion-square, and Cottages behind, for Mr. E. Hall. Mr. T. W. Constantine, architect. Quantities not supplied:—

Stiles £177 15 0
Fowler 424 10 0
Helm 381 0 0
Sargeant 296 0 0
Lamble 296 0 0
Woodbridge 233 0 0

For a Pair of Villas, at Tottenham. Mr. J. Jennings' architect. Quantities not supplied:—

Chairman £369 10 0
Clark 598 0 0
Cushing 598 0 0

For Putney Almshouses. Mr. Charles Lee, architect:—

Williamson £3,361 10 0
Palmer 2,116 0 0
Aties 2,187 0 0
Adamson & Sons 1,979 0 0
Aties & Sons 1,973 0 0

For an Inn and a Sale-shop, with Dwelling-houses attached to each, at Old Radford, near Nottingham. Mr. S. Dutton Walker, of Nottingham, architect. Quantities supplied:—

Woodend £1,461 12 6
Willmott 983 0 0
Wright 935 0 0
Sampson & Lyman 922 0 0
Butler 921 0 0
Towle 921 0 0
Taylor (accepted) 872 19 0

For Schools, St. Paul's, Broke-road, Dalston. Mr. Cesar A. Long, architect:—

Hollins £780 0 0
Lloyd 774 0 0
Carr 597 0 0
Elson 683 0 0
Robinson 664 0 0
Pritchard 639 0 0
Scott (accepted) 614 0 0

For finishing Four Carcases, and building and finishing Four adjoining for Mr. A. Gilbert. Mr. R. C. A. architect:—

Wood & Son £3,428 0 0
Sagien 3,690 0 0
Duncan 3,413 0 0
Sale 3,309 0 0
McLennan 3,187 0 0
Greenwood 2,950 0 0
Grim 2,840 0 0
Thomas 2,870 0 0
Carter (accepted) 2,193 0 0

For sundry alterations to Baths and Wash-houses, in the Parish of St. Martin's-in-the-Fields. Mr. Kendall, architect:—

Tracy £181 0 0
Clemonce 173 10 0
Cobbett 165 0 0
London Building Company 159 10 0
Greenwood (accepted) 160 0 0

For building National School, Residence, and Offices, &c., at Swannington, Leicestershire. Mr. T. W. H. Hall, architect, Loughborough:—

At Union for Iron Railroads.
Osborne & Brothers £839 0 0 £70 0 0
Timms 760 0 0 25 0 0
Cooper 745 0 0 25 0 0
Hextal 729 0 0 ..
Beckworth 621 0 0 71 15 0
Hallam (accepted) 615 5 0 62 0 0

The Builder.

VOL. XIX.—No. 958.

Some Matters in Paris, interesting to Builders and Workmen.



It is not in the decorative arts alone that there is much to be gathered from "our continental neighbours." So inventive a people as the French could not but have some structural and mechanical contrivances worthy the attention of a certain class in England, who are always liable to become wedded to what may have been long in use. True, there is much in which the excellence is on our side; and what we have to say may show that to be the case.

The English architect already owes to the French improvements in the construction of fire-proof floors. The practical builder equally, in his speciality, might derive something useful.

Indeed, as there is no city in the world where so much building is going on as in Paris, there is probably none wherein the holiday of an English building-artisan might be so well spent. We are therefore pleased, and in many respects, that an idea of fraternization which some time back we regarded with favour, should have borne fruit, in the recent excursion of workmen to Paris.

To set down here, a moderate selection from the contrivances peculiar to French building, would be a considerable, however a productive, task. We fear we cannot hope for much assistance, at present, in contributions descriptive of these matters of detail which some of those who have lately visited the French capital, would have been so well fitted to observe. The first impression from an arrival in a foreign country—especially if the power of speaking freely the language be wanting—is one of bewilderment, which it requires more than a week to overcome. Indeed, there is no harm in saying to many others, that opinions and statements offered under such conditions, or after only a short residence, should be taken for what they are worth—which is very little. Unfortunately, these impressions too generally are assumed as sufficient; and they become the source of misunderstandings between nations; whilst better knowledge, and somewhat less of presumption in the interval of its acquisition, would terminate in the mutual esteem. This is a fertile theme, to which we may again advert, though, when space at a future time permits, rather than at length in the present paper. Our object here is to put together a few notes of points of interest, and practical expedients, which a builder might now observe in course of application, in Paris.

Of the extent and nature of the street improvements, little would be learned in a week, unless by those previously prepared. Supposing, however, that the time of the English visitor was spent mainly in walking about,—which really may be the most useful way of spending a week in Paris,—and that he did not restrict his steps to the more fashionable boulevards or the Rue de Rivoli, he could not go far in any direction without seeing work in progress. His attention might be first attracted by the importance of the scaffolding, and a temporary roof, and also by the

lofty shaft, or tower, of braced timber, which, with a wheel and axle at top, and a chain and windlass worked below, does duty in most instances for what would seem to be the more convenient movable contrivances of English builders. In new works, a temporary covering, carried by the scaffolding, seems to be employed in all important cases, or when there is likely to be the slightest need of protection from the weather. Works on a large scale were kept going throughout the past winter; and in the case of one large pile of buildings on the Boulevard de Sebastopol, the cost of protection must have constituted a large item. English builders are careless about wet; and workmen are something worse. One would think, however, that better covering to the beds of masonry in progress might be provided at less outlay. The case of adding a story to an old building is different. Almost the first step before the foundations are laid, is the erection of the shaft or turret just now mentioned. It is formed of four masts or poles, the full height of the building, connected by diagonal bracing, and forming a space on plan of some five or six feet square. The poles of the scaffold itself, furnished with the ordinary foot-rests for climbing them as ladders, are then placed; temporary roof-timbers are fixed; and boarding and waterproof material complete what appears from a distance almost as a finished structure. The poles or masts are generally picked specimens of timber; for the blocks of stone to be raised are of large dimensions. The latter circumstance arises in great measure from the practice of executing carving after the blocks are in position. In large buildings, more than one of the timber-shafts will be found.

The windlass (*treuil à bras*), as ordinarily worked by levers and ratchets and cogs, or by the more simple means, occasionally gives place to one (*treuil à vapeur*) worked by a portable steam-engine. The block of stone is not lewised, but suspended in slings, in hoisting. The hoilman and his appliances appear to have no exact representatives in French industry. Ladders, such as are to be seen, would be unfit for the stately and well-dressed society of Mr. Ell's, of the New-road. When materials have to be carried a short distance, a hand-barrow may be used; or a ladder is placed so that a line of half a dozen men can recline upon it; when the thing is passed overhead, from hand to hand.

Whatever be the opinion in other respects, a superiority of English labour over French, will be suspected by many who witness the building operations. Further, there is in Paris almost an impossibility of getting anything done by the promised time. Whether the fault be with masters or with men, as the former always say, or with both, we know not. Certainly it is difficult to understand how the building in Paris is done so quickly, and, as it is on the whole, so well. It would be quite unsafe to say that the French are not an industrious race: the evidence, take the literature, is to the direct contrary. One informant says, the lower class of labourers will do little except when the *contre-maitre* (foreman), is present; but we have known the falling in men of a better class, nearer London; and the same informant, an English resident, confesses his astonishment at the industry: he says, what is suggested by the life of the *ouvrier* is an unsafe guide. The subject well deserves to be pursued; but we suspect, as in some other things, too much might be said of the superiority of the Englishman, where hard work is in question. Even with Arabs and Fellahs, good direction brings forth better work than usually had been anticipated. There is some reason for believing that masters, in each country, in various callings, are in especial need of those qualities of service which are peculiarly in the power of the workmen of the other country to supply. French servants sometimes express a decided preference for English masters; and English workmen in France, we are inclined to

think, have little difficulty except that arising from the language, and a natural jealousy on the part of French workmen which may be, and is soon to be, overcome. Nearly every error of opinion and conduct of either people towards the other, may be traced to the ignorance or too slight knowledge of the language. What Mr. Cobden has lately said, showing that the resources of each country, natural products, manufactures, and capacity of mind, are different and necessary to the other, is but another form of our assertion, not here made for the first time, as it is of the feeling of most men of enlightenment in France. But we may be misunderstood in further pursuing the labour-question, without space just now to develop our real impressions: we leave the subject, therefore, only indicated to those who can pursue it, and as one deserving to be pursued. We were speaking of the building-contrivances in Paris.

In the building of the new Hôtel de la Paix the common apparatus, the "shears," and temporarily-constructed cranes, movable on wheels, or similar in principle to those used on quays and stone-quarries, together with lines of rails in different directions across the ground, are to be seen; but there is no arrangement at present for a "traveller" at the top level of the work. Thus it is difficult to understand how, at the upper levels, large blocks are moved about, unless there are to be rails laid at each story; but for these there is no preparation. The masonry of the piers is now set from small scaffold-platforms,—one to each pier. These are scarcely supported from below, but rest on corbels of 2 or 3 inches projection. Two planks are first placed on edge, on the corbels (the latter being, perhaps, temporarily left on the block), on opposite sides of the pier; the planks are then screwed to one another by iron bolts at their ends; other planks are laid, and a platform, which can be quickly moved, is thus complete. Some of the piers have two of such platforms at present, one above another, but whether for saving time or avoidance of injury to the work by accidental concussion in removal, or for execution of enrichments, does not appear.

Brickwork is little used in Paris for external walls, and seldom otherwise except for chimneys and flues; for the filling-in of the narrow spaces, scarcely to be called arched, between iron joists; and in the formation of breastsummers, where the space between the two girders is filled in with bricks in cement. The spaces between joists are frequently filled in with slabs of plaster, which are perforated horizontally, and are cast, many together, in a long trough-shaped combination of moulds, similar in appearance to the contrivance used in making the brick-and-cement blocks for sewer construction. The sewers of Paris, it may be well to state, are built in rough masonry, covered inside with cement. A floor, with the plaster is "*hourdi en plâtras*," the other being "*hourdi en brique*." Hollow or perforated bricks, "*briques creuses, ou tubulaires*," are much used in lieu of the plaster slabs. Price varies from 60 francs to 100 francs per 1,000 delivered. The latter are about the ordinary English size; the former may be wider and about half the thickness. Such bricks are also used in a top story, where, from the number of stories in the building, and the law that particular, the story has to be set back, and where, consequently, weight has to be diminished as much as possible. In the latter case, however, they are usually merely a filling-in to timber-quartering, the whole being intended to receive cement. They are similarly used for partitions, "*cloisons intérieures*." It should be added, that the construction of flues is in many respects deserving of commendation. Contrivances which there is difficulty in bringing into common use in London, appear to be generally adopted in Paris. We refer to bricks for circular flues, and to flue-linings. As regards the latter, the "*tuyaux ferrugineux*" of the "*Système Grosset*" may be

named by way of illustration. They are made circular, or square, or of the common English form of flues, though with the angles rounded off. The latter form is 25 centimètres by 17, or smaller by some inches than the usual English flue. The thickness of the material is 3 centimètres; and the lengths which are half a mètre, are connected by fillets or tongues fitting grooves ("rainures") which there are at the ends of the lengths. Ornamental tiles for roofing, we may add, are found in use in the neighbourhood of Paris. Bricklaying, however, usually, so far as it is employed in Paris, is not well done. In two new îlots, or blocks, of building in the Champs-Élysées, where a somewhat Dutch character of red-brick-and-stone Italian has been adopted with the English semi-detached plan; and, adjacent, in the stabling forming two buildings in advance of the forecourt of an hotel, the material has been used with skill; but generally, the bonding of bricks is defective. The best workmen in the branch are, we believe, English. The word "*maçon*" has considerable elasticity of application; and it seems, more so in Paris than elsewhere in France. We have, however, just now before us, the announcement by a contractor tending to show there is a "*spécialité*" for brickwork in Paris, as there is, assumed, for most other things there. "Messieurs les architectes et entrepreneurs" may find at the Maison A. Malard, in the Rue du Cierge Midi, workmen, French, English, and Belgian, capable of executing "joints Anglais et autres," though Mr. Malard appears to pride himself most on his work in false brickwork, or "*briquetage*," and indeed recommends it as more agreeable in appearance than work in real bricks. The same individual can execute the "*joints dits Anglais, saillants*," by which we understand "tuck-pointing." There is one value in the sort of covering, or of tiles, that which there is in the case of a timber and plastered building so treated. But whoever visits France for the first time, must be careful not to take all for what it appears. There is an appreciation of decorative effect which is greatly in advance of that of the English nation: there is an element of weakness, however, in the art. But we English, having to perceive that this effect is something to be desired for its own sake, have the perception of certain qualities which are essential to the production of the highest art. We may be long in arriving at such an amount of art, and popular love of it, as there is in France; but we are not in a bad road. Every artisan should strive to understand in what the difference consists; for his influence may be something.

As regards the insufficient bonding of materials, there is little of that kind of defect in the construction of front walls of masonry. The stones are usually of the full thickness of the wall: there is no necessity for special facing work; and the internal and party-walls only are of small blocks. The jointing of the masonry is perfect, almost objectionably so, indeed, considering that there is little variation in tint, and that the lower story, or basement, is usually deficient in base-mouldings, and in the effect which results from judiciously applied rustication. The additions to the Bibliothèque Impériale, at the angle of the Rue-de-Richelieu and Rue-Neuve-des-Petits-Champs, which are wholly in stone, contrasting with the brick-and-stone of the older and larger portion of the building, have this character; and to a slight extent, there is this as one of the defects in the new portion of the École-des-Beaux-Arts on the Quai Malaquais, which is by the same architect, Mr. Duban. It is not till the building, in either of these cases, has been examined closely, in the ornament of the upper stories, that we discover the fact, that the design could have emanated from no one but a real artist. Probably it is the feeling on the part of the Paris architects, that there is the effect we have referred to, in their masonry, which leads them to adopt so constantly, panelling to the piers

between openings. Perhaps we are unfavourably circumstanced for judging of buildings in Paris, from the circumstance that it is distasteful to be reminded of the appearance of our own cement; and truly there is in nearly every new building, fertility of invention and beauty of design: but we think the architects have something to learn. What that is, those who have read our notices of the Architectural Exhibition need hardly be told. As the distinction between the best work of Italian character in our country, and that in Paris, is very important, we may, perhaps, revert to the point. We are rather departing from the intended scope of this article, in alluding to it now. The question of the defect, as it becomes, however, seems to be connected with the frequency of the practice of cleaning down the fronts of buildings. In the case of cement, or the Paris plaster, it may be contended that some regulations are necessary to avoid the contrasts between houses in the same façade, differently coloured, which are so disastrous in London. But, as it has been recently remarked by others, there is a passion in France for scrubbing and cleaning down. The destructive element is at work too generally, even as to entire buildings. In the more limited field, the French assiduity in putting a clean face on things, degenerates to an error. Their buildings are not spoiled as ours are by smoke; but they receive weather-stains which might be worth preserving, as of the nature or part of what is intended of architectural effect, by an artist-architect. By decree of March 26th, 1852, it is ordered thus:—"The façades of the houses in Paris shall be constantly kept in a good state of cleanliness [or neatness,—"propreté"]. They shall be repainted, scraped, or stone-coloured at least once in ten years, upon express command which will be made to the proprietors, by the municipal authority." Contravention is punishable by fine, which is not to exceed one hundred francs.

One or more arrondissements of Paris thus, in each year, may be undergoing the different processes required by the idea of "propreté." In truth, however, operations may be noticed in most of the quarters of Paris, at this very favourable season,—we mean for the operators, not the passengers below. For the protection of these latter, however, there are regulations, though they do not seem to be enforced in all cases, and are not of much value. You are made to go off the foot-path; thus, you usually incur considerable danger in the road. Should any of our readers, during last month, have extended their walks across the water into the fifth and thirteenth arrondissements, the south-east of Paris, or equally probably elsewhere, their course will have been arrested somewhere by a board, which is leaned against the building with the object of barring the forbidden ground, or by a man there stationed, whose occupation consists in waving a lath, and looking surprised at any one who may have penetrated into his precincts and those of the "entrepreneur." Supposing our reader to overcome the pugnacity which is said to be the characteristic of Englishmen on the Continent, he would perhaps cross to the other side of the narrow street, and from that haven he would be able to see one of the different contrivances in use, which we shall, in another article, endeavour to explain and describe.

"THE ENGLISH CATHEDRAL OF THE NINETEENTH CENTURY."*

ABOUT this time last year there was a very great influx of architects and ecclesiologists into the good city of Cambridge, the said architects and ecclesiologists having been invited by the Cambridge Architectural Society. As usual, on such occasions, the day was devoted to visiting the more interesting objects in the city and its vicinity, while the evenings were occupied by lectures. Thus, on one occasion, Professor Willis described Mediaeval Cambridge and the scanty accommo-

* By A. J. B. Beresford Hope, M.A., D.C.L. London: John Murray, Albemarle-street, 1861.

dation afforded to the scholars by the early foundations. On another evening, Mr. Beresford Hope lectured upon the Modern Anglican Cathedral; and it is this latter discourse revised, augmented, and illustrated, which forms the very respectable-sized octavo volume at present under consideration.

Of course, as indicated by the title, the subject more immediately concerns the members of the Anglican Church, of which Mr. Hope is well known to be a devoted son and valiant champion; but still the book will be found to be by no means uninteresting to readers preferring other creeds, inasmuch as it gives a *résumé* of the progress of Mediaeval architecture during the present century, as well as sundry hints for its future development.

Mr. Hope divides his work into eight chapters, each of which is well worth a short consideration. These eight chapters are.—1. General considerations, but which might more properly have been termed "the necessity for more cathedrals;" 2. The choice of style; 3. Modern cathedrals; 4. Choice of plan; 5. Basilican and English arrangements; 6. Features of building and their use; 7. Internal decoration, monuments; 8. Accessory buildings and practical means of usefulness, easy extension of the Episcopate.

The Necessity for New Cathedrals.—In this chapter, Mr. Hope inserts a long letter, addressed by him to the *Times*, in December, 1857, upon the occasion of Mr. Edmonst's prohibition of Divine service in Exeter Hall. In this letter the writer, after stating the vast amount of spiritual destitution existing in London and other large towns, which the special services were intended to mitigate, asserts that the evangelization of the multitude, is not to be effected by such imperfect means as "Peel" churches, with their overworked and half-starved incumbents, but that if we wish to produce any considerable impression, we must have recourse to some system which will unite and centralize those means which are at present at hand. Now the cathedral and episcopal system is a very good one for the purpose; it has always obtained in England, and it needs only a careful extension to enable it to be a most useful engine.

In the early days of Christianity, every considerable town had a bishop and cathedral, while the other churches (if any) were served by the chapter, so that whatever was done came from one source, and had all the advantages of combined action. Now it is something of this kind that Mr. Hope would like to see carried out in our own large towns, to each of which he would give a bishop, making the principal church his cathedral. The bishop would have his staff or chapter under his order, while the incumbents of the various parishes would work in conjunction with him. Thus, one of the staff, to use the author's own words, might be a stirring preacher in the church; another persuasive in the house of mourning or of sin; the third, a careful and wise steward of the charities; and a fourth, the patient and winning instructor of youth. Again, in districts such as Bethnal-green, Mr. Hope would gladly see one goodly church open all day, and served by three clergymen, instead of the three miserably pinched structures which it has hitherto been the fashion to build. Doubtless the architectural profession would be of the same opinion, for there is naturally more credit to be obtained by erecting one good edifice than three small and cheap ones; but, at the same time, it is only fair to say, that these cheap churches have been of great use, architecturally speaking, for they must be regarded as a series of experiments in an inferior material. It is true, that they possess, as a general rule, small claims either to beauty or strength of construction, but they have taught us to arrange our masses, and to try the effect of mouldings; and when they do decay, they will have served their purpose, and occasion regret to no one. The rest of the chapter is occupied with an account of the various schemes for increasing the Episcopate which have of late years come before the Parliament, and which have as yet only borne fruit in one instance, viz., at Manchester.

Should, however, new bishops be appointed, and should there be no church in their diocese sufficiently important or well situated to be turned into a cathedral, a new edifice will of course have to be erected. This our author very properly declares need not be required to rival the large edifices left us by our forefathers: on the contrary, a very moderate building would be sufficient; and in this case we may take heart by remembering the small size and moderate extent of nearly every one of the Saxon originals of our most extensive cathedrals.

Choice of Style.—Supposing our new cathedral to be required, we must next determine in what style we should build it, or, in other words, what is to be the *point de départ* of our future architecture; for no one in his senses can possibly imagine that the restless nineteenth century will, for any length of time, go on slavishly copying any one single style; but, at the same time, it will be impossible to make a move until we have settled where we shall move from. Now, a few years ago, everybody worked in Early English, mainly, as Mr. Hope says, because it was thought that it survived more starvation than any other style. Before that period, Perpendicular had been the favourite, and shortly after the Early English; we then drifted into what was called Decorated; and, since that time the popularity of Mr. Ruskin's works have occasioned great importations of the Italian element, — unfortunately in the details, not in the masses; while, at present, the favourite style appears to be the grand and severe one of the thirteenth century, as developed in France. Now Mr. Hope, after putting Perpendicular, Flamboyant, Early English, Italian, and German Mediæval architecture out of court, finds himself in face of two styles, viz., what is called the Decorated, or Middle Pointed, and the Early Thirteenth-century French. He elects, after discussing the merits of each, for the English Decorated, not informing us, by the way, whether he prefers the style as developed in the reign of Edward I., or of Edward II., or of Edward III.; for, as all know, English Decorated underwent distinct modifications in each of these three reigns, both in the tracery and in the mouldings, to say nothing of other features,—such modifications, indeed, as almost to constitute three distinct styles. Now, if we are to have a starting point, one would like to be a little more sure whence we are to start; and we can only regret that Mr. Hope has not been more explicit upon this point. The reasons for his choice of Decorated are principally these, viz.,—that it admits the principle of verticality more than the Early French; and that there was more gracefulness and continuity;—

“Delicate pencilling replaced strong horizontal lines; growth of parts was found where superposition of members used to reign; and the principle of verticality was everywhere triumphant, but not despotic (page 45). Lastly, but not least, it requires less expenditure of material.”

Now, it strikes me that the thickness of the walls and expenditure of materials have very little to do with the question of style. If the walls and parts of a building are thin, it requires a large amount of tracery and ornament to make that building look well. On the contrary, a plain, half-starved building, will look always bad in any style, while it is impossible to forget the consideration that the cost of the elaborate tracery and mouldings in the decorated work must considerably exceed that of the corresponding points in French thirteenth century. However, Mr. Hope, like the French guard at Fontenoy, gives his enemy every advantage, and it would be impossible for the most enthusiastic admirer of Chartres or Laon to have given more able and telling reasons why we should not prefer the style in which those churches are built as our *point de départ*, instead of the Edwardian architecture, with its chameleon-like changes. But the better way will be to let our author speak for himself:—

“Some of the ablest representatives of the latest generation of our Gothic architects, have professedly lifted up it (the Early French) standard as the rallying point of art-loving England. The reasons which they gave for their selection, are highly creditable to their artistic morals. The trickery, the finisness, the unreality so common in modern art, have disgusted them. In the Early French they find boldness, breadth, strength, sternness, virility, and they close with a style which seems so exactly suited to supply the crying deficiencies of the age. The strong correspondence of the churches of North France and England, seems to have its practical applicability on this side of the sea: perhaps, also our architects may be unconsciously swayed by the enthusiasm which this style has created among that brilliant knot of art-writers, who sustain the Gothic movement in France, and may not unreasonably prefer to find themselves in perfect harmony with them in practical opposition to the nearest and for England the most prominent school of Continental architects, who have embraced the Mediæval cause.”—Page 45.

Now, when we remember that the distinguishing characteristics of the Englishmen of the nineteenth century are our immense railway and engineering works, our line-of-battle ships, our good and strong machinery—or, to go to other points, our free constitution, our unfettered press, and our trial by jury,—it will naturally suggest itself, whether any style of architecture can be more appropriate to such a people than that which, according to Mr. Hope's own showing, is characterized by boldness, breadth, strength, sternness, and virility.

At the same time an inspection of the drawings

at the Architectural Exhibition, would rather prove that the younger architects (to whom, of course, we must look for the development of our future style) verge more towards the Italian Gothic, than to that of England or France. The reason is evident. Those who travel for any time, naturally prefer going to Italy, where almost a new world is opened to them, than to the less genial climates of Germany and France, where everything bears more or less resemblance to their own country. Once in Italy, it is necessary to make sketches to show that something has been done. The student goes imbued with love for Mediæval art, and he consequently sketches Mediæval Italian architecture: unfortunately, as a general rule, he draws the more ornamental parts, because they make the best and most picturesque subjects, totally forgetting that the great beauties of the architecture of the Middle Ages in Italy consist in its large and broad masses, its strong arches, with their deep voussours and square soffits, and its very sparing use of mouldings. I think, with Mr. Hope, that this Italian phase of our modern Gothic art, will not last; but I must most reluctantly differ from him, when he proposes that we should select one, or all, of the three styles of architecture which obtained in England during the reigns of the first three Edwards.

Chapter III.—In Chapter III. Mr. Hope, after giving us plans of the modern Roman Catholic cathedral at Linz, now building under the superintendence of M. Statz, of Cologne, and of that at Albi, erected in the fourteenth century; proceeds to show that the only real difference in plan between the Roman Catholic and Anglican cathedrals, as arranged at the present day, consists in the chapels demanded by the multiplication of altars for the former ritual; thus a plan of Ely Cathedral is given as re-arranged by Mr. Scott, and accompanied by the following remarks:—

“The present arrangements at Ely are, generally speaking, identical with those which have been adopted in re-arranging the modern cathedral of St. Paul's, just as the plan of Ely, short of its Romanist peculiarities, is identical in general plan with St. Paul's church. My argument is thus narrowed to the simple issue, that if social and religious necessities call for the multiplication of cathedrals in our large towns, those cathedrals ought in their dimensions to approximate to, and in their plans resemble, the august churches built previously and subsequently to the Reformation, and themselves lately restored to serve as English cathedrals of the nineteenth century in all those features in which that restoration has taken a practical shape.”—Page 77.

Our author next proceeds to notice the principal cathedrals designed for the Anglican churches during the last twenty years, and we have accordingly plans and elevations of Perth Cathedral, designed by Mr. Butterfield; Kilmore Cathedral, by Mr. Slater; Inverness Cathedral, by Messrs. Slater & Carpenter; Colombo Cathedral, by the latter gentleman; also Brisbane Cathedral, and that at Sydney and Calcutta. Plans are also those given of the tropical church at St. Kitts, of Mr. Scott's great church at Hamburg, and of the first and second designs for the Memorial Church at Constantinople. It also appears that the Government has been rebuilding the parish church at Singapore, after the model of Netley Abbey. Fancy Netley Abbey and its immense east window in a tropical climate! Mr. Hope has unaccountably forgotten to give us the name of the architect; but it looks, however, uncommonly like a piece of military engineers' work; for no professional architect of any eminence would ever dream that an edifice designed for a cold and gloomy climate would suit the fiery tropics. As an illustration of the unfitness of the military engineer (without mentioning another work nearer home), it will be sufficient to refer to page 99 of the present work, where there will be found a woodcut of the interior of the choir of Calcutta Cathedral, the architecture of which, to use the mildest term, is exceedingly bad. Now, if this course of things goes on, the architects, in pure defence, will have to add fortification to their other pursuits, as they did in the sixteenth century. One of them, Mr. Fergusson, has already shown the way, and doubtless others will follow; but, upon the whole, would it not be as well if every one stuck to his own trade, instead of trying to annex that of his neighbours?

One word more about these tropical churches. It is well known that there are two theories respecting the mode of designing them. If any one examines any old buildings erected for divine worship in hot countries—say in Italy or in the East—he will observe that they are generally vaulted, that the walls are always very thick, and that the windows are small and rare; the object being to confine the cool night air during the day, and to keep the influence of the sun

from the interior as much as possible. This is an illustration of the Speluncar theory.

The other alternative is to keep the sun off the building by means of an outside cloister and verandah, and to get a current of air right through by means of windows opening down to the ground, and filled with louver boards. The late Mr. Carpenter's scheme for the cathedral of Colombo, page 83, is designed upon this principle. How it may answer I cannot possibly say, never having seen any large building so constructed; but, judging from the woodcut given on the previous page, the effect upon the exterior elevation is by no means so satisfactory as could be wished. Now, at Constantinople, the mosques combine to a certain extent both theories—i.e., they are built upon the Speluncar plan—but have small windows near the ground, by means of which a thorough draught can be obtained in the direction of the wind; but then these windows are comparatively very small, and are frequently kept shut on the side the sun may happen to be shining—a manoeuvre not so easily executed by a three-light decorated window, with mouldings, tracery, &c., all complete. Again, where earthquakes are frequent, we have two ways of proceeding: first, either to build entirely in wood, by which we get a certain amount of elasticity; or to build in a very solid manner—witness the church at Assisi, which has stood to the present day, while earthquakes are continually taking place in the town. Now, Mr. Slater has followed neither of these plans in his church at St. Kitts, which is partly of stone and partly of wood. Of course he has had the best advice from residents on the island; and one will be curious to know how far the usual precautions are ill-founded.

Chapter IV. informs us that the difference between a parish church and a cathedral is not so much a question of size; for a cathedral may be a very small building, and a parish church a comparatively large one; but in the superior length of the choir of the cathedral. This choir has to contain, without taking into account the visitations of the bishop, a certain number of resident clergy and choristers; and in reply to the objection that these latter would not require a large choir, our author suggests the possibility of volunteer choristers as well as volunteer rifles, further remarking that as the Englishman has shaken off so much of his *mauvaise honte* as to induce him to wear a uniform, in a little time he may possibly get rid of some more of it, and eventually wear an occasional surplice. Our cathedrals would then deserve the title of singing-cages, which Rabelais applied to those of his own time.

Chapter V. is a very important one, for it informs us how the present cathedral has grown out of the Basilican arrangement. After giving a long extract from his father's work to show what this latter really was, Mr. Hope proceeds to argue and decide the question as to the desirability of reviving it in the present day; and this is the more necessary as it has been more than once lamented that the authors of the late Anglican movement did not rather go to the early church for their arrangements, instead of leaning to the Mediæval development of the church. Our author says, and it strikes me very truly, that this is not a question of architecture, for Mediæval art is equally applicable to the cathedral as to the basilica, and, doubtless,—

“A fresh triumph of Gothic would follow its employment in the hands of a man of genius, to carry out in their full integrity and their majestic amplitude of space the disciplinary and ritual prescriptions of a Constantinian basilica intended for the use of a great metropolis.”—Page 142.

In answer to this, he asserts that such a revival of the basilica would be nothing less than the revival of the Roman community of the days of Constantine and Theodosius, and that it is far better and more natural to develop, alter, and improve what we at present possess; in the same manner that we have developed the Houses of Lords and Commons, the Courts of Common Law and Equity, and, indeed, most of our political institutions. This chapter is illustrated by plans or views of the Church of the Nativity at Bethlehem, Sta. Maria Maggiore and St. Clemente at Rome, the cathedral at Torcello (plan and view of apse), and, lastly, a reduction of the celebrated plan of St. Gall. The latter part is devoted to showing how the modern choir became developed out of the chorus cantorum of the basilica, principally through the introduction of monasticism; but inasmuch as the ultimate adoption of either arrangement is the affair of the clergy and not of the architects, I leave it, and pass on to—

Chapter VI.—Having settled on the arrange-



ment of the new cathedral, our author next proceeds to consider and settle the features of the building and their uses. Thus we shall want a nave at least a hundred feet long; also transepts, to give a cruciform appearance, although these transepts need not necessarily extend on plan beyond the nave walls. Of course the very long ones we see in some Medieval churches would be out of the question, as they would be simply expensive, and at the same time be an impediment to seeing and hearing. Again, the roof of the transepts ought to rise to an equal height with those of the nave and choir. The question then arises, how the central crossing is to be terminated. We have our choice of—1, a central square tower and spire; 2, a wooden fleche; 3, an octagon tower and spire as at Ely; and 4, a dome such as Mr. Fergusson very truly says in his "Handbook" * has yet to be carried out. It is to be hoped that the day is not very far distant; but whenever that experiment is made, the grand difficulty will be with the outside of the dome, not with the inside: in all probability the better way would be to treat it as a many-storied tower, or collection of towers crowned by spires. The question then arises, if you have a circular central crossing why not have a circular church altogether. Mr. Hope is rather disposed to answer the question in the affirmative, and to point out the church of St. Gereon at Cologne as an excellent type of this class; and it has always struck me that the Mahomedan mosques, with the addition of the choir, would form excellent Christian churches, more especially for the Anglican communion. But to return to our cathedral, the choir must be sufficiently large to accommodate a good number of voluntary singers in addition to the usual staff of clergy and chorists, and it must be separated from the nave by a screen. This screen can either be high or low. If high, it should be made of wood exceedingly perforated, or it may take the form of a metal grille. The low screen, on the contrary, should be composed of the richest and most solid materials; it is difficult to choose from these three alternatives; probably each may be the better in certain situations, although I confess for my own part that I should adopt the wood as the last alternative, more especially if it were a question of placing it in a cathedral. The pulpit, whether stone, wood, or marble, may be placed at one of the angles of the lantern piers, or somewhere down the nave; it being distinctly understood that the said nave is devoted to the congregation, and not made a mere vestibule to the choir, as it is unfortunately in so many of our cathedrals. Returning to the choir, we are told that appearance and reverence alike demand a spacious sanctuary: if that sanctuary is a "dead level, then, most assuredly, the church will be the loser both in appearance and in utility." (P. 204.) The choir ought, therefore, to be well and judiciously graduated from the screen up to the altar. As to the stalls, they can be backed with canopy work or hangings, or left open behind with their screens of metal, wood, or marble, to the side aisles. It is to be hoped, however, that some day we may see the historiated and sculptured clature de choir, such as that at Notre Dame at Paris, revived amongst us. Up to the present time sculpture has not by any means played that important part it ought to have done in our modern ecclesiastical architecture. We have gone into ecstasies over crockets, tracery, and Purbeck capitals, carved with the passion-flower or with corn-cobs and vine-leaves; but how few and small, comparatively, are the pieces of sculpture. We are now beginning, like Disraeli's "Contarini Fleming," to demand thoughts, not words; and, depend upon it, until our architects give us these thoughts in the shape of designs for sculpture, our ecclesiastical art will remain in a lifeless condition.

The position of the organ next comes under consideration. Of course no one in the present day would advocate placing it on the top of the choir screen. Mr. Hope is for putting it on the north side of the choir, although it may be a question whether the better plan is not to have two organs, viz., a large one at the west end over the great west door, as at Amiens, and another and smaller on the north side of the choir, as proposed by Mr. Hope. There are three forms for the east end of the choir,—the square end, the plain apse, and the apse with the circumambient aisle. All these are admissible, but there can be but little question but that the latter offers very much the greater advantages upon the score of artistic treat-

ment and consequent picturesque effect. A very curious fact is noticed concerning the apse of Milan cathedral; viz., that the north and south windows, i. e. those on the angles, when seen foreshortened from the west end, have the appearance of smaller windows, forming the natural termination to the perspective.

Again, in a cathedral it is as well never to place the altar against the extreme east wall, even if it be square. On the contrary, much greater dignity is gained by bringing it out some distance and backing it by a reredos; and we thus get an opportunity for painting or sculpture. The triforium question next engages our attention. We can have an arcade with or without a clerestory, or with the triforium and clerestory; or we may make the aisles equal in height to the nave. But, after all, there is probably nothing better than the triple division of arcade, triforium, and clerestory; and in many cases cited by the author, the triforium is actually used as a gallery. In Germany this is often effected, as in some of the churches at Cologne, by combining the triforium and clerestory, in fact, putting one aisle on the top of another,—a hint which might possibly be useful in the present day, when we are restricted for ground space. I should, however, mention that both top and bottom aisles are vaulted. After the clerestory we come to the roof, where the author naturally advocates stone groining, and where the expense of the necessary buttresses and pinnacles renders this impossible, he would propose to substitute wooden groining, but making it a field for decoration. The coved roof, which may either be in wood or stone, offers equal advantages; and Mr. Hope very truly says, that roofs of which the—

"Transverse internal section shows an arch either curvilinear (such as barrel-vaulting) or many-sided (such as polygonal coving), correspond better with the wall-treatment, and more completely combine to create that feeling of the infinite which it is the function of a Gothic church to produce, than roofs whose internal section is that of a single angle, which must be the case with all open-timbered roofs, however much the eye is deceived and flattered by the play of carved work about the trusses. Indeed, strange to say, a perfectly flat ceiling, if properly decorated, like the one which has long existed at Peterborough, wears more of the cathedral aspect than the most elaborate open roof which Norfolk or Somersetshire would produce."—Page 225.

We next come to the spire. Here Mr. Hope advises us not to run after the two descriptions of open-work spires respectively typified at Freiburg and Strauburg, but to be content with our own solid examples, whether in stone or wood. He, indeed, makes an exception in favour of the crown imperial, such as we see at Newcastle, and suggests the adaptation of something of the kind to the centre of Westminster Abbey, deprecating any tampering with the outline of Wren's west towers. For my own part, I confess I should not be sorry to see the whole west front of that edifice recast; not, perhaps, at the present time, but say some twenty years hence, when, it is to be hoped, that we shall have made as much, or even more, progress in the arts than we have during the last twenty years.

Chapters VII. and VIII. treat of the desirability of internal painting and sculpture,—the use of the apsidal aisle for monuments,—the accessory buildings to the cathedral,—and the easy extension of the episcopate. The latter subject is not one to be handled in an architectural journal, and the length to which this notice has already run forbids me saying anything concerning the former, which would require almost volumes to treat of thoroughly. However, there can be no doubt but that Mr. Hope deserves the best thanks of the profession for his able exposition of the progress of Medieval art during the first half of the nineteenth century, and his very practical suggestions respecting its future development.

W. BURGESS.

SOME RESULTS OF THE CENSUS OF 1861.

By the exertions made at the Census Office we are enabled to obtain some idea of the population of England on the 8th of April last; for, although the returns recently made by the Registrar-General from the books of the 631 superintendent registrars of England have not yet been fairly tested at the Census Office, it is not apprehended that the alterations, which a careful revision of the original documents may render necessary, will be of importance sufficient to lessen the value of the figures as materials for whatever general inferences may fairly be drawn from them.

In first glancing at these figures it is important to notice that the decennial rates of increase have declined since the ten years from 1811 to 1821, and have up to 1861 been steadily on the decrease;

as will be seen by an examination of the following figures:—

	Population of England.	Increase.	Decennial Rate of Increase.
1801	9,156,171		
1811	10,454,529	1,298,358	14 per cent.
1821	12,172,614	1,718,185	16 "
1831	14,051,986	1,879,372	15 "
1841	16,035,198	1,983,212	14 "
1851	18,054,170	2,018,972	13 "
1861	20,223,746	2,169,576	12 "

The cause of this decrease in the decennial rate of the population is a matter which calls for very careful inquiry; we therefore look anxiously forward to those details of the Census returns which will be likely to show the cause of a decline which is not to be attributed to increased death-rates; for it is certain that the average duration of human life, in the chief districts of both town and country, has, by means of sanitary and other improvements, been materially increased; nor is the decrease to be accounted for by the extent of the emigration from England; for the returns of the Emigration Commissioners show that, in the interval between March 31st, 1851, and April 8th, 1861, 2,249,355 emigrants sailed from the ports of the United Kingdom. But of this number probably 194,522 were of foreign origin; leaving 2,054,833 emigrants from the population of the United Kingdom; of whom only about 640,210 were of English origin, 183,627 were of Scotch origin, and 1,230,986 were of Irish origin.

Notwithstanding the decline in the decennial rates, it is satisfactory to find that in the last ten years 2,169,576 have been added to the population of England; and to compare our condition in this respect with that of about the middle of the last century, when it was the practice to subsidize foreign troops for the defence of the nation and for the preservation of order. From the Peace of Utrecht down to 1740, the numbers of the English people had actually declined; and in 1756, by a grant of the Parliament, a large body of Hanoverians and Hessians arrived on our shores.

From 1751 to 1772, after the passing of Lord Hardwicke's Marriage Act, the increase of the population became more satisfactory. This is partly to be attributed to the improved habits of the people, the increase of well-constituted families, and the great increase of the industry of Great Britain.

The manufacture of iron by wood-charcoal in England rapidly declined; until at length, in the year 1740, the produce fell to 17,350 tons. Coal was tried; and, after that time, was successfully used for smelting; so that in 1788 the produce was seventy thousand tons; in 1800, a hundred and eighty thousand tons; and in the year 1851, two millions five hundred thousand tons. Iron and steel tools have been placed in the hands of the workmen and labourers of the country,—arms in the hands of the army and navy.

After 1751 agriculture advanced rapidly. Lord Townsend introduced the turnip-culture from Germany, with important results. Many of the landed proprietors, instead of drowning their senses in drink, wasting their time in intrigues, or squandering their estates in gambling, devoted themselves to the encouragement of societies of agriculture: the farmers adopted new processes; the increased produce of the farms was improved in quality: marshes were drained; machinery introduced; the breeds of various domestic animals decidedly improved; and an impulse given to the cultivation of the finest part of agricultural science, which is intimately related to the science of population, and will in the end throw much light on its principles.

New roads were made and old ones improved; and canals for the transport of wood, coal, goods, and general produce were commenced by the enlightened spirit of Bridgewater; who, with the aid of Brindley's genius, triumphed over engineering difficulties which in those days were held insuperable. New machines were invented, and new employments brought into use.

Josiah Wedgwood, the potter, produced (1763), a new kind of earthenware: Paul or Wyatt first, and then Arkwright, the barber, invented a spinning-jenny, in 1767: Hargreaves, a weaver, took out the patent for his spinning-jenny in 1770; and the mule was completed by Compton, also a weaver, in 1787. James Watt placed the force of steam at man's disposal. By other eminent men a thousand different means have been produced, yielding in value millions sterling yearly, and so offering occupation and subsistence to the population; and since 1830, the railroads, with steam

* Many of the illustrations are from Mr. Fergusson's "Handbook," and others from the "Ecclesiologist."

* We have no returns yet for Scotland and Ireland.

and sailing vessels, have placed the population in direct and easy communication not only with each other in Great Britain, but with the rest of the world.

The circumstances of our times disprove the theory of Malthus and the supporters of his ideas, for they show that although the population has doubled in a period of about fifty-three years, employment is more plentiful, and the necessities of life more easily to be obtained, than when the number of the people in the land was comparatively small.

The population of the metropolis in April, 1861, is given at 2,803,034, as against 2,362,236 in 1851: increase in ten years, 440,798; average per year, 44,079 $\frac{7}{10}$. And it may be useful here to give the increase of the population of the London district since 1801:—

	Population.	Increase in ten years.	Increase per year.
1801	958,803		
1811	1,138,915	179,222	17,998 $\frac{1}{2}$
1821	1,378,947	240,132	24,013 $\frac{1}{2}$
1831	1,654,994	276,047	27,604 $\frac{7}{10}$
1841	1,984,417	329,423	32,942 $\frac{3}{10}$
1851	2,362,236	377,819	37,781 $\frac{9}{10}$
1861	2,803,034	440,798	44,079 $\frac{7}{10}$

In the thirty-seven districts into which the area of the metropolis is divided, ten have decreased in population, viz.:—

	1851.	1861.	Decrease.
St. Martin's-in-the-Fields	21,640	22,676	2,004
St. James's, Westminster	36,106	35,324	1,082
St. Giles's	51,214	50,981	233
Strand	14,417	14,956	1,461
Holborn	46,621	41,891	1,709
East London	11,408	10,573	5,733
West London	28,833	27,144	1,688
London City	55,932	45,530	10,382
Whitechapel	79,759	78,963	796
St. Olave's, Southwark	19,375	19,953	322

It will thus be seen that, during the last ten years, nearly one-fifth of the population of London City has been removed; that there is a marked decrease in the numbers in East London, West London, the Strand, and Holborn; the decrease in St. Giles's, Whitechapel, and St. Olave's, being small in comparison.

The following shows the increase of the other districts:—

	Population, 1851.	Population, 1861.	Increase.
Kensington	120,004	180,463	66,459
Chelsea	56,538	63,423	6,885
St. George's, Hanover-square	73,230	87,747	14,517
Westminster	65,639	67,676	2,067
Maylebone	157,096	161,669	3,913
Hamstead	11,986	19,104	7,118
Pancras	166,956	199,882	31,206
Islington	95,329	155,291	59,962
Hackney	58,429	83,295	24,866
Clerkenwell	64,778	68,682	854
St. Luke's	54,065	66,697	2,942
Shoreditch	169,257	139,339	20,082
Bethnal-green	99,193	101,905	1,712
East	48,376	49,876	502
Stepney	54,173	55,567	2,394
Mill-end Old Town	56,602	73,064	16,462
Poplar	47,162	79,182	32,020
St. Saviour's, Southwark	35,731	36,026	295
Bermondsey	46,128	58,355	10,227
St. George's, Southwark	51,924	55,509	3,685
Newington	64,816	82,157	17,341
Lambeth	130,325	162,008	22,683
Wandsworth	56,764	71,480	16,822
Rotherhithe	17,805	24,500	6,695
Greenwich	99,385	127,662	28,297
Lewisham	35,835	65,752	30,917

We thus see that the greatest increase of the London district has been—First in Kensington, second in Islington, third in Poplar, fourth in Pancras, fifth in Lewisham, sixth in Greenwich, seventh in Hackney and Hamstead. Then follow Lambeth, Shoreditch, Mill-end Old Town, Bethnal-green, &c. &c.

While this immense increase is going forward in the suburban neighbourhoods, the old parts of London, as regards their population, have either decreased or have remained during the last ten years nearly stationary. In Clerkenwell, with a population of upwards of 65,000, there has been only an increase of 854; in Westminster, with a population of over 67,000, an increase of 2,067; Maylebone, population of more than 161,000, an increase of 3,913; St. Saviour's, Southwark, population upwards of 86,000, an increase only of 502. The peculiarities of the metropolitan population may be attributed to various causes, amongst which may be mentioned the conversion of the central parts of the City into places of business, the facilities afforded by omnibus, steam-packet, and railway conveyance, to and from the suburbs:

there is also the demolition of dwellings in some localities. To this important matter we will take an opportunity of carefully referring, too, as soon as we have the exact figures of the number of the inhabitants, and the number of the dwellings in each district.

Taking the whole of the metropolitan district, in 1851 the population was 2,362,236: the number of inhabited houses, 305,933. This gives an average of 7 $\frac{1}{2}$ persons in each house. In April, 1861, the population was 2,803,034; the number of houses, 362,890. The average number of inhabitants of each house, 7 $\frac{1}{2}$. We thus find that, upon the whole, in London there has been a very slight increase of overcrowding in dwellings.

From this we can form but little idea of the unwholesome overcrowding of certain localities. When, however, more details come to hand, we trust that, by the help of them, and by some personal observation, we shall be able to throw some useful light upon the changing features of the metropolis.

In 1841, the average number of persons to each inhabited house throughout England and Wales was 5 $\frac{1}{4}$, instead of 7 $\frac{1}{2}$ in the London division.

During the ten years above referred to, 66,957 inhabited houses have been added to this monster city: this is at the rate of rather more than five thousand six hundred and ninety-five in each year. This is a vast amount of new work to be added to the houses which have been rebuilt or altered during this period.

The periodical taking of the census is a laborious and expensive affair, but the value of the result is great. On the last occasion, 31,000 enumerators were employed for the purpose of numbering the people. From a return made to Parliament by the Registrar-General in 1851, we learn that all the local expenses were paid out of the poor-rates in 1841: in 1851 the whole of the expenses were voted by Parliament. In 1841, the cost in England of taking the census of that year, exclusive of postage and printing, was at the rate of 5 $\frac{1}{2}$ 9s. for every thousand of the population: taking the population of England in the above year at sixteen millions thirty-five thousand and over, this would come to about 87,388 $\frac{1}{2}$. In 1851, when the inquiry was greatly extended, the cost was 5 $\frac{1}{2}$ 4s. for each thousand: the population then was eighteen millions and rather more than fifty-four thousand: the expense would, exclusive of Scotland and Ireland, be about 93,880 $\frac{1}{2}$.

ON CHURCH ARCHITECTURE OF THE NINETEENTH CENTURY.

THE ARCHITECTURAL EXHIBITION.

THE following Paper was read in the Gallery, Conduit-street, by Mr. R. P. Pullan, on Tuesday, June 4th, Mr. J. W. Huggall in the chair.

The subject chosen embraces a retrospective view of the past condition of church architecture in this century, a consideration of its present state, and an anticipation of its future prospects. At the beginning of this century architecture generally was at a very low ebb, and especially church architecture. People were careless and indifferent about their churches: it was immaterial to them in what style they were built. Renaissance was applied indiscriminately to all buildings, civil or ecclesiastical; and had Sir William Chambers written Chinese architecture into fashion—so little did people care about architectural propriety—we should probably have had now and then a Chinese temple, with pagoda bell-tower, for a place of Christian worship. Gothic was considered a rather barbarous style, and its study the exclusive province of the antiquary and virtuoso. The writings of Bentham, Grove, and Milner had, however, produced some results; and the styles of the "Dark Ages" had their representative buildings in Fonthill and Strawberry-hill, and other baronial residences of brick and compe, which were not built for posterity, but to suit the whim of a moment, and to satisfy that transitory taste for the romantic which was engendered by such books as "The Castle of Otranto" and "The Mysteries of Udolpho."

The writings of Britton were destined to work a great change. When his magnificent volume appeared, people began to discover that their fine old cathedrals and parish-churches had some claim upon them for admiration; and, as imitation is the natural result of admiration, they soon began to imitate. It is needless to say that their first works were feeble caricatures of the works of the Middle Ages. Still even these showed that, as soon as Englishmen were made acquainted with the fact that their forefathers had done something

which they could be proud of, they were anxious to perpetuate the remembrance of them.

This pride of their ancestral productions had occasionally shown itself during the period which followed the revival of Classic art, notwithstanding the various events, political, religious, and accidental, which tended to keep it down. This was especially the case in the first half of the seventeenth century; during which period the Divinity Hall, Oxford, was built in a passable imitation of Third Pointed style. Most of the Gothic buildings of the last century were truly very barbarous. I was no less surprised than pleased, a week or two ago, to find a church at Moreton, in Dorsetshire, built in 1773, in much better style, and with much more character, than many churches that were built fifty or sixty years later. It had a veritable apse, late Decorated windows, the tower at the side, a quatrefoil parapet, and open stairs.

The writings of antiquaries, I said, produced a reverence for the works of our ancestors; but Englishmen are not content with mere reverence: if they admire a thing they must first imitate it; then they must analyse the objects of their admiration; discover what qualities produce this feeling of admiration; and finally make these qualities their own. Consequently, after the taste for Gothic had been pruned by Carter, Britton, and Hope, the more practical books of the elder Pugin appeared, containing measured drawings of some of the finest works of the Middle Ages, so as to render their reproduction a comparatively easy matter; also Rickman's excellent nomenclature and classification of the various styles, reducing the study of them to a system; and other books of a similar character. How architects, with all these helps, should have produced such abortive attempts at Gothic as were then common, it is difficult to imagine.

The taste for the Castellated style still lingered in ecclesiastical as well as civil architecture. Architects perpetuated the idea of the church militant; for they crowned nave, aisles, vestry, towers, and chimney-pots with embattlements; enlivened here and there by meagre pinnacles, from which spouted flowery crockets, and which were surmounted by finials like petrified cabbages. The roofs were invisible from their flatness, and adorned internally with elaborate vaulting and ribs carefully moulded by the plasterer: the windows were all of the same type,—three-light Perpendicular, with massive transoms—for the purpose of hiding the galleries. A thin spectral tower (generally engaged) was invariably stuck at the west end; and, if there was a window on one side of it, the architect necessarily added its fellow on the other, or in place of it, a beautiful blank painted to match. We all no doubt know some of these structures; and as we pass them think that we should like to have the chance of pulling them down and building good First Pointed churches upon the spot with the old materials. We must, however, honour the spirit which caused their erection, though we speak depreciatingly of their architectural qualities. While these churches were being perpetrated, and when men were beginning to tire of mere imitation and to inquire into first principles, a master-mind arose in the younger Pugin. Familiarized from his youth to Gothic art, he excelled every one in his intense zeal for and his consequent acquaintance with it. He first astonished the sober world of architects by the publication of his "Contrasts," in which he attacked those who had tortured as well as those who had despised his favourite Gothic.

This book, though in it he made use of caricature as a means of depreciating the works of his contemporaries, did good, inasmuch as it stirred up the public to inquire into the merits, and induced them to try to make themselves acquainted with the principles of Gothic architecture. Many of us, I have no doubt, recollect the sensation which was produced when the publication of the "True Principles of Christian Art" took place, in 1841, in which he showed clearly that almost everything that had been done in the way of revival of Gothic art was full of faults. In it he taught us what he conceived to be the true principles of Christian art, viz.,—that there should be no feature about a building which was not necessary for convenience, construction, or propriety; that all ornament should consist of enrichment of the essential construction of buildings; that all shams were inadmissible in Christian churches; in fact, that the external and internal appearance of an edifice should be in accordance with the purpose for which it was designed. And Pugin carried out these principles faithfully in the buildings he had the opportunity of erecting,—St. Marie's, at Derby; St. Alban's, at Maccles-

field; St. George's, in Southwark; a church in Nottingham; and St. Chad's, at Birmingham; but, above all, in St. Giles's, at Cheadle, where he had a *carte blanche* for the cost. I have visited them at various times, and I cannot but think them the best buildings of their day. Pugin saw beauty in every style, although he acknowledged that the later styles showed a decline in art; and, although he was the first to tell us that the thirteenth was the perfect period of art; consequently, several of these buildings before mentioned are in Second and Third Pointed styles.

The "Apology for the Revival of Christian Art" followed soon after the publication of the "True Principles." Before these books appeared, a predisposition for Gothic was shown in the selection of Barry's design for the Houses of Parliament, to which design Pugin seems to have contributed. Meanwhile, a contemporaneous movement in favour of Gothic was going on on the Continent, to which the writings of Du Caumont, Didron, and others in France; and in Germany, the restoration of Cologne Cathedral, greatly contributed. But English architects were considerably in advance of those on the Continent; for, when the competition for Hamburg Cathedral took place, Mr. Scott gained the day; and later, in the general competition for Lille, out of ten prizes, five were allotted to Englishmen.

After Pugin came a writer on principles whose wonderful command of language, united to singular boldness, completely led away those whose opportunities for the study of style were limited, and who were content to have their opinions formed for them. What he believed to be true principles of all good architecture, and especially of Gothic, were enunciated in his Edinburgh Lectures. Truly he must have astonished the modern Athenians when he took them to task about the principles on which their stately edifices were built; when he demolished their temples with a breath; set up his own idol of beauty and truth; and commanded them to worship. No doubt he has done good in his generation by making people think about matters which they were accustomed to leave to architects. But what are we about that we should find it necessary to be instructed by amateurs? Surely those engaged in the practice of building ought to know the most about the principles of architecture.

The writings of Pugin, Ruskin, Parker, Petit, and others, all had educational influence upon the public mind; and their results, combined with the various tendencies of religious belief, of early habits, and of local associations, have caused great diversity of opinion amongst architects, as to which is the best architecture for our churches. However, those who hold differing opinions may be broadly divided into four schools. Before considering the claim of each of these to be the right one, I will venture to point out what seem to me to be some of the errors prevailing in our practice of church architecture. The tendency of the earnest Goth is to run into extremes: uniformity is his great bugbear; as the architect of fifty years ago made everything balance well, he takes a delight in making nothing balance at all. If he has a row of windows on one side of a building, which are all intended to admit an equal quantity of light, and which should, therefore, naturally be alike in size, though they might vary infinitely in detail, he would go out of the way to make them as unlike as possible in form, proportion, and general character.

Again, he says that buildings should speak. Certainly they should; but there is no reason why he should make all parts of his buildings speak equally loud. The principal parts of his edifice should proclaim their uses and destination; but then it is not necessary that all parts should equally force themselves upon the attention of the public. There is no reason, for instance (to speak of domestic buildings), why a kitchen should detach itself from the main building and stand aloof, proudly conscious of its intrinsic worth, in cases where it would be more convenient and more ornamental to embody it in the main building. These are, however, errors on the right side, so to speak: the errors on the other side are probably more numerous.—I mean the errors of those who are hardly Goths at all. However, as all of them lay claim to the employment of the true style for church architecture, we will consider their merits one by one. These opinions may, as I have stated before, be divided into four classes, viz.—

The Eclectic.—Those who would select parts from each style and combine them.

The New Light.—Those who would invent a new style for our churches.

The Antiquarian.—Those who would faithfully copy old churches with regard to style.

The School of Development.—Those who, taking a point for departure, would therefrom proceed to develop the architecture of the future.

In these enlightened times, when an architect's library is stocked with books on every known style, when his travels (so facilitated by steam) may embrace every part of Europe, and when, in the course of an ordinary practice, he is called upon to make use of various styles, it is not surprising if the consequence of his diffuse studies should be, that he should become a general admirer—one not to be won to pay any particular attention to the chaste Ionic, the voluptuous Corinthian, or the demure Gothic; but one having a vague admiration of beauty in general, wherever it was to be found. Therefore the Eclectic is a widely-spread school, and its scholar is a sort of butterfly artist, who sips sweets from every flower: he can show you in his sketch-book beautiful bits of Egyptian, Grecian, Gothic, Renaissance; and, if you give him a church to build, it will probably be composed of portions of St. Mark's of Venice, of York Minster, and of Wren's Gothic churches: it will probably contain a specimen of every known Continental style: it will be a medley of all things rich and rare, and would bring back to your mind the recollection of your various Continental tours. There would be a want of unity and propriety of design in it so necessary in all good architecture. This school, therefore, is not that from which we expect much for the future.

"Why should we not have a new style for our churches?" say the New-Lights. "Sweep associations to the wind: ignore ritual, as it appertains to the Dark Ages: let us have capacious and comfortable buildings, well adapted for seeing and hearing—the great objects of our churches." But the New-light, though he would create a new style from the Gothic, and call it, perhaps, Victorian, hardly deserves the name of a lover of Christian art. His principle would be the best to go upon if we were to ignore ritual altogether, if we were to pay no attention to associations, nor to architectural propriety. It is altogether utilitarian, and the utilitarian is a good principle to go upon when applied solely to domestic building; but for a church we want something more than a mere auditorium—than a building erected on the best plan for seeing and hearing; or the Colosseum of Rome would be the best model for our churches. A church should possess not only the quality of utility but that of beauty, and not only beauty of form which affects only the sense, but a beauty of propriety which appeals to the intellect, and the attraction of association, which appeals to the feelings through the senses. We cannot afford to ignore the element of association which now more than ever connects our idea of churches with good Gothic architecture. We want our churches to be church-like; not to be exactly reproductions of what has been done before (though that would be preferable to the ideal style which we constantly see about us), but to have a broad family likeness to those of the Middle Ages. We want to see chancels, naves, towers, porches, and other features that we see in our old parish churches. We want propriety of style: so, perhaps, the representative of the third class, the antiquarian copyist, would build us the most excellent church. If you gave him a mansion to build, he would erect you a building in which you would have antiquarian perfection, but a great amount of discomfort. It would probably be built in the form of a quadrangle, with extensive passages like cloisters, so that your dinner would have the opportunity of getting cold on its way to your banquetting-hall: your withdrawing-room would be occasionally obscured with smoke vomited from the open jaws of an immense fire-place: you would have to climb uncomfortable corkscrew staircases placed in all odd corners of the building, to reach your dormitory: your view would be obstructed by quarry-glass in the windows; and perhaps the architect would tell you that you would be quite as comfortable with rushes under your feet as with a carpet. But give him a church, and you would have something near perfection—a model of good style, with deep chancel, elaborate screen-work, stained glass, and polychromatic painting, all the detail correctly worked out, and of one date; but even this approach to perfection would not suit some of us.—I mean those who have greater hopes in the progress of the fourth class, or that of development. The disciples of this school prefer to take the style of the thirteenth century as the *point de départ*, and to prove its capability of extension, satisfying thereby the idea of propriety, the longing for the beautiful, and the natural love of novelty common to us all.

This is the most advanced school, and its disciples must have undergone a considerable course of study to qualify them to belong to it. No one who has not got the true feeling for Gothic ought to belong to it. Before you can develop a style, you must be acquainted, not only with its different details, but also with its principles. Do not think me tedious if I venture to consider the claim of this class at length, as the architecture of the future is of importance to us all. They profess to build exactly in the same way as the old architects would. But can they do so? The question naturally arises, upon what principles did the old architects build? Pugin considered the principle of ornamenting only that which was useful to be the true plan. Ruskin, again, tells us that ornament is the principal part of all good architecture: others say that symbolism was observed by Mediaeval architects. With regard to the latter idea, it seems to me that Durand's writings are simply a gloss upon churches that were already built, for the purpose of strengthening the faith of the pious observer; and that though here and there a builder, penetrated by a feeling of religion, may have borne in mind the meaning of certain symbolic forms while designing churches, yet symbolism was ever regarded as only an adjunct, as a help and aid to the designer. What the Mediaeval builders really did was to make the best use of the best materials. They adhered for the plan and arrangement of their buildings to a certain type, which was modified from time to time. Now, can we work on this principle on church building?

Not precisely. The arcuated system is the best for small materials, but now that we have unlimited use of iron, and the advantage of machinery for raising large stones, if we do as they did, and make the most of our materials, the trabeated principle will come in, interfere with our lofty arcades, and destroy the character of our Gothic architecture. I do not mean to say that iron should not be used, but that, if used, it must be employed for the purpose of strengthening roofs in columns, as bands, ties, and cramps, but seldom in the form of beams. It may be asked why should we be copyists, why not try something new? But that we can do while still confining ourselves to the materials and to the styles used by the men of the Middle Ages. In fact, we find the necessity for admitting the claim of ecclesiology to act as our guide.

May I venture to differ from those of the class of development who advocate the adoption of the pure Lancel style as the starting point? It was found capable of improvement, and it was well developed in the Geometrical Decorated, which was the most perfect and most beautiful style of English architecture. Mullions and tracery are necessary in most cases, and they were invented and applied by the thirteenth-century architects. Are we to consider ourselves better able to give a new phase to Pointed architecture? These are the classes into which our architects are divided, and from the last we have great hopes; but as yet few steps in advance have been made.

Our next point for consideration is the prospect for the future: let us briefly trace the progress of development in the Middle Ages, in order that we may gain some ground for future progress. We shall see that as soon as the utility of each new feature was noticed, this feature was engrafted on to the architecture of the day, so that in this manner there was constant progress.

The arch has always been a distinguishing feature in good church architecture. All progress depended upon the form it assumed. The vaulted roof was that feature, which, by its gradual improvement in shape, produced corresponding changes in every other part of the building. The barrel vault of Roman buildings was generally adopted by those who built in the Romanesque style. It was soon found how much this form of vault could be strengthened by ribs at intervals, with corresponding piers or buttresses in the wall. The principle common to all good architecture, in all ages and countries, viz., that of throwing the weight upon some few bases of support by means of beams or arches, was soon recognized and generally employed: it was seen to be best effected by groining, by throwing the weight of the vault, by means of longitudinal and transverse arches, upon piers, that the wall space intervening between the piers might be thinned, as it had to bear only its own weight, and not the weight of the roof as heretofore. In Byzantine buildings the size of the dome rendered an immense pier necessary, but in the Romanesque, square projections internally and externally of about double the thickness of the general wall were all that were required. Groining ribs were soon introduced to strengthen the whole and to tie the vault together.

The only principle of which the Mediaeval builders were cognisant was that of making the best use of opportunities; consequently, as soon as they saw the pointed arch and its superiority for vaulting purposes, they adopted it universally. One of the first modes of groining was the tripartite system: the bay to be covered was divided into two parts by arches running transversely to the length of the church; the main ribs sprang from the outer piers, and met in the centre at the highest point. The best examples I know of it are in the choirs of Canterbury, and of Rochester. But this was soon found in an imperfect mode of working, so the usual quadripartite vault was adopted in its stead. As the transverse arches were at first very massive, they required for their support half-columns, from which also sprang the cross ribs; but as the mouldings afterwards became more elaborate, they were borne upon detached shafts. The wall space between the piers was at first pierced with the usual lancets, but it was afterwards found more convenient to use mullions, and to fill the arch of the window-head with geometrical tracery. Then it was discovered that if flowing lines were used in the tracery, less space was required in the window-head than for geometrical forms. The arches might, therefore, be lowered, and the great height might be reduced, so that thus, the Decorated or Second Pointed came into fashion: thus each change in style was produced by the introduction of what were thought to be improvements in construction.

We do not generally agree with our forefathers in thinking the Fourth Pointed style an improvement upon that of the thirteenth century, so we ought to have nothing to do with this later style for our future building. To return to thirteenth-century buildings. By reducing the bases of support, and piercing the wall-space above the nave arches to admit of triforium and clerestory, it was found that the materials were economized and the effect improved. In many of the cathedrals of France, where imposing elevation was aimed at, and the weight of stone as much reduced as possible, it is found that the walls consisted of a mere outer and inner shell bound together by bond stones at intervals, the weight of vault being carried off by flying buttresses, so that the building became what may be termed a complete and perfect *ossature*, light but firm, perfect for the purpose for which it was intended, springing from supports exactly sufficient to sustain the superstructure. We see in these churches an amount of science and a knowledge of the laws of equilibrium which is astonishing, when we consider the imperfect contrivances for building and the limited extent of science at the time.

Thus it appears that the common-sense principle of making the best use of our material is the real one, and that if we wish to develop, the pure Lancet style is not that from which we should start, as art had not in it been properly developed. We see also that we must make a restricted use of all in our churches, if we wish to build at all like the men of the Middle Ages, or, rather, if we wish what appears to me to be a *sine quâ non*, i.e., to make our churches at all like those of the Mediaeval times,—if, in fact, we are to use Gothic architecture for them. We see that the majority of our churches are mediocre, and that many of them are below mediocrity, so much so as to be unworthy of criticism. I will mention a few things in which our churches fail for want of adherence to style. Most churches profess to be in one style or another (I do not include the eclectic buildings); but we find sometimes early churches built with proportions of later times; we find the square abacus used indiscriminately with the round; flat, shallow, late mouldings in place of bold bowtels; pointed cusps, and deep foliations introduced in English Gothic churches; and square cusps and flat foliations in Second Pointed buildings. We find plate tracery, bar tracery, and plain lancets close together; moulded piers in place of circular or clustered columns; and arches, segmental pointed and four centred, all used together in the same building. Now, these are evident inconsistencies; for, as I said before, most buildings are professedly built in one style. But if architects make these blunders, what remedy can there be for them until ecclesiology is taught in our schools with the other *ologies*—until the public taste is so much improved that any ordinary observer can criticize and expose these fallacies? Now, this is not a retrograde doctrine. I do not assert that our churches are all to be built for the future in the Lancet style or the Decorated style, as at present practised; but I do think that it is necessary for the advancement of art that there should be some standard of taste, some canon of

criticism; some plain rules that will enable people generally—well-informed people—to protest against the perpetration of such mistakes, and this before architects as a body can venture to trust to their own inventive powers; for it ought to be incumbent upon them, before they invent, to be thoroughly grounded in ecclesiology, or their inventions will be worthless. There are some few amongst us who are so grounded, and who, receiving information from every source, are able to invent in good taste. Everything that passes through the crucible of their minds turns to gold. They are the possessors of that true philosopher's stone—the love of their art: everything they put their hands to turns out of sterling worth. But, in order to enable them and their works to be appreciated, in order that our present churches shall be in good style, and our future ones in still better, it is necessary that the public taste should be raised, and then architects will be forced on a-head. This education of the public mind is to be accomplished by means of books, of criticism, of lectures, and most of all by means of the association of architects to guide and instruct it. Of books on classification of architecture we have several that are most valuable. The publications of Bloxam, of Rickman, of Parker, and especially of Pergusson, are in the hands of every one who aims at being at all a connoisseur in the art; but we are sadly in want of some cheap and simple treatise, some synopsis, like the “A-B-C-Daire” of De Caumont, to be taught in schools, so that the architecture of France, Italy, and Germany, as well as the architecture of our parish churches, should become familiar to us all. We have few who are qualified for the high position of architectural critic. It is the commonly received opinion that an architect should not criticise the works of his fellows; but so long as he does this faithfully, and simply for the love of truth in art, surely he may to a certain extent be allowed to do so. However, it is better that the critic should be one who has been an architect, but is no longer one—a man of high standing, honourable mind, and one unbiassed by personal feelings. It would be absurd to say that he should be a man without bias, for we all have that, to some extent. Let him be prejudiced in favour of one style, if he pleases, for his colleagues in the world of criticism will look after the interests of the others. Let him be bold to speak out his opinions; and, if unsparring when writing down abuses, it will be none the worse for us. He may be as cutting and slashing as he pleases; he may wield the literary tomahawk and bowie-knife as much as he likes, provided he fights under the banner of truth. Otherwise he is but a guerilla, carrying on war on his own account. In that case, the sooner he is put down the better: if a privateer, he should be treated as a pirate.

This is a wordy age: disquisitions and long lectures on all matters connected with art are common,—most of them statements of the lecturer's own views. Would it not improve the public taste more if our lectures were more confined to matters of fact; if each man were to take up the subject with which his practice has made him most familiar,—if one gave us a lecture on the architecture of the eleventh, twelfth, or thirteenth centuries, on the Byzantine style, or on Gothic construction; another on stained glass, and another on polychromy? I think we should learn more from them (and we are none of us beyond learning) than from lengthy declamations or flowery articles about theories, and things indefinite.

But most is to be done, I am certain, by the banding together of those choice spirits amongst us who have the Gothic mania, in order to investigate the principles of Gothic architecture, to criticise modern buildings, to fix the *point de départ*, to determine what ought to be and what ought not to be in the buildings of the future; each contributing his quota towards that developed style in which future churches shall be built. A society already exists in which architects have the benefit of the advice and co-operation of learned laymen in art, in their efforts for the future—I mean the Ecclesiological Society. This has been quietly doing its good work for many years; and to it we are mainly indebted for many improvements that have taken place. But now it is high time that its influence should be extended, and that its useful publication (the *Ecclesiologist*) should be on the library table of every architect. This periodical is conducted in the same spirit as other architectural publications of the day, though it differs from them (?) in the open way in which it allows the answers of those who differ from it in opinion

to appear in its pages; but, beyond this society, the association of a number of working architects for the sole object of establishing a basis, and for fixing the principles that should be adopted for the architecture of the future, would be a great boon to the world of art.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE ordinary meeting of members was held on Monday evening last, at the House in Conduit-street.

Mr. Digby Wyatt, V.P., occupied the chair.

The election by the council of Sir F. E. Scott, Bart., as a contributing visitor, was announced.

Mr. J. Bell (honorary secretary), read a long list of contributions to the library in answer to the circular recently issued.

The Chairman, in moving that a vote of thanks be given to the donors, observed that it was very gratifying to find that the appeal on behalf of the library had been so successful, and that a class of books of great historical value, illustrating the condition of architecture in the last century, had been supplied to fill the gaps on their library shelves.

Mr. Kerr suggested whether it might not be desirable that the Institute should issue a circular to the authors of new works, intimating that they would be happy to receive any contributions relating to architectural subjects. If it were known that the Institute would receive such donations, he believed that many would be forwarded to it.

The Chairman said that, before proceeding to the business of the evening, he had two subjects to bring under the notice of the meeting. The first was that on Wednesday, the 10th of July, the first *conversazione* of the Institute, in their new rooms, would be held. He hoped that the members at large would assist members of the committee in contributing for the occasion pictures, drawings, models, objects of industrial art, or antiquities, which would be gratefully received, and displayed in the best possible manner. It would be the object of the meeting to make the rooms as beautiful and brilliant as possible; and, as the galleries would also be thrown open, there would be abundant scope not only for the comfort of visitors but for the exhibition of such works of art as might be entrusted to them, and of which the utmost care would be taken. The other subject which he wished to bring under the notice of the meeting was one of very great importance as affecting the honour and dignity of the profession. One of the honorary secretaries had received a circular from a certain firm of gas engineers and fitters—Spark & Co.—to the effect that their profits were 30 per cent., and that they were willing to share these profits with any architects who might assist them in getting orders. He hoped that the circular had not found an echo with any of the persons to whom it had been addressed. One or two such papers had previously been brought under notice; and insinuations had been made that those who sent them had good reason for doing so. However that might be, he had only to say, on behalf of the council, that if it could be proved to their satisfaction that any Fellow had responded to any such circulars, they would, in pursuance of the bye-laws of the Institute, expel him. The Chairman, having read the bye-law of the Institute which empowered the council to expel any member who might be found guilty of any act derogatory to the dignity of the profession, announced that the members would shortly be summoned to a special general meeting on the subject of voluntary architectural examination. The council had received a most valuable document from the committee appointed to consider the subject. Some of the points contained in it might be open to discussion; but he was bound to say that a more able document he had not seen issued from any committee for many years.

Mr. Burges called attention to the defective state of the ventilation of the room in which the meetings of the Institute were held; and said it was a reproach to them, as an architectural body, that complaints should be made on such a subject.

Mr. Godwin observed that one great cause of the heat was the immense chandelier in the centre of the room, which was certainly neither useful nor ornamental. The room might be far more effectively illuminated without its agency. As there was a “flat” above the ceiling, he saw no reason why the room might not be efficiently ventilated.

Mr. Burges suggested that a ventilation com-

mittee should sit on the flat, and report upon the best means of ventilation.

Mr. J. P. Seddon then read a paper, entitled "The Architecture of the Dark Ages" (a portion of which we give elsewhere).

At the conclusion a discussion ensued, in the course of which,

Mr. Papworth, in moving a vote of thanks to Mr. Seddon for his paper, observed that, although it was lively in tone and might be useful, it was to be regretted that the author had not expounded the subject more especially with reference to one or two incidental points. Mr. Seddon was not alone in depreciating Vitruvius. He himself, however (the speaker), was inclined to ask how many copies of Vitruvius were in MS., or known to exist, and who made them. The majority of copies were not of the thirteenth or fourteenth century, but of the twelfth, eleventh, tenth, and ninth centuries. His belief was that, if a little attention were paid to the subject, it would be found that the Mediaeval architects of the eleventh and twelfth centuries thought they were following Vitruvius as closely as they could. He wished to know who it was who had taught the architects of the Middle Ages. Among the records and monuments of Italian cathedrals, constant reference would be found appealing to some unknown authority; and he believed that authority was Vitruvius.

Mr. Burgess being inquired of, said he had never come across Vitruvius in Mediaeval architecture. All he knew on the subject was, that he had not been able to trace him in eleventh, twelfth, or thirteenth century art. That he was extensively copied, however, there could be no doubt; and so were Ovid and Horace.

Mr. Street also said he had not been able to find any trace of Vitruvius. After a pause,

Mr. Godwin, being called on, said he did not desire or intend to discuss the wide question opened, but he thought it right it should be understood that all present, though silent, did not concur in what, as it seemed to him, must be considered a general sneer at the great minds who in the sixteenth century, the period of the Reformation, the period of Bacon, had aided the world in the awakening of thought. He could not call that "a Dark Age." The tone of Mr. Seddon's paper did not seem to him quite wise: to underrate an enemy, did not elevate our own prowess. At any rate, those who had heard Mr. Seddon's paper would scarcely come to the conclusion that he had carried his "good nature so far as to amount to insanity." He (Mr. Godwin) did not yield to any in admiration of the works of the Middle Ages; still he did not think it should go forth, to foreign societies, that the Institute of British Architects were unanimous in depreciating all those mighty men who had laboured in the period in question, and who had left magnificent results behind them:—men,—he, for one, was quite willing to admit,—whom he never contemplated without feelings of awe and admiration; and therefore it was he had made these brief observations.

Mr. Seddon said he thought he had a perfect right to express his rooted convictions,—convictions which he had always endeavoured to propound, because he believed all the hope they had of good architecture for the future lay in their comprehension of these points.

Mr. Kerr said he was not surprised that a gentleman who felt so strongly on the subject of Gothic art as Mr. Seddon did should express himself in such terms. There was, he thought, something more in the revived Italian architecture than Mr. Seddon was prepared to admit. The human mind never worked without materials; and it was absolutely necessary that at the period referred to it must have returned to the remains of Classic times. The human mind, turning to the remains of Classic Rome, found a system as different from that which had perished as could possibly be. It found, in the remains of Roman architecture, sculpture, poetry, philosophy, and history, examples upon which it could with great credit to itself rely under the circumstances in which it was placed. These remains were adaptable to the wants and circumstances of the time; and nothing could have been more applicable to the cravings of the human mind when the Gothic had died away and left mankind in the lurch. How could the human mind have better formed a new style than by referring to these structures? and how could we in our day behold them without believing that the men who reared them were great men, and that the age in which they lived was not a "dark age?" How, he asked, could they look at the works of Michelangelo and Raffaele and say that they lived in a dark age? Why, we who boasted that we lived in the light

were but punies compared to them. History had its tale to tell, and it was predestinated. Instead of sneering at those who had gone before us, let us endeavour to trace where the human mind was true to itself, and let us see where we in our turn could be true to ourselves.

Mr. Hayward said he could not but approve of the fearless manner in which Mr. Seddon had stated his view. The entire gist of his paper lay in this consideration—what are we to do in the present day? He (Mr. Hayward) thought that, with a certain amount of common sense and true architectural feeling, it mattered very little what an architect studied where all the styles were open to him. He did not mean to infer that this remark would apply in a case where a particular style only was known; but now every style was open to the student; and, in days like these, when archaeological societies threw so much light on the past, it was, he held, of little consequence in what school the architect studied; for, if he had a true architectural feeling and a taste for the beautiful, he would be sure to produce something which would be a step in advance. It was, he thought, only necessary to cast one's eye around the metropolises to see that great progress had been made even within the last ten years. In many parts of London and in the suburbs odd bits of carving or an arch would be found which he believed would be the landmarks to the date of that particular development to which we were looking forward as to an improved age of architecture. There was also a taste springing up for pure and useful construction, as evidenced in the use of polished granite, fine stone, and improved metal work. All these things afforded, in his opinion, ground for congratulation; and he thought that when a person like Mr. Seddon, who expressed his own deep-rooted opinions, came forward and expressed them boldly, he was doing a service to art; and he did not think such a person ought to be put down for thoroughly expressing his opinions, for we all ought to be thorough in our opinions. Holding these views, he had great pleasure in seconding the vote of thanks to Mr. Seddon.

The Chairman, in putting the vote of thanks, observed, that he had heard with pleasure in a paper, with the conclusions arrived at in which he personally was unwilling to entirely concur, that its author had not failed to render a just tribute of admiration to much of the art of the ancients. He was, he admitted, unable to trace the logical consistency of a writer who, while admitting so much, stigmatised as "Dark Ages" those in which an honest and most vigorous effort had been made by many of the choicest spirits the world had ever known, to preserve and adapt for use by the moderns all that they could rescue from oblivion amongst the mouldering relics of antiquity. If men were to dispassionately examine what really constituted the basis of much of the beauty of Gothic art in the thirteenth century, it would be found that Classic impressions reigned among the "magistri operum," not in the dogmas of Vitruvius alone, but in many technical traditions derived from Classic times. Mosaic, enamelling, the masonic art, and fresco and other modes of applying colour, for instance, were handed onwards from the earliest period; and when they remembered how grand an addition sculpture gave to architecture in the best periods of Gothic, and the extent to which Nicola Pisano and the other great revivers of the art built upon the monuments of ancient Greece and Rome, they could form an estimate of how much Mediaeval architecture was indebted to the Classic. If, for instance, the sculpture in the old monuments in the South of France were referred to, it would be found that it was not pure, because it was far removed from the source of inspiration. If, on the contrary, we approached the monuments of districts in which the more spiritual element, based as to all that was really valuable on the traditions of the antique, had prevailed, we should find the highest class of art. So, too, with regard to painting: those who came after the masters of the art of illumination, adopting general Mediaeval characteristics, such as Fra Angelico da Pissole or Gentile da Fabriano, Cimabue, or even Giotto, were very admirable in their way, but they never approached to the grand style of those who succeeded them. What, after all, were they to compare with Raffaele, Leonardo da Vinci, Quini, Michelangelo, or Titian? He confessed he was surprised to find Mr. Seddon speak in terms of disparagement of an age which produced such men. It was not enthusiasm nor feeling for art which Mr. Seddon lacked, but it was a reverent and catholic spirit that was wanting in him. It was not desire to excel nor originality that he required, but breadth and strength, flexibility, and the power of eliminating

beauty, wherever it might exist, without prejudice or bias; and it was alone by turning their attention to developing these catholic elements that he or any other artist of the present day might hope to become great masters, like to those who flourished in what Mr. Seddon had, as he thought mistakenly, called the "Dark Ages."

The vote of thanks was then put from the chair, and carried *nem. con.*

The Chairman announced that the subject for discussion on the next evening of meeting would be the "Embankment of the Thames;" when Mr. Newton, Mr. Turner, of Dublin, and other gentlemen, would exhibit their drawings and say a few words on the subject. Other gentlemen, who had given evidence before the Commission, had also been invited; and he hoped the subject would lead to an interesting discussion.

Mr. W. Oakley, of 23, Albert-road, Regent's-park, was, on ballot, elected an associate of the Institute.

THE DARK AGES OF ARCHITECTURE.*

I AM somewhat afraid lest, by the title I have selected for this paper, I may have lured hither under false pretences some mistaken lovers of Mediaeval architecture, in the hope of hearing a treatise upon their favourite phase of art; not, I trust, that any could suppose that I am capable of endorsing the stigma upon it, which such term was intended to convey; but it is possible that some may have thought that I proposed to enter the list in its behalf in the character of an apologist. Should any have been so misled, they must pay for their mistake by their disappointment, if such they deem it, for I hold that calumny to have been long ago refuted.

"The dark ages" to which I am about to refer are quite other than Mediaeval as far, at any rate, as architecture and the other arts are concerned. They are those, the central or midnight century of which, if we may credit the historian Carlyle, lacked light in other senses besides the artistic; being, as regards political or moral honesty, also "bankrupt" certainly in all matters of taste they were steeped in the deepest gloom.

The picture I cannot promise to make inviting, but it may nevertheless be in some degree instructive, and show us what to avoid, a lesson not less valuable than that which teaches us what to study and adopt.

As the dark ages of architecture do not, then, date from the birth of the art, they do not include, nor do they necessitate, any inquiry into the probable form of the wigwag of the "Pre-Adamite" man, if any such existed, and, more fortunate than Mr. Wallis's stone-breaker, had such a shelter while chipping his flint hatchets; nor need I trouble you with any speculations as to the early efforts of the *pre* or *post* Noahites, which perhaps some millions of years later may have preceded or followed the fabled transition of the type of the timber hut into that of the stone temple; for such essays in building cannot claim a title to the name of architecture at all; or if any be inclined to concede it to them, it could be but as architecture in infancy; and therefore, even if only babbling by the light of nature, not altogether dark nor dead: its glimmerings, if but the first of the dawn, are surely, though slowly, perhaps, about to broaden into daylight: the men who wrought it were looking forwards, and not backwards: they were gaining step by step in advance, never pausing: one nation taking it up where its predecessor left it; each meanwhile giving it some individual impress, and adding some new thoughts to the general stock, and fusing them into a consistent and intelligent whole.

Thus we may trace art from age to age, until "the Dark Ages," and find that it was ever a language wherein men simply and naturally expressed what there was in them to tell, and which we may read with an assurance greater than even that we can give to their written records, seeing that there is less likelihood of their having been tampered with.

As, from the bowels of the earth, our geologists are digging new fossil facts, which explain or correct our misreadings of sacred writ; so our Layards and Newtons are excavating from more recent strata, actual fragments of buried Assyrian cities and mausolei, in Asia Minor, which in like manner throw new light upon profane history, and convict half our cherished traditions of being mere fables; putting us, as it were, face to face with the kings, priests, and warriors of those ancient days,

* Read by Mr. J. P. Seddon, as elsewhere mentioned.

which had become to us almost as obscure as the "mornings and evenings" of the creation, with their wondrous intervals. So it is with the kings of Egypt: their acts, and all that they did, are chronicled on the walls of granite and sarcophagi of basalt, lately visited and ably described by Professor Donaldson; and, in these days of railways, we can quickly re-unite, in the mind at least, the sculptures of the Parthenon housed in our museum, to their empty sockets, in the ruins of the temple or the Acropolis of Athens, and so gain a glimpse of that perfectly beautiful art in which the polished Greek sought to represent his ideal of the divine.

Then the Roman has left us his notions of architectural showiness, in his versions of the five orders; which, whatever they may be worth, were his own, until eclecticism in "the Dark Ages" confounded all nationality and propriety in such matters.

Even the Byzantine, in whose hands art seemed to stagnate for a season, wrought out in his unmistakable manner the types tradition handed down to him, and set the dome as his sign manual over the crux and each arm of the churches, which he built on that plan of his, "the Greek cross."

The Arab, again, had his slim minarets and fretted domes, with an array of pointed and stilted arches whose curves seemed to have been fashioned after that of his own falchion.

The barbarians, also, who overturned the Roman empire, and settled down upon its lees, gave sense and nerve to the effects of nonsense which they found in the shape of decorative art in that classic land, and thought out for themselves a better (being the proper) way of using the archivolts, and wreathed the tame foliage of the Corinthian capital into something like the grace and freedom of nature; and told in their sculptures, without reserve, what they themselves believed in, loved, and were amused by.

Then followed, surpassing all previous efforts, the Gothic or Medieval development of art, the grandest, noblest, and most scientific which the world has seen; for even if, in its restless strivings after conceptions of beauty, seemingly as infinite in their variety as in the number of its works and its schemes for realizing them, it sometimes over-shot its powers,—and making not sufficiently sure of its substructure, in haste to soar upwards, prepared for itself such catastrophes as those recorded of the towers of Winchester and Ely by Professor Willis, and that just witnessed at Chichester,—we have yet hundreds of other examples, equally fine, which have lasted for centuries, and may last as many more. We may therefore still be more thankful for its lofty and noble aims, despite such occasional failures, than for the lower, if safer, aims of styles content to grovel near the ground, and whose superior science consists in poisoning huge stones upon columns in ignorance of the principle of the arch, whereby the space could be better spanned, and in avoiding every chance of thrust in order to escape a difficulty which they knew not how to deal with.

Throughout all these several styles not one link in the chain was lost, not one lying phase had yet appeared. We may approve one more than another: we may find errors and backslidings, but no systematic and deliberate falsehood and betrayal of the spirit of the age can be found in the whole history of art until we come to "the Dark Ages." The Greeks seem to have been gifted rather with consummate refinement than with much originality. We can well see that they admired and borrowed from the ornament of Persia and Egypt, but we have no proof of their having attempted to build Egyptian halls in the streets of Athens, or sham eaves of Eflora about its Acropolis. The Christians, when freed by Constantine from the persecution which had repressed all their previous efforts, boldly adopted the Pagan basilica for their churches, and built others after the same type; yet we do not find that they attempted to compose them out of porticoes copied from the antique, or piled Grecian monuments one above another, to serve for bellies or campanili.

It is a question of the greatest moment to us, but one which I have not time now to discuss, how it was that the Medieval or Gothic phase of art should, after its brilliant and rapid growth, have rested so short a time at the height of development which it reached, and thence declined with almost equal rapidity, till it fized itself away in France in the luxury of "Flamboyant" tracery, and in England was strangled in its straight-jacket array of the rigid "Perpendicular."

It suffices for our present purpose to know that it died from inherent decay, and not from any assault from without. That this, as every other

style that preceded it, should have gone the way of all things of earth, may be a matter for regret, yet not of surprise; and its having done so is not the question which I have proposed to consider on the present occasion; but rather, how it happened that after it came "the deluge." We have seen that all previous styles successively rose, culminated, and fell, only to be followed by others still more comprehensive; and that each yielded up gracefully all that it had added to the general stock of ideas, to be grafted into the newer plant, to bud and flourish again with fresh vigour and increase of power under a different régime.

What then necessitated the artistic chaos, which reigned when Medieval art vanished? What was the Gorgon's head which turned into stone, the natural love for and power to originate beauty—which mankind had hitherto shown in all ages and countries? These are the questions to which I am anxious to find a solution.

The complete quenching of the lamp of art which, sooner or later, in the period of the Dark Ages, ensued in every quarter of the globe (save where, among the less civilized Oriental nations, it has stagnated until now in considerable decorative purity), is one of the strangest phenomena I am acquainted with in the history of the world; and this I desire to invite you to consider, in the hope that we may be able to discover the rocks upon which it was shipwrecked, and that in our efforts to float it again we may be able to steer clear of them.

The Dark Ages, however, or at least the gloom of them, did not come all at once. The night, unlike that of the tropics, did not follow suddenly the light of the Medieval day. Nay, the sun of art set so gorgeously that men were dazzled by the glory thereof, and believed that it was a sunrise, heralding a new, better phase of art, instead of its being a sunset preluding the loss of the best the world had seen.

It behoves me, therefore, to linger over this threshold of my subject (and not unwilling am I to do so, seeing that it is by far the pleasantest part thereof), and to endeavour to trace the lines of its several changes as successively they grew fainter and fainter, together with the brightness of the evening stars of genius, which beamed like a galaxy through its twilight, and even occasionally long after the nightfall; until, clouded over at last, utter darkness ensued; enlivened only by the false will-o'-the-wisp phantoms of *rococo* which have been misleading men ever since.

This period, then, upon which I should now dwell, this twilight of "the Dark Ages" which I have taken for my subject, is that generally known as the Renaissance, or the revival of Classic art. It is true that, in Italy, the whole surface of which was strewn with fragments of Roman work, Classic tradition seems always to have sat like a nightmare upon its architecture: the mighty flood of life which seems to have throbbled through the arteries of Northern Europe appears to have been checked in its passage through the gorges of the Alps, and to have exercised but slight effect below them, and never entirely to have succeeded in supplanting the influence of the Antique. It succeeded in doing so to the greatest extent in the thirteenth century; and with much grace, for a time, fused the two styles; but soon it began to hanker again after its old love; and we begin to find the mouldings of its Gothic buildings becoming poor and weak, and its parts and proportions betraying more of the Classic elements. In Venice, which, from its position, was not so strongly exposed to this influence, and which was greatly under that of both the Gothic and the Byzantine, we find in the Doge's Palace a most valuable and nervous example of Medieval building, unsurpassed in the boldness of its mouldings and detail; yet, if we consider the general aspect of the domestic architecture of that city, we shall find little of the variety which was so marked a characteristic of Northern Gothic; it being similar in detail to that of the Doge's Palace that we find repeated everywhere; while that of the churches of the Frari, and those of the same date, are strikingly inferior. In Verona we find another most valuable local development of Gothic, particularly artistic in its treatment of coloured material and sculpture: still, an undercurrent of Classicism is evident throughout Italian work. In the Cathedral of Milan it has debased it so far as to render it only worthy of being a model for confectionary.

In Florence and in Pisa we are so entranced by the wealth, displayed in their buildings, of painting, and sculpture, and precious coloured materials, that we are consoled for the want of pure Medieval feeling and boldness in the handling of the architectural detail in such works as pretend to be Gothic; and, in the hosts of false

façades to the churches in the other towns, such as we see figured in the plates of the works of Hope, Gally Knight, and Street, we see foreshadowed the childish shamelessness of sham which mainly characterizes the later works of the Renaissance and those of "the Dark Ages," which ignores the certainty of being found out the instant the spectator turns the corner of the building. In the Loggia de Lanzi, by Oragna, we find distinct traces of the Roman impost between the columns and the arches; while his Or San Michele, in the tabernacle and the tracery of the windows, presents us with work we might almost mistake for that of Batty Langley.

In the pulpit by Andrew Pisano, in the cathedral of Pisa, we see, in the figures and draperies of the bas-reliefs, evidences of an already too absorbing study of the antique, in contrast with the vigour shown in the beasts upon which the alternate columns rest, where the sculptor has evidently treated them *con amore*, and rather with the traditional Medieval feeling; while the capitals of the columns are almost as bad as the Roman composite; and the weedy apologies for cneped trefoil arches are the only and faded traces of Gothic forms.*

GUIDES IN PUBLIC INSTITUTIONS AT THE COMING EXHIBITION TIME.

BEFORE we think much of it the walls of the new and immense Exhibition building of next year will have been reared, the interior fitted up, and the treasures of art, &c., from all parts of the world ready for inspection. Now, therefore, is the time to look ahead, and to consider a few of the *desiderata* suggested by the experience of 1851. From time to time we shall endeavour to do so, but just now we will confine our remarks to one particular.

Even at ordinary times we see in the British Museum large numbers of persons completely bewildered and astray; having even been asked, "Sir, is that an Egyptian mummy?" and other singular questions; and it is certain that, from the want of some guidance, in a multitude of cases the advantages of this great and instructive collection are utterly neutralized and lost. Even to a new visitor of education, who has but little time to spare, there is confusion, notwithstanding the advantages of the several guide-books. Thousands in each year come from the provinces to London; and, as a matter of course, pay a visit to the British Museum. At the Exhibition time the different apartments are crowded, and the need of guidance is more obvious. Generally the attendants are not very communicative; and, even if they were, many of them are probably not able to give much information, and visitors are frequently unable to put pertinent questions. It has, therefore, often struck us that it would be most useful to appoint a certain number of respectable persons,—men of intelligence,—who could make themselves well acquainted with the general arrangement and contents of the Museum; and at a stated cost each, would guide persons, either singly or in numbers, who may feel so inclined, through the various galleries. We have not the least doubt that many would gladly avail themselves of such aid, and that it would be an advantage to numerous visitors, and might also be useful as an occupation to several deserving persons, who might be glad of such an addition to their income.

ARCHITECTURAL PUBLICATION SOCIETY

WE mentioned last week that the annual general meeting of this society was held on Thursday evening, the 30th ult., for the transaction of the ordinary business.

Professor Sydney Smirke, R.A., presided.

Mr. Cates, hon. sec., read the report, in which the committee say,—

"At the corresponding period of last year, the first part of the publications for 1859 had been issued, and considerable progress had been made with the illustrations for the second part. The publication of this second part was completed before the close of 1859; its earlier issue having been delayed in order to forward a larger number of articles of the 'Dictionary' than were originally intended to be included therein, by which the work has been brought down to the article 'Feilbin'."

The part now in progress for the thirteenth year, 1860—a portion of which is laid upon the table—is intended to comprise the text only of the Dictionary; it having been deemed advisable that the illustrations should be postponed to form a portion of the issue for the current year, which commenced on the 1st of January last.

The committee have been induced to take this course at the recommendation of several zealous supporters of the undertaking, who have urged upon them that it would be most desirable that the production of the text should be expedited as much as may be consistent with that

* To be continued.

accuracy and research which have hitherto distinguished it.

The committee anticipate that the part now in actual preparation will include the remainder of F and the letters G and H, thus materially advancing the work towards completion. It will be issued with as little delay as practicable; but the time occupied in the careful revision and correction of the many articles, extending over so large a field of knowledge, renders it necessary that the subscribers should continue to afford to the committee every indulgence for any delay in publication, as it arises solely from the desire to maintain the standard at which the work was commenced.

The parts for the current year 1861 are intended to comprise both text and illustrations: the former there is reasonable ground for believing will carry on the Dictionary to the end of K, or nearly so; and for the latter the committee invite the contribution of sketches illustrating the subjects set forth in the Appendix subjoined.

The particular attention of the subscribers is again directed to the 'List of Terms' prepared to ensure, as far as possible, the successful carrying out of the Dictionary; and the committee request the communication, as the work proceeds, of such information as may be considered to be of value for its respective departments. As such assistance is gladly accepted, from whatever quarter it may be offered, any gentleman who, although not a subscriber, may be willing to assist the work in hand, and to that end desires to procure the 'List of Terms' for his guidance, can obtain a copy from the honorary secretary.

The committee have, yearly, to acknowledge the obligations due to all who have from time to time rendered valuable aid in conducting the undertaking, and the past year has in no respect diminished such obligations: to the managers of many public institutions thanks are also due for facilities afforded; and especially to the vice-chancellor and library syndicate at the University of Cambridge, for the courtesy they have at all times extended to Mr. R. R. Rowe, the local honorary secretary, while conducting the investigations for this city in the University library.

The Balance-sheet appended to this report shows that the total expenditure for the twelfth year (1859), has been £117, 17s. 2d.; the receipts due to that year, £430, 7s.; and the arrears, &c., paid 1617, 6s. 11d., leaving a balance of £27, 16s. 3½d., to be carried forward in favour of the thirteenth year.

The account for the thirteenth year shows a balance in hand of £471, 3s. 2½d., applicable to the publications now preparing, the cost of which is estimated at £501. The committee, therefore, request that all members in arrear will forward their subscription without further delay.

It being impossible to progress far with the production of the illustrations until considerable funds are in hand; the committee request that they may be favoured by the early payment of the subscriptions for the current year, in order that the plates may be put in hand at the earliest opportunity permitted by the amount of subscriptions received.

The success which has attended the measures promulgated in their last report (1859) induces the committee to press upon the subscribers the importance of continuing those efforts, which will, it is hoped, terminate in the production of a standard work without a parallel in any language.

The Chairman said, it was his duty to invite the meeting to receive and approve of the report. He wished that that duty had devolved on some one more able than himself, or some one better acquainted with the working and arrangements of the society than he could lay claim to. He had had but a very slender share in the actual work: all he had done was to give the expression of his hearty goodwill to the society, which he had entertained from the earliest period, being convinced it was a society calculated to do much good, and to confer great credit on the profession. And perhaps, as he had not had much to do with it, he might speak the more frankly and openly as to the benefit of the Society. Therefore he had no compunction in saying that he believed its organization was nearly complete and as perfectly satisfactory as any undertaking of this kind could possibly be made. In the offices the right man seemed to be in the right place; and the writers seemed to be each one writing precisely that which he best understood. It was very likely this might be partly due to the excellent control exercised over the text, which he presumed was the case, so as to prevent the exuberance of writers. There was much credit due to the editor; and, indeed, he very rarely saw any article he could find fault with. He thought the name they had chosen for their work was an unfortunate one; the name of a dictionary had a dryness about it, conveying the idea of a mere enumeration of words,—of a mere vocabulary; whereas they knew that such an impression would be entirely wrong. The "Dictionary of Architecture" was in truth a very rich treasury of treatises by a variety of different hands, each hand writing on that subject which he best understood. Their own profession was one that seemed particularly complicated: it required such a miscellaneous amount of information and knowledge that it was very disheartening to a beginner, looking at the multitude of things he was expected to know something about. In ancient times, such was the case; but it really seemed that in modern times the list of subjects required to be informed of had increased, rather than otherwise. And none of them knew all they ought to know. They, all of them, from the oldest to the youngest, wanted information; and here they had at their elbow a book which gave them every thing they could possibly desire,—a friend at their elbow acquainted with every branch of science and art,

and knowing every date and style. An Encyclopedia was, of course, a book which referred to many subjects; but he thought the "Dictionary of Architecture" was better organized and more complete than any Encyclopedia he knew of. As to financial matters, he thought a prevalent error had arisen. There was a prevalent impression that it was only a question of time, and that people could get the Dictionary at half-price. Now, that was an error they ought to contend against by all means: it struck at the root of their prosperity as a society; and it was a positive error; for they were distinctly pledged as a society not to publish any portion of the work under subscriber's price. No one should go away with the notion that that work could be got at a cheaper rate than the published price. In some of the catalogues the book numbers were marked at a higher sum than the cost price; and some persons might hereafter have occasion to regret not becoming subscribers to the Society at once; for they all knew that a complete work was more valuable and convertible than a work in its progress towards completion. The learned Professor concluded by moving the adoption of the report.

Mr. Robert Kerr had great pleasure in seconding the motion. He had to state his entire concurrence in opinion with the views which the chairman had expressed. He thought they were all very much indebted to Mr. Cates, the hon. secretary, for the great energy he had displayed in conducting the operations of the Society during the past year, in the particular form they had assumed. Those operations had been on the whole successful; and they had produced an accession of members, and they might hope to have still further accessions from the pursuance of the same line of policy. The "Dictionary of Architecture" was, beyond all question, an exceedingly valuable publication. As to the probability of the Dictionary becoming lowered in price when completed, the chances were so extremely small as almost to amount to impossibility. The committee had continual evidence that the work was increasing in value. But there was another argument in the question that should not be forgotten; which was, that perhaps the principal value of the work to the profession consisted in the use they could make of it while it was being issued. If a man waited till it should be completed, he lost this most important element of its value. In fact, for a trifling subscription, the members were being supplied piecemeal with a work which, although in form a dictionary, still ran parallel with the progress of knowledge from year to year; for, if any one article which appeared last year, or two or three years ago, was now behind the state of progress for the present, they were sure to find some kindred article to bring up the subject to the standard; and so on, year by year. Turning now to the list of subscribers, he saw that they had men of rank and men of great intellect. Various public institutions were also their patrons. When he saw the names of the Imperial Institute of France in one column, and that of the Engineers' College at Roarke in another, he was disposed to contend that they had the testimony of the entire human race to their merits. He cordially seconded the motion that the report be received and adopted, and printed and circulated amongst the subscribers.

The motion was unanimously agreed to.

Mr. Newton moved the next resolution, thanking the committee, treasurer, and local honorary secretaries, for their services during the past year; appointing new members of committee, and requesting that the local honorary secretaries continue to act on behalf of the Society.

Mr. Octavius Hansard seconded the motion, which was carried *nem. dis.*

Mr. Robert Kerr moved the following resolution:—

"That this meeting sincerely regrets that Professor Donaldson should be obliged to release himself from the duties of honorary treasurer, and desires to express the very best thanks of the Society for his valuable services during a period of thirteen years, both as treasurer, and as an active member of the committee; and that Professor Sydney Smicke, R.A., be requested to undertake the duties of the office."

The energy and attention which Professor Donaldson had always displayed, and still displayed, in the profession, were most remarkable; and long might this continue! It must be a matter of regret that he was at the present time labouring under illness, which, it was to be hoped, would prove but of a very temporary character; but still it rendered it impossible that the committee should insist upon his continuing in the office of treasurer to the Society.

Mr. J. W. Papworth seconded the motion.

When the society was first proposed to be established, it had no one more willing to act as foster-father to those gentlemen who were attempting to put the plan before the world, than Professor Donaldson. He could not forget the way in which, not assuming the direction of the affairs of the society, Mr. Donaldson lent his valuable aid to it. The society did certainly owe very much to Professor Donaldson.

The motion was unanimously agreed to.

Mr. James Wyllson proposed, that the best thanks of the society be given to Mr. Wyatt Papworth, the hon. secretary of the Dictionary, and to Mr. Arthur Cates, the hon. secretary for Correspondence, for their services during the past year. The subscribers were deeply indebted, indeed, to these gentlemen for their services. They had shown their devotion to the art in giving their time and services to the society; and by their conduct they set a noble example to young and rising men in the profession.

Mr. Martineau seconded the motion, and it was carried unanimously.

Mr. Martineau moved, that the thanks of the society be given to Mr. Good and Mr. Aitchison, for their services as auditors during the past year; and that Mr. J. Jennings and Mr. J. Norton be requested to accept the office of auditors during the ensuing year; and that the best thanks of the society be given to the Royal Institute of British Architects for the use of their rooms for the present meeting.

Mr. Octavius Hansard seconded the motion.—Unanimously agreed to.

Mr. J. W. Papworth moved a vote of warm thanks to the Chairman.

This was carried by acclamation. The Chairman returned thanks, and the meeting separated.

CHURCH OF ST. JAMES-THE-LESS, GARDEN-STREET, WESTMINSTER.

This church, erected from the designs of Mr. G. E. Street, and now approaching completion, consists of a nave and chancel, with north and south aisles to both. It has a detached steeple, forming ante-porch, with porch connecting it with the north aisle. There is a vestry on the south side of chancel aisle. The nave is 25 feet 6 inches wide, and 68 feet long; the aisles 12 feet 6 inches wide, and the chancel 20 feet by 37 feet. The height, to the centre of the boarded ceiling in nave, is 44 feet; to the centre of groining in chancel, it is 31 feet; the height of the tower, from floor to the top of cornice, is 89 feet, and the slated spire is 45 feet, making a total of 134 feet.

The church is built by the daughters of the late Bishop (Monk) of Gloucester, who was a canon of Westminster, as a memorial to him.

Mr. Myers is the builder, and his contract for the building was 5,600l. This, however, did not include the pulpit, screens, inlaying, nave seats, painting on roof and walls, or stained glass.

The nave roof is being elaborately painted by Messrs. Clayton & Bell, from the architect's designs. The east wall of the nave is to be adorned with a fresco by Mr. G. F. Watts, upon which he is already at work. The subject is a sitting figure of our Lord, surrounded by angels, &c., on a gold ground; and there is little doubt that the work will be worthy of Mr. Watts's very high reputation.

The walls are of brick inside and out;—red and black. The stonework is Morpeth stone outside and Box stone inside. The nave columns are of Aberdeen granite, the remainder of Devonshire marble. The seats are all to be open, and of oak. The screens round the chancel are to be of iron and brass, and are being manufactured by Mr. Leaver, of Maidenhead, who has also in hand the arrangements for lighting, which are, we believe, of a novel kind.

At some future day it is hoped to complete the work by the creation of a parsonage on one side of the church, and schools on the other, as shown in the engraving. At present, however, the church is surrounded by small houses on all sides but the north.

The carving has all been done from the architect's design, and modelled by Mr. W. Pearce; and is very creditable to him. The pulpit, which is to be richly sculptured with figures and subjects, is in the hands of Mr. Farmer. Messrs. Clayton & Bell have in hand the glass for the apse windows (types and antitypes) and for three of the aisle windows.

The church promises to take, when completed, a place amongst the most satisfactory works of the day.



Church of Saint James the Less.
Garden Street, Westminster.

M^r C. E. Street, Arch^t.



Plan

THE LABOUR QUESTION.

London.—As we stated last week, a certain additional number of the leading builders adopted, on Saturday last, the system of payment by the hour. The operatives submitted to the masters, as a compromise, the following resolution:—

"That, seeing the determination of the master builders to enforce the half-holiday, we, the masons, accept of the first five days of ten hours, and six for Saturday; but to leave work at twelve o'clock on Saturdays."

The masters refused this offer, on the ground that they had already lost thousands in consequence of there being no definite meaning attached to the term "a day's labour," and the efforts of the unions to reduce it to nine hours. They stated, that if they accepted this compromise of payment by the day, the question would be just as it was last year and at the beginning of this, and that before six months elapsed there would be a repetition of the old strikes in favour of the nine-hours movement.

The Masons' Committee, upon this, withdrew all their men from every firm in London who would not pay on the terms of the compromise offered by them. The bricklayers, we believe, have struck also.

The Master-Builders' Association met at the Freemasons' Tavern on Thursday last, but we were unable to obtain any information whatever as to the resolution come to. We find it occasionally stated, very erroneously, that the *Builder*, is "a journal wholly in the interest of the masters,"—that "the *Builder* represents the masters," and so forth. In truth, from the officials of the Association we can seldom obtain the slightest information. To speak plainly, if we thought that the masters, as individuals, displayed the same amount of stupidity (must we call it) in dealing with their men as the Association have shown on more than one occasion in communication with us, we should view with less astonishment the foolish and suicidal acts of the men. But we know it is not so.

Stockport.—Several public or private works, which have been in the course of erection in different parts of the borough, have been suddenly brought to a stand by the strike of the bricklayers and labourers—in number, perhaps, about eighty.

Birmingham.—The whip-makers here are on strike against the initiation of women into the art and mystery of whip-making. The female poor are to be pitted. With a lamentable want of remunerative branches of employment, almost all their attempts to better their condition by sharing in the monopoly of the male sex, however suitable the employment, are sure to be met with ungallant resistance. Only let a woman unsex herself by the assumption of male attire, and many good sources of livelihood are open to her without let or hindrance—*till found out*; and then her occupation is gone, and the resumption of female attire brings with it a great reduction of wages, and a restricted sphere of industry. Why should this be so? In the case of whip-making, which would appear to be not unsuitable to women, even though they should succeed in obtaining a share of the work; and do it as well, too, as the men; doubtless they will still earn far less wages, unless they disguise themselves in male attire,—in every way a very unfair mode of treating poor women, say we.

Leeds.—No arrangement having been come to between the Leeds bricklayers and the bricklayers' labourers and their employers, a large number of the men turned out on strike. About 500 bricklayers and a similar number of labourers left off work, and the effect of the strike was to interfere with the erection of the New Midland Hotel, the new Corn Exchange, and other buildings in course of erection. A day or two afterwards, however, the bricklayers agreed to accept the masters' offer of payment by the hour, and the employers subsequently offered to pay the labourers 4d. per hour (as they still declined to come in) instead of 3d., as previously offered; but the men at once determined to adhere to their demand of 3s. 6d. per day, or 1l. per week. The consequence has been, that, though the bricklayers are willing to end the dispute, they are unable to commence work because the labourers refuse to accept the terms proposed.—At a meeting of the committee of the various building trades of Leeds, held at the Temperance Rooms, in York-street, on Friday night, 7th June, a petition was ordered to be despatched to Parliament in favour of Mr. Macdonald's bill for settling labour disputes by arbitration instead of strikes.

Newcastle-upon-Tyne.—The joiners and carpenters of Newcastle and Gateshead have obtained

from twenty of their employers the reduction of half an hour's labour per day, for which they have been agitating. It is stated that there are only two firms who refuse to grant the concession.

Edinburgh.—The master builders of Edinburgh have resolved to accede to the terms of the operatives,—namely, fifty-one hours' work per week; the payment, if we understand rightly, being less in proportion; and, at a general meeting of the operative masons of Edinburgh and Leith, the following resolution has been unanimously agreed to:—"That we consider the lock-out at an end, and resolve to resume work on Monday on the fifty-one hours system." The master builders advertise that they are willing to accept of workmen on the nine hours system at any of the works in Edinburgh. The strike has now lasted for three months, having begun on the 1st of March. The hours of the men will now be from six to nine, ten to one, and two to five on the first five days of the week, and from six to nine and ten to one on Saturdays.

BLIND LEADERS ON THE LABOUR QUESTION.

SIR.—"Advance of income and reduction of hours of labour are clearly the only means by which the operative classes can be elevated—can either reduce sickness, lengthen life, or cultivate their moral nature:" so saith Mr. George Potter, in his new manifesto, on behalf of the nine hours' movement. Possibly the assertion may apply in some degree to those trades which are underpaid, or in which the hours of labour are far too long, as in the case of the bakers; but the building operatives have yet to show that they suffer from the evils endured by others. But in either case it is perfectly clear that the assertion is not based on sound conclusions; because the mere increase of wages and reduction of hours of labour are not "the only means by which the operative classes can be elevated." Such a theory is dangerous to all social progress. According to this principle, the highly-paid miners and colliers of the northern districts ought to be the most elevated in the social scale of the working classes; but the late reports of the Education Commissioners prove the case to be otherwise. Mr. McCulloch says truly, in his treatise on "Wages and Labour," that "though the rate of wages, whether estimated in money or in commodities, depends on the proportion between capital and labour, the condition of the labourers is not determined by that rate only, but partly by it, and partly also, and perhaps principally, by the mode in which they expend their wages; that is, by their peculiar tastes and habits in regard to necessities, conveniences, and amusements. Every one, indeed, is aware that work-people with 18s., 20s., and 24s. per week, are frequently much better off than others with 28s., 30s., and 36s. per week, though the families of the former be quite as large as those of the latter." The Rev. John Clay states that, "In this country, and at this time [1855], it ought to be felt as a grief and a reproach, demanding anxious attention, that the material prosperity of the industrious classes should be so constantly accompanied by the moral degradation of a large portion of them. In the tendencies and habits of many of our artisans and labourers, there must be something deeply wrong, when what should have been for their wealth is to them an occasion of falling." When one considers the immense sums annually wasted by the working classes in vicious and impoverishing indulgences, it is not surprising that their condition should be so bad as they represent it to be. High wages and limited hours of labour will not of themselves ensure the results which Mr. Potter assumes, unless the operatives endeavour first to reform themselves. As Mr. Smiles well declares,—"The ability to earn money by skilled labour does not necessarily bring with it either wisdom or prudence."

Mr. Potter should remember, that the power to elevate themselves resides in the people; and if from indifference, ignorance, or wilfulness, they do not avail themselves of it, they should not lay the blame on capital.

The true means by which the working classes may be elevated is the practice of frugality, temperance, and prudence. Working men should recollect that they are the great employers of labour—far more so than the much-abused capitalists;—for the great majority of our bakers, butchers, grocers, clothiers, and other trades—and

through them almost every other profession in the kingdom—are dependent on the wages of the working men for existence. If the working classes desire—as they most assuredly do—to elevate their condition, they must bear in mind that one, if not the principal, way of doing so is by the proper expending of their wages. Wages, when properly expended, tend to increase the means of employment for others; who, being thus withdrawn from competition in the labour market, lessen the number of the unemployed, and thereby tend to increase the rate of wages.

If the 10,000,000l. annually expended by the operative classes on intoxicating drinks were devoted to the purchase of clothes, furniture, food, &c.; not only would the position of the operatives be materially improved, but thousands now idling from want of employment would obtain plenty of work, and in their turn employ others. No class can stand by itself. Society is as a chain, the links of which are riveted together; and if but one link be broken, the whole is rendered useless. When the writer of this address throws the whole blame of the present condition of working men on the employers, he utters statements which are, as a rule, utterly untrue. The regeneration of the people is not the task of the government, or of the aristocracy, or of the capitalists, but of the people themselves.

Wealth, prosperity, and happiness are matters beyond the reach of Acts of Parliament, of municipal laws, trade regulations, or strikes. "Had such things been within the power of governments to confer (or combinations to obtain), there cannot be a doubt that we should long since have possessed them all in abundance. They are to be worked out solely by our own exertions. We find under the same government, and subject to the same laws, that some men are rich and prosperous, while others are poor and miserable."—(*Exordium on Poverty*.) The time, energy, and wealth expended by the operative builders of the kingdom, and by those who have supported them during the agitations, disputes, and strikes of the last two or three years, would, if properly expended, have gone very far to secure those advantages which Mr. Potter declares to be necessary for the welfare of his followers. If they were wise, they would take warning by the past, and adopt more sensible plans for the future.

While admitting the value of good wages and moderate hours of labour as an important element in the elevation of the people, it must be stated—firmly and distinctly—that the man who declares that these two things are the *only* means by which such a result can be obtained is unworthy of confidence, especially when his teachings tend to create division between employers and employed, to widen breaches already existing, and to lure the misguided and unreflecting working man into the fearful vortex of a strike.

Kettering.

JOHN PLUMMER.

CHURCH-BUILDING NEWS.

Hornsey.—Park Chapel, Crouch End, Hornsey, was reopened on Sunday, the 24th ult., after being considerably enlarged and otherwise improved. The alterations consist of an additional building on the south side, 36 feet by 35 feet; beyond which, on the west, is an open arcade, supporting an upper corridor, leading to the west end gallery, the length of new building, and 5 feet 6 inches wide. The interior of chapel now is on plan in the form of a T. The new part forms the stem or trunk, consisting of three bays similar to the original ones. Between the two southernmost buttresses, on the eastern front, is a moulded and enriched porch doorway, executed in stone, which leads to a corridor 6 feet wide: at the end of this is the new stone staircase to galleries, one of which is at the southern end, above the corridor; the other at the western end. From this corridor access is also obtained to aisles of ground-floor. Most of the timbers of the roof are exposed to view, and stained and varnished. The materials used in the new part are brick, Bath stone dressings and rag, &c. The height from floor to ceiling is 36 feet. The accommodation is for 750 persons. The whole cost, including boundary-walls, will be 1,355l. The architects were Messrs. Lander & Bedells, of London; the builders, Messrs. W. Hill & Son, also of London.

Martham (Norfolk).—The work of restoration, which has been going on for the last five or six years in Martham Church is now nearly complete: the stone carving is also nearly finished in the chancel, after occupying some considerable time; being of a delicate character, and copied from natural flowers plucked from revered spots in the Holy Land, such as the altar over the

* "The Labour Question: an Address to Capitalists and Employers of the Building Trades; being a few Reasons in behalf of a Reduction of the Hours of Labour." By George Potter. London: R. Tilling, Rochester-row.

Holy Sepulchre, the Tomb of the Virgin Mary, Rachel's Tomb (Jericho), Jacob's Well, and many other places mentioned in Scripture. Other parts of the carving represent the Parables of our Saviour. The whole of the carving is carried out, with scriptural allusions as far as possible, by Mr. H. Earp, of London. Mr. Philip Boyce is the architect, under whose superintendence the restoration have been carried out, and the nature of the work has necessitated his presence to a great extent. The builders are chiefly from Yarmouth.

Lichfield.—In the nave of the cathedral has been erected a baptismal font, the gift of the Hon. Mrs. H. Howard: it has been put up partially under the first bay on the north side of the nave arches, eastward of the north-west tower arch. On plan it is not an octagon, but a square with its corners off. Each side of the square has on it a sculptured scriptural subject in high relief, and each corner is deeply sunk and filled with figures. The material employed is chiefly Caen stone, but with a considerable proportion of marble and alabaster. The upper mouldings are enriched with a diaper of carved water-lilies, worked out of a delicate pink alabaster. The four panels of the font represent the following sculptured subjects:—1. "The Entry into the Ark." 2. "The Passage of the Red Sea." 3. "The Baptism of our Lord." 4. "The Resurrection of our Lord." The figure subjects are as follows:—1. "The Virgin Mary." 2. "Saint Peter." 3. "St. Helen." 4. "St. Chad, the first Bishop of Lichfield." The bowl is supported on a central and four detached marble columns. The centre column is of Galway green, and the four detached columns are of brocadiello. The whole of the caps are also highly carved, and round the panels are twenty-four smaller marble columns, composed of French marbles and the Derbyshire fossil, with carved capitals, the former supporting the upper mouldings, and the latter the arches of the panels. It stands elevated 2 feet 6 inches above the level of the nave floor, upon a pyramid of yellow Mansfield stone steps, the sculptured subjects being level with the eye. It was designed by Mr. W. Slater, of London, architect; and executed by Mr. J. Forsyth, of London.

Harrogate.—Mr. H. Horner's tender has been accepted by the Faculty Commissioners for the whole of the alterations and enlargement of High Harrogate Church. The architect is Mr. Lockwood.

York.—The foundation-stone of St. Peter's Chapel, York, has been laid on a site adjoining the school of St. Peter at Clifton, near York; to accommodate at least 300 pupils belonging to that institution and other persons,—in all, 400. The chapel will be of the Geometrical Decorated style of architecture. Its internal length will be 90 feet, and width 31 feet. The height from the floor to the apex of the roof will be 43 feet, and there will be a pentagonal-sided apse. The building will be divided into five bays, exclusive of the pentagonal apse, towards the Clifton-road. There will be a communication from the school by a lobby 8 feet 6 inches wide, over which will be erected an organ gallery opening into the chapel by a double arcade. At the west end of the chapel will be a bell-turret for one bell. The roof will be open-timbered, stained, and varnished. The windows will be of two-lights each, filled in with cathedral glass, and ornamented with coloured margins. The exterior will be faced with Bradford sets, and the masonry of the windows will be executed in Ancaster stone. The aisles will be paved with Staffordshire tiles, and the chapel heated with hot-water apparatus. The seats will be of deal, open, and stained and varnished. The architects are Messrs. Atkinson, of York, but the contracts, according to the *York Herald*, have not yet been let.

Leeds.—The foundation-stone of a new Wesleyan Chapel has been laid at Leeds. The new edifice is intended for the accommodation of the inhabitants resident in the districts of Sheepscar, Little London, Chapeltown-road, &c. The site of the chapel is a vacant plot of ground on the Chapeltown-road, between the barracks and Roscoe-place, and the superintendence of the erection of the edifice has been entrusted to Messrs. Pritchett & Son, of York, architects. The chapel (with the nave and transept) will be in the late Decorated period of the Gothic style, and will accommodate 600 persons on the ground-floor, 400 in the galleries, the latter of which are to be supported by light iron pillars. Behind the chapel there will be a lecture-room to accommodate 150 persons, three class-rooms, and a chapel-keeper's house. The cost of the chapel (exclusive of the land, and also of the tower, and the paving and flagging) will be about 3,000*l*. If the tower be added, there will be an additional expenditure of 230*l*. The paving, flagging, and fencing will occasion a further cost of 500*l*.

Hull.—The foundation-stone of St. Luke's Church, Hull, was laid on 30th ult. The new edifice will comprise a nave, north and south aisles, and at the east end a chancel, vestry, and tower, with a small gallery. The tower is at the north-east corner of the church. The entire edifice will be built with red and black bricks, with stone tracings, in the Early Gothic style, and with internal fittings of deal, stained and varnished. The accommodation will be for about 900 persons. The foundations of the tower and spire are being put in, but the superstructure cannot be erected until sufficient funds come in. It is desired, if possible, to secure land at the west end for the erection of schools. The estimated cost of the church itself is about 3,100*l*., exclusive of tower and spire. Miss Broadley has presented the site, valued at 1,000*l*., and the value of the present St. Luke's Church is estimated at another 1,000*l*. Several large sums have been obtained in subscriptions. The builders are Messrs. Simpson & Malone, of Hull; the architect, Mr. R. K. Blesley, of London; and the clerk of the works, Mr. Kerby, of Hull.

Kirkby Wharfe.—The parish church here, which has been restored, in memory of the late Lord Lonsborough, was reopened for divine worship on the 25th of April. The edifice has been restored, under the superintendence of Mr. George Shaw, of Saddleworth, architect. In restoring the church, it was considered best to adopt the Middle or Decorated style for the new portion of building required; and the present north aisle, east window of chancel, south aisle windows, and porch, with the additions to the tower, have been carried out in that style. The upper part of the tower has been rebuilt in the Perpendicular style, in which it was originally erected. The roofs, which are all new, are open timbered, and those of the chancel, the nave, the north aisle, and the chapel, all differ in design. The benches are of oak, with standards, and open. The inner porch door is carved in an interlacing conventional foliage, to assimilate with the Norman archway. All the woodwork has been executed under the care of the architect, and is stained to correspond with the old carved oak, for which this church is noted. This ancient work, belonging to the Tudor period, and representing scenes from in-door and out-door life, with symbols of the Passion, and armorial bearings, is now contained in the panels of the screens of the north chapel, which has been fitted up as the family pew of Lord Lonsborough. The chancel end of the church is enriched by the memorial east window and the drapery underneath, all worked by Lady Lonsborough, assisted by the Hon. Miss Denison and the Hon. Miss Augusta Denison, in memory of the late Lord Lonsborough; who, in his lifetime, attended this church, and is buried in the family vault outside. The window was done by M. Capronnier, of Brussels. The subject is the Crucifixion. In the central panel is our Saviour on the Cross, with Mary Magdalen embracing His feet; on the left panel, the Virgin, supported by the other Mary; on the right, St. John, with the Roman Centurion; in the background, several other figures,—with the walls of Jerusalem, beneath a lowering sky, which just begins to brighten at the distant horizon. The time is immediately before the death of our Lord. In the tracery above are two angels, bearing away the instruments of the Passion; and at the top is the Lamb, surrounded by foliage.

STAINED GLASS.

St. Luke's Church, Heywood.—This large church is now in a forward state, and already several painted windows are contemplated. The whole of the Fenton chapel will be filled with painted glass by Capronnier, of Brussels, and others. A three-light window in the south nave aisle will be filled with painted glass from designs made by Messrs. Clayton & Bell. The great east window of seven lights has been examined by an eminent firm, and an attempt will be made to raise the sum of from 700*l*. to 800*l*., required to fill it.—The east window of St. James's Church, Heywood, has just been filled with stained glass by Messrs. Hardman, of Birmingham, at the cost of 300 guineas.

Glasgow Cathedral.—The first of a series of stained-glass windows for the chapter-house of Glasgow Cathedral has just been completed by Mr. James Ballantine. It is to be erected by the Chevalier Burnes, to the memory of his brothers, Sir Alexander and Charles, who fell at Cabool in 1841, and of his son, George Holmes, who met his death at Lucknow, in 1857, rather than abandon a child whom he had rescued. There are two

lights in the window, each about 12 feet high by 2 feet broad. In the dexter compartment is a figure of David lamenting the death of Jonathan; and, in the sinister, a figure of our Saviour, with a child in his arms. These figures are placed under canopies. The armorial bearings of the Burnes family are blazoned within quatrefoil spaces, and the other portions of the window are filled with ornamentation. The window is not yet placed in the cathedral.

Falkirk Church.—The late Mr. James Russel (younger), of Blackbraes, having signified his intention, some time before his death, of presenting to the heritors a stained-glass window for the parish church; his trustees, with the approbation of his widow, resolved to carry out the intention, and an order was accordingly given for the execution of the work, which was intrusted to Messrs. Ballantine & Allan, of Edinburgh. The glass, according to the *Falkirk Herald*, has now arrived, and is in course of being fitted in. The windows in the north gable are protected externally by wire gauze, which detracts from their effectiveness, while the same object is attained in the new by rolled plate-glass placed externally to the design. The centre compartment, which is circular, is occupied with a painting of the burning bush, with the motto, *Nec tamen consumebatur* ("Nor yet was it consumed"); and the surrounding divisions are filled with geometrical figures and ornamental tracings. The corresponding window is being fitted up at the same time in a somewhat similar style, the cost being provided by general subscription. It will contain two mottoes, viz.,—"On earth peace and good will to man," and "Glory to God in the highest." There are only two windows remaining unadorned, and they are smaller than those completed.

SCHOOL-BUILDING NEWS.

Happisburgh.—New school buildings have been opened here. The schools, with teacher's residence attached, have been built on a site in close proximity to the church and vicarage, and consist of a school-room, 36 feet by 17 feet 6 inches, and a class-room, 14 feet by 11 feet 6 inches, which will afford accommodation for thirty boys, thirty girls, and twenty infants. The schools are built in Gothic character, of red bricks with white brick and stone dressings, relieved by black, white, and red plinth strings, cornices, and arches to the doors and windows. They have high pitched open-timbered roofs, affording ventilation, and are covered with green and blue slates laid in bands with an ornamental ridge cresting. The work has been carried out by the contractor, Mr. R. Burton, of Paston, builder, from the designs of Mr. J. H. Brown, of Norwich, architect.

Luton.—The Primitive Methodists of this town have resolved to erect school-rooms, capable of accommodating 400 boys and 400 girls. The contract has been taken by Mr. Lewin, of Luton, for 397*l*.

Birmingham.—The following particulars as to a new school here are taken from the *Midland Counties Herald*, of 30th ult.—"A gratifying proof of the progress of architectural taste among a body from which the great reviver of Gothic architecture in these latter days sprang—we mean the Society of Friends—is evidenced in a spacious edifice erected in the Upper Priory by the members of that highly-respectable portion of our community. The building, which is in the Early English style, is intended to be used for scholastic purposes, delivery of lectures, social meetings, and kindred purposes. It consists, on the ground-floor, of committee-room, class-rooms, offices, &c.; and from the entrance vestibule, which is ornamented with chromatic decoration in the brick-work, a flight of stone steps leads to a noble and well-lighted lecture-hall or school-room, about 75 feet long by 38 feet wide and 40 feet high, vividly recalling the idea of the ancient trade or guild-hall. Though plain in detail, and almost devoid of ornament, the effect of the open-timbered roof (the principals of which are laminated) is very successful, chiefly depending upon the beauty of its proportions. Light is admitted by five lancet windows at each end, the exigencies of the situation precluding side windows. Many traces of the love of plainness inherent in the Society—and which have evidently cramped the architect—are visible throughout; but we trust we shall be pardoned, if, while commending the Building Committee for what they have done, we suggest the desirability of carving the corbel blocks on which the principals rest, and also of having an ornamental vergeboard and porch entrance, which would add greatly to the appearance of the street front. The building has been erected from the designs of Mr.

Joseph Phelps, of Eldon Chambers, Cherry-street, who has acquitted himself in a most satisfactory manner. No contract has been entered into for the execution of the work, which has been carried out under the supervision of a Building Committee, at a cost of about 2,000*l*.

PROVINCIAL NEWS.

Birmingham.—The chief stone of the intended new Public Baths to be erected at the expense of the Corporation, at the junction of Northwood-street with Livery-street, has been laid with the usual formalities by the Mayor. The building, according to the local *Gazette*, will comprise thirty-seven private baths, one plunging and two swimming baths, for men and women, with wash-house, boiler, and engine-houses, and attendants' house. The women's department will be in the front portion of the building, entered by a central doorway, on the left of which will be placed the first-class, containing a plunging-bath and six private baths; and on the left will be the second-class, consisting of six private baths, with washing room, attendants' room, &c., to the two classes. The men's department will consist of two classes—the first at the back, to the left of the centre, containing separate entrance, large swimming bath, 62 feet by 31 feet, with forty-seven separate dressing rooms around the same, twelve private baths, waiting-room, attendants' room, &c. The second class will be placed at the back, to the right of the centre, and consists of large swimming bath, 68 feet by 32 feet, with twenty-four separate dressing-rooms, and seventy-two separate dressing-stalls, thirteen private baths, waiting-room, attendants' rooms, &c. The front will be faced with best red bricks, with stone dressings; and the buildings generally will be one story high, and lighted from the roof. The cost, including well and engineer's work, will be about 7,500*l*. The architect is Mr. William Martin; the contractor, Mr. James Wilson; the engineer, Mr. Purnell; the contractor for the well and engine, Mr. William Middleton; and for supplying hot-water boilers, and distributing hot and cold water, Mr. Hayward, jun., of Derby.

Doncaster.—The race committee have received tenders for alterations at the Grand Stand enclosure. Messrs. Lister & Son, Messrs. Anelay, and Mr. Athron, had been requested to furnish estimates for the work in accordance with the plans of Mr. Butterfield, steward. Messrs. Anelay's was the lowest, at the sum of 241*l*. Mr. Walker obtained the contract to furnish apparatus for seven water-closets, at 50*l*., including plumber's work, &c.

Hunslet.—On Whit Tuesday the foundation-stone of a new building for the Hunslet Mechanics' Institution was laid by Mr. Alderman Blackburn, the president of the institution; and the event excited great interest amongst all classes of the population of Hunslet. The employers of labour in the district have subscribed about 1,200*l*. towards the necessary funds. The working classes have contributed about 300*l*., making the total sum raised 1,500*l*.; but this will not defray the entire cost. The new building, as described by the *Leeds Intelligencer*, will comprise a lecture-hall, and a reading-room and library, classrooms, &c. The design, which was selected in competition, is by Mr. George Smith, of Leeds, architect, under whose direction the works are to be carried out. The building will be of brick, with stone dressings, in the Italian style of architecture; having at the four angles rusticated pilasters from the ground to the first floor; upwards panelled pilasters. The principal entrance in front is formed with portico, having columns with carved caps, surmounted with a semi-circular archivolts, having twisted bands at the external angles and a crowning cornice. The sides of the building are formed with brick pilasters and double semi-circular archivolts in brick, with stone bands intersecting and springing from stone impost moulds. The whole building is surmounted with a stone cornice, having brick parapet and chamfered stone coping; the centre portion of the two sides and the four angles being raised to form finials to the chimneys. The lecture-hall, with a small gallery over the entrance, will seat 600 persons.

Perth.—The new poor-house for the parish of Perth has been opened with about 80 inmates. The house is capable of containing 200. It is built on the west of the town, at the side of the Glasgow road, and is surrounded by a considerable extent of garden ground. The cost is about 10,000*l*.

Deeside.—A suspension-bridge is about to be erected across the Dee, at a spot near Boat of Dinnet. Lord Huntly has consented to defray

about two-thirds of the expense of the structure, provided the remainder be raised by subscription by the inhabitants of the district and neighbourhood, and others interested.

LINCOLNSHIRE ARCHITECTURAL SOCIETY.

The annual meeting of the Lincolnshire Diocesan Architectural Society was held this year at Bourn, the good people of which, proud of the distinction, received the party with music, processions, triumphal arches, and a general rejoicing.

Bourn Abbey Church was visited, and its architectural features were explained by the Rev. E. Trollope, the secretary to the Society. A procession was then formed by the local rifle corps and two bands, and the site of the castle, a portion of the foundations of which building had been excavated, was visited; and, on the spot formerly surmounted by its keep, a paper upon its past history was read by the rev. secretary.

On the two days during which the meeting was held, excursions were made to various places in the vicinity, such as Dunsby, Dowby, Sempingham, Horbling, Threkingham, Falkingham, Aslackby, Rippingale, &c.; and remarks made on the various objects of interest visited. The Society's museum was opened in the evenings, and meetings held. An address from the inhabitants of Bourn to the members was read at the first of these, and a dinner was partaken of on the second evening, in the town-hall, at which Sir John Trollope, bart., presided, and at which the Bishop of Lincoln was present. An address after dinner was read, with reference to a piece of plate presented to the secretary; and the bishop expressed the satisfaction he felt in being able to solicit Mr. Trollope's acceptance of a stall in the cathedral, and was glad that the Society had felt itself honoured by so small a mark of his favour.

SCHOOLS OF ART.

The Birmingham School.—The students of the antique and modelling schools of the above school of art have recently presented to the modelling master, Mr. W. H. Sonnes, a handsome silver salver and cup, as a mark of their appreciation of his services. It appears that he has prepared a valuable set of diagrams on artistic anatomy, to illustrate lectures voluntarily delivered by him in the school. He has also thrown open his own private studio to the advanced students, for the purpose of enabling them to study from the living model; the latter being objected to in the school of art by the committee. The committee, in this matter, are evidently opposing the best interests of the school; and we strongly recommend the members to profit by the lesson taught them by their modelling-master. It is a positive monomania to object to the living model when the students are fit for it; and this conduct of the master, himself an artist of repute, shows that some of the students are fit for it. It is at all times to be remembered that the living model should only be resorted to when progress of their studies. When this is the case, as it apparently is at Birmingham, a committee-man who conscientiously objects to the living model ought, as a matter of duty, to conscientiously object to be a member of the committee; for he is incapable of understanding the exigencies and necessities of art study. We congratulate Mr. Sonnes on his success, and heartily wish him a committee who are capable of appreciating his services as well as the students do.

The Leeds School.—This flourishing school has just held its annual exhibition in East Parade. In 1858 the students only took five medals; in 1859 they obtained 11; whilst, in 1860, they received 20, and five honourable mentions; and this year they have taken 25 out of the 30 to be granted, with 8 honourable mentions, and the selection of 10 of the works for national competition. With this rise in the position of the school, there has been a corresponding comparative progress; for whilst, in 1858, there were 47 out of 76 schools ranking higher than Leeds, and in 1859, 32; in 1860, there were only 11; and this year it is expected that Leeds will stand fifth on the list; London, Manchester, Birmingham, and Sheffield alone preceding it. Comparing its extent and operations with other schools, it stands third; London having 9,397 students under instruction, Manchester 8,422, and Leeds 4,000. The recent inspection of the school was conducted by Mr. R. G. Wyld, H.M. Art Inspector, assisted by Mr. Walter Smith, the head master. During the exhibition, which lasted for three days, 2,000 persons inspected the students' works.

COPYRIGHT IN ARCHITECTURAL WORKS.

On this Friday (14th) Lord Palmerston will receive a deputation on the subject of the Copyright Bill brought in by the Attorney General, the further progress of which, important as it is with reference to the 1862 Exhibition, is threatened, not because of any opposition, but through the entire stoppage of all business by the recent debates on supply and budget matters.

Architects, as our readers are aware, are greatly opposed to the clause in the bill which, while professing to protect "architectural works," limits the meaning of the term to "the representation of a design" for any building or part thereof by drawing or model; and legalizes, in words, the copying of any building, or part of a building, so soon as it is erected, and re-executing it without the consent of the designer. We have pointed out this contemplated injustice again and again. A committee appointed by the Royal Institute of British Architects to consider the subject met late on Monday night last, and agreed on a petition to be presented immediately to the Commons, similar in prayer to one presented by them some months ago to the Lords. It was further understood that they would take such steps as were available towards stopping the bill altogether if the clause in question were not amended.

COMPETITIONS.

Wesleyan Chapel, Harrogate.—The designs of Messrs. Lockwood, Mawson, & Mawson, architects, of Leeds, have been adopted for the new Wesleyan chapel about to be erected in Harrogate. The building will be Italian in character, and will accommodate above 1,000 persons. The estimated outlay, exclusive of the land, is 3,500*l*.

Newcastle: Silverdale Public Hall.—Some half-dozen local architects having complied with an invitation from the managers of the erection of this building to submit designs, the shareholders met on Tuesday last and resolved upon awarding the premium of ten guineas to the design marked "Faith," which proved to be by Mr. Charles Lynam, architect, of Stoke-upon-Trent.

Horninglow New Church.—Seventeen designs have been submitted in competition for the above building. The committee, after considering their merits, selected the one furnished by Mr. Edward Holmes, of Birmingham.

Hull Town Hall.—Sir: I beg, through your columns, to call the attention of competitors in the above to the fact, that, notwithstanding the express clause that all designs were "to be sent in not later than the 31st of May," several were delivered as late as Monday and Tuesday, the 3rd and 4th of June. I ask, ought not these designs to be returned unopened? An additional day at the end of a competition is no light matter, as those who have been compelled to send in half-finished drawings know; and it is unfair to allow to some what was not allowed to all. I cannot but believe that the Mayor and Corporation will take this very proper course, if all who have competed within the time represent the matter to them in a proper light.

A COMPETITOR.

PROVIDENT INSTITUTION OF BUILDERS FOREMEN AND CLERKS OF WORKS.

The anniversary festival of this institution was celebrated on Thursday evening, the 6th inst., at the London Tavern. The Right Hon. the Lord Mayor occupied the chair, and was supported by Mr. Sheriff Lusk, Messrs. Henry Lee (Governor), Wm. Lee, M.P., G. Plucknett, G. Myers, W. Rogers, T. Robinson; Lee, Son, & Smith; W. & J. Freeman, Hunt & Stephenson, Collins & Stanbury, Joseph Taylor, Samuel Trickett, Richard Roberts, Jeakes, Quarm, Clements, Norris, &c. &c. Nearly 200 gentlemen sat down to dinner.

After the usual loyal and patriotic toasts, the Chairman next said he had now to propose the toast of the evening, "Success to the Provident Institution of Builders' Foremen and Clerks of Works." Its institution was in the twentieth year of its existence and progress. Its progress had not been marked by that success which many of its founders believed they had a right to anticipate; but, looking at the large and influential company assembled that evening for the purpose of promoting the cause of their charity, he thought he had a right to indulge in a more hopeful augury for the future. It was most desirable, for their particular branch of trade, that there should be an institution of this description, which not only offered an asylum to their necessitous fellow-workmen, but also enabled men following kindred pursuits to associate with

each other, compare their experiences, and suggest improvements on the important matters with which they were intrusted. Builders' foremen and clerks of works were intrusted with matters of great importance, and it devolved upon them to see that the great structures of their country were not erected merely for the profit of their employers, but should redound as well to their honour and skill. The institution had also other objects; and, besides providing intellectual amusement and occupation in leisure hours, made a provision against what was called a rainy day. In all walks of life poor human nature was subject to casualties and vicissitudes; and he knew of none in which men were in greater danger of sudden calamity than those employed in the erection of buildings. These men were not only liable to accidents, but they were likewise exposed to all weathers; and it therefore behoved them, when misfortune overtook these poor men, to look after and provide for their families; or, if sickness prevented the man from following his occupation, assistance should be rendered to him without compelling him to seek other aid. One other object the institution had in view was, that foremen and clerks should have an opportunity of meeting each other, in order to be able to afford information to men seeking employment. The income of the institution was between 300*l.* and 400*l.* a-year; and he thought that sum a small amount for a charitable society founded by so large and influential a body as the builders. He, however, was pleased to find that the society had, during the past year, afforded a considerable amount of comfort to many poor persons; and he thought, if greater publicity were given to the society, a larger number of members would be enrolled on their list. How was it possible for people to know the good the society was accomplishing, unless it was published to the world; and if the public were made aware of it, he believed a very large accession of members would be the consequence. He thought the society had good reason to rejoice in the selection of its executive; as he perceived by the accounts that it was governed by true principles of economy, and did not exercise a false notion of charity by giving away what it did not possess. The institution had added out of its income 150*l.* a-year to its funded capital; and, if this rule were continued, they might expect soon to realize a sufficient sum, without depending so much as at present upon annual donations. If he thought he could render the institution any service by addressing them at greater length, he would cheerfully do so; but as he did not consider any greater good would be effected by such an indication, he would at once propose "Success to the Institution."

Mr. H. Lee (the Governor) proposed the health of the chairman, the Lord Mayor. His lordship, he said, had always evinced a deep interest in advancing the cause of the Institution, and the kind and ready response he had given, when requested to preside over their festive board, was another pledge of his earnestness and good will. The public prints had informed them how well and ably his lordship had acquitted himself in his magisterial duties; and he (Mr. Lee) need not therefore enlarge upon that topic, but would simply express the wish that his lordship might long be spared to give them the benefit of his experience and enlarged views.

The Chairman, in acknowledging the toast, thanked the Governor for the kind sentiments he had expressed on his behalf; and said, "I am one of yourselves: I am what I am, by having more than fifty years ago commenced the profession to which you belong. I know nothing more pleasing than the pursuit of a builder's occupation, and nothing more interesting, and better calculated to call out the energies of the human mind. I always look back with pleasure to those years I passed actively in my business; and, speaking as a professional man of some experience, I tell you that the great secret of success, in any profession, is to love it and actively pursue it; and I have no doubt that that feeling accords with the experience of all here. Most of you have succeeded because you like what you do, and because you do it well. Your Governor has been pleased to allude to my position as Lord Mayor, and to the kind manner the public prints have spoken of my humble efforts to occupy my present position. I owe much more to the kind regard of the public of my services, than to any merits I may possess. It is gratifying to live on good terms with the world, and to know one's endeavours are appreciated. I will not detain you any longer, but simply thank you for the kindness you have exhibited towards me this evening; and again say that, having been a builder, I have become Lord Mayor, and, if I had not been in that business, I do not think I should occupy my present position. I say to all, if you desire to attain a good position, follow out with perseverance whatever you have to do."

The Chairman next proposed "The Corporation of the City of London and Mr. Sheriff Lusk;" which having been drunk with all honours.

Mr. Sheriff Lusk returned thanks, and said he was glad and felt a pride in representing so old a corporation, which dated back as far as the history of England itself. The City was a fine old structure: it had withstood the ravages of time; and would, he hoped, continue to shield them from those convulsions of the elements that had laid low other and less favoured places. It had been well built, and had for its basis the liberty and rights of its citizens. Its doors were still open for any man to walk in; and many had occupied a good position within its ancient walls. He was glad to see the Lord Mayor occupying one of those posts which only fell to the lot of a few men, and only those who worked well and indefatigably. There were some men who

could control circumstances, and there were others controlled by circumstances. One man would take up bricks and mortar, and build a palace with them, and another a hovel. The man who strove with all his power and might to accomplish his purpose might change the character of many things. The huge piece of granite, which was a stumbling block to one man, was to another the stepping-stone to honour and dignity. But there were some men who by misfortune could not control their fate, and it was for these this Society was founded; those who by accident, or sickness, or old age, could work no longer.

"We are all a part of one stupendous whole,
Whose body nature is, and God the soul!"

The donation list was here read, and amounted to 23*l.* 10*s.*

The Lord Mayor next proposed "The Patrons, Subscribers, Architects, and Engineers," coupled with the name of Mr. Barnett, architect.

Mr. Barnett returned thanks; and, in the course of his speech, said, like the Lord Mayor, he was one of them, and entirely owed his success in life to perseverance.

The Lord Mayor proposed, "The Governor and Trustees," coupled with the name of Henry Lee, esq.

Mr. Lee acknowledged the compliment in grateful terms; and said, when they met there three years ago, they were complimented by the then chairman with the words that sum had since that time been increased by 12*l.*, and besides which they had 12*l.* at their bankers'.

Other complimentary toasts followed, and the evening was brought to an agreeable close by Mr. Taylor, who was called to preside when the Lord Mayor left the chair.

RAILWAY MATTERS.

New Station at Stafford.—The widening of the two bridges south of the present station, and the erection of new goods offices, warehouses, and engine-sheds, were done preliminary to the rebuilding of the station itself, the contract for which has been accepted. The old station will be removed, and the new one will be erected 100 yards north of the present site. The buildings are to be of an Italian character, faced with dressed blue bricks, and with moulded brick and stone dressings. The platform will extend 650 feet from end to end on each side of the line. The platform and adjoining rails will be covered with extensive roofing. The contractor for the erection of the new building is Mr. Parnell, of Rugby, whose tender amounts to 20,990*l.*

New Goods Station at South Shields.—The North-Eastern Railway Company are building a new goods station, with manager's and clerks' offices, about 80 yards to the south of the present passenger station, and adjoining the ballast hills, at South Shields. The goods station will be 135 feet in length; 43 feet 8 inches in breadth; and 22 feet in height. The offices will be 82 feet in length, 25 feet in breadth, and 14 feet in height. The building will be of brick, with dressed stone facings. The builders are Messrs. Scott & Suddard, of South Shields.

Inverness and Perth Line.—The contracts for the construction of the northern end of this line have been advertised for. The first contract extends from Forres to the Water of Divie, a distance of ten miles, and requires nearly 700,000 yards of cutting and embankments, and twenty-one bridges. The second contract extends from the viaduct across the river Divie (which is already contracted for) to the water of Dulnain, three miles above Grantown, a distance of sixteen miles. There will be about 800,000 yards of cutting and embankments, and eighteen bridges.

Traffic Returns.—The traffic returns of railways in the United Kingdom for the week ending May 18 amounted to 547,890*l.*; and for the corresponding week of last year to 515,545*l.*; corresponding increase of 32,285*l.* The gross receipts showing an increase of 32,285*l.* The gross receipts of the eight railways having their termini in the metropolis amounted to 246,772*l.*; and for the corresponding week of 1860 to 227,089*l.*; showing an increase of 19,683*l.* The receipts on the other lines in the United Kingdom amounted to 301,058*l.*; and for the corresponding week of last year to 288,456*l.*; showing an increase of 12,602*l.*

Indian Railways and the Iron Trade.—A Government report on Indian railways shows that there are 2,932 miles in course of construction, of which about half are expected to be opened this year. The lines sanctioned in India will require 56,000,000*l.* for their completion, but those sections postponed will cost 7,000,000*l.* Of the 47,000,000*l.* required at present, 14,000,000*l.* remain to be raised. The construction of these lines will require large quantities of iron.

SINKING OF A COTTON MILL AT ASHTON-UNDER-LYNE.—In one of the principal thoroughfares, workmen had been removing the boiler in a mill, and dug, it is said, about a yard below the foundation of the building. The edifice at once sank down, and it is now in such a dangerous condition that no one dare enter it.

TO WHOM DO THE ARCHITECT'S PLANS BELONG?

COLLIER V. REID.

In this case, tried on the 4th instant in the County Court, Stonehouse, the plaintiff sought to recover 10*l.* from the defendant, who had acted as his architect, for retaining the drawings from which the work had been executed.

Mr. Edmunds, for plaintiff, said:—Mr. Collier employed Messrs. Damant & Reid, architects, to do certain work, in the course of which they prepared certain plans; for which they charged. A gentleman of his honour's acquaintance knew that in a lawyer's business all drafts and all letters had to be given up, and he could not conceive any reason at all, or law, why Mr. Collier was not entitled to those plans. By-and-by they would have some custom set up; but he should distinctly show that when Mr. Collier ordered this work to be done, not one word was said about the plans being detained. He was quite prepared to have a case to the court above, if he thought it was gentleman actually paying a large sum of money for certain things which he never had.

His Honour asked Mr. Dawe what answer he had to set up.

Mr. Dawe:—The rule here is to keep them.

His Honour:—The rule here?

Mr. Dawe:—And throughout the kingdom.

His Honour:—No; for I have had half a dozen plans, and they have been taken away from me. Here was a gentleman actually paying a large sum of money for certain things which he never had.

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COMPENSATION CASES.

Metropolitan Railway Company and John Hendry.—On Tuesday last a jury assembled at the Sheriff's Court, Red Lion-square, before Sergeant Hennessy, acting as Assessor, to settle the compensation to be paid for the leasehold interest, No. 8, Chapel-street, Edgware-road, belonging to Mr. John Hendry, who occupies the said premises as a shoe sale shop. The claim made was 2,600*l.*, and this was made out as follows:—

Value of the lease for 30 years from Lady-day 1830, at a yearly rental of 48 <i>l.</i>	£.	s.	d.
Loss upon stock in trade, &c.....	97	14	0
Loss on goodwill.....	910	8	0
Loss on stock in trade, &c.....	750	0	0

Total.....

For the claimant, Mr. John Barnett, District Surveyor, was called, who gave his valuation of the lease as follows:—

Premises worth per annum.....	£.	s.	d.
Deduct rent paid.....	99	6	0
.....	48	0	0

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Mr. Phillip Wilkinson and Mr. Wm. Gomme supported this view.

Mr. Edward Hodges and Mr. Warne, shoe manufacturers, were called; and they proved the retail selling value of the stock to be 1,842*l.*, and that the loss by forced sale would amount to half, or 921*l.*; that the goodwill of the business in this case, because partly sale and partly bespoke business, was worth five years' purchase on the net profits, although in general only two years was paid.

Mr. Hendry, the claimant, was called. He proved his profits to be 250*l.* per annum net; that he paid no premium for the lease which was granted in June, 1860, at a yearly rental of 45*l.*; that he compelled the Company to take the whole of the property, although only a small piece of the back building was required by the Company. Mr. Charles Lee, Mr. John George Hammack, and Mr. R. A. Withall, Surveyors, were for the Company.

The jury, after being absent half an hour, returned a verdict of 200*l.* for total compensation.

This case is mentioned to us as showing the risk of compelling a company to take the whole property, when only an insignificant part is wanted. Surely, however, it is a decision that renders some inquiry desirable. There is a great error somewhere.

EDUCATION IN THE NATIONAL SCHOOLS.

MR. MORRIS, Inspector of Schools, mentions in his report this year that, in the course of his recent inspections, where he found a school much above par in reading, he tested the first class by giving the children a newspaper, and asking them to read aloud some suitable paragraph which he pointed out; but he has unfortunately to state that, in not more than twenty out of 103 schools which he visited last year, did he find a first class able to read a newspaper at sight. This is a fault which we have long noticed in connection with those widely-spread and, in many respects, valuable schools; and think that it is a matter which calls for careful inquiry, particularly when we consider the very short time which is allowed to a large number of the children of the working classes to attend schools. It is most important that the ability to read and write and a knowledge of the simple rules of arithmetic should be acquired as rapidly as possible.

It will have been noticed, in connection with the National Schools as at present managed, that many of the children can read very fairly; they can copy in a good hand passages from printed books; if, however, those who are proficient were asked to write from dictation, or to spell easy words, in nine cases out of ten the children would be found deficient.

We have also noticed that many who could copy in a very neat hand sentences from a printed book, if asked to read the writing they had just completed, would be unable to do so. In the old-fashioned infant schools, which were chiefly managed by women, it is certain that a greater number of children in proportion were taught to read and to spell than in the schools to which we now refer. In the old schools for the youngest children it was common for them to be able to read the Bible well at the age of from six to seven years. Many teachers will acknowledge this to be the fact, and will truly point to other advantages which their system has of conveying general knowledge. They will mention the difficulty of procuring regular or sufficient attendance; they will also complain of the early age at which children are taken from school. Admitting all this, it is, notwithstanding, most important that every effort should be made to do the greatest amount of good by establishing a knowledge of the first principles of education as soon as possible. It seems to us that, in order to ensure the ability of the scholar in a rapid manner, it is necessary, in most instances, to give more particular attention to the lowest classes. In several of the schools, these are left to the care of young boys, who have little experience in teaching. These classes are examined from time to time by the master; but these very lowest classes require far more care and attention than are at present given. It is also often the case that the classes are too large for an inexperienced teacher; and it may be that, for useful purposes, it would be well to direct attention more distinctly to the conquering of the first elements, giving more undivided heed to this than is the case at present. The care of the master

and mistress is also more needed in this respect, particularly when we reflect that many children are called to commence work at an early age, to whom the ability to read and spell would be of very great use throughout life: with this power, thousands in after years would be able to improve themselves.

DWELLINGS FOR THE POOR.

STR.—Cleanliness, warmth, dryness, convenience, ventilation—are all *desiderata*. A friend of mine says that, in Algeria, when they want to clean a house, they turn on a tap at the top of it; and, as the house is tiled throughout, it is washed clean from top to basement by the running water. This is an extreme in one direction. Our model lodging-houses might be so erected upon a slope of foundation that the rain would carry away all that was noxious as it ran. Furthermore, it would be an advantage to raise all buildings off the ground on sleepers, or piles, or buttresses of brick, for the circulation of air far more than we now get in our huddled in basements. Warmth might be provided in model lodging-houses in winter by a steam pipe running through the whole stack of—say a hundred residences. Ventilation might be obtained for all by a brick shaft; and the raising and delivering downwards of various goods, &c., might be attained by shafts, in each dwelling house or floor, having movable platforms inside the shafts, worked by a steam-engine of small power. Conals, wood, water, &c., might be raised at more nominal cost. Carpeted floors are an abomination. Certainly a few mats and rugs are very convenient to place the feet on in cold weather. Papered walls are inadmissible, and so are plastered ceilings; for all these interfere with soap and water, which are as necessary for surfaces of dwellings as for the surface of the human body.

The old-fashioned mop should be used more than it is, with chloride of lime and water, in hot weather, over boards, walls, and ceilings, in cupboards, &c.

Ventilation of cupboards should be ensured by *fan blast* from the engine aforementioned.

W. R.

ART OR FREEDOM?

ALLUSIONS to politics and religion are, with few exceptions, excluded from lectures on art; from most of the art journals; and specially from the pages of the *Builder*; but Mr. Street has, in his recent lecture, delivered at the Architectural Exhibition, and reproduced in your journal, thought fit to violate this rule, in allusion to the great work of regeneration now going on in Italy, in the following passage:—

"The fact is more startling, when we consider that the existing Government of Italy is engaged in putting down the religious (?) orders, turning them out of their houses, and converting the convents and churches, which contain the most glorious works of art in the world, into stables, barracks, and schools."

Now, if the peculiar civil and religious opinions and sympathies implied in these words be really held by Mr. Street privately, in common with the Papal Brigade, the order of Jesuits, and other kindred spirits; he is of course heartily welcome to hold them; and the fact would excite no other feeling than wonder, mingled with regret, that he should do so. But, when he obtrudes these peculiar views in a public lecture upon art; and when he obtains for them a wide circulation through the medium of the *Builder*: I think a protest should be entered against them; and therefore, I beg you will allow me (not in my own name, but as a regular reader of your journal, and in the names of hundreds of other readers, artists, art students, and art workmen), to protest against them, and to affirm, with all the energy of language of which I am capable, that if to make these "*barracks*" (the nursery of Freedom's soldiers), or these "*schools*" (the training places of Freedom's sons), there is a "*needs be*" that some work of art must suffer; let them suffer,—let them perish altogether,—were they ten times more glorious than they are. The regeneration of a long-suffering people is a thousand times more important than the preservation of works of art, which are nothing if they do not represent great ideas; and to the real artist, whose soul can rise above the mere details of his art, the rudest stone on which Freedom rears her altar is dearer, more holy, more glorious, than the costliest shrine which superstitious error reared and adorned with art's most rare and cunning workmanship.

ONE WHO LOVES NOT ART LESS,
BUT ITALY MORE.

CHAMBER RESIDENCES.

I AM glad to see your correspondent "Selim" attempt to grapple with one of the great social wants of the present day,—viz., comfortable and commodious residences for the unmarried portion of the middle classes at a moderate cost. Such residences are only to be found in the form of chambers, 1*l.* Sir, an one of those "Bohemians" who have, like many others in London, been for years "houseless;" and when, after long and painful search, I at length succeeded in procuring chambers that suited me, I found their comfort inexpressible. But the rarity of them, especially in the West end of London, is very great; and those that do exist are so highly-rented that all but the higher classes of young men are precluded from living in them. Another cause that condemns a large class to the wretched servitude of lodgings, and places beyond their reach the free independence of chambers, is the sum of money required to furnish them. What we want in every part of London are suites of chambers arranged on a private plan, and not on the "club chambers" principle; so that every set of rooms should be as private and self-contained as an ordinary dwelling-house.

They should in some cases be let furnished, and in others unfurnished, to suit the means and convenience of the occupiers; and should consist of a small lobby, a good-sized lofty sitting-room, one or two bed rooms, a good-closet, and a large pantry or small store-room. This last is a most important feature of comfortable chambers, and is one that is seldom to be met with.

Were a company formed for the purpose of establishing such chambers in various parts of London, I am satisfied that a large, direct, and immediate return would be derived for the investment, and a great public want would be satisfied. Such chambers might easily be formed by taking two houses, if possible, with the staircases adjoining; and, on the site of the two staircases, building one of good stone one, lighted from above; by which means ample room would be obtained round it for the formation of lobbies, closets, &c., and the rooms round this central staircase might easily then be thrown into suites.

The roof would probably require to be raised, so as to give more height to the upper floor or floors; and the basement would form an admirable residence for the house-keeper with her servants.

I am glad to see from your correspondent "Selim" that there is some chance of such an arrangement being carried into effect, and shall be glad to put myself into communication with him, or any of your readers who may think the matter worthy of notice, for which purpose I send my name.

AN ARCHITECT.

ANCIENT LIGHTS.

Turner v. Spooner, Vice-Chancellor's Court.—On Tuesday this case came on before Vice-Chancellor Sir R. T. Kindersley. His Honour had granted an interim injunction to restrain the defendants from continuing to glaze the plaintiff's premises. Mr. Turner, the plaintiff, is a draper, in New-street and Worcester-street, Birmingham, and the defendant the well-known banking firm of Spooner, Attwood, & Co. The case of the plaintiff was, that having laid out about 18,000*l.* upon his premises, part of which he purchased in 1854, it was necessary, in the course of the improvements, to pull down and rebuild the west wall, containing certain ancient lights; in order to preserve which in their former position the brick wall was removed, but the windows were meantime suspended by scaffolding and otherwise until the old bricks had been replaced by new ones. The lower windows formed a counting-house window and one belonging to the plaintiff's shop, and these windows, one of which was previously a pantry window, consisted of heavy wooden frames with iron bars on the outside of the wall, inside windows, each consisting of two panes, whereas the old windows consisted of many. In July last, the defendants commenced erecting, in the yard at the rear of the plaintiff's premises, of which yard the defendants were in the occupation, a wooden framework within six inches of the two windows above mentioned, and proceeded to glaze these frames with opaque glass, and the bill was filed and the injunction granted to restrain such proceeding. The case now came on upon motion for decree; and it was the defendants, their agents and workmen, from continuing to glaze the framework to remain so as to darken, injure, or obstruct the ancient lights or the free access of light and air. A great deal of evidence was adduced on both sides. After the learned counsel engaged had been heard, the Vice-Chancellor gave judgment in favour of the motion; remarking, if a party had ancient lights, he could vary the mode of enjoying these lights, if in so doing he did not alter the apertures themselves; and he might acquire an increased degree of light and air without giving a right to the occupier of the servient tenement to say it was a new easement. The principle was well established, no doubt, that you could not alter ancient lights, or put additional ones, but that was not applicable to this case. The alteration of the framework was not a creation of a new easement. The paint and iron bars originally used were for the protection of the plaintiff, not of the defendants and if the former had acquiesced in reinstating anything which had been complained of, that would, no doubt, have been a strong circumstance. The use now made of the room did not affect the question: the plaintiff had a right to use it as he pleased; and no man could restrain another from overlooking him, and the use of the room was no ground, either in equity or at law, for the interference of the Court. The injunction, therefore, must be made perpetual, and extended to the removal of the wooden frames erected by the defendants. There must be a decree, with costs, omitting the words "or any other building."

THE INDIA HOUSE.—A form of tender for the purchase of the site of the India House and the building itself, with form of agreement to be entered into, and a complete set of plans of the building, prepared by Mr. M. D. Wyatt, have been circulated. The tenders are to be sent in on the 19th or 20th inst. The plans, &c., may be obtained by any who want them for half-a-crown.

Books Received.

Iron: its History, Properties, and Processes of Manufacture. By WILLIAM FAIRBAIRN, C.E., LL.D., &c. Edinburgh: Adam & Charles Black. 1861.

This valuable though limited treatise is mainly a reprint of the article on the Iron Manufacture, in the new edition of the *Encyclopædia Britannica*. The unavoidable haste, however, with which that article was written, has been here remedied, and the treatise now assumes a more complete form than heretofore. The work treats, though not exhaustively, of the various processes of manufacture, and of what relates to the chemical and natural history, statistics, &c., of iron, but not to its appliances, which important subject has already, to a certain extent, been separately treated of by the author, as our professional readers very well know. In an appendix on Armour-plated Ships, Dr. Fairbairn expresses it as his opinion, that the whole navy of Great Britain must be remodelled and rebuilt of iron,—in frame-work no less than in armour; and certainly, if what Sir John Pakington has just started the country by telling in the House of Commons be true, the sooner the better; more especially as it may be hoped that all these warlike preparations will very shortly end in rendering war itself impossible.

In the same appendix the author draws particular attention to a new and important branch of the iron manufacture which he considers will, in all probability, shortly come into existence,—namely, the production of wrought-iron in very large masses. In what form these uses will be required is not yet determined, but a practical committee on this subject is now sitting.

How to Spend a Month in Ireland, and what it will Cost. By SIR CUSACK P. RONEY. London: W. Smith & Sons, Strand; Dublin: M'Glashan & Gill.

Is there be any one man in particular to whom those who know him would apply if they wished an answer to the questions forming the title of this book, it would be Sir Cusack Roney. And here, for a shilling, those who do not know him, may get all the advantage of his knowledge.

Earnest Irishman,—as well as, from long residence and social and domestic ties, earnest Englishman,—he has for years applied himself to facilitating intercourse between the two countries, and has done good service by rendering Ireland better known to Englishmen than it was. The most valuable part of the book, which is a marvel of cheapness even in these days of railway literature, is that wherein is set forth the fullest possible information concerning "through fares," "tourists' tickets," and "road-conveyances throughout Ireland."

Ireland at this moment offers an added attraction to the tourist, beyond its usual full list, in the shape of the exhibition of works, fine art, and ornamental art, by the Royal Dublin Society; and we cordially add our recommendation of the "green island to those who are asking "Where shall we go?"

"Go there: and, in addition to finding scenery as interesting, as grand, and as picturesque as you can meet with in any other part of the world, you will see a country that was badly governed, but that is now rapidly evolving the happy results which flow from just laws, equal for all, and administered with good feeling and impartiality. You will also come in contact with a peasantry who, you will learn, were degraded, but who, at the present day, are industrious, well clad, and well fed, and able to bring to their labour material, strength, and intelligence. In the society of your own rank, you will meet the combination of the well-educated Englishman with the less-restrained familiarity of continental habits. From all classes you will experience courtesy, kindness, and a heartiness that will quickly convince you you are among fellow-subjects—that you are in a fatherland that as much belongs to you as it does to those who dwell within it. Recollect, further, that the passport barrier will not be raised against you at your entrance; and no frowning official will ask you, in a language that you probably don't understand, your name, your age, and your religion; but you will be precisely as free to come, as free to go,—when you like, and as you like,—as you are in your own free country."

Sir Cusack rightly points out the good that will be done by those who buy some of the lace, the crochet, or other ornamental work that will meet them on every side:—

"The sums thus expended will probably, in the difference between English wealth and Irish poverty, appear to you to be small; yet, small though they be, they will confer great blessings, for these purchases are the sources, for thousands of the young girls of Ireland, of honest and virtuous livelihoods."

Such of our readers as have not already seen Dublin, Cork, and Belfast, the natural beauties of Wicklow—(how well we remember the Devil's Glen, the Dargle, and the Glen of the Downs!)—

the romantic district of Killynarry, and the architectural antiquities scattered about (not made enough of in any of the guide-books), will hereafter thank us if they take our advice to first purchase Sir Cusack Roney's book; and, having learnt "how to spend a month in Ireland," to go and do so.

VARIORUM.

"A Rudimentary Treatise on the Metallurgy of Silver and Lead, by Dr. R. H. Lamborn. London: Weale. 1861." Mr. Weale's rudimentary treatises are written by competent authors, which is more than can be said of all such treatises. Dr. Lamborn's name is a recognized one in science. Silver and lead are closely connected in mineralogy. The present ores of lead producing much silver of all such little treatise contains a description of them; and minerals; the methods of assaying them; and the various processes by which the two metals are extracted from their ores; together with historical and statistical notices of both. There are also details as to the production of white and red lead, the manufacture of sheet-lead, lead pipe, &c., and much other useful information.—"Where shall we go?" A Guide to the Watering Places of England, Scotland, and Ireland; with maps and illustrations. Edinburgh: A. & C. Black." As a preliminary guide, this little volume cannot but be generally useful. When the pleasant but at times rather perplexing question, "Where shall we go?" has been finally settled, of course more detailed and fuller guides to the locality preferred can readily be obtained; but the present one includes all the information generally wanted by those seeking a temporary or permanent change of abode amongst the healthier and more beautiful watering-places in the British Isles.—"The Boy's Own Library: Wild Sports of the World. London: S. O. Beeton, 248, Strand." Mr. Beeton must be getting a very popular man with the boys. The two numbers of this sixpenny monthly now before us are full of stirring material as to elephants and elephant hunting, lions, tigers, &c., and must delight the hearts of our more adventurous youths in the perusal.—"A Speech on the Debate which arose in the House of Commons upon the Coal Clause in the commercial Treaty with France, 1860, by H. Hussey Vivian, esq., M.P.," has been published by Ridgway, of Piccadilly, in pamphlet shape, together with a lecture by Mr. Vivian, delivered at the Truro Institution, in January last, on the same important subject.

Miscellaneous.

CAMBRIDGE ARCHITECTURAL SOCIETY.—The fourth meeting of this Society was held on the 30th May, when the Rev. W. J. Beumont, Trinity College, read a paper "On the Conventual Church of Mount Sinai."

MRS. KEY BLUNT'S READINGS.—This lady, the daughter of Francis Scott Key, of Washington, has been reading very successfully in Scotland; and, on the 7th inst., essayed to a London audience at Willis's Rooms, St. James's. Her most successful efforts were Sydney Dobell's "How's my boy?" and Edgar Poe's "Raven." Goethe and Shakespeare also supplied subjects, but with less pleasure to English ears. Mrs. Blunt shows great tenderness and true womanly feeling. One or two peculiarities of pronunciation might be easily and, we should say, wisely overcome. We cordially wish Mrs. Blunt the success she well deserves.

THE LATE MR. E. LANDELLS, ENGRAVER.—The Savage Club will give an amateur performance at the Lyceum Theatre, on the evening of the 19th instant, in aid of a fund for the relief of the widow and children of this well-known engraver. Among the attractions will be an original burlesque of the fable of "Valentine and Orson," written for the occasion by Messrs. Talfourd, Byron, W. Brough, Planché, Halliday, and other gentlemen of repute in this department of literature. While regretting much that the family of an artist who has for many years been intimately connected with the progress of our illustrated periodicals and other publications should have been left without provision, there were circumstances connected with the last few years of Mr. Landells's life which were very unfortunate; and with declining health he was beset with difficulties, which in a measure prevented him from fairly using his abilities. We trust, therefore, that the present opportunity will be taken advantage of, by many who have known Mr. Landells, to assist in relieving those he has left behind, from very adverse conditions.

SOCIETY OF ENGINEERS.—This Society held a *conversazione* on Tuesday evening, 11th instant, in the lower room, Exeter Hall.

WORCESTER ARCHITECTURAL SOCIETY.—The opening day for the season has taken place with an excursion. The first place visited was Tiber-ton, the incumbent of which declined to meet the party; stating that there was nothing in his little church worthy of a visit from that body. The visitors remained—ladies and all—in the church-yard (the day being a wet one), until the churchwarden was prevailed upon to lend the key of the building; and then it was found, says the local *Herald*, which reports the meeting, that the edifice presented nothing desirable to look upon, much to regret. Next, the excursionists drove on to Oddingley. Crowle Church was next visited; then Huddington and Himbleton; after which, the party returned to Worcester.

CLYST ST. GEORGE.—The new clock for the parish church of Clyst St. George has just been completed by Messrs. John Bailey & Co., of the Albion Clock Works, Salford. The dial is 4 feet in diameter, and black; the figures and hands gilded; and the main, or great wheels, are 15 inches in diameter. The hours are struck, and one blow is given at the half-hours. In the striking train the ordinary pin-wheel is dispensed with, and a small motion sub-stituted for lifting the striking lever, thus greatly reducing the friction and destructive action. Patent wire ropes are used. The pendulum rod is 155.55 inches long; and, being what is technically termed a "two-seconds," it is compensated to counteract the injurious effects of the variations of the temperature,—a principle arrived at by numerous experiments on a large scale. The whole of the wheels, pinions, and bearings are of cast-iron.

A SOUTH LONDON MUSEUM.—We are glad to be able to bring under the notice of our readers the efforts which are being made to establish a museum on the South Kensington plan, though doubtless on a much smaller scale, for South London. A *conversazione* is to be held at the South Kensington Museum, in aid of the movement, on Thursday, the 11th of July next, at eight p.m.; tickets, 5s., or, for a lady and gentleman, 7s. 6d. The committee of the society for the establishment of the new museum meet at The Horns, in Kennington Park, and Mr. Edgar P. Brock and Mr. Sebastian Davis are the hon. secretaries. A fine collection of gems, diamonds, and other precious stones, lent for the occasion, will be exhibited. A military band will be in attendance, and other attractions will be provided. The cost of a site and buildings for the museum, capable of extension, as funds may permit, will be, in approximate figures, about 26,000*l.*; of which sum the promoters have asked Government for a grant of 16,000*l.*; leaving 10,000*l.* to be raised by subscription in the south of London, and from friends to the movement elsewhere. The contents of the edifice to be obtained by small Government grants, by donations, and by the exhibition of works lent. Donations have already been promised; and the Privy Council on Education have promised the temporary loan of works of art, in the event of the museum being established. Promises of subscriptions to a guaranteed fund of 10,000*l.* are requested from the public in the first instance only; it being the intention of the promoters to call for payment of no portion unless an adequate sum be forthcoming for the purchase of a suitable site and buildings. In the carrying out of a design so commendable, it is to be hoped the society will meet with every encouragement and success.

LORD MAYOR CURTIS.—A suggestion having appeared in the *City Press*, from a Liverrman of the City, that the present occupant of the civic chair should be requested to accept the office another year, the Lord Mayor has addressed the following reply to the editor of that journal:—"Sir: In your paper of last week I read a letter from a Liverrman of the Tallow Chandlers' Company, suggesting that I should be placed for a second year in the high office which, by the favour of my fellow-citizens, I have now the honour to hold. I feel it incumbent on me, through the medium of your well-read columns, to beg of my friends to discourage any agitation with this object, which, in kindness to me, might otherwise, perhaps, be promoted. As far as I myself am concerned, I shall have had enough of the honour and of the toil of office. As regards the City, I am not so vain as to suppose that my being again invested with the functions of the civic chair is at all necessary; and as regards my brethren, the Aldermen who are my juniors, I should feel ashamed of being in any way a party to the postponement of their just expectations.—I am, &c., WILLIAM CURTIS."

MONUMENT FOR CARLISLE CATHEDRAL.—A mural monument, for the interior of Carlisle Cathedral, has been nearly completed by Mr. John Steel, R.S.A., of Edinburgh, and is described in the *Scottishman*. It is about six feet high, and commemorates the services of those officers and men of the 34th Regiment who fought and died before Sebastopol. A Gothic arch, with mouldings, springs from pilasters, the whole structure resting on a base supported by a series of corbels, all of Binny stone. The arch and space between the side pilasters are filled with sculptured marble, telling the story of the "unreturning brave." Fame, represented by a figure in *alto relievo*, is placing wreaths of laurel on a tomb, the semblance of which is sustained by means of a tablet, bearing the names of the officers and recording the number of the private soldiers who fell. Mr. David Bryce, R.S.A., designed the architectural part of the monument.

PROVISIONS IN 1813.—Sir, I wish you would give the following note to show our improved condition. In doing this it should not be forgotten that in 1813, high as the prices were, they were considerably lower than they had been during the war:—

Prices in 1813.	s. d.
Butcher's meat (lowest price)	0 10 per lb.
Bread, household or brown	1 3½ per loaf.
" white	1 5½ "
Sugar, brown	0 10½ per lb.
" loaf	1 2 "
Candles, mould	1 2 "
" dip	1 0½ "
Soap, common	0 11½ "
Butter, salt	1 3½ "

The price of the abovementioned articles are at present:—

Butcher's meat (lowest price) of fair quality	s. d.
Bread, household and brown	0 7 per lb.
" white	0 9½ "
Sugar, brown	0 5 per lb.
" loaf	0 10½ "
Candles, mould	0 10 "
" dip	0 7 "
Soap, common	0 4 "
Butter, salt	1 0 "

In 1813, the price of labour was very much depressed.—A WORKMAN.

SALES BY AUCTION.—At the Mart, by Mr. Vann.—Freehold ground-rent, of 20l. per annum, arising out of a grocer's shop, post-office, house, and premises, and two cottages, near the new church, Belvidere, let on lease, for 61 years from Lady-day, 1854.—sold for 370l. Freehold wood land, called Five Acre Wood, containing 5a. 2r. 10p., situate in Meopham, near Gravesend.—sold for 165l. A leasehold house and garden, with shop, No. 13, Addison-terrace, Kensington, term 64 years, at a ground-rent of 9l. rent per annum, 63l.—sold for 700l. At Garraways.—By Messrs. Price & Clark.—Freehold residence, with garden, situate at Putney-heath, let on lease for 13½ years, at a rent of 65l. per annum, sold for 1,050l. Leasehold residence, No. 10, Gloucester-road, Regent's-park, term 99 years from Midsummer, 1845, at a ground-rent of 13l. 11s. per annum, rent per annum 90l.—sold for 930l. Two leasehold dwelling-houses, Nos. 70 and 72, Rotherfield-street, Islington, term 96½ years from June, 1844, rent per annum 60l., ground-rent per annum 10l.—sold for 530l. Freehold villa, known as "Waddon Cottage," with gardens and about 4 acres of meadow land, situate at Croydon.—sold for 3,500l. By Mr. Boyes.—A freehold ground-rent of 30l. per annum, arising from No. 85, Inverness-terrace, Kensington.—sold for 810l. A freehold ground-rent of 30l. per annum, arising from No. 87, Inverness-terrace.—sold for 810l. A freehold ground-rent of 30l. per annum, arising from No. 89, Inverness-terrace.—sold for 900l. A freehold ground-rent of 30l. per annum, arising from No. 91, Inverness-terrace.—sold for 810l. A freehold ground-rent of 30l. per annum, arising from No. 93, Inverness-terrace.—sold for 810l. A freehold ground-rent of 30l. per annum, arising from No. 95, Inverness-terrace.—sold for 810l. A freehold ground-rent of 30l. per annum, arising from No. 97, Inverness-terrace.—sold for 820l. A freehold ground-rent of 20l. per annum, arising from No. 96, Inverness-terrace.—sold for 550l. By Messrs. Christie, Manson, & Woods.—Lease of the premises known as St. Martin's Hall, situate in Long-acre, term 64 years from September, 1852, at the annual rent of 100l., and will be sold subject to a mortgage thereon for securing 8,000l.—sold for 20l. By Messrs. Brown & Roberts.—Freehold family residence, with garden, farm-yard, &c., and a paddock, containing 4a. 2r. 12p., situate St. John's-hill, Battersea-ridge.—sold for 5,020l. A plot of freehold building land, consisting of 1a. 1r. 25p., situate on St. John's-hill.—sold for 1,120l.

SELECT COINS.—On Friday, 21st, according to our advertising columns, Mr. Frederick Godwin will sell a cabinet of rare coins, the property of the late R. J. Ashton, Esq., together with some philosophical and musical instruments.

COMMITTEE FOR THE 1862 EXHIBITION.—In addition to the General Committee in connexion with the Fine Art Section of the International Exhibition of 1862, Her Majesty's Commissioners have requested the following gentlemen to form committees of advice and selection for the several classes of that department:—1. Class 37 (Architecture).—Mr. Tite, M.P., F.R.S., President of the Institute of British Architects; Mr. A. J. Beresford Hope, Hon. Fellow R.I.B.A., and President of the Architectural Museum; the three Vice-Presidents of the Institute; Mr. T. L. Donaldson, Professor of Architecture at the London University College, Mr. G. G. Scott, and Mr. Digby Wyatt; Mr. Sydney Smirke, R.A., F.I.B.A.; Mr. James Fergusson, F.I.B.A., Hon. Secretary to Architectural Exhibition; and Mr. Arthur Ashpitel, F.S.A., F.I.B.A., Treasurer to Architectural Exhibition. Mr. J. B. Waring has been appointed superintendent of this class. 2. Class 38 (Paintings in Oil and Water Colours and Drawings).—Sir Charles Eastlake, President of the Royal Academy; Sir J. W. Gordon, President of the Royal Scottish Academy; Mr. S. Catterson Smith, President of the Royal Hibernian Academy; Mr. F. Y. Hurlstone, President of the Society of British Artists; Mr. F. Taylor, President of the Society of Painters in Water Colours; Mr. H. Warren, President of the New Society of Painters in Water Colours; and Mr. R. S. Lander, R.S.A., President of the National Institution of Fine Arts. Mr. R. Redgrave, R.A., has been requested to act as Professional Assistant in respect to this class. 3. Class 39 (Sculpture, Models, Die-sinking, and Intaglios).—The Marquis of Lansdowne, K.G.; the Earl of Gifford, M.P.; Mr. A. H. Layard, M.P.; Mr. J. H. Foley, R.A.; and Mr. R. Westmacott, R.A. 4. Class 40 (Engravings and Engravings).—Mr. W. H. Carpenter, British Museum; Mr. D. Colnaghi, Mr. G. T. Doo, R.A.; Mr. R. T. Lane, A.R.A.; and Mr. W. Smith.

THE DISCOVERIES IN ST. JOHN'S CHURCH, CHESTER.—Although the mason's work at this church has been suspended by the strike, the cleaning of the interior has been carried on. In cleaning the centre pier on the south side of the nave, says the local *Chronicle*, a very fine fresco(?) was discovered: it is a full-length figure, standing, and apparently in the attitude of a speaker, holding in his left hand an open book, and pointing to it with his right. This figure has been most carefully drawn, and the expression of the countenance is beautiful, but most of the drapery is effaced. On three other piers, masses of colour in fresco have been found: they are either the groundwork laid for delineating full-length figures, or else the lines forming the principal feature and parts have been withdrawn into the whitewash; that is, because the outlines are all in water colour, and the ground in most parts is either in oil or in some oily composition, so the many coats of whitewashing have had the effect of entirely wiping away most of the outlines if ever the subjects have been completed. On the western face of the great pier of the choir, on the south side, another figure was discovered last week: this is a small recumbent figure with a considerable amount of drapery around the head, and opened about the shoulders. It is thought it may represent the infant Jesus. At an early stage of the cleaning, a figure was discovered upon the western face of the great pier, on the north side: this colouring is now very much opened out. On the northern face there is a stream of water, with bushes on one side, a high bank and creek on the other, and something in the water. There is a black bear a little on one side, evidently intent upon the creature in it. Around the creek referred to there is a level grassy bank, with trees around it; and on one side is the fore-part of a white elephant, with a large castle upon its back. Above these come rows of trees, and a number of deer; and above this still, there is the view of a small church, and walks around it. On the northern face of the same pier is a great figure, supposed to represent John the Baptist; and on the same face of this pier is a good view of a church with two western towers, a nave with a clear story and aisle, a south transept, a central tower with catted roof, and a stair turret adjoining, at the junction between the transept and the choir walls. Each of the lower roofs and turret has an early looking roof with terminals, and coloured and gilt vanes on the top. It is not easy, says the *Chronicle*, to fix a date for these coloured subjects, but they are not later than the fourteenth century.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—The fifth *conversazione* of the season took place on Wednesday evening, at the Architectural Gallery, Conduit-street. The Rev. Hugh Hutton gave a discourse on "Poet Paintings," interspersed with numerous passages from English poets, ancient and modern, suggesting subjects for practical treatment. A musical entertainment followed.

WINDOW CLEANING.—The following is the enacting clause of Sir Charles Burrell's bill:—"Every occupier of any house or other building, or part of a house or other building, or other person, who orders or permits any person in his service (other than a tradesman, or the (male) apprentice or servant of a tradesman, in the exercise of his calling), to stand, sit, or kneel on the sill of any window, or to be on the outside of any window, in order to clean, paint, or perform any other act with regard to any window, or any house or other building, or anything growing thereon or affixed thereto, shall, unless such window be in the sunk or basement story, be liable, on summary conviction of the same, to a penalty not exceeding forty shillings for each such offence; or, in the discretion of the justice of the peace in England or Ireland, or the sheriff or magistrate in Scotland, before whom he is convicted, may be committed to prison, there to remain for a period not exceeding fourteen days."

CHARGE AGAINST THE BATH CITY ENGINEER.—In the Bath City Act Committee, a question has of late been exciting attention which came to a crisis last week, when a long discussion took place on the following charge made against the city engineer; namely,—"That from July, 1854, until April, 1860, Mr. Alfred Mitchell allowed the borough to pay a considerably higher price for sewage pipes than the market price, although ordinary diligence and inquiry would have prevented the loss; that in April, 1860, he was made acquainted with the fact that the borough was paying a much higher price than the manufacturer was making public in his list of prices; and that again in June and July he was told this, and had a card of prices given to him; and that in consequence the loss to the borough had been 500l." A resolution was formally moved and seconded—"That the charges that the clerk had preferred against Mr. Mitchell are proven;"—to which an amendment was moved—"That in the opinion of this committee the engineer did not know, until very recently, that the price paid for sewage pipes for many years past was too high; and that he received no benefit therefrom: nevertheless they admit that he ought to have known it; and they conclude that the evidence fully shows that the joint office of engineer to the Sewers Committee and Cold Water Committee demand all the attention and care he can give it; and therefore it is not desirable to unite in him the office he now holds with that of city surveyor." The amendment was carried by a majority of six to four,—three members not voting. The Board, therefore, adopted the amendment.

BRICKMAKING IN INDIA.—The *Engineer's Journal* of Calcutta, in an article on bricks, says:—"The best and cheapest bricks, when made in small quantities, we must allow, are turned out by that wonderful invention, the pajsiah (native clamp), but it is so slow, the cubic quantity of fuel to be moved about so great, and success so uncertain, that, where large numbers of bricks are wanted, recourse must be had to flame kilns in order to get any respectable amount of work done in the season. In a pajsiah about 25,000 cubic feet of koorah, and 12,000 cubic feet of khundah, besides small wood, will be required to burn a lakh of nine inch bricks. Thus, for a lakh of bricks, equal to about 7,000 cubic feet, we have to collect and stack up 35,000 cubic feet of fuel, or five times more fuel than bricks." In the North Western Provinces, the writer states, a great many very good bricks are burnt in flame kilns, with wood as fuel. The kilns are the same as those of which drawings are given in Colonel Goodwyn's book, but should be made much higher; in fact, larger in every way. "We have seen kilns," he continues, "75 feet long by 26 feet wide, and 12 feet 6 inches high over the flues, and containing 350,000 bricks. The bricks in the lower part of the kiln, to within a third of the total height from the top, should be stacked with not less than an inch space between them; above that height to two courses from the top, half an inch space will be sufficient; the last two courses may be set close, and covered with a course of inferior bricks laid flat. Such a kiln as the one I have mentioned takes from forty to sixty hours, and from 4,200 to 5,000 maunds of dry wood to burn it."

POLYTECHNIC.—Last week, Mr. John Millard, professor of elocution, formerly pupil of the veteran tragedian, John Vandenhoff, gave his selection from the British poets to a numerous audience, and earned a success which he well deserved. His voice is good, and he has considerable power of modulation. "The Sands of Dee" and "The Bridge of Sighs" were amongst his best efforts.

THE DESIGNER OF THE ORNAMENTAL IRONWORK AT HAMPTON COURT.—A subscriber writes,—"I know not whether you are apprised of it, but in Hampton Church there is a monumental tablet to—

"J. Huntington,
died 20th Oct., 1710.
He designed and executed the ornamental ironwork
at Hampton Court Palace.
Lived in the reigns of William and Mary, 1689.
Anne, 1702."

ARRANGEMENT OF FLUES. According to the *Mechanics' Magazine*, Mr. de Sanges, an architect, and Mr. Masson, have addressed to the French Academy of Sciences a paper regarding their system of arranging chimneys. It consists in uniting all the flues in one place, so that the smoke passes into a single chamber or receiver placed near the roof of the house, and from which the smoke escapes by a single opening at the top of the chamber, in its centre. The system has been tried at a house in Neuilly-sur-Seine, with satisfactory results. Eight flues opening into a single chamber, and used singly, or two, three, or more at a time, and with wood, coal, and coke, have been used for eighteen months, and the draught has been very regular under all circumstances. Such an arrangement is not unknown in England, and has been illustrated in our pages.

STEAM FOR WAREHOUSE PURPOSES.—Mr. Arthur Jackson, of Liverpool, has obtained a patent for heating steam-boilers by means of gas. The principle has been experimentally applied to an ordinary two horse-power boiler, which was put in connection with one of Messrs. Taylor's four-horse power patent steam winches, and weights equal to a couple of bales of cotton were lifted, it is said, with the greatest rapidity and facility. The consumption of gas for working the boiler was within 100 feet an hour, and the time occupied in getting up steam was an hour. The patent appeared to consist principally in the mode by which the gas flames are distributed, so as to give them an action similar to a furnace fire. Attached to the boiler was a French patent, Gliffard's self-acting water injector, which has no moving parts liable to get out of order, and does away with the necessity for donkey engines or pumps in feeding the boiler with water.

THE FEMALE SCHOOL OF ART FANCY BAZAAR.—A grand fancy bazaar in aid of the building fund of the Female School of Art, in Queen-square, W.C. (Miss Gann, sec.), is to be held this Saturday (15th June), and also on Monday and Tuesday, in the new rooms adjoining the South Kensington Museum. The price of admission is 2s. 6d. on Saturday, and 1s. on the other days. The bazaar will be open from 12 to 7. It is under the special patronage of her Majesty, and supported by a numerous list of distinguished lady patronesses, many of whom will doubtless be present, and some of them will hold stalls in the bazaar. The new rooms have been lent by the Committee of Council on Education for the purpose of aiding this excellent school, the purpose of which, in obtaining a suitable building, will, we hope, very soon be realized.

A CORPORATION FOR ALL LONDON.—A committee of the House of Commons, on the motion of Mr. Ayrton, the member for the Tower Hamlets, for inquiry into the "Metropolis Taxation," has been for some considerable time sitting, taking evidence. It has just oozed out that the committee incline to favour a proposal to extend the City corporation to all London, to absorb therein the Metropolitan Board, and to connect the parishes into wards, returning common councilmen to the "London Municipality." Mr. Beal, the St. James's vestryman, the coadjutor of Mr. Hughes, of Westminster, in the carrying of the "Metropolis Gas Act" of last year, and who has undergone a lengthened examination before Mr. Ayrton's committee, suggests a counter proposal, which is, to form London into a county by itself, to make each borough a municipality, and to form a "London Municipality" of representatives from each, transferring to it the county business done by the Middlesex magistrates for London, the police, the licensing, and absorbing within it the Metropolitan Board and the city of London, and he invites the co-operation of the vestries to back up his views.

DESTRUCTION OF THE SURREY MUSIC-HALL.—On Tuesday afternoon last, the roof of the Surrey Music-hall was discovered to be on fire; and in a very short time the upper part of all the towers fell, and the interior of the building was wholly destroyed. Some plumbers had been at work on the roof; and to their portable fire, left while they went to dinner, the disaster is attributed. The amount of property that has fallen a victim from time to time to the plumber's brazier is enormous. Illustrations of the Surrey Hall, and descriptive particulars, will be found in our volume for 1856, p. 395, and elsewhere.

YORK MINSTER.—Amongst the improvements, some of which have already been noticed, all the windows throughout the edifice are to be examined and repaired, so as to exclude the cold as far as possible in winter, when the arrangements will be made for warming the interior. The desks used by the choir-boys are now carried on open-carved standards, in uniform style with the tabernacle work. The lighting of the choir is to be improved before the autumn, on the principle of placing the lights over the moulding of the arcade on either side of the choir, so as to secure a more equal light throughout the fabric, and bring out the groined roofs of the edifice. The cathedral approaches are being improved: already the west front has been opened out by the Dean and Chapter will very shortly pull down the houses which at present obstruct the view of the east front.

NEW PROCESS OF TINKING IRON.—Tin coating is not very durable. To obviate this Messrs. Vivien and Lefebvre have invented a process for covering iron vessels with a film of nickel before applying the tin. They accordingly begin by scouring the vessel in a mixture of 320 grammes of sulphuric acid and seven litres of water; after which the following substances are added to this bath: sixty grammes of white kitchen salt, thirty ditto of corrosive sublimate, and two ditto of pure sulphate of nickel. After being rotated for a time, the vessels are found to have received a fine, uninterrupted, and very adhering coating of nickel, which effectually protects the iron from oxidation. They are then put into cold water, and left there, while the following second bath is being prepared, viz., river water, fifty litres; cream of tartar, in powder, seventy-five decagrammes; tin, in plates, three kilogrammes. The whole is made to boil for the space of three hours, after which the iron vessels are put in, and the ebullition is continued for two hours more, by which means the vessels receive a coating of tin deposited on the previous one of nickel. They are then dipped into clean water, and rubbed with bran and sawdust to fit them for use.

THE ABBEY FOUNTAIN AT BATH.—The drinking fountain erected on the north side of the abbey was to be opened on Saturday by the Bath Temperance Association, and formally presented to the city. The design is a life-sized female figure, in Eastern costume, chiselled in white Sicilian marble, pouring water from a bottle into a basin. The figure and basin stand on a circular pedestal of red pennant, 2 feet high, with a diameter of 4 feet; round which is placed marble rock-work, 4 inches wide. The pedestal is surrounded by steps, in blue pennant, the two lowest being octagonal, and the third and top circular, forming a platform for those who drink the water to stand upon. Mr. Sheppard has executed the work. The figure was modelled and cut by Mr. Walker, and the steps, pedestal, and basin are from the design of Mr. C. Davies, architect. The fountain is erected for a continuous flow of water, and is so arranged that when the water supply is short, a very small quantity only need be used. The waste water will lose itself through one of the columns on which the base stands into the cistern under the figure, and from thence, says the local *Chronicle*, will pass under ground to supply a trough for horses, at the circular rails in the Orange Grove.

TENDERS

For the erection of new billiard-room and other alterations at Somerby Hall, Leicestershire. Mr. R. W. Johnson, architect, Melton-Mowbray.

For Mason's and Plasterer's Work.

Kitchen £155 0 0

For Plumber's and Glazier's Work.

Munton & Mason 75 0 0

For Carpenter's and Joiner's Work.

Shipley 174 0 0

Hall 160 0 0

Clifton 157 0 0

For restoration and enlargement of Aller Church, Somerset. Mr. John Norton, architect:—

J. Spiller £910 0 0

Messrs. Chinnock 890 0 0

M. Davis (accepted) 845 0 0

For alterations and additions to Nos. 20 and 21, Hereford-place, Commercial-road East, for Messrs. Dicker & Scarlett. Mr. Henry Jarvis, architect:—

Pritchard & Co. £345 0 0

Hack & Son 375 0 0

Glen 350 0 0

Emor (accepted) 344 0 0

Over 320 0 0

For additions, alterations, and other works to Colonnade House, Blackheath, for Mr. Whien. Mr. F. F. Thorne, architect. Quantities supplied by Mr. Thomas Percy:—

Smith £1,745 0 0

Simmons 1,083 0 0

Francis 1,650 0 0

Penny 1,456 0 0

J. & C. W. Todd 1,519 0 0

Wallington 1,487 0 0

For building a dwelling-house on the Dulwich Wood Park Estate, Sydenham. Mr. Jasper Cressall, architect:—

Higgs £1,000 0 0

Wilkins & Bolton 1,850 0 0

Powder 1,800 0 0

Baxterbury 1,650 0 0

Glen 1,650 0 0

Thompson 1,855 0 0

Newman & Mann 1,800 0 0

Prince 1,439 0 0

For two cottages to be built at Batterssea-rise, for Mr. Thomas Sturges. Mr. John Tarring, architect:—

Richards £1,012 0 0

Roper & Son 900 0 0

Thompson (accepted) 838 0 0

For additions to house at Edmonton, for Mr. F. Cater. Mr. Thomas Burton, architect:—

Axford & Co. £983 0 0

Asby & Sons 953 10 0

Downs 995 0 0

Ramsay 963 0 0

Seargeant 889 0 0

Barker 895 10 0

For rebuilding premises in Holywell-row, Worshipstreet, Finsbury. Mr. F. G. Widdows, architect:—

Auley £1,500 0 0

Heath 1,508 0 0

Wheen 1,404 0 0

Raby 1,384 0 0

Lawrence 1,370 0 0

Green 1,234 0 0

Tolley 1,213 0 0

For building a pair of semi-detached cottages at Harlesden, Middlesex, for Mr. Talbot:—

Palmer £572 0 0

Wicks 490 0 0

Wilson 465 0 0

For the erection of new Baptist Chapel, at Needingworth, near St. Ives, Huntingdonshire. Mr. Robert Hutchingson, architect:—

Wheatley £676 17 6

Bunting & Son 632 6 6

Smith & Allen 625 0 0

Saint 595 0 0

Sutton 595 0 0

Allpress & Son 585 0 0

Allen & Smith (accepted) 668 0 0

For building a villa residence at Paul's Cray, Kent, for Mr. W. May. Mr. R. May, architect:—

Marsland £520 0 0

London Building Company 511 0 0

Francis 470 0 0

For enlargement of the Birmingham Borough Lunatic Asylum. Mr. Martin, architect. The additions to the present structure will consist of four new wings, containing eight large day-rooms and sixteen large associated dormitories. The present day-rooms will be enlarged, with additional sleeping-rooms attached, and other apartments necessary for the accommodation of 200 more patients will be added. The chapel will be enlarged to a proportionate extent, and a bridge thrown over the canal connecting the lands recently purchased with the asylum:—

L. B. Moore £13,174 14 3

J. Cresswell 12,653 0 0

Branson & Gwyther 10,800 0 0

C. Jones 9,779 0 0

Barnesley & Sons 9,730 0 0

W. Matthews 9,385 0 0

Webb & Sons 9,355 0 0

J. Wilson 9,190 0 0

Hardwick & Son 9,085 4 0

Chambers & Hilton (accepted) 8,399 0 0

For the erection of new schools and residences at Copenhall, near Crewe, Cheshire. Mr. James K. C. Hing, architect:—

Espley £1,343 0 0

Buckley 1,320 10 0

Houghton 1,281 15 6

Bughey 1,065 10 0

TO CORRESPONDENTS.

A. W.—S. D. W.—J. R.—J. G.—E. R. (in type).—B.—H. de M.—J. P.—T. & Co.—W. R.—G. P. T.—E. T. B.—G. W.—H.—W. P. (if damage be considerable apply to a solicitor).—A. Fellow.—J. B. (notice was already given).—The *Builder* has its advantages, but requires care in the use.—D. P.—L. J. L.—Messrs. B.—J. C. A.—F. J. B. & Co.—R. L.—H. G.—M.—(one sentence omitted, for reasons).—A. W. (in type).—R. M. P. (in type).

Advertisements cannot be received for the current week's issue, later than FIVE o'clock, p.m., on Thursday.

Post-office Orders and Remittances should be made payable to Mr. Morris R. Coleman.

The Builder.

VOL. XIX.—No. 959.

The Condition of Edinburgh.

T he close of our last article touching the Scottish capital we spoke of the drainage, and referred more particularly to the Foul Burn. But the Water of Leith,—the second main sewage outlet,—is at present the great blot on the Edinburgh escutcheon. A picturesque mountain stream, which takes its rise among the springs and rivulets of the Pentland Hills, it sweeps through the county of Mid Lothian in a northerly direction, passes the city of Edinburgh on the north-west, and discharges into the Frith of Forth at the harbour of Leith. This little river has long been as dear to the student of geology, as Clitumnus was to the Roman herdsman. For, as we were told, it is the seat of Dr. Hutton's best illustrations of his celebrated igneous theory—a theory as much abused in this generation as the limpid stream on whose banks the great geologist loved to speculate. After gliding through many deep, narrow glens, overhanging woods and verdant meadows,—after turning the wheels of innumerable mills, and in other respects, fulfilling its original and natural duties,—it is converted whenever it comes in contact with Edinburgh to the base purposes of a common sewer. Londoners sometimes think the Thames is the greatest nuisance in the world. We are not sure that the Water of Leith, comparatively speaking, is not as bad. It first receives the Dalry drainage at Colt Bridge. Then, a miserable village called by its name, and distinguished in the annals of cholera and typhus, reposing in sickly solitude on its banks, contributes its quota. A gigantic distillery of whisky now pours into its channel 50,000 gallons per day of hot wash from its coppers. Then comes the drainage of Moray Park, the most healthy quarter, and of Stockbridge, the most unhealthy quarter of the new town. A prodigious sewer which runs from George-street, and which drains all the intermediate streets, now discharges itself into this ill-fated water below Stockbridge. Further down its course, at Cannon Mills, two or three mill-wheels are kept constantly churning this decoction into a homogeneous slime. After washing the banks of two or three graveyards, after receiving the contents of two or three more sewers, and after passing under the wheels of two or three more mills, this picturesque but polluted stream at length reaches the tide. From the point where it receives its first instalment of sewage at Colt Bridge to the upper bridge of Leith harbour is a distance of three miles, and we have no hesitation in saying that such another three miles of natural beauty disfigured by neglect and evil counsel are not to be found anywhere out of Scotland. If this aesthetic lamentation were all we had to make, we might spare that, although it is something;

but more remains behind. There is a question of economy.* This organic matter, this compound of drainage and distillery wash, is finally deposited in the harbour of Leith, whence it is removed by the Dock Commissioners, at a great annual expense, by means of dredging machines. Lastly, there is a question of life and death. Dr. Struthers, an intelligent practitioner of the port of Leith and secretary to its Local Sanitary Board, in a recent memorial to the Town Council of Edinburgh, states that, in those parts of the town which come within the range of the horrible effluvia arising from the Water of Leith, fevers and all diseases which depress the vital powers of the system have been for years more prevalent and much more fatal than in those parts of the town which are removed from its influence. Moreover, we are told that all within a very wide circuit may suffer from it; and if not at present consciously experienced, the evil is always impending.

We have hitherto allowed the sanitary economists of Edinburgh to prove our case, or rather their own case. We will now be bold enough to say something of what we have seen ourselves. Even if these two sewage streams disposed of the whole drainage, it would be some consolation. But such is not the fact. We are quite persuaded, from what we saw lying about the streets, that the bulk of the sewage of Edinburgh—that is to say, the solid portion of it—never reaches the sewers at all. By a rough estimate we may set down the population of the High-street quarter at 30,000. What will our readers say when we tell them that, with a few trifling exceptions, the whole of this population are destitute of any convenience for personal cleanliness? There are a few public necessities here and there, but the old houses are as free of waterclosets as they were in the sixteenth century. By a sort of municipal fiction, it is believed that the poor inhabitants carry their pails every night at a certain hour down ten or twelve stories, and up a long close, to the police dung-cart. Never was there a more foolish belief. Boswell tells us that, about the time of Johnson's visit, the streets of Edinburgh were as perilous as they were odoriferous. The practice then was to empty the pails from the windows. Many a full-flowing periwig has thus been moistened into flaccidity. The peril, we think, is not so great now; for the modern practice is to carry down the pails and empty them in the gutter. But the odour is still as bad. We devoutly believe that no smell in Europe or Asia—not in Aleppo or Damascus, in the present day—can equal in depth and intensity, in concentration and power, the diabolical combination of sulphuretted hydrogen we came upon one evening about ten o'clock in a place called Toddrick's Wynd. Boswell regrets in his time the want of covered sewers. Covered sewers have now been made through all the principal thoroughfares and the principal closes. Within the last few years a sum of 50,000*l.* or 60,000*l.* has been expended on underground sewers in Edinburgh. But what is the use of a covered sewer through an alley which has not a single soil pipe into the sewer? And such is the condition of things,—a condition, of course, which renders all attempts at domestic cleanliness abortive, and, in fact, almost hopeless. One absurd expedient the police take to purify the fetid atmosphere of these lofty narrow closes, is to whitewash them with quicklime once a year, up to the height of about 6 feet from the basement. Now lime is a good thing for effluvia; but this intermittent and homœopathic application of it will not suffice. Nor is it possible, we find, for the authorities to abate the nuisance by punishment. In the year 1853, for example, out of the close and wynd population, 2,159 persons were tried and convicted by the magistrates for contravention of the cleaning regulations under the Police Act† But the nuisance continues the same in the year 1861.

* See Mr. Reenie's Report to the Leith Dock Commission.

† "Ency. Britt.," art. "Edinburgh." Police Statistics.

The few public conveniences which have been erected about the city only serve to concentrate the effluvia in particular spots. We were taken to see one of the largest of these, and certainly, whatever might have been our previous astonishment at the sanitary condition of the City, our state of mind approached now to something like consternation. Over that picturesque valley which separates the old from the new town is built the celebrated North Bridge, a grand and imposing old structure. It consists of three great arches, each 72 feet in span, and about 60 feet from the centre of the entrados to the surface of roadway; two smaller openside arches on each side; and a connected series of covered vaults. The southernmost of these open side arches is rudely walled in with brickwork, and converted into a privy. Before entering, we must add that through the arches of the North Bridge, from any side, is obtained a magnificent view of the city landscape: the Calton Hill on the one hand, or the Castle Rock on the other. It was surely too bad to shut up one of the charming vistas in such a manner; indeed, the aspect, as seen through the one arch, compared with that seen into the other, recalled to our memory the ancient mythus in which the goddess of beauty is united to the goddess of drains. The quantity of refuse collected there amounts to upwards of two tons per week, which is removed and sold, along with the rest of the surface manure, to the neighbouring farmers. Not so much a sense of delicacy—in that case a false delicacy—as a sense of absolute disgust, prevents us, however, from saying more about this place. Literally, as well as figuratively, it is a gigantic town swamp under a gigantic bridge!

Edinburgh, it will thus be seen, is well-nigh surrounded and saturated with its own drainage. Whatever is not exposed on its surface is spread out on its suburban meadows and poured into its picturesque river. If the air be calm and still the city effluvia is intolerable: if the wind blow from the east there are the meadows of Craigintyne; if from the west the meadows of Dalry; and if from the north there is the Water of Leith. One direction is left from which it is possible for the inhabitants to breathe the pure air of Heaven—the south. But the south winds, as we have seen, do not prevail in Edinburgh more than two months out of the year.

The mere surface cleaning, or in other words the mere street sweeping, of Edinburgh, seems as defective as its surface drainage. Not to speak of the Old Town, where the duties of the scavenger are very heavy, we may note that even in Princes-street, on a hot day, the smell proceeding from the ill-swept roadway is most offensive. The watering of the streets is also much neglected. In fact, the whole city is, at certain seasons of the year, enveloped in clouds of dry, piercing dust, so fine that it penetrates into the inmost recesses of the best houses. To form an accurate conception of this most irritating nuisance, we have only to travel down Leith-walk on the top of an omnibus on a hot day, with a strong east wind a-head. The consequences are something like what would be felt if we were to travel through the Arabian desert on the outside of a caravan. The pace at which the rumbling vehicles jog on will serve to heighten the comparison; and the demure gravity with which the passengers submit to their fate will recall something of the well-known Oriental fortitude under severe suffering.*

We might proceed long enough in this strain,

* Yet, in the teeth of this state of things, see the following paragraph, which we find in the *Noblesman's* report of the town council proceedings:—"Street Sweeping, on Sundays.—Mr. Hope gave notice that at the next meeting he would move, 'That as there is no necessity for the sweeping of the main streets and roads of the city from six to nine o'clock on the morning of the Sabbath day, this council direct that such sweeping be discontinued, and remit to the cleaning committee to carry this decision into effect.'" It must occur to Mr. Hope that it is necessary to clear the streets as to clean his kitchen or eat his dinner on the Sabbath-day. It is surely no sin to perform a duty of necessity or mercy on the Sunday. Sweeping the streets of Edinburgh may stand in either the one or the other of these positions.

but we suspect we have said enough. It is obvious that no city of the empire should be easier cleansed, from its very geographical position, than Edinburgh. From its geological condition, surrounded by granitic hills, no city should be more plentifully supplied with water. From the extent of its boundary, the nature of its site, and the comparative lowness of ground-rents, no city should be less crowded together. Might we venture to add, from the superabundance of its law and divinity, no city should be better impressed with the moral and physical evils which attend a violation of these principles.

We had something to say about drunkenness; but the truth is, as at present advised, we are by no means certain that drunkenness is not more of an effect than a cause of the ill-health in Edinburgh; or whether the drunkenness and mortality are not both results of the common causes we have been endeavouring to establish. On this subject, however, we have no room at present to enter.

One word in conclusion. It has been impossible for us not to see that Edinburgh suffers a good deal from the constitution of its municipal government. Much of the time of the Town Council is taken up with noisy discussions upon theological subjects: in the mean time the population is perishing around them. In our slight researches into the history of Edinburgh we have stumbled over a witty lyrical poet—Dunbar—who flourished about the beginning of the sixteenth century. Among his smaller pieces we find a satire, entitled “An Address to the Merchants of Edinburgh.” He points out,—in barbarous language, indeed, but with the most inimitable humour,—the disgraceful condition of the city. None could pass through its principal gates for the smell of putrid fish and other smells we will not enumerate. The quarrelling and fighting of the lower orders were scandalous. Indeed, the noble town stood altogether in lack of reformation. He then proceeds to ask if they are not ashamed of these dishonours; and finally prays that the Lord may open their eyes and turn their hearts to wisdom! It is our duty, after the lapse of more than three centuries and a half, to reiterate these significant words, and to make of them a modern, though not less appropriate, application. We must tell the Town Council of Edinburgh that they ought to be ashamed of such dishonour. For the sake of that beautiful city, with whose destinies they are entrusted, we earnestly pray that their eyes may be opened and their hearts turned to wisdom. Let us hope they will soon abandon,—at least, in their collective capacity,—the study of divinity for the study of drainage. It is discredit to the whole nation that the many thousand Englishmen and foreigners who annually pay their devotions at her shrines should carry away but two leading ideas with regard to Edinburgh—a sense of its extraordinary beauty, and a horror of its unspeakable filth.

ON THE DESTRUCTIVE CHARACTER OF MODERN FRENCH RESTORATION. ECCLÉSIOLOGICAL SOCIETY.

The twenty-second anniversary meeting of the members of the Ecclesiological Society was held on Thursday evening, the 13th instant, at Conduit-street.

Mr. A. Beresford Hope, the president, having taken the chair, opened the proceedings by congratulating the members on their being assembled on the 22nd anniversary of their Society; which, although begun at Cambridge, had lately assumed a metropolitan character; and he gave a general account of the progress of the Society, which the length and interest of the discussion that followed prevent us from reporting. In speaking of various objects exhibited, Mr. Hope mentioned two interesting plaster casts of Saxon baluster columns dug up at Dover, in the immediate vicinity of the old Saxon church (forwarded by Mr. Scott), and which, no doubt, at one time formed a portion of that building.

The Rev. Mr. Webb (hon. secretary) then read the annual report.

The Chairman having invited a discussion of

the various details of the report, previous to his moving its adoption,

Mr. Scott observed that he was spoken of as the architect of the restorations at Bristol Cathedral. He had certainly been consulted two or three times on the subject; but the Dean and Chapter acted upon the principle of taking advice, but of reserving to themselves the right of doing as they pleased. Mr. Pope, of Bristol, was the architect. He (Mr. Scott) did not know even what was being done.

The report having been amended in conformity with this statement,

Sir Charles Anderson observed, that, as reference had been made to the Dean and Chapter of Bristol, he might perhaps be permitted to allude to the Dean and Chapter of Lincoln, under whose directions a very injurious process of scraping was going on; and, he believed, over the Norman work. Mr. Parker had examined some of the Norman capitals, which he had found extremely remarkable. When he was told of it, he wrote to the Dean and Chapter; but their reply was, that they had had good advice, and believed the work was being well done. He went to see it; and, though he would certainly say that the work was well done, he objected to it very strongly; being decidedly of opinion that the appearance of the cathedral was injured by it. The scaffolding was up at the other end of the cathedral, and he much feared that the scraping was to be carried on there also. In the course of these operations the head of one of the royal figures had been knocked off, and another head had since replaced it. Subsequently to his visit he had joined in a protest by the Institute of British Architects; but the reply was to the same effect. It appeared that the cathedral was in the hands of the Precentor. The restoration of the west front was the subject of a story, to the effect that, the clerk of the works having an interest in a quarry in Yorkshire, stone from that quarry was used in that work, and it was decayed already. Both there and at the north door of the choir, and some other places, they had been tooling over the old work, with very bad effect.

The Chairman said he might mention that their committee had come to the conclusion of applying to the Commissioners for space at the Exhibition. It must not be supposed, however, from that application, that it was antagonistic to other applications of a similar character from the Institute of Architects, and other art associations. On the contrary, he believed they were all sincerely anxious that their efforts should conduce to the same end. There never had been in England a national architectural exhibition; and, indeed, the only effort of the kind was made at the Paris Exposition in 1855. Even with all the progress in art which England boasted of in 1851, the Hyde Park Exhibition in that year completely excluded it; and the little architecture it contained crept into it under the colour of manufacture. The Commissioners of 1862, however, had made a great improvement upon that state of things; and this time architecture would not be forgotten.

A discussion arose upon the paragraph, in the report, which referred in these terms to the works executed at Saffron Walden Church, by Mr. Hussey:—

“It is seldom that we have now to express regret at the unintelligent restoration of ancient buildings. But our pages have had to record the unfortunate discussion of the ancient levels, and of the eastern crypt of Saffron Walden Church; and we hear with regret that the same architect, Mr. Hussey, has taken in hand the fine church of St. Joan, Chester.”

It was objected that the paragraph in question reflected unfairly on the professional skill of Mr. Hussey, as an architect of eminence.

After a motion to alter, and an amendment to leave it alone (the latter being carried), the report was agreed to.

The Chairman said the next business was the election of a committee of six, with power to add to their number. The house-list comprised the names of the Rev. W. Scott, and Messrs. Greathead, Webb, Jenner, Helmore, and Dickinson. These gentlemen having been unanimously elected,

The Chairman said that, the annual report and the routine business being now disposed of, they came to the interesting subject which was to form the principal topic of discussion that evening; namely, the destructive character of modern French restoration. That subject had been brought prominently under the notice of the Society by some very able papers, from the pen of Mr. Bodley, which had appeared in the “Ecclesiologist;” and it was one, also, upon which many gentlemen there present would be able to throw

much light. Among them he ought especially to refer to Mr. Ruskin, who had paid particular attention to it, and so also had Mr. Parker. Besides that, they would have the advantage of the illustrations of Mr. Street and Mr. Bodley, of Mr. Johnson's beautiful drawings of French churches, and probably also of statements by Mr. Warburton and Mr. Gambier Perry. He should reserve his own observations for the conclusion of the debate; and only say, at present, that one thing was remarkable in the French restorations, as showing the recklessness with which they carried out innovation under the name of “restoration.” It was the utter want of a sound artistic feeling among the French clergy and the French laity. In England, undoubtedly, we had cases of obstinacy which were vexatious and irremediable; but, generally speaking, there was a certain amount of educated knowledge and appreciation of architectural taste and spirit manifested among us. Architectural studies were already very popular; and, if any very preposterous work were executed, the public press was immediately down upon it. The country clergyman in general knew the date and the style of his building, and the public press was always open to an intelligent architectural description of new buildings; which, so far as he could gather, was the contrary in France. He had seen a frightful amount of devastation in various parts of France, especially at Caen, and the Conqueror's Hall at Lillebonne, Normandy.

Mr. Parker said that, though he quite concurred in much that the chairman had stated in reference to French restorations; still he believed that a great deal might be said on the other side. He did not know what was proposed to be done to remedy the evil; but, if he understood it rightly, it was that a memorial should be addressed to persons of influence in France, with a view to its removal or reduction. He must say he very much doubted the expediency of such a course; for it was very possible that they might be remonstrating with the wrong parties. In any attempt of the kind, there was a difference of government, of ideas, and of circumstances, to be taken into account. And it should especially be borne in mind that, while in England the preservation of our public edifices was left to public feeling and to public opinion, in France not only the cathedrals, but all other public buildings, were classed as historical structures; and, as such, placed under the charge of a public officer. No one could touch them except with the consent of the Government inspector; who, of course, was liable to make mistakes; though it must be admitted that M. Viollet Le Duc, who stood at the head of the department, was a person of very great competency for the position he occupied; and he had under him some of the best-educated men in France. His assistants might not all of them be equally up to their work; but there was in France, more than in this country, a desire of preserving, or rather of renovating. The scraping process was very largely resorted to for this purpose; and in Paris especially it had been carried on with great activity. Every house in Paris had been scraped within the last ten years. That, however, was not the fault of the educated portion of the people: they would change it if they could, but they had not the power. Ignorant men would scrape old walls to make them look like new; and he had seen as much mischief arise from that cause in this country as elsewhere. At that moment it was proposed to destroy two sides of the quadrangle of Merton College, Oxford; one of them belonging to the Library, a building of the fourteenth century, and one of the earliest of its kind. He did not think anything so outrageous had ever been done in France, certainly not to his knowledge. In France he had seen a great deal which might be urged on both sides of the question. Of M. Le Duc, he knew that his principles of proceeding were most conservative, and he would not allow anything worth preserving to be destroyed, if he could help it. If the contemplated memorial were to be made to apply to him, therefore, it would be a mistake. If it was to be sent to any persons at all, it should be sent to the clergy: but what good could possibly come from that? The French clergy were an ignorant body; but there were many exceptions to that rule; and the bishops, and deans and chapters generally, took a strong interest in the preservation of their cathedrals and churches. At Rheims he met the archbishop, who quite satisfied him both as to his zeal and his taste in restorations; and he had known other instances of a similar kind. At Bourges, a magnificent work in painted glass had been executed for the cathedral, at the expense of the dean and chapter. That was by no means a wealthy body as compared with our own deans

and chapters; and, remembering what our own means and shortcomings were, we ought not to throw stones at our neighbours until we were quite sure that we were free from blame ourselves.

Mr. Ruskin, who was received with cheers, said that, if he had consulted his own feelings, he should scarcely have ventured to accept the invitation of the chairman to join in the discussion; for he believed that almost every gentleman there present was better able to speak upon the subject, from his own knowledge of what was now doing, from accurate knowledge derived from an actual inspection of the noble works of past French architecture; and that knowledge was necessary to enable any one to speak with confidence on the subject of restorations in that country, in the peculiar difficulty in which they found themselves placed respecting ancient buildings. He was sure that all present would feel that they were assembled there, not to find fault with, or to throw stones at, their neighbours, but to consider what should be recommended or suggested as hopeful under these most difficult circumstances. He confessed that he felt reluctant to speak upon the subject, because he was not himself exceedingly hopeful of a useful result from any efforts of theirs in the direction they proposed. He had only risen, indeed, because he did entertain the hope that what they regarded as discouraging might lead others to conclusions more hopeful, and at the same time more fruitful; but he had himself long been utterly hopeless as to restorative architecture in France;—hopeless, because he felt that the line had been taken there; that that line had been laid down by the leading men; and that any suggestion to the contrary was likely rather to wound whatever national vanity might be bound up in it, and to come ungraciously from us, who had shown ourselves not altogether prudent in our own restorations. It might be a weakness on the part of the French nation so to act; but still it was a weakness which he could not altogether censure; for he had a great respect and a great love for the French nation, and we had learned a great deal from them. It was a weakness which they could confess themselves, but in which they did not stand alone; for all nations shared it with them, though they were subject to it in a greater degree. It was a weakness, too, which often impeded them to greatness, and even nobility of action, but which would sometimes make them needlessly throw away principle after principle, just as the first Napoleon throw away men after men, after his great victories were complete. They were, however, as he feared, embarked on their intended course; and it appeared to him that any attempt on their part to divert them from it would only do harm, besides placing themselves in an ungracious position. If he could offer any advice to them, therefore, it would be to bring forward any such proposition. Besides, he did not think they had a fair ground for doing so. Ten years ago he made a tour through France for the purpose of inspecting the cathedrals and principal churches. At that time, he thought there was not a town in which a restoration had not been begun. Twenty years ago he had been making sketches of the French cathedrals, and then they were safe from the modern revolutionists. As a lover of architecture, he mourned for the change which had since occurred. Twenty years ago, nothing of importance in this way had been undertaken. Ten years later, however, the first thing he noticed on entering Amiens, Chartres, Lisieux, Laon, Caen, and other places, was, that the horses had to turn aside to avoid the scaffolding with which the cathedral was encumbered, and the grisly lines of which were seen standing out against the sky. The same works were still going on; and there was, therefore, one thing which he thought they might very fairly and very judiciously suggest, and it was this; that, when restorations had been begun so long ago as ten years, they should be regularly carried on and completed; so that all the great ecclesiastical structures of a country might not be attacked at one time. He could not, if he wanted to see one of his favourite structures in France, one of his thirteenth century friends,—he could not tell where to find him. If restorations were to be carried out, a sufficient force of men ought to be employed upon them, so as to finish them in a reasonable time. If colour was to be put on a cathedral, let it be put on: if an angel was to have colour on both cheeks, let two have it, and not make her appearance in the ball-room with one cheek red and the other white. Then, again, it was for them to settle their own code of restora-

tion before they endeavoured to impose them upon another nation. Were they decided as to what they wanted themselves? They had been told by a previous speaker how, a head having been knocked off a figure, it had been replaced by another. Those who knew anything of Greek sculpture would be aware that the same thing had been done with some of its best torsos and noblest creations; and, indeed, he was not aware of any that had escaped, except the Elgin marbles. He could state his own opinions respecting this subject, but they would probably be thought extravagant. He had stated them on a former occasion, but they did not appear to be acceptable, or nobody cared for them; and that being so, and looking at the fact that all the noble structures of France were likely to be destroyed for the term of his natural life; that first one tower was attacked and then another; that one transept was begun only to go to another; and that the whole of French restoration was one perpetual scrape; he was reluctantly obliged to give up the object he had in view. His aim was purely architectural. He desired to know something of thirteenth-century architecture, though not as an artist; because he intended, then, to write an architectural history of the thirteenth century, after the publication of his "Stones of Venice." It was to be a work of many years. He meant to work in those churches for the collection of his materials, but found that all his documents were then in fact destroyed by the operation of the system of restoration which was adopted; and that in five years more they would be completely destroyed; so he gave up the undertaking, and not only that, but he gave up architecture too. He never cared about architecture afterwards. He thought the pursuit of architecture was a hopeless thing if its most important documents were thus destroyed. He told them this that they might know the facts of the case; and he thought it right to explain them, lest they might think that his speech contained an undue infusion of bitterness. He was now pretty nearly at sea as to what he should do himself, or advise them to do. Yet, pardon him: what it seemed to him that they had to consider was, first, whether they were present as architects generally; whether they had complete power of restoring effectually to its former appearance any great ecclesiastical building; and then whether, if they had that power, it was expedient to avail themselves of it; and if so, to what extent. To put a stone in here, and a bolt in there; to watch over it with all affectionate care; to take care that no influence of the weather, or neglect, should interfere with the stability of the building;—on all that we are happily agreed, and so are French architects too. But when the building has, in spite of all this care, become unsightly,—when the heads fall from the figures; the question to be considered by them was whether it could be restored or not. It was not that they, as architects, were so agreed among themselves on that point as those men were, he believed, who had left behind them, for the admiration of their posterity, so many traces of their genius. They knew that thirty years ago the Gothic style was not looked upon as it at present is; but during those thirty years they had had to struggle against many adverse influences; and that even now many of their best architects were not agreed as to the best style for an ecclesiastical structure, which had really only been decided on in any degree by centuries of ecclesiastical progress. He was glad they had retained that word "ecclesiology," and would be slow to exchange it for its German name, which would be more properly reserved for the crowd which rushed into their sacred buildings at Ephesus. Though the word used in the Scriptures was "assembly," the original was "he dismissed the church," which might be rendered in vigorous Saxon by "mob." Antipathy at home sometimes influenced those who had the guidance of national action. He did not venture in the least to make those observations in reference to their power as architects, but he would ask them what power had they as copyists? What power, indeed, had anybody as such? Had any cathedral been built again exactly as it was at first? A great ecclesiastical structure exhibited the results of progress from year to year; of obtaining for the several portions of the work the best men; and of those men being always left free for their work. Every portion of the work bore the impress of the individual acting with mind and hand,—of the mind and hand of the individual acting upon the stone. All good art was the expression of the whole man: it was the expression of soul and heart, of intellect, and of body. In painting that was especially so; for the least

beauty could not exist except upon a scale sufficient to show the power of the artist. They could not, for example, judge properly of a Titian, or of a Tintoretto, unless they saw him on a scale in which the whole sweep of the hand and the whole energy of the body were brought out, as well as the energy of the soul. But, without pressing the point so far as that, this much at least was certain;—that no great art existed which did not carry with it some expression of the tenderness and of the thoughtfulness of the man,—that was to say, the handwriting of the man on his work; and, unless they had got the handwriting, they had not got the art. He did not pretend to say how far they were to look for that handwriting in architecture. In the architectural works of the thirteenth century there was generally a wonderful infusion of tenderness and of thought; though it sometimes appeared to him that a thirteenth century building was not so touching as it first struck him. In some of them there was certainly the expression of as tender feeling as was ever put upon stone or canvas; and he believed that the peculiar character of the architecture of the thirteenth century was not what they so often looked for,—not its severity, not its stiffness, not its colour or appearance, but its tenderness. He believed they had all of them misread the thirteenth century, as they had misread Dante; who, instead of being a stern bigot in his conception of the Supreme Being, as they were too often apt to suppose him, was the most tender of all poets. And so, also, had they judged the thirteenth century, by supposing that, in tracing out certain lines and figures, its characteristics were to be reproduced. They had only imitated it, however, instead of looking at the only previous treasures it contained, the mark of real tenderness, and the glory of human skill, which were to be seen in every touch. That view might perhaps be overcharged; but if they looked at the sonnets of Dante, who was the exponent of the feeling of the age, and if they considered Rossetti's view of the Florentine poetry of the period, they would see how much it was in conformity with his representation of it. Then, again, thirteenth-century sculpture had its own touches, which nothing could replace but the same tenderness, which could not be shown in copying, and which required for its effective execution an artist of the same feeling and temper. And he would ask them whether they could restore the thoughts of another—whether they could restore thought of the same depth? Would the most delicate calligraphist be allowed to go over, with a fine steel pen and black ink, one of the autographs—say of Milton or of Shakespeare—which they had seen under glass cases at the British Museum? The necessity of restoration sometimes involved its impossibility. What was meant by restoration? It meant, for instance, that the head of a figure being gone, another must be substituted for it. A head was put on according to nineteenth century ideas, and that was called "restoration." But it was not restoration: it was substitution. They gave an expression to their restoration, but it was nineteenth century expression. It was impossible to talk of restoration in the proper sense of the word: they might as well attempt to raise the dead. He could enlarge upon this point much further if time permitted, and if they did not know it as well as he did. What they had to do, then, was first to determine what was possible of attainment in restoration. If the French liked to be a little smarter and showier than they ought, it was a fault which ought not to be visited too hardly upon them. Much of our feeling of admiration in the contemplation of ancient architectural structures arose from our delight in ruins, and was only checked when architects were forced to raise ugly buildings for manufacturers and others. He took an especial delight in gazing into the fields which surrounded an old abbey, and thinking of the great spirits which had raised the sacred pile. The same feeling attached to the old building itself; and when we saw its grey hues brightened, we thought it spoiled. Let them admit, at the same time, that the thirteenth-century architects did not like grey. They hated it, and said it was the Devil's colour. They reserved it as a ghastly colour for death and lugubrious subjects; but they habited their happy cherubs in pink and green cloaks. In all attempts at restoration, they ought to be inspired by happy and joyous feelings, such as must have prevailed at the restoration of St. Mark's, Venice. They must learn to distinguish carefully between the pensive character, and the mean preference, not for splendour, but for vulgar cleanliness. That could only be defined by feeling. The distinction was perhaps difficult to state, but it was nevertheless important; and they had to

that he did not, as he might so well have done, give reins to his imagination, and treat us to something a little more phonetic than alternate segmental and triangular empty pediments. Yet, if we dare not do other than confess their perfection, we may plead that sufficient changes have since been rung upon this slender theme; with, alas! too seldom the same plea of admirable *proportion* for an apology which this building and that of the Palazzo Farnese at Rome can undoubtedly put forward. The distinctions and merits of this Florentine, and the Roman and Venetian, types of the Renaissance have been so well explained by Mr. Garbett in his "Rudimentary Treatise on the Principles of Design in Architecture," as to render it unnecessary for me to do more than refer an inquirer to his remarks on the subject; and simply to note, in following our present author, that we find, as examples of the second class, the works of Giulio Romano at Mantua, and of Michelangelo at St. Peter's, honourable, of course, to a greater or less degree, for proportion, but generally contradictory of truth in ignoring the necessity of floors in buildings by the use of single gigantic orders of pilasters for their exteriors, and for the method of venering the same to their facades. Triglyphs, from the examples I find in the plates under examination, seem to be the main, if not single, idea of decoration; and, for the pertinacity with which so happy a feature is kept before the mind, we ought, no doubt, though I own my inability, to be truly grateful. Of the Venetian type, by which I understand the decoration of each floor by an exterior order, we have the Library of St. Mark, by Sansovino, at Venice, of which I have already spoken; the Villa of Caprarola, and the Palazzo della Ragione, at Vicenza. But though we have not the noble Palazzo Grimani at Venice, by San Michele, nor any of the picturesque, painter-like conceptions of Longheusa, such as the Palais Pesaro at Venice, which, if not so pure in detail, command themselves to me for artistic grouping and conception before most of the ordinarily idolized Italian buildings—these Venetian works, with their pomp and luxury of effect, their successive orders of columns, constant use of coupled columns, depth of recess, and richness of detail, seem to typify the vanity and love of parade of the age which gave them birth, and which preluded the fall of the city they adorned.

I do not remember ever to have been struck more forcibly by the character that architects can present than by the puerile vanity shown in many of these façades in Venice; for, while the old Moorish and Gothic palaces, marred as they almost all are by later incongruous additions and insertions, though comparatively modest and unaffected, have sensible fronts, more richly arched and decorated, of course, than the sides; yet, in harmony therewith, so that they are one conception and construction;—these fronts of the Renaissance buildings are all separate, show façades stuck, as it were, before a building of totally inferior and distinct character, just returned round the angle a few feet, to save appearances, which of course is found out as soon as one has turned the corner. Such are the three grand types of the Renaissance architecture of Italy, as developed principally in Florence, Rome, and Venice, and whence sprang the architecture of the Dark Ages to which the plates of the second volume of Quincy introduces us, but all the series of which I have neither time nor patience to follow.

From Italy the Renaissance spread into France, a result doubtless hastened by means of the Italian wars of Charles VIII., Louis XII., and Francis I.; but at first the native workmen merely applied the more ornamental parts to their own Gothic work, as in the Château de Blois.

Subsequently they developed it into a style of their own, of which Chambord and Chenonceaux are among the most favourable specimens. It may be described as consisting of the application of pilasters, more or less enriched, as surface decoration; and these are, in fact, made to do the duty of the buttresses which were so profusely employed in Flamboyant. There is much beauty in this style, which was the work of French architects, and became naturalized in their land. It is very artistic, and less insolent in its display of barren proportion: it gives something more than that husk of art: at the same time it is, like all Renaissance work, radically wrong and inconsistent as architecture compared with the real styles. Its very notion of ornament is something added to, and independent of, the construction. It is highly picturesque, but generally exaggerated in its grouping, and skyline, and combinations of turrets and high roofs,—its best features, which it borrowed from the Gothic.

In the latter years of Francis I., Italian workmen and architects were imported into France, and were employed at Fontainebleau. They introduced a great modification into the style, partaking more of the classic feeling; after which, as was natural, it rapidly deteriorated, and passed through the phases of the style of Louis XIV., set forth in the pages of Le Pautre, redolent of gilding and parade: thence it sank, in the times of Louis XV., into that vicious and emasculated style which has earned the sobriquet of "rococo," in which all the grandeur,—manly, if somewhat heavy and impure,—of its predecessor, gave place to an elaborate trifling with florescent knucklebones, in curious combination with a species of shellwork,—altogether an idiotic piece of business, which we might dismiss without a thought, save of scorn, were it not that this, in the depth of the Dark Ages, was the very Will-o'-the-wisp which architects and decorators danced after, and upon which, even so late as in the Great Exhibition of 1851, most of the productions of civilized nations were based; so that one had to turn to the works of the barbarians of the East, as to an oasis of true art, to refresh one's eyes with. Whether or not in the interval our efforts to imitate these on the one hand, and to teach the Chinese Palladian plasterwork, to smash palaces in Pekin, and to loot at Delhi on the other, may have turned the tables, we shall shortly learn.

The course run by the Renaissance in England we may take up at the period of Elizabeth; when, the political troubles becoming settled, men were able to turn their attention to art and architecture. For a long time the traditional construction and plan, and the mullioned windows, held their ground; but coarse bad Pagan mouldings were introduced as improvements; and an equally coarse sort of adaptation of French ornament was developed into a convenient store of precedents for the Dark Ages. Stone was made to assume the appearance of cardboard, cut and curled; and monstrosities of every description were delighted in.

This Elizabethan style was that which in England combined the features of the decaying Gothic with those of the revived Classic; and, though less refined in detail than the contemporary work in Italy and France, was, perhaps, the most vigorous and picturesque: in time, however, here, as on the Continent, the Classic element conquered in the struggle: purity of style and correctness of proportions, in imitation of Roman precedents, were the objects architects set themselves to attain; and so were ushered in "the Dark Ages." Yet many revered names there are among these architects, from whose reputation I desire in no degree to detract: I only lament that their lot fell not in better times. What I seek to show is, not that Inigo Jones, Wren, Hawksmoor, and Vanbrugh were not great men, but that they were all the greater for having wrought out so much that is grand and graceful from elements lacking these qualities themselves, and which, when their genius was withdrawn, resolved themselves into the monotony and lifelessness inherent in them. Of the heroes who led this forlorn hope, Inigo Jones was the first and best. The proportions of his design for the portion of the Palace at Whitehall which was carried out are as generally admired as they are known; but, as it has been used as a precedent for myriads of acrobatic pilings of orders above orders, and breaking the entablatures over to give them some appearance of utility, we need the less regret its not having been repeated by himself.

It is strange that one who so thoroughly appreciated the importance of purity and consistency in the style in which he worked himself could have so little regard for the same qualities in other styles as to have built, to the old Gothic cathedral of St. Paul's, an incongruous Pagan porch; and refused the transept end in a manner which, fortunately for his reputation, lives only in tradition. This also has been much lauded for its proportions; but, from the representations of it that exist, I confess I cannot regard it with enthusiasm. That it was, however, simply barbarous, as an adjunct to a Medieval cathedral, we may, I think, assume, from a comparison with the effect of the alterations made by another architect, who was not otherwise than a shining light, among the constellations of the Dark Ages, to another of our cathedrals. I mean those made by Wood of Bath, at Llandaff. Now, the works of this architect at Bath are by no means bad of their kind, and would not lead us to suppose that he could have been guilty of the atrocities which I fear can with too great truth be laid to his charge; any more than we should believe, upon less certain documentary evidence, that Inigo Jones had maltreated

in a similar manner the façade of St. Paul's. Of the alterations to Llandaff I have enlarged the illustrations given by the Bishop of Llandaff in his work upon that cathedral, showing the design "as it was proposed to finish it;" and we learn, from contemporary letters quoted by the bishop, that it was proposed to pull down the two western towers, and raise one over the front of the nave, as seen in the design, and "then to finish with a rustic porch." Most fortunately the solicited contributions of the faithful were not sufficient to enable them to realize this conception. We learn, however, that they succeeded so far as to insert "windows framed with wood of another sort, which will come vastly cheaper and look as well as the Gothic," and to finish the interior in "stucco" to their own satisfaction; for the same letter states, "that the church inside, as far as it is celled and plastered, looks exceedingly fine, and is a very stately and beautiful room."

Sir Christopher Wren had by no means the same artistic feeling as Inigo Jones, though greater mathematical powers and science in construction: as an architect he had golden opportunities in the rebuilding of the City of London after the fire of 1666; and he had the genius to grapple with it in an engineering point of view, and architecturally also, so far as it was possible in the style with which unfortunately he had to deal. The manner in which he did this has been so lately thoroughly set forth by my friend Mr. Kerr, that I need not here enlarge upon his works; the more so, as my purpose of showing the thorough intractability of the style which even his talents could not overcome is rendered self-evident by the following remark, which I venture to quote from that gentleman's lecture on the subject. Speaking in reference to the double dome and screen walls of the nave of St. Paul's, he says:—"They are at least the makeshifts of marvellous ingenuity and still greater artistic power: they are falsities, it is true, but they are those of a master-mind: they are no common vulgar fibs, but grand lies of genius."

Now a style that necessitates lying, which requires "marvellous ingenuity and still greater artistic power" to conceal awkward roofs and buttresses at the cost of making one half of a building a huge sham to render the other half tolerable, is, I think, fairly to be said to belong to the Dark Ages; and that Mr. Kerr's estimate of the makeshift is a correct one, my reminiscences of a church in Venice, by Palladio, the roof and buttresses of which had not been concealed by such ingenious means, yet which seemed to call loudly for a similar friendly shelter, will enable me to corroborate.

The group of the City spires and the towers of Westminster Abbey are conceived and massed with great talent and a true feeling for what is grand and picturesque; yet with such horrible details, such a substitution of the queerest pots and jars in the place of pinnacles; that it is necessary that one should half-shut one's eyes to enable one rightly to appreciate their outlines; and as such are, after all, borrowed from the older Mediaeval steeples, one would really rather open one's eyes and see true Gothic steeples with proper detail as well. The thin leaden spire of St. Martin's, Ludgate-hill, is, as a composition, rightly placed in contrast to act as a foil to the dome of St. Paul's; but in itself is surely no beautiful object.

Time fails me to describe other of Wren's works, or those of his successors who took up his mantle,—of Hawksmoor, Vanbrugh, or Chambers, and the rest of the band of that forlorn hope, despite whose efforts architecture sank down gradually to the uttermost depths of degradation, when the ideal of associated English homes was the monotonous dreary walls of Harley-street and such like—wherein Sham reigned triumphant from palace to terrace, in plan, construction, and decoration alike. Art and architecture became abjectly dark or dead; and copies or parodies of the works of other days were all that was attempted. The only merit that can be claimed for them is, as usual, that of "proportion;" an element certainly so essential that there can be no architecture without it; yet one the exclusive praise of which is a sure sign that there is little else to praise; just as the most sarcastic thing you can say of a man is to laud too highly his good-nature; the meaning of which usually is, to suggest doubts as to his sanity. To wade through the works of this dreary period, either for the purpose of description or reprobation, would be a task, the ungeniality of which, together with the undue length to which I find I have extended what were intended to be prefatory remarks, must be my excuse for now shirking what might appear

A HINT TO PROVINCIAL WORKMEN AS TO THE COMING EXHIBITION.

THE Great Exhibition of 1862 will give an opportunity, by comparison with the display of 1851, of tracing the progress we have made in the arts, scientific skill, and various manufactures. The British workman will also have the means of comparison, not only with his contemporaries at home, but with the artisans of other lands. Another great advantage will be that, in nearly every department, men will be able to study the highest degrees of excellence attained; and this will be found most useful, particularly to young workmen.

It is, therefore, most desirable that every endeavour should be made by the skilled mechanics, not only of the metropolis, but also those dwelling in the various towns and districts of the kingdom, to come to London at the time. To those living in the metropolis the visit to the Exhibition can be managed with comparative ease and little expense. It is not so with those at a distance. No doubt the railway companies will find, as they did in 1851, the advantage of running cheap Exhibition trains; and, by a little good management, respectable workmen may live at a small cost for a week or a fortnight in London.

It is, however, in many instances, necessary that preparations should be made before the time approaches. We well remember many of the circumstances connected with the Exhibition of ten years ago; and, therefore, suggest to workmen who are anxious for their progress and advancement, dwelling in the towns and villages throughout the land, to form clubs or societies, for the purpose of saving the amount necessary for defraying the cost of a journey to London and home again in the summer of 1862.

Many societies of this description might be established in connection with the Odd Fellows and Foresters' lodges, as well as with the various benefit and trade societies; and, with a little management, the weekly savings for this purpose might be made to bear a fair amount of interest; which, although not amounting to much, would be better than having money without use. We mention societies, believing that associated bodies of persons encourage each other in a good purpose by example. There are, however, different means of managing this, to which it may be worth while to direct attention. In connection with most of the national schools and district churches, both in the metropolis and in the provinces, there are banks in which small weekly sums may be deposited. If the payments are made regularly, an interest of 1s. in the pound, up to a certain amount, is paid at the end of the year. There are also the savings banks; but what will be, perhaps, more useful than all these, will be the savings banks connected with the General Post-office. To these institutions we look forward with great hope; not only for this, but other good purposes. By the proposed means, a place for the safe deposit of money, on which interest will be paid, will be constantly in the view of every one.

In order, however, to know the expense of a trip to London in the Exhibition year, it is necessary to have a correct idea of the various costs likely to be incurred; and probably we may safely estimate that the journey by railway, with return tickets, by express trains, granted for a week or a fortnight, will be not more than one-half of the regular cost generally charged: for instance, the present fare from Newcastle-on-Tyne, by third-class train, is a little less than 17. 5s.; and we think we may safely say that a return journey during the Exhibition time will not cost more than half of this; and for other towns in proportion to the distance.

In connection with Edinburgh, Dublin, Glasgow, Hull, and other important towns near the sea, there are large first-class steam-vessels which run with punctuality, at moderate fares. All particulars of these may be very exactly obtained in various localities. It is, however, the cost of living in London on which, with many, uncertainty exists. We have, therefore, gathered information on the subject which may be relied upon, and which, we hope, may be useful to some of our readers.

It is possible to live wholesomely and for a very small sum in London. There are such places as the Chambers in Hatton-garden and George-street, Bloomsbury, in which clean and very decent sleeping and other accommodation can be had for the small sum of 4d. per night: these are under the direction of the Society for Improving the Dwellings of the Labouring Classes; but there are also well-conducted lodging-houses, such as the Drury Chambers in Drury-lane, and others, in various parts of the metropolis: in these

lodging-houses every accommodation is provided for the safety of carpet-bags and other luggage. Some would object to the arrangements which are made in several of these places, of many beds in the same room, like the dormitories of soldiers' barracks. These lodging-houses are, however, under the care of the police, who provide for the supply of a sufficient amount of breathing space and a strict attention to proper drainage, water supply, and cleanliness. We have mentioned this, thinking that it might be of service to some who, with straitened means, are determined to improve themselves by studying the exhibitions and other institutions of the metropolis.

In naming these lodging-places, it must be admitted that those who gather to them are often of a miscellaneous class; yet a prudent person would have little risk in living there.

At most coffee-houses, and many taverns, a comfortable room can be had in almost any part of London for a shilling a day, or perhaps 6s. a-week. Those who have friends in town to look out for them could find plenty of furnished rooms which might be taken for a short period in private houses, at the rate of from 4s. 6d. to 5s. a-week.

Food can also be had at cheap cost by those who choose it. At the à-la-mode beef shops, a plate of this meat, with potatoes and bread, can be had for 6d.—a dinner sufficient in quantity for most persons. For 1s., at most eating-houses, a very good dinner can be had, breakfast for from 6d. to 9d., and tea for the same.

We have just now before us notes of the expense of several single persons for living in London: one is—

Lodging, in Hatton-garden Chambers, for one week.....	s. d.
Seven dinners, 6d. each.....	3 6
Breakfast, tea, and bread and cheese for supper, 1s. a day.....	7 0
Shoe-cleaning, washing, &c.....	1 0
	13 6
If, however, we take a higher tariff, and say, for—	
Lodging, per week.....	£. s. d.
Dinners, ditto.....	0 6 0
Breakfasts, teas, and suppers.....	0 7 0
Shoe-cleaning, washing, &c.....	0 1 6
	£1 3 6

from these figures it will be seen that a stranger (workman) may have a temporary abode in London, allow a margin for the cost of admission to some exhibitions, omnibus fares, &c., and live in a comfortable and respectable manner, for under 30s. a week; and it could be managed for much less.

It now wants about eleven months to the time of the opening of the Exhibition. It will, however, in most cases be considered better that the throng of the first opening should be passed: this would be allowing twelve months; so that if 1s. a week be saved from the present time, a sum of 27. 12s. would be accumulated, without taking interest into account; if 1s. 6d. a week, 37. 18s.; and 2s. a week, 57. 4s.

It is to be hoped that the opportunity which is coming will be made the best use of, and that these remarks may be the means of causing some of the provincial artisans to set about preparing to avail themselves of it.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening (the 14th instant), at the House in Conduit-street. The chair was taken by the President, Mr. T. Roger Smith.

The President, referring to the circular which had been addressed to the various architectural associations with reference to an alliance of the societies for professional purposes, said that it had been referred to a full meeting of the Committee of the Association, who had suggested several alterations in the rules proposed by the Northern Association.

The Honorary Secretary read the alterations suggested by the Committee, which were put to the meeting and approved of. The Honorary Secretary was also directed to forward a copy to the Northern Architectural Association, and to express, on the part of the Architectural Association, the willingness of that body to give in their adhesion, provided the alterations were carried out.

The Honorary Secretary then brought forward the list of gentlemen nominated for office during the new year (1861-62). They were as follows:—President, Mr. A. W. Blomfield, M.A.; vice-president, Mr. T. Blashill; members of the committee, Messrs. W. Gritten, C. H. F. Lewes, G. B. New, P. E. L. Paraire, Julian, J. A. Bunker, H. A. Reeves, Tarver, A. Walter, Paris, E. Wimbridge, and Thomson; honorary treasurer, Mr.

Arthur Smith; honorary solicitor, Mr. Francis Truefitt; auditors, Messrs. S. C. Rogers and G. W. Penfold; curators, Mr. C. H. F. Lewes and Mr. R. O. Harris; honorary secretaries, Mr. Arthur Smith and Mr. C. J. Adams.

These appointments will be submitted for confirmation at the next ordinary meeting.

On the motion of Mr. Bunker, seconded by Mr. Blashill, a sub-committee was appointed to consider the curatorship of the property of the Association, and to consider and report upon the desirability, or otherwise, of completing certain works of a professional character, to form the nucleus of a library for lending, or reference.

The adjourned debate on carpentry was then resumed by Mr. G. B. New. In the discussion which ensued, and which was of a conversational character, and illustrated with diagrams, the president, Mr. Paraire, Mr. Adams, Mr. Blashill, and other gentlemen took part.

It was announced that the next subject for the class of design would be a "porch," and that the concluding meeting of the session would be held on the 28th inst.

THE ARCHITECTURAL PHOTOGRAPHIC SOCIETY.

A SPECIAL meeting was held at the house in Conduit-street, on June 7th. Mr. P. Anson presided.

The Chairman said the meeting had been summoned in order to make known the position of affairs, and to gain power to wind up the Association. In spite of efforts to make it a success, the estimated balance in favour of the Society was steadily diminishing; and, if they continued to carry on the operations on the present system, there would soon be an actual deficit. The interest of the public seemed to have been diverted to other channels. The exhibition was a great annual loss. The Society had, however, been the means of inducing photographers to produce architectural photographs at a moderate price; and was, no doubt, the cause of the foundation of many similar schemes which were now in operation.

Under these circumstances the committee declined any longer to take upon themselves the responsibility of the management, and would only continue in office until the affairs of the Association were wound up. After some discussion and explanation from the chairman and hon. secretary, on the motion of Mr. Brandon, seconded by Mr. Street, a resolution that the committee be empowered to realize the entire property of the Association, with a view to the winding up of its affairs, was carried unanimously; and the meeting separated after passing a vote of thanks to the chairman.

The Chairman announced that it was the intention of some of the members of the present committee to reorganize the Society on a different and safer footing, and one that would offer greater advantages to the profession; and that Mr. Lighty, the present hon. secretary, had consented to act in the same capacity for the new Society. The distribution for the present would, it was stated, commence in about three weeks, when due notice of the proposed arrangements would be given.

LONDON BRIDGE RAILWAYS TERMINUS HOTEL.

THIS building is now being erected on the southern side of the London Bridge stations; having frontages to St. Thomas's-street and Joiner-street; and is intended to supply the great want of hotel accommodation which has been found to exist in the neighbourhood of these great termini.

The basement story consists entirely of cellarage. The ground story, with the exception of the entrance-hall and staircase from St. Thomas's-street, is appropriated to the domestic offices of the hotel. The one-pair story is designed to be used principally as a restaurant, with smoking and billiard-rooms, independently of the hotel, yet served from the same kitchen, with a separate entrance and staircase from Joiner-street.

The two-pair story (being the level of the railway station, and a plan of which is attached) consists of the large coffee-room, coffee-room for ladies, with library or drawing-room, and sundry private rooms; and the upper stories are occupied as sitting and bed rooms in the usual way.

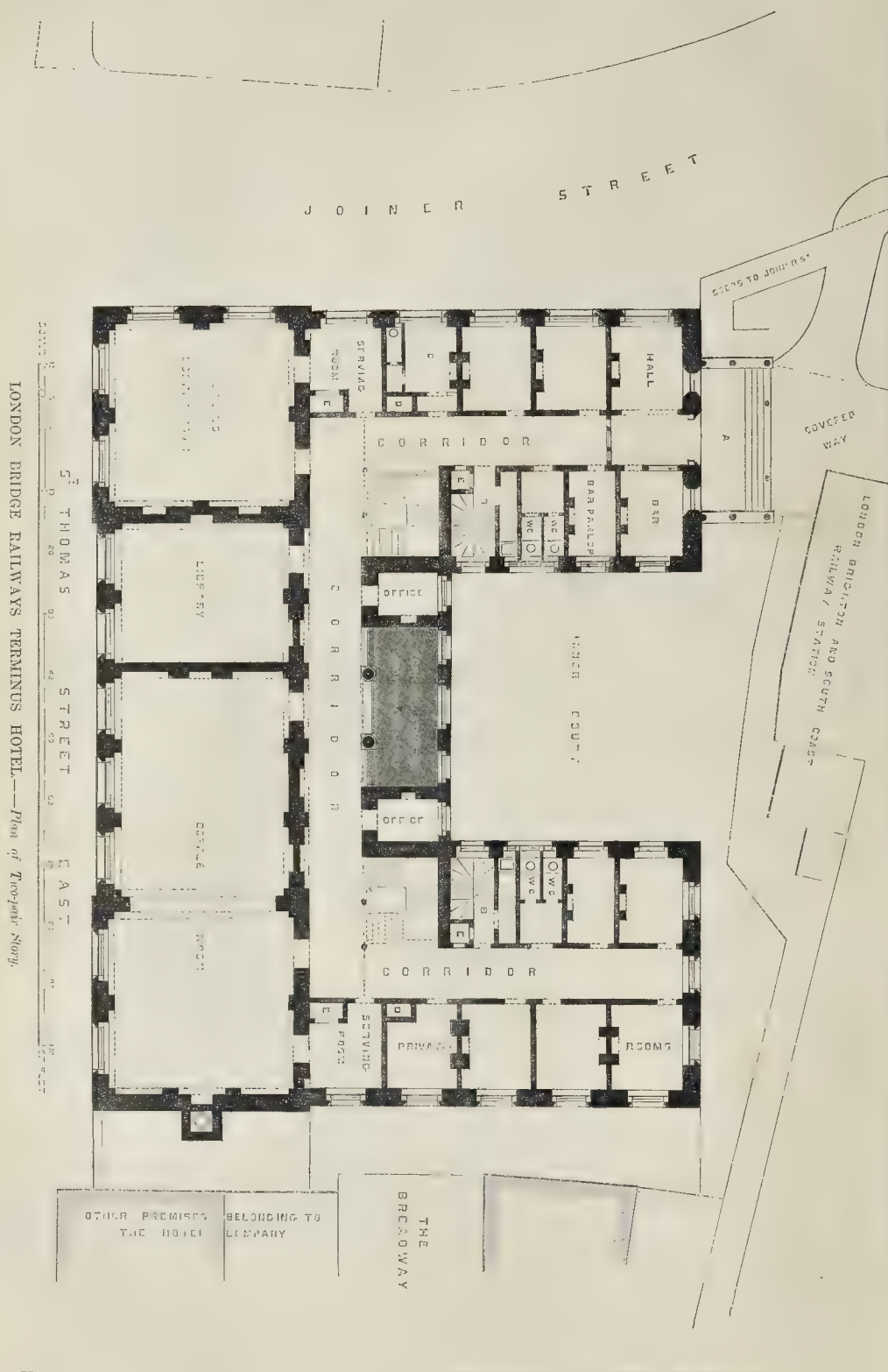
The total number of rooms, exclusive of the domestic offices and tap, is about 160; with ample accommodation for bath-rooms, closets, &c., on every story, and with wide corridors, staircases, and lifts.

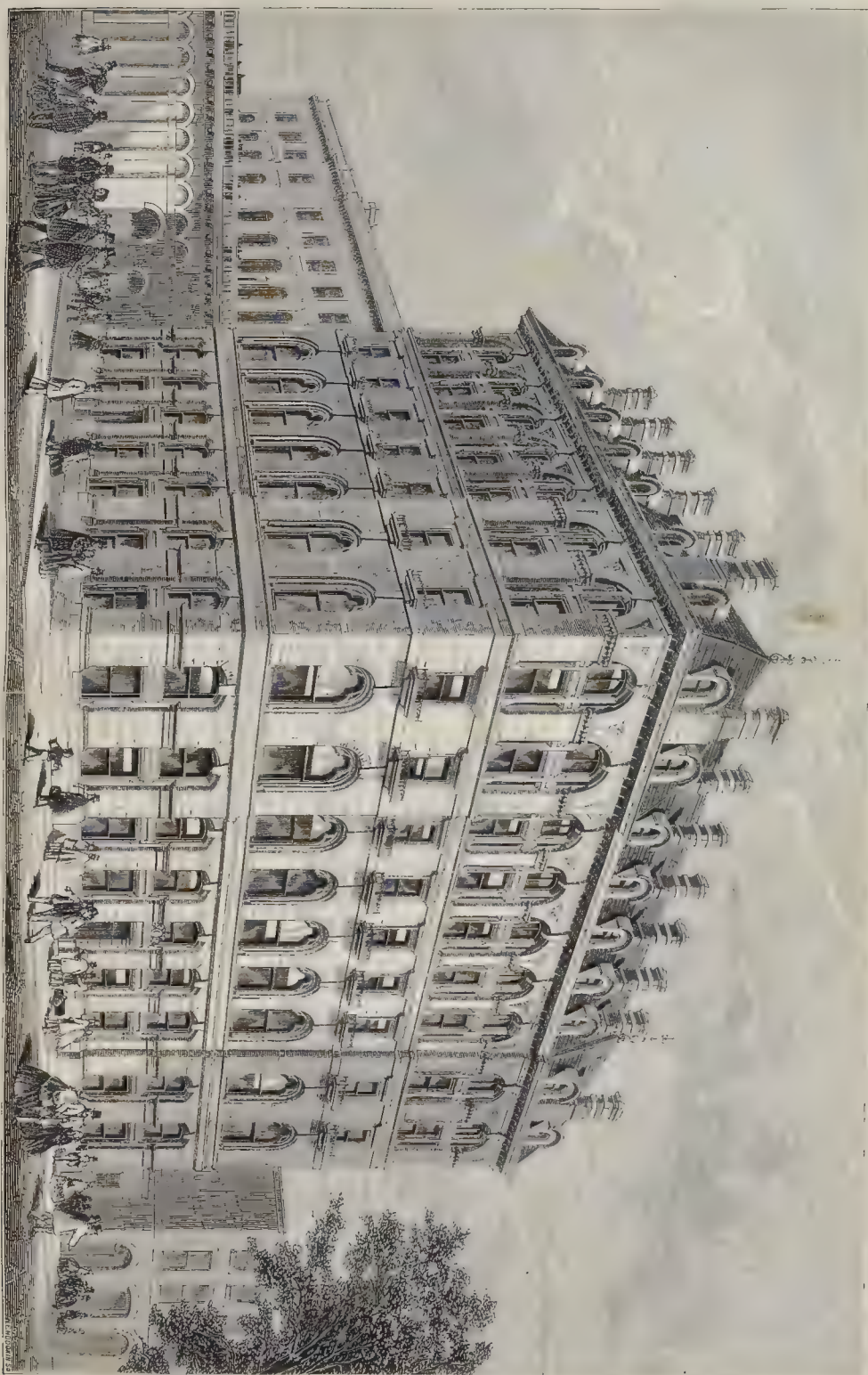
The company are possessed of additional space abutting eastward on the hotel, on which it is proposed to erect a large room for public meetings, &c.; the upper stories being appropriated as additional bed-rooms for the hotel. This part of the scheme is not yet being proceeded with.

The building is being erected from the design of Mr. Henry Currey, by Messrs. Lucas, Brothers; and will be ready, it is believed, for occupation, in May, 1862, at the opening of the Exhibition proposed to be then held.

REFERENCES.

- A. Entrance from the railways.
- B. B. Servants' stairs.
- C. Ladies' waiting-room.
- D. D. Ventilating shafts.
- E. E. Lifts.





LONDON BRIDGE RAILWAYS TERMINUS HOTEL.—MR. HENRY CERRITY, ARCHT.

THE STYLE WHICH SHOULD CHARACTERISE OUR EPOCH.

AN artistic Congress is to be held in Antwerp, on the 19th and 20th of August, to which English artists are being invited. The inhabitants of the town will entertain them. An address which the committee have issued, after setting forth the question of artistic copyright, as one to be discussed, proceeds to open the question why our epoch, superior in so many respects to former centuries, has not its own particular form of architecture.

"Our architects, long before us, have recognized an evil the cause of which cannot be attributed to them. Nevertheless let us consult history. We see in all great epochs a close alliance between the architect, the painter, and the sculptor. Egypt, Greece, and Rome have preserved many proofs of it. The ruins of Karnak at Thebes, those of the Parthenon at Athens, prove the power of that varied art, which called to its aid all the resources of the pencil, chisel, and compass. The civil constructions of Pompeii furnish also a striking example of that harmony between the three great elements of antique art. Afterwards we get by the descriptions of ancient authors the highest idea of those Gallo-Roman habitations wherein all the requirements of comfort were united to the gratification of the most complete artistic tastes. The Gothics had a similar aim: we do not speak of their cathedrals: even from the porch, covered with symbolical sculpture, to the choir in which a mystical light descends through a variety of interesting glass windows, all seems vivid: the most obscure recesses are peopled with images: the blue vault, covered with stars, gives an idea of the infinite: the pious legends of the Middle Ages are to be seen upon the wall: the smallest object of furniture is a masterpiece, the importance of which is observed in that wonderful ensemble. Civil architecture does not remain beneath religious: our town-halls confirm it: every-day life is surrounded by artistic marvels in which are blended, with an admirable harmony, architecture, sculpture, and painting. Renaissance, which does not separate these essential elements, has, as well as the Middle Ages, its form and its type, that may be traced in the history of architecture. Decadence itself, the last proof of which is the style Rocaille, has produced monuments of indisputable value, wherein art, though degenerated, maintains a special and characteristic form. If, at our epoch, we want originality, is it not because we have abandoned the ancient alliance of the Fine Arts? Is it not because each confines itself to its particular sphere?"

Shall we not, when re-establishing the harmony which reigned among them, restore the unity, the original forms we want and for which we vainly seek in the recollections of the past? Is, in short, that question not solved by a reform in artistic instruction? and, in that case, what shall that reform be? Such an inquiry could only be fruitful in its results.

Bearing upon this, the Congress proposes to discuss the following questions:—

1. Is the expression of monumental art in harmony with the manifestations of modern ideas?
2. Is not the union of architecture, sculpture, and painting indispensable to monumental art? What reforms should be introduced in the instruction of the Fine Arts, in order to establish that union?
3. Is it not in the union of architecture, painting, and sculpture, that monumental art should find the elements of a new style, which ought to characterise our epoch?

BELFAST, IRELAND.

A NEW episcopal church has lately been opened in the Falls District, capable of accommodating 308 sitters. The style is Early English, designed by the late Mr. Joseph Wolland, architect to the Ecclesiastical Commissioners. The nave is 68 feet by 30 feet, having a chancel 19 feet by 15 feet. There is also a southern porch and robing-room. The building is provided with breaks on each side for future transepts. The sittings consist of open benches, which, with the roof, are stained and varnished. The eastern and southern windows and the quatrefoil lights in transept and western gables are fitted with stained glass, which was supplied by Messrs. David Evans & Sons, Shrewsbury. Mr. James Henry was the contractor.

The remaining portion of the railway from Belfast to Donaghadee was opened on the 3rd instant for traffic, viz. from Newtownards; thus at last completing the Irish portion of the railway to what is, we are told, the shortest sea-passage to Great Britain.

The prevalence of fires in Belfast, and the insufficient supply of water to extinguish them, have caused the various insurance offices who transact business there to give notice that they will raise the premium about 50 per cent. At the last fire which took place the fire-brigade could do nothing towards extinguishing the flames, which only ceased to rage when the whole of the combustible matter was consumed. Although the Town Council have at least three Acts of Parliament to empower them to regulate the affairs of the borough, they possess no power to regulate the erection of buildings with a view to the prevention of fires.

THE LABOUR QUESTION.

Leds.—The bricklayers' labourers still refuse the offer of 4d. per hour instead of 3d.; and, although the bricklayers have accepted the masters' offer of payment by the hour, they cannot get to work, because the labourers are still on strike for their original demand of 3s. 6d. a day, or 12. a week. A few employers have acceded to the labourers' proposal, but the masters generally stand out; and, as a consequence, several important public buildings, including the Midland Hotel, the Corn Exchange, the new Bank of England, and other works are likely to be delayed. Two bricklayers' labourers on strike have been convicted of the charge of threatening and intimidating a builder, and bound over in their own recognizances of 10*l*., and two sureties of 5*l*. each, for six months; and another has been fined 10*l*., and costs, or seven days' imprisonment, for interfering with the workmen of the same builder.

Gainsborough.—The joiners here have been on strike. From statements made at a meeting of journeymen joiners, it appears a notice had been served upon each master in the town, asking for an advance of 2*s*. per week upon their present rate of wages, and a reduction of three hours and a half per week in the time they now worked. With two exceptions, all the masters signified their willingness to concede either one or the other of the demands; and, in one instance, both; provided the alteration became general in the town. It was stated that the wages paid at Gainsborough were much lower than those paid in any other town in Lincolnshire, whilst the hours of labour were longer. It was decided that no man should resume work until the terms above stated were conceded by the masters. Since this meeting was held the joiners have resumed work, the masters having acceded to their request.

Colchester.—While men in various quarters are striking for a diminution in the hours of labour and an increase of pay, 100 women have struck work in this town for an increase, not of pay, but of labour. In consequence of the failure in the silk crop, the mill hands had to be restricted to five days' labour a week, at 1*s*. a day; and this is the cause of the strike of these poor girls; who have thus also thrown 150 fellow-workers, also females, employed as winders at full work, out of employment.

WHAT IS A LOAD OF LATHS?

A CORRESPONDENT, himself a lath-render, asserts roundly that a great imposture is carried on by many in the lath trade, and sends a statement, of which we print a portion. This will usefully awaken attention to the subject, even if his assertions as to a prevalent want of honesty be exaggerated.

He says:—In and around the metropolis, laths are sold by the load of thirty bundles; but, as there is no law (that the writer knows of) to compel the maker to put in any given number of laths in the bundle—and acting on the ignorance of the purchaser—they put in just what they please; and in nineteen cases out of twenty the purchaser does not obtain more than two-thirds, or three-fourths to the most, for his load of laths. And to prove this, it will be as well to state what was the custom of the trade fifty years ago, and continued by a few makers to the present time.

The first table shows the length, the number of laths, and the number of feet in each bundle; it is in the number of feet in the bundles of different length, where the deception is. The custom was to send of 4 feet and 3 feet 6 inches ten or twelve bundles, and only one of 2 feet, and one of 2 feet 3 inches to the load. Observe the difference in the number of feet in the bundle of 4 feet and the 2 feet in the first table. The second table gives the length, the number of laths, and the number of feet in each bundle, as made in the majority of lath-render's shops at the present day. To show the advantage that can be taken of the purchaser in the full-tale laths: if the maker takes three bundles of 4 feet from a load, and substitutes three bundles of 2 feet, the purchaser loses in quantity one bundle of 4 feet, because two bundles of 4 feet contain 960 feet run, and three bundles of 2 feet contain the same number of feet exactly: thus, by sending short lengths, the maker can take three or four bundles, and still there shall be what is called a load, thirty bundles.

There are some builders who run after everything that they think is cheap, and of laths they will tell you that a load of laths is a load of laths—thirty bundles—no matter the quantity, or the quality; or if the laths are only $\frac{1}{2}$ inch instead of 1 inch in width, and only half the quantity in

the bundles that there ought to be, so that they are cheap, and there are the thirty bundles, they are satisfied.

Apply these remarks to the double and lath-and-half laths: it was the custom fifty years ago to put in the bundles of double laths the numbers according to the second table, and in lath-and-half ten more in each bundle; but there is not one place in ten where you can get these numbers in the bundles of double or lath-and-half laths at the present time. In the majority of places where they make or sell laths there are ten laths less in the bundles of double and lath-and-half laths than the second table shows: in respect of the lath-and-half laths, the purchaser does not obtain more than 20 or 22 feet of 400 feet in each for his load; and the price charged for the short tale lath-and-half laths is from 1*l*. 18*s*. to 2*l*. 4*s*., about 2*s*. per bundle of 400 feet, or 3*l*. per load of 12,000 feet run; and these cheap lath-and-half laths, instead of being four to the inch in substance, are five in most cases.

The quality of laths: double laths should be from $\frac{3}{4}$ to 7-8ths of an inch in width, and three to the inch in substance; lath-and-half laths, four to the inch, and average 1 inch in width. Single laths, to average 1 inch in width, and five and a half to the inch in substance, are a good lath, but there are great quantities made six, seven, and in some cases eight to the inch, and $\frac{1}{2}$ of an inch in width. Take your rule, let that be your guide: pull them out of the bundle eight or ten at the time, and measure them on the average; not pick out a few bad laths and condemn the lot. To count a bundle of laths, take a bundle, stand it clean end upwards, stamp it on the ground two or three times, to shake the half-laths down,—for there are some who put them all in the clean end,—take two pieces of laths, pass one across the centre about three inches from the top, take the other and cross it: your bundle is then quartered, and you can count it easily. You need not count the 4 feet, or the 3 feet 6 inches; but the 2 feet 8 inches, 2 feet 6 inches, 2 feet 3 inches, and the 2 feet be sure to count, and if you find them short-tale send them back, and have no more dealings with such parties.

A bundle of laths (no matter what length) containing 400 feet, the laths 1 inch in width, if nailed up by itself, will cover 5 square yards. The load, allowing 10 yards for lags and waste, will cover 140 yards; but a load of these cheap short-tale laths will not cover 100 yards.

Table—No. 1.

Ft. in.	Number of Laths in a Bundle.	Number of Feet in each Bundle.
4 0	120	480*
3 6	130	465
3 0	140	420
2 6	150	375
2 3	155	348
2 0	160	320

Table—No. 2.

Ft. in.	Number of Laths in a Bundle.	Number of Feet in each Bundle.
4 0	100	400
3 6	110	385
3 0	120	360
2 6	130	325
2 3	135	303
2 0	140	280
1 6	160	240

GAS.

THE Plymouth Gas Company is really a model one, as regards the mutual interests of the public and the proprietary. We have frequently had occasion to report their successive reductions in price; each reduction yielding so much additional profit to the company as to necessitate, in a manner, a still further reduction. In the report of the directors for the meeting of proprietors on 19th June current, it is stated that "the directors, in submitting their usual report, on the occasion of another annual general meeting, have pleasure in drawing the attention of the proprietors to the steady and satisfactory increase in the business of the Company. The gas rental exceeds that of last year by the sum of 224*l*. 8*s*. 6*d*., notwithstanding the reduction to the consumers amounts to 1,519*l*. 14*s*. 2*d*." The report afterwards goes on to say that "at the last annual general meeting the directors announced their intention to reduce the price of gas from 3*s*. 9*d*.

* It is the custom of the trade to put in ten half-laths, from 18 to 20 inches in length, in each bundle above 2 feet 3 inches; they are counted as five laths: they do not measure the full length in the 4 feet, but in the 2 feet 8 inches and 2 feet 6 inches they make it up.

to 3s. 4d. per 1,000 cubic feet; and it is gratifying to them to state that the increase in the consumption which has taken place since that period has so fully realised their anticipations, that they are now enabled to announce their intention to make a further reduction of 4d. per 1,000 feet from and after the 29th September next, when the charge will be 3s. per 1,000 cubic feet; thereby giving their customers the benefit of reduced charges on their next winter's consumption." The company are still reaping their maximum dividends of 10 per cent. on one half of the shares and 7½ per cent. on the other, notwithstanding all these reductions. Such a company well merits the highest dividends allowable by any local or general gas Act, namely, 10 per cent.; but we believe that their Act—shall we say unfortunately—restricts them to 7½ on the "new" shares.

The Hinkley Gaslight and Coke Company have held their twenty-seventh general annual meeting. The directors, it was stated, have had under their consideration, for some time past, the price of gas consumed by meter, with a view to a reduction at the earliest possible period; and after the present quarter an abatement will be made. A dividend of 7½ per cent., free of income-tax, was declared.

At Hawkhurst a gas company is being formed, on the limited liability principle.

The Edinburgh gas consumers are forming a new gas company, with a capital of 75,000*l.*; which, it is stated, will secure a better plant than has cost the Edinburgh Gas-light Company 150,000*l.* The Company is to contract with consumers for the supply of gas, for any period up to ten years, at 3s. 6d. per 1,000 cubic feet; the quality to be equal to what is at present supplied to the city.

The Petercain Gas Company have held their annual general meeting. At the previous meeting, says the *Montrose Review*, "it was confidently anticipated that a considerable profit would be available this year as a dividend; but, on the contrary, the treasurer's balance-sheet exhibited a loss of 11*l.* 13s. 3½*d.* : this unsatisfactory state of affairs is mainly attributed to the enormous consumption of coal as compared with former years, as well as with the return derived from them." It is worthy of remark that the price of gas here is amongst the highest in Scotland, being 15s. per 1,000 cubic feet; but the directors appear to be too obtuse, and too much bent on gain by ridiculously high prices, to be able to see that their losses arise from the highness of the price they charge; and even yet, doubtless, their stupid mode of reasoning will be that, since 15s. do not yield any profit, they must raise the price! Such reasoners ought to study the contrast here presented by our opening and our closing paragraphs.

CHURCH-BUILDING NEWS.

Ipswich.—The Roman Catholic church of St. Pancras, Ipswich, the foundation-stone of which was laid on 15th May, 1860, has been formally opened. The church stands near Orwell-place. It consists of a nave, terminating in an apsidal chancel, side aisles, a porch, and a sacristy, connected by a cloister with the existing house, occupied by the incumbent. A chief feature of the church is its unobstructed character; the altar being visible from every portion of the church, whilst light is diffused throughout the building from the clerestory windows. As yet, only one window has been glazed with coloured glass: this is immediately in the centre of the apse, and represents St. Pancras, the patron of the church: it was presented by the Rev. Dr. Amherst, R.C. bishop of the diocese. Externally, the porch and bell-turret or spirelet are the most noticeable features. The spirelet marks externally the division between nave and chancel, and rises to a height of 103 feet from the ground. It is constructed of wood and metal, with six figures representing angels standing upon shafts round the base of the spire. The cost of the building, including fittings, has been about 3,000*l.* Mr. G. Goldie, of Westminster, was the architect; Mr. S. Simpson, of Ipswich, the contractor; and Mr. Earp, of London, the sculptor employed.

East Rudham.—The parish-church here has been reopened. The accumulated whitewash of a century has been removed from the walls and arches; once more exposing to view the tracery and corbel heads with which the building abounds. An immense mass of carpentry, of the nondescript style in vogue fifty years ago, entirely blocking up the arch between the nave and chancel, has been cleared away; together with some of the old straight-backed pews; revealing some carved and painted work long invisible. The pillars have been denuded of their wooden casings and hat-

pegs, with which they were encumbered, and the building approximates to something of what its architect intended; but much remains to be done. A huge lumbering gallery still blocks up a side aisle,—arches, windows, and all; and the remaining pews are of the most unsightly description.

Leicester.—The tower of St. Martin's Church has now been taken down, and the workmen are engaged in excavating for the foundations of the new tower and spire. The piers which supported the old erection were found to be in a worse state than was ever imagined; the mortar being very much decayed, and the whole of the work loosely put together. The foundations consisted merely of a quantity of rubble little more than two feet in depth; lying, apparently, as it was shot from the cart, when the tower was about to be built. The whole was in a very dangerous state, according to the local *Advertiser*, the only wonder being that the tower stood so long. Several fragments of Roman tiles were found built into the lower part of the tower, showing that the material for its construction was obtained from some building of an earlier date.

Froxfield (Hants).—The Foundation-stone of a new church (St. Peter's) has been laid at Froxfield. The style is Early English. The church consists of a nave with one aisle on the north side and a chancel. It has also a small tower at the south-west corner. The walls will be constructed of flint, with quoins and window-dressings of Bath stone. The entrance will be through the Bell Tower, the lower portion of which forms a kind of porch. It is also proposed to use portions of the old church in the construction of the new: thus of the five arches separating the nave from the aisle three will be the old Norman round arches, the piers and caps for same being the old ones readapted. The number of sittings provided is 270 for adults and 80 for children. The works are being carried out from the design and under the superintendence of Mr. E. H. Martineau, of London, architect; the contractors being Messrs. Lewis, Brothers, of Westmore.

Eling.—The vestry of Eling, near Southampton, have resolved, on a report by Mr. Ferrey, architect, to take steps to procure funds for the restoration of the parish church; and they have appointed a committee to consider the best means of restoring or rebuilding the edifice on its present site, and to ascertain the cost.

Ross.—Bridport Church, recently rebuilt, has been reopened by the bishop of the diocese. The new church has been rebuilt from the designs and under the superintendence of Mr. T. Nicholson, of Hereford, the diocesan architect. It is more extensive than the old one, comprising a nave and north and south aisles, 49 feet by 24 feet, under a triple ridge roof; a chancel, 25 feet by 14 feet; and a chancel aisle, 16 feet by 10 feet. The nave is divided from the aisles by four archways on each side, the pillars of which are enriched with foliage, done from the architect's sketches. Between the nave and chancel the original Norman arch has been set up, and between the chancel and its aisle the double arcade; so that these relics will still be preserved. The chancel aisle contains a vestry and an organ chamber, enclosed with a carved oak parclose, and a stair leading to a vault, in which is placed the warming apparatus. The church is entered under an open oak porch. The framework of the several roofs is visibly of an early type: the external covering upon them is Brossley tiles. The entire floor of the church and chancel is laid with Godwin's encaustic tiles. The sittings throughout are all moveable. The tower has been opened to the church, exhibiting an archway to the new nave, and bringing into view the west window, which is of cusped tracery. A memorial window (by Hardman) of painted glass, decorates the east end of the chancel; and the churchwarden, Mr. Arthur Armitage, has commissioned the same artist to fill the three-light window at the east end of the south aisle. The style of architecture adopted was suggested by reminiscences of the old church, or rather of what the old church had been in the earlier days—by mutilated fragments, such as a portion of a pillar, a corbel, a piece of traced work. The work has been executed of hewn masonry within and without. The whole works have been executed at the contract price of a little more than 1,500*l.* The carving throughout has been executed by Mr. R. L. Boulton, of Worcester (who, with his brother, according to our authority, the *Hereford Times*, executed the screen for Hereford Cathedral); and the builder was Mr. Beavan, of Bridport.

Leeds.—The parish church here is being renovated. The roof and the pews in the galleries are all undergoing re-painting and varnishing. The bosses in the roof, which have previously only been

painted in imitation of oak, are to be gilded. The stone pillars will be cleaned, and the whole of the capitals re-carved. The plaster pillars, which have hitherto been whitewashed, are to be subjected to a new process by the use of a patent indurating solution, the patentee's right to which for Yorkshire has been purchased by Messrs. Dennis Lee & Welsh. The effect of the application of this solution to plaster is, according to the local *Intelligencer*, to render it extremely hard and impervious to wet. After the application of the solution the pillars will be painted to correspond with those of stone. Three new windows have been cut in the transept, similar to the one near the pulpit, which was made about five years ago; and the effect will be to throw a much better light into that part of the church. Some new stained glass windows are also to be added to the church. In the ante-chapel, next to the Tennant family's memorial window, there will be one by Mr. O'Connor, of London, erected in memory of the late Mr. Henry Hall. On the south-east side of the communion-table a window has been removed; and a new one, designed by Mr. Barry, of London, has been made. For the present the glass in the window will be plain, but it is intended that it shall subsequently be filled with stained glass. This window is the gift of Mr. Gott, and will be in memory of his father and mother. The apparatus for supplying wind to the organ will be changed by the application of Mr. Joy's hydraulic pressure. The ventilation of the church will be improved: additional gas-lights are to be added, and others removed; and various other improvements are contemplated. The cost of the renovation (exclusive of the new stained glass windows) is estimated at about 1,500*l.*, and will be defrayed by subscription. The stone-work, &c., is entrusted for execution to Messrs. Dennis Lee & Welsh; the painters' work to Mr. Thomas Simpson; and the plumbers' work to Mr. John Garlick, all of Leeds.

PROVINCIAL NEWS.

Norwich.—Amongst the modern improvements in Norwich street architecture, the *Norfolk Chronicle* speaks of premises in St. Stephen's-street, comprising lofty and spacious shop and show-rooms, extensive apartments for assistants, &c. The principal feature is the main front in St. Stephen's-street. The building consists of three floors, and the style of architecture adopted is the Italian. The shop front is formed with fourteen squares of the largest plate-glass yet fixed in Norwich, each square being 12 feet high and 4 feet 6 inches wide. Mr. F. Brooks was the carpenter; Mr. J. W. Lacey the bricklayer and plasterer; Messrs. J. & J. King the plumbers and glaziers; Mr. Pinson and Mr. J. Parlour supplied the ironwork: the revolving iron shutters were supplied by Messrs. Francis, of London. The plans and designs were prepared by, and the whole of the works carried out under the superintendence of, Mr. John Dymond Ellis, of Norwich, architect.

Ramsgate.—A meeting was held at the Town-hall, recently, for the purpose of hearing from the London, Chatham, and Dover Railway Company an explanation of the plans for their proposed terminus near the shipwright's yard. Mr. Holroyd, the secretary; Sir Cusack Roney, director; and Mr. Turner, engineer, attended as a deputation from the company. In reference to a resolution passed at a previous meeting to prevent the company encroaching upon the bathing sands, Mr. Holroyd, as the *Maidstone Journal* reports, said that they would not do so against the wish of the inhabitants, but the views of the company had always been to build a sea wall, and form a handsome esplanade for the use of the visitors and inhabitants; and he hoped the inhabitants would meet them in a liberal manner to enable them to carry their views out. A resolution was ultimately passed by the meeting in favour of the plan being carried out. The proposed esplanade will be carried from the entrance to the sands, along the whole front, to a point on the other side of Augusta Stairs, and will involve the removal of the Coastguard station.

Malvern.—Plans have been prepared by Mr. Shipway, architect, for new offices to be erected for the commissioners of this town. The site of the new building is in Malvern-lane and Victoria-road, about midway between the Abbey church and the railway station shortly to be erected. The offices will be a building of two stories, in the Italian style, the walls of brick with Bath stone facings; and the accommodation will comprise a board-room, 30 feet by 16 feet; surveyor's and clerk's offices, a store-room, a strong-room for papers (this room, together with the hall, staircase, and passages, to be fireproof), and a campanile

tower for clock and alarm bell. This clock will be useful to the adjoining market-house when that structure is raised. There were three tenders for the buildings: the highest was 1,720*l.*, and the lowest 1,589*l.* 10*s.*; the latter, by Mr. W. Smart, of this town, was accepted.

Stockport.—The foundation-stone of a new mechanics' institute has been laid at Stockport. It is estimated that the cost will be about 4,000*l.*, of which 2,500*l.* have been realized. The site of the new institution is in Wellington-road South. The designs were furnished two years ago; the successful architect being Mr. J. Stevens, of Manchester. Messrs. Thakrah & Pierce are the builders. The style of the building will be Italian, and the material, brick with stone dressings. The basement will contain the class-rooms, to which the entrance will be in Lawrence-street, and will also be furnished with cooking apparatus. On the ground-floor will be the newsroom, library, chessroom, and boardroom, to be approached by the two principal entrances, to each of which there will be a flight of steps. The assembly-room, which is to be in the upper story, will accommodate 1,200 persons; its dimensions being 80 feet by 42 feet. It will be surmounted by a dome, and entirely lighted from the top. The windows will be of circular form, headed with key-stones.

Tynemouth.—The new clock-tower at Tynemouth, which will have drinking-fountains at two sides, and a marine barometer in the front, the gift of Mr. William Scott, of London, through Mr. E. Potter, of Cramlington House, is progressing. Mr. B. C. Lawton is carrying out the building, from the designs of Mr. Oliver and Mr. Lamb, formerly of the firm of Oliver & Lamb.

SCHOOL-BUILDING NEWS.

Bedford.—Holy Trinity District School was opened by the Rev. R. W. Fitzpatrick, the Incumbent of the district chapel, on the 27th ult. The roof is open-timbered and high pitched, having wrought principals with curved struts and braces, with purlins, boarded, having no rafters, and is surmounted with a hexagonal lantern, which being perforated serves the purpose of ventilation. The walls are faced with white bricks, having inexpensive decorations as bands, arches, emblems, &c., worked in native red brick and Staffordshire tiles. The roofs are covered with Bangor blue slates, capped with an ornamental ridge crease, with wrought-iron terminals to all gables, as well as to apex of lantern. The interior consists of one room 60 feet by 26 feet, and 31 feet high up to ridge-piece, having a folding partition so arranged as to be able to form a distinct boys' and girls' school when required, with separate access to offices. The entrances are on each side protected with a small porch. The cost of the building (exclusive of site) is about 650*l.*, and the whole of the works have been executed by Messrs. Reynolds & Son, of Bedford.

Tipton (Staffordshire).—The inscription stone of new schools in course of erection at Tipton, in connection with the parish church, was laid on Whit-Tuesday. The schools are intended to accommodate 500 children. The cost, exclusive of the site, will be 1,600*l.*; and the schools are being erected from the designs and under the superintendence of Mr. John Weller, of Wolverhampton, architect. Messrs. H. & E. Micklin, of Tipton, are the builders. The work is to be completed by the 2nd of November next.

Pennsett.—St. Mary's new schools, at Pennsett, near Dudley, have been opened. The site is on the Dudley and Kingswinford turnpike road, and about a quarter of a mile from the church: it is the gift of the Earl of Dudley. The schools are in the Early Decorated style of English architecture, and are erected in red brick, interspersed with blue. They comprise accommodation for about 600 boys and girls, with two class-rooms, and residences for male and female teachers. The total cost of the buildings was about 1,600*l.* The architect was Mr. Bourne; and the builders were Messrs. Elliott & Lovatt, of Wolverhampton.

MONUMENTAL.

At a meeting of the Committees for erecting Statues to the late Mr. Brunel and Mr. Stephenson it has been determined that a statue of each shall forthwith be placed in the gardens attached to St. Margaret's church, Westminster. It has also been finally settled to entrust the execution of these works to Baron Marochetti. Some diversity of opinion existed as to whether they should be executed in marble or in bronze; but the majority decided in favour of the latter. Baron Maro-

chetti had said that, if they were to be executed in marble, he would have nothing to do with them.—The polished granite pedestal for the Watt memorial statue at Southampton, weighing nearly fifteen tons, having arrived from Aberdeen, its erection was at once commenced in the Watt's Park, by Messrs. Garrett, who are entrusted with this part of the work by the contractor, Mr. Alexander Macdonald. The committee are making arrangements for the public inauguration of the statue on the 17th of July.—The Duke of Montrose has expressed his intention of entrusting to the Wallace Committee, for exhibition, at the laying of the foundation-stone of the Wallace monument at Stirling on 24th instant, the two-handed sword of Sir John de Graeme, the friend and co-patriot of Wallace, who was commemorated by a tomb erected by the Scottish chief in Falkirk churchyard. The tomb has been thrice renovated, and the original inscription, composed by Wallace, is preserved on the three different flat stones which are elevated above each other supported on pedestals. The inscription is as follows:—

"Mente Manuque Potens, et Valie Fides Achatas
Conditor hic Gramus, Bello Interfectus ab Anglis,
22 Julii, 1298."

The sword of Sir John, in the possession of the Duke of Montrose, bears the following inscription:—

"Sir John ye Graeme verry vicht and wyse,
One of ye Chiefes releivit Scotland thryse;
Fought with ya sword, and ner thout schame;
Commandit nane to beir it bot his name."

ON ARCHITECTURAL SCULPTURE.

SIR,—Although I have not been able to give that amount of thought to the question I am about to bring to your notice which is desirable; still, perhaps the first embryo idea may not be without interest to your readers. The subject I would speak of seems to arise out of the impression made on our minds by the first view of any façade containing much sculpture; and, to explain more fully the point I desire to see cleared up, I will refer to buildings in the two great styles of architecture since the Christian era. Firstly, then, let us suppose ourselves in the court of the Tuileries; and, on looking around, our eye is at once attracted by the regularly-arranged line of sculptured figures, all standing at a fixed distance one from another. Now, do these series of figures create any particular emotion in our hearts at all commensurate with the amount of labour that has been bestowed upon them? For all that we care for them at first sight, and that too at a distance, they might just as well be a series of pinnacles or other architectural ornamental feature. In order to appreciate the said figures, each one must be visited separately, and duly considered in reference to the character portrayed and to the mental attributes of the same: hence it is essentially contemplative sculpture, such as a single figure of the Virgin or a crucifix is in a church: they there are placed in order that devotees may meditate upon the mighty mysteries therein conceived. Now, architecture being always viewed as a whole, and the details thereof on no account being permitted to form in themselves individual groups, but, on the contrary, they forming part of the whole subject to it, and but adding to its general embellishment, of no importance in themselves more than that they should be well executed; I would ask, is such sculpture as that here alluded to really well applied? I think not; since, as a whole, they create no interest, but require special examination for each, and are hence scarcely in accordance with the idea of an architectural whole.

Having now taken a very simple illustration of the question at issue, let us pass to a more complicated form, where it is of greater difficulty to define with accuracy the absolute beauty of the sculpture as a whole. For this purpose, then, any Romanesque or Pointed cathedral façade will serve us admirably: the reader has but to keep in mind such a façade as Notre Dame, of Paris. Our first impression on beholding this fine front is one of awe, caused by its grand proportions and heavy massiveness; the second one of sensual delight at the superb symmetry in the distribution of its component parts; but in all this the sculpture positively has no place whatever. But we draw closer to it, to examine the carving. That which first strikes our eye are the bas-reliefs, the subject sculpture. The horizontal line of figures creates comparatively little interest: they require time each to be viewed separately; they in no way add to the interest of the whole as the grouped sculpture does: on the contrary, at even a very short distance, they appear but a continued repetition

of the same figure. The philosophic reason is one of easy explanation, and evidently consists in the great delight the human mind experiences when caused to consider action in contradistinction to contemplation: for, when observing a single figure, it requires time and much trouble to discern the sentiment which the sculptor has therein sought to express; whereas in a group the idea is at once seized, because there is action in the whole, and the several figures are represented in their respective positions with reference to the subject expressed by the sculptor: one may compare it with a tragedy read, and the same acted by clever artists. From this I would deduce that contemplative sculpture, such as I have termed it, should only be introduced into such places as those where it may serve for devotional purposes, or for mere portraiture; and this latter can never be of any very great interest. Hence the conventional custom of a continued series of canopied saints, or angel-headed corbels, can be of little value in an architectural composition, for it becomes little more than a continued repetition of the one idea. Also, let me remark, that if a sculptor in his own mind is satisfied with a figure, and that such figure is a true representation of the saint or other person he has to work out, he is almost bound to reproduce that work every time he has to carve the same figure; which, in ecclesiastical architecture, must necessarily occur very often; and therefore his work becomes confined to very narrow limits: little play of mind is allowed, and he is little better than the old, much, and rightly-abused machine-workman. Sculpture, then, when applied externally to architecture, should not be made up of disconnected single figures, but rather a series of sculptured reliefs, each containing several figures, and representing some historical or legendary subject. This question seems to me to be one of great importance, and towards which architects and sculptors should turn their attention; for, if what I have said has any truth, the system of those lines of saints on cathedral fronts, and statues on profane buildings, such as the Tuileries, is certainly false and ignoble, as well as detrimental to a full expansion of the mind of the designer; and the sooner the system be forgotten, and thrown aside as a conventional blunder, the better.*

ALPHONSE WARINGTON.

THE PROPOSED LAW COURTS.

SIR,—It is reported that an architect is preparing, or has prepared, plans for the proposed new law courts; and that the judges have individually been invited to inspect and advise upon the arrangement of their respective courts and rooms. The public, and more especially the profession, will be interested in knowing if the patronage of appointing the architect of a work of so much importance, and which is to cost so very large a sum of money, rests with the Attorney-General, whose relative is the architect alluded to.

NEPOS.

BLIND WOULD-BE LEADERS ON THE LABOUR QUESTION.

SIR,—It is thoroughly characteristic of the demagogue, in a grave matter of dispute between class and class, on fundamental principles, to ignore and pass over primary facts; to elevate minor accidents as principles; to carp upon incidents; and then to denounce the distorted image they have thus set up. Such persons are especially given to heap up upon an individual the objections they entertain of a class, and then to blame the class because of the self-supposed individual feelings.

The operative builders of London do not recognise Mr. John Plummer, of Kettering, as a high authority in social science, nor as a party to be propitiated in our disputes in relation to our employers; but, believing him to be a fair specimen of the opponents of labour, and his letter in the *Builder* of the 15th instant as a good instance of the way in which our claims to amelioration are not met; I most respectfully request the favour of a short space of the *Builder* in reply.

In the address quoted from, by Mr. Plummer, we state plainly the objects we seek; the reasons upon which they are based; the facts proving our case; and the principles upon which our judgments are founded. It is truly singular that Mr. Plummer seems wholly oblivious to the whole of these particulars; and therefore it may not be out of place to tell your readers a little of the wrongs and remedies the operative builders speak to.

1. Upon reliable statistics it is calculated that the wealth of England has increased, during the last fifty years, in the ratio of above 250 per cent. more than population.

2. That labour has increased in time, intensity, efficiency, and productiveness; but that the operative classes have not equivalently shared in the advantages of wealth and civilization.

3. That the increase of wealth has entailed upon the people conditions (necessary for its growth) highly injurious to health and life; so that in the great centres of manufactures the working classes do not live half the length of the wealthy and more favourably conditioned.

* Without agreeing with our correspondent's argument, we print it as suggestive and provocative of thought.

4. That where labour has been restricted to reasonable hours of operation—in defiance of the teachings of the self-styled economists,—production has been greatly promoted, wages have increased, capital has become more productive, moral and physical health have been diminished, and morality and intellect greatly advanced.

5. That the tendency of unregulated competition is to increase the time of working; and, by over-production, to diminish the amount of remuneration; and that since the dawn of modern morality, the working men have no power to prevent deterioration or to effect improvement.

These important positions are supported (in the address referred to by Mr. Plummer) by elaborate and carefully marked references to the very highest authorities; and especially from the transactions of the "Association for the Promotion of Social Science,"—from men such as Edwin Chadwick, C.B., Charles Bray, Robert Baker, Edwin James, J. S. Mill, Wade, and other acknowledged standards in economic philosophy. And, if these positions be true, the conclusions we hold to be irrefragable;—viz.,—that the operative builders have good and sufficient grounds for their present claims to amelioration. It is certain that, without reduction in the hours of labour, and without increase in remuneration; improvement in life, health, intelligence, and morality, are totally impossible to the operative classes. It is the meaning of the sentence quoted and carpied at by your correspondent; but because (in the usual rules of hyperbole) it is said to be the only means by which elevation is possible in the address referred to. It is certain that, without temperance, prudence, chastity, and all other cardinal virtues (presumed to be the patent of the elect), are always assumed as imperative conditions to all progress. It is also certain that, without these virtues, an address upon specific conventional grievances; but I would challenge Mr. Plummer to show, in any of our addresses one word to the contrary of the fact, that working men are not the only persons who are entitled to be regarded as highly as he or others can do. But what shall we say of an opponent who, in opposition to specific facts, authorities, reason, and inferences, overlooks and ignores the fundamental positions, to quibble upon a mode of expression, "the value of which, viz.,—good wages and moderate hours of labour," he admits as strongly as we can desire opponents to do. We say at once, that we are not all that is necessary to elevate the people; but put the reverse—viz.,—long hours of employment and low wages (and they are almost inseparably connected); and will Mr. Plummer assert these are, to his liking, more likely to effect improvement? And if he be sincere in his estimate of our objects, why does he not support us in our efforts to obtain them?

It is truly rich to hear, when working men agitate for any rights or privileges, how they are met by lectures upon abuses. If the principle that they constitute a bar to rights or privileges were to obtain, we take it that the wealth of the capitalists would not be so very secure as they now hold it to be. We believe also that, class for class according to the conditions of humanity, and the merits and means of supply,—the working classes equal any of the upper classes in any or all of the virtues so broadly paraded before our eyes by Messrs. Plummer & Co. We take it that a worthy lecturer on the abuses of capital, and on the errors of employers, would be able to show conclusively that neither temperance, prudence, nor charity, is a patent confined to and exercised solely by them; but we are inclined to believe that persons that such declamations are but the common, and now stale, throw-off-scene-track of those who can neither support a cause of their own, nor resist the attacks of those which they oppose. In consequence, therefore, of the full importance of temperance, it does not decide the bearing of the nine-hours question. Even by Mr. Plummer's own showing, the working classes, numbering six-eighths of the population, consuming ten millions of drink every day, do but take about 30 per cent. of the 26 millions calculated to be consumed; leaving the other 16 millions, or 70 per cent., to be drunk by the remaining one-eighth, who are constantly praised as *par exellence* the temperance classes.

Instead of thus testing sound questions by personal virtues, would it not be better for advocates on the "Labour Question" to confine themselves to the question, and meet facts by facts, authority by authorities, and arguments by reason? We might then have, perhaps, learnt that the working classes are well and adequately paid; live long, healthy, and happy lives; having ample leisure and opportunities for intellectual culture at hand, with leisure for their enjoyment. This is what we say, is not, and is now generally impracticable. Even Mr. Plummer admits, that some trades are *possibly* overworked and under-paid. He thinks the London operative builders are not so in relation to their condition. We ourselves (and we are, perhaps, likely to know) have asserted for years, at numerous meetings by free majorities, that they are employed too long; and, notwithstanding Mr. Plummer's opinion to the contrary, we hold that facts prove the case. We give the evidences;—and Mr. Plummer has shirked them entirely. Believing that many improvements may be made in the personal conduct of all classes (and that the operatives are no exception); in the absence of anything like an argument to the contrary, we yet hold our right to general regulations, enacted wisely for the improvement of the general improvement and progression. We admit the necessity for individual effort for individual advantage; but we assert that *without unity of action* the advantages will never become general. We look upon the reduction of time in labour as the present necessity of the building trades of London; and upon the facts and conclusions of the address issued we base our hopes for improvement, as right and reasonable. GEORGE POTTER.

NORWICH CASTLE AND CATHEDRAL.

SIR,—Mr. Street is reported in the *Builder* to have said in his lecture, at the Architectural Exhibition,—"The castle and much of the exterior of the cathedral at Norwich are other examples of destructive restoration; and here the walls have been so plastered with cement, coloured to imitate stone in the most elaborate way, that I fear most of the original work is absolutely destroyed." This is true, so far as the cathedral is concerned; but, with regard to the castle, which the "here" evidently includes, it is entirely erroneous.

The exterior of the keep (which is all that remains of the castle) has been carefully cast in stone, under the direction of Mr. Anthony Salvin. It was five years in progress, from 1834 to 1839, and cost £10,000 (the work connected with it) between ten and eleven thousand pounds. As I was a stranger to Norwich at that date, I cannot speak from personal knowledge of the accuracy of the

restoration, but I believe I may say, that if the measures that were then adopted had not been taken, there would by this time have been but little of Norwich Castle left for Mr. Street to criticize, and it would have been as complete a ruin as Framlingham or Oxford Castles.

I can assure you that as long as I have the honour to hold the appointment I do, there will be no "plastering of its walls with cement," or imitations of any kind, elaborate or simple. Restorations, there can be no doubt, are almost always unsatisfactory; but when we have to choose between utter destruction and "destructive restoration," it is, perhaps, after all, an amiable weakness to accept the latter alternative. R. M. PATRICK, County Surveyor of Norfolk.

ROBBERY OF BUILDERS.

A REPORT in the daily papers of a case brought before the Assistant-Judge at the Middlesex Sessions, on the 5th of June, when four men were indicted for stealing lead from an unfinished building in Hyde Park-gardens, discovers a system of plunder which it is feared prevails to a considerable extent; and deserves notice, with a view to check its progress, by placing on their guard those who are engaged in building pursuits, and acquainting them with the systematic and formidable measures for effecting these infamous practices. Messrs. Rigby have in their possession one of the belts taken from the prisoners in the above case; also a packet weighing 45lbs., composed of strips of sheet lead compactly beaten into a form so as to be easily suspended to the belt, which is worn round the waist; and the whole is concealed by the loose-fitting clothes generally worn by plumbers. Four of these packets of lead, as taken from the convicted receiver, weighed 162 lbs.; and with one of these packets (weighing about 40lbs.) a man, with the assistance of the belt, would pass along without awakening suspicion. One of the belts taken from the men bears unmistakable evidence of long service: another is comparatively new.

THE "BUILDER'S" LAW NOTES.

Debtor and Creditor.—Composition.—A private bargain with a creditor to induce him to sign a deed of composition is illegal, and the law cannot be evaded by substituting a bill of exchange for an I.O.U., and passing it to a third party.—*Mare v. Warner*; and also *Mare v. Earle*.

Banker's Cheque.—A country banker is not bound to send a cheque to the banker on whom it is drawn by the first post after receiving it. The time within which he must, by law, present it is the day following that on which he received it. It makes no difference whether the cheque was received and an advance made upon it, or whether the banker was a mere holder for his customer.—*Hare v. Henty*.

Railway Company.—Viaduct.—A power was given to a railway company to cross a river, which belonged to a waterworks company, by the erection of a viaduct. By a clause to protect the proprietors of the river, it was enacted that between certain points the works connected with the construction of the railway should be under the direction of those proprietors, and in accordance with plans approved of by their engineer before the commencement of the works. The railway company required the viaduct to be on piles driven into the river. The proprietors of the river required that it should be by a viaduct of one span or arch. It was held that the railway company were not restricted, but might construct their viaduct according to their Act, provided they did no permanent damage to the property of the owners of the river.—*Birmingham Waterworks Company v. London and North-Western Railway Company*.

Letting of a House by Agent.—Solvency of the Tenant.—A house-agent who charges commission to the landlord for letting his house is bound to use reasonable diligence in ascertaining the solvency of the tenant. If he do not, the landlord may recover damages from him for loss sustained through such tenant.—*Hayes v. Tyndall*.

Vestrymen and Surveyors.—The surveyor appointed by a vestry to attend to the highways in the parished employ, men to do some work in the streets, and they left stones in such a position as to cause a cart to be upset and the driver injured. In an action against the vestrymen, it was held that they were not liable, as they were a public body acting gratuitously, and had no part in the employment of the workmen whose negligence caused the injury.—*Holliday v. The Vestry of St. Leonard's, Shoreditch*.

THE EDINBURGH TIME GUN.—After several failures the time gun, fired by electricity, through the wire extended from the Observatory on the Calton-hill to the Castle-hill, Edinburgh, has been got into successful operation.

Books Received.

A Rudimentary Treatise on the Acoustics of Public Buildings. By T. R. SMITH, M.R.I.B.A., Architect. London: Weale, High Holborn. 1861.

THIS is an ably written rudimentary treatise on a subject of great importance, not yet thoroughly understood: it is founded on a paper read by Mr. Roger Smith some time ago, and printed in our pages.

In the preface, the author states that it has been framed simply with a wish to afford, in a somewhat connected form, as much information relative to the laws of sound; and their application to the arrangement of buildings, as could be collected from trustworthy sources, and he disclaims the development of either principles or facts previously unknown. Though merely professing to be a rudimentary treatise in which the principles of the science of sound are applied to the purposes of the architect and builder, the work is much more than a simple compilation: it is a professional view of acoustics as applied to the science of architecture and the art of building, and well merits a perusal by others than mere tyros in professional practice.

In speaking of public halls and the more glaring defects in their construction as regards sound, Mr. Smith remarks that it may, without much danger, be advanced that the plainest and most simple form of public room—namely, one rectangular in plan and in section, presenting consequently straight walls, a flat floor, and a flat ceiling, and having all the junctions of ceiling with walls or walls with one another at right angles—is of all others the form most liable to acoustic defects; and that, in proportion as this type is improved upon, the chances of success are increased. The flat floor of such a room renders it liable to the obstruction of direct lines of sight and hearing: its flat sides and square angles are apt to favour the generation and reflection of a conducted wave of broken sound, and to promote reverberation. Its flat ends are liable to cause echo; and the equal height throughout furnishes a mass of air above and behind the speaker which may be injurious: the windows or skylights, if they partake of the general squareness, will each have its own little cube of sonorous air ready to be set in vibration, and to create in this way a disturbing sound, while the uninterrupted openness of the whole space aggravates the evil by allowing every echo and every reverberation, once roused, the fullest scope to continue as long as it can without check of any sort.

It will be readily perceived that the introduction of architectural features of almost any description will tend to lessen some of the disadvantages spoken of above. The formation of a recess for the orchestra or platform at one end, and masking, breaking up or curving the opposite end, ornamenting the walls or ceiling or both to a moderate extent, rounding or canting off the angles, bringing the ceiling on to the walls with a cove or a cant, and breaking it up either with groining or by means of some sort of open roof (but not with deep square coffers), are all not only methods of adding architectural effect, but of avoiding the risk of acoustic failure.

Of public rooms which have proved defective for sound, probably the best examples are those built for corn exchanges; but here, as the author remarks, it is desirable rather than not, in a building intended for use as an exchange only, to encourage reverberation, as the occupants will all prefer that the sound of their voices shall be audible no further than to the person they are addressing. Square plan, lofty proportions, bare plastered walls, square recesses, deep skylights, and a hollow space under the floor, which should be of wood and not carpeted, will in such a case be adopted and not avoided.

As one of the best examples of a successful public room of the largest size, the author adduces the Free Trade Hall at Manchester, as built by Mr. Walters, and of which illustrations are given. In describing the peculiarities of this hall, he observes that, "The amount of resonant material employed is not great, although there is a good deal about the orchestra, the part of the building where it will be of most service. Considerable resonance is, however, procured by the large space above the ceiling, and by the fact that there is a hollow space under the floor: the included mass of air is probably also nearly as large as could be safely set in motion; so that, in all probability, the architect of this hall may be considered to have approached as closely as was either salutary or safe that limit of capacity and sonority, to

have exceeded which would have spoiled the success of his undertaking."

The next example given is that of the late Surrey Music Hall, as "a very good example of a successful hall of large size; most of the peculiarities of which offer a wide contrast to those of the last named building." Unfortunately, all that the author says of this hall must now be put in the past tense; the hall, as our readers know, having been entirely destroyed by fire, occasioned, it is believed, by the carelessness of some plumbers who were repairing the roof. As a memento, we may quote Mr. Smith's remarks on this hall:—

"We have here a light construction, surrounded by tiers of galleries one over the other, having a lofty roof on a series of internal columns, and the floor on the level of the grounds with which it communicates directly by many doors, just as the galleries open into the balconies that surround them. The points of similarity are the general disposition of the building (an oblong with the orchestra at one end), the care taken to give suitable forms to the end of the hall, the section of the roof, the front of the galleries, &c., the recess for the orchestra, the good proportions, the restricted mass of air in the building, the careful avoidance of echo, and the employment of resonance to support the voice or instruments."

The general form of this hall may be described as an elongated octagon, or a parallelogram, with semi-circular ends, into which the walls of the staircases project, so as to convert them into recesses.

There are three tiers of galleries, supported on light iron columns, and with fronts of curved section. The ceiling over the central space is of domical section, and that over the galleries inclined.

The very steep rise of the orchestra cuts off a great deal of vacant space behind the performers, and the comes down over them; but, in order further to restrict the space, a large sounding-board, made of old well-seasoned wood, was hung over the orchestra. The forms, it will be seen at a glance, are well chosen throughout the building, and the proportions are also good. The extreme length is 163 feet 6 inches, the width 65 feet 6 inches, and the height, to the underside of the ribs of the ceiling, is the same; so that the width is to the height and to the length as 1 to 1 and 1 to 2. The main reliance of the architect was, however, on the use of resonant materials, and these were employed freely. Besides the woodwork of the galleries and orchestra, and the woodwork sounding-board, the whole walls were lined with boarding, on the ceilings, with a special view to promote resonance; and the ceilings, which are plastered, were originally intended to be of wood, for the same purpose. The success of this hall, both for music and public speaking, was complete. Very large audiences, which have been differently stated, but cannot be estimated at fewer than 5,000 people, and probably much over that number, have been able to hear perfectly in even the remotest parts of the building; and vast as it is, even professional musicians consider it one of the best music-rooms, large or small, in the metropolis."

The only other quotation for which we have here space relates to the new room erected in Edinburgh by Professor Donaldson.

"It is conspicuous as having been built according to carefully-regulated harmonic proportions, and has been spoken of by those who have visited it as remarkably successful for music. This room measures 36 feet in width, is feet in height, and 90 feet in length, and the relation between these dimensions is founded upon the simple but intimate relation between the numbers 3, 4 and 5, a relation which may be illustrated by considering that if a right-angled triangle be described, having the two sides adjacent to the right angle respectively 3 and 4 units long, the hypotenuse will be 5 units in length. Twelve feet has been selected as the unit, and the breadth of the room has been made three twelves (or 36 feet), and the height four twelves (or 48 feet). Five twelves (or 60 feet), however, which would follow from the simplest application of the harmonic numbers, has been extended to seven—and a half twelves (or 90 feet), for the length of the room, by adding to the original dimension its first harmonic subdivision—its half. We are not informed what the natural note of this room is, but it seems reasonable to presume that it must be that due to an undulation 12 feet long, or to one the length of which is some multiple or sub-multiple of 12 feet. (The position of the windows, height and dimension of the ceiling, &c., &c., have all been regulated by these harmonic numbers, 3, 4, 5.)"

It is not to be understood that these proportions are adopted in this instance as the only good ones, nor is it wished by the learned designer of this room that it should be considered a model music-hall for all purposes, and under all circumstances. In fact, the great height in proportion to the width would clearly become prejudicial were all the dimensions doubled. This room is rather to be regarded as one of the best illustrations existing of the importance, especially for music, of definite harmonic proportions, and of elucidating, though not authoritatively fixing, the mode in which such proportions may be regulated."

The important and extensive series of rudimentary treatises of Mr. Wenle, we may remark in conclusion, is now complete, and forms an entire library in itself, of the useful and practical sciences and arts. We can strongly recommend it.

The Theory and Practice of Ship-building. By ANDREW MURRAY, C.E., &c. Edinburgh: A. & C. Black, 1861.

THE article on ship-building in the new edition of the *Encyclopædia Britannica* is here reprinted as a separate treatise, together with portions of the treatise on naval architecture in a previous edition, by A. F. B. Creuze, and the treatise on steamships in the new edition, by Mr. R. Murray, C.E., engineering surveyor to the board of trade. Mr. A. Murray is also in Government employment, being

chief engineer and inspector of machinery of Portsmouth Dockyard. He was formerly a partner of an iron ship-building firm on the Thames, along with Mr. Fairbairn, of Manchester. The volume under notice, therefore, is one entirely written by practical and competent men; and it was the rapid extension of steam shipping, the general increase in the size of vessels, the introduction of iron as a material for the construction of ships, and latterly the use of a casing of thick armour plates of iron for the protection of men-of-war,—all calling for special notice, which led to the revision and, in some respects, the renewal of the previous article on ship-building in the *Encyclopædia Britannica*, and the assumption of its present shape. Even the portion by Mr. Creuze, on wooden ship-building, cannot be considered as obsolete; inasmuch as the principles of naval architecture and the designs and forms of ships remain much the same whether iron or wood be used in their construction; but this, too, has come under the practical eye of one competent to judge of its suitability to an iron age, in which we can no longer speak with any propriety of the wooden walls of old England.

Vast as the changes are which have occurred in our naval department of late years, still greater changes are required and may be looked for, it is to be hoped, from the labours of the select committee of the House of Commons, some time since appointed to investigate the subject. These changes relate not only to the conversion of our navy into one of iron, and of wood in iron armour, but to the shameful waste of money in past years in the naval department, and to the very constitution of the Board of Admiralty itself.

Mr. Murray is doubtful whether these armoured vessels be judicious and will continue hereafter to be built; but he clearly perceives that at present such vessels *must* be built by us to put the nation on an ostensible equality with France, or rather to sustain our superiority on the seas. The subject, however, is a serious one when it is considered that projectiles of 400 lb. weight, or even more, can be fired with effect from a swift and tiny gunboat against a ship costing in itself alone nearly half a million of money. In fact, from the complete revolution now taking place in gunnery, it would seem to be imperative that the whole subject of the structure of our future vessels of war be taken into immediate and serious consideration.

Our Social Bees; or, Pictures of Town and Country Life, and other Papers. By ANDREW WYNTER, M.D., author of "Curiosities of Civilization," &c. London: R. Hardwicke, Piccadilly, 1861.

THE public favour which attended the issue of "Curiosities of Civilization" has induced the author to collect another series of his very popular papers, and to publish them in a uniform volume. The majority of these papers the reader of the volume will readily recognize as old acquaintances which have already appeared from time to time in *Once a Week*, *Fraser's Magazine*, the *London Review*, the *Times*, and in the *Quarterly* and the *Edinburgh* reviews. Amongst the numerous light and pleasant sketches thus reprinted are those titled "Brain Difficulties," "The Nervous System of the Metropolis," "Who is Mr. Reuter?" "London Smoke," "The Post-office," "Hyde Park," "Britannia's Smelling-bottle," "A Chapter on Shop-windows," "Orchards in Cheapside," "The German Fair," "The Wedding Bonnet," and many others. Mr. Wynter is a skilful hand in a style of writing eminently adapted to render various instructive and useful as well as curious subjects highly popular; but in some of his sketches he must have been restricted either in time or space, as he has merely indicated, as it were, what he might have done but has failed to do; as, for instance, in the light and hasty sketch of the history of the materials in a wedding bonnet; which could easily, and with advantage, have been extended, as every one who has read such light and graceful sketches as "Travels Round my Room" can readily conceive. One feels the defect all the more, that Mr. Wynter thus forecloses both himself and others from now recurring to the same theme.

BIRKENHEAD SCHOOL OF ART.—The Government School of Art at Birkenhead has been opened with thirty-three pupils. There are day classes for ladies and gentlemen, advanced or special classes, a ladies' private class, evening classes for artisans, and a class for schoolmasters and schoolmistresses of public schools and for pupil teachers. The fees for instruction are almost nominal.

Miscellaneous.

THE ARTESIAN WELL OF PASSY.—This well-known work, which has been six years in progress, has, according to Paris letters, now begun to flow; at least the water is said to be within a few feet of the level of the ground. The depth bored is 577 metres, or about 1,875 feet English.

CHURCHYARD MEMORIAL OF A DEAD LANCASHIRE.—It is well known that Prince Lucien Bonaparte has lately been studying the dialects of England; and, whilst engaged in those researches, he visited Mousehole, in Cornwall, to learn what remained of the Cornish. One result of the Prince's interest in this matter may now be seen there in the form of an inscribed granite obelisk inserted into the churchyard wall. On the upper part is a Maltese cross. The inscription is as follows:—"Here lieth interred Dorothy Pentreath, who died in 1778; said to have been the last person who conversed in the ancient Cornish; the peculiar language of this country from the earliest records, till it expired in the eighteenth century, in this parish of St. Paul. This stone is erected by Prince Lucien Bonaparte, in union with the Rev. John Garrett, vicar of St. Paul's. June, 1860."

GREAT FIRE IN MANCHESTER.—A very destructive fire has occurred at Manchester, destroying property to the amount of from 100,000l. to 120,000l., and throwing out of employment upwards of 1,500 hands. The property destroyed was that of Messrs. Parr, Curtis, and Madley, machinists, situate in Chapel-street, Ancoats. The form of the building was oblong, being in length about eighty yards by twenty in width, and six stories high. The foundry belonging to the same firm is situate on the opposite side of Chapel-street, and it was the only portion of the whole works that was saved. It was first of all observed that the joiner's shop or paint shop, a branch or off-shoot building, was on fire. Most of the walls fell, but unattended by any loss of life or personal injury. Another building at Manchester has since been set fire to by lighting.

IMITATION OF TRADE MARKS.—The importance of supplementing the measure now before the Legislature, for preventing the forgery of trade marks by international protection, says the *Birmingham Journal*, is shown by the concluding paragraph of a report made to the Foreign Office, in February last, by Mr. Lowther, secretary to the British Legation at Berlin. "I have had occasion," says the writer, "to remark, during my residence here, that there exists, to an incredible extent, a practice of falsifying trade marks, which, it appears to me, deserves serious attention. This fraudulent practice is applied to various sorts of manufacture, and particularly to articles sent from Great Britain. By this means, not only is the trade of Great Britain considerably damaged, but a very inferior article is sold; and thus the reputation of the good articles really manufactured in Great Britain is lowered. The goods are so well stamped, and the labels so admirably imitated, that the most experienced, I am told, could easily be deceived; and this fraudulent act is not actionable in Prussia, for there exists no treaty for the mutual protection of trade marks in the two countries."

THE LONDON DOG HOSPITAL.—Much, and deservedly, as it was laughed at, the Dog Hospital—the "Home for Starving and Lost Dogs"—is really an accomplished fact. It has five patronesses, including the widow of the late Judge Talford and the Right Hon. Lady Millicent Barber. The committee consists of seven ladies (all matrons, save one) and five gentlemen, including a captain in the army, a captain in the navy, and a clergyman, the Rev. E. Bates, who is treasurer and honorary secretary. The Home is in a back street, and consists of a stable divided into compartments, in which the dogs are kept. All of them have been found in the streets without owners,—some almost skeletons from hunger, others diseased. A man waits on them to feed them twice a-day, and also takes them out for exercise. The canine exhibition is very motley: the majority being of ignoble breed and lineage; while others are true English bulldogs and mastiffs, Highland deer-hounds, Skye terriers, and there is one genuine Dandie Dinmont. The committee restore lost dogs to their owners when application is made, and give away all unowned dogs after keeping them for a time, "hoping that all who can afford it will make a donation towards the expenses of the Home in proportion to the value of the dog selected. To prevent dog-stealing, no reward is given to persons bringing dogs to the Home."

FRENCH VISIT TO ENGLAND.—The visit of the English workmen to Paris has induced influential persons in the French capital to consider the propriety of a visit of the working classes of France to England. The arrangement for this trip will, it is expected, be completed in time to give the working people of France an opportunity of visiting the Great Exhibition next year in London.

UNITING PIPES.—Mr. A. Delaporte, Paris, proposes to unite pipes or tubes by means of a collar, free to slide along the tubes, and so formed as, after being brought over the abutting ends of any two pipes required to be joined, to leave a space between the inner surface and the pipes. Mastic or cement being poured into a collar through an aperture provided for the purpose, a hermetic joint is formed. Nothing very new in this, eh?

COST OF A BOOK.—At the dinner lately given by Mr. Black, M.P., to the "Encyclopædia Britannica" contributors, he stated what sums he had expended on the seventh and eighth editions. Throwing aside shillings and pence, the pounds stand thus:—Paid to authors, 40,970*l.*; cost of paper, 52,503*l.*; printing and stereotyping, 36,708*l.*; copperplate engraving and printing, 18,277*l.*; binding, 22,613*l.*; advertising, 11,081*l.*; sundries, 2,269*l.* The paper duty on the two editions, calculated at 1*d.* per lb., was 8,573*l.*, or about 17*s.* 3*d.* per copy. Altogether, a total of 184,425*l.* 11*s.* 4*d.*

"MUD CABINS" IN IRELAND.—A curious and instructive fact is said to be brought out in the general abstracts of the agricultural statistics of Ireland, laid before Parliament the other day, in regard to the dwellings of the labouring classes. These abstracts show the number of "mud cabins" with one room only, in each province, according to the census of 1851; and it appears, by the following figures, that the most Catholic province, Connaught, has, in proportion to families, the greatest number of these mud huts. Munster comes next; then Leinster; and, last of all, the comparatively Protestant province of Ulster.

Province.	No. of Families in 1851.	No. of mud Cabins having one Room only.
Connaught	191,020	31,595
Munster	334,250	50,187
Leinster	321,891	30,203
Ulster	307,731	23,613

Thus, for every 16.1 families in Ulster there is a mud hut; for every 10.6 families in Leinster there is a mud hut; for every 6.3 families in Munster there is a mud hut; and in Connaught there is a mud hut for every 5.8 families. So says the *Bulwer*, but with what accuracy we do not know.

THE ABUSE OF TEA.—A correspondent of the *Field* newspaper, under the signature "Peregrine Cosmos," has the following amongst other pertinent remarks on the abuse of tea in England, which are well worthy of grave consideration. "The process by which the word tea has come to signify a meal is, perhaps, quite as significant of the degraded condition of the English poor as is the popular system of *lodgering* in houses never intended to be occupied by more than one family. As you very well observe, laziness and ignorance are encouraged by the ready pinch of tea and kettle of boiling water, which demand neither trouble nor skill. In this respect tea among fluids is like the potato among solids; and the universal and almost exclusive use of the two would be quite sufficient to undermine the strength and stamina of any nation. The whole economy of the system is atrocious, and calculated to complete the demoralization and degradation of the English people. Its climax would appear to be reached in the labourer's 'mid-day teas.'"

* * There is, perhaps, no country in the world with so small a proportion of kitchens to the number of families as England. Hundreds of thousands of families in this country inhabit places with no better appliances for the preparation of meals than the miserable grate of a parlour or up-stair bedroom. Thus situated, how can the poor resist the rough-and-ready attractions of tea, pork, and potatoes? In Scotland, where each flat, however small, is provided with its kitchen; and the traditions of broth, kail, and porridge and milk still remain in force; the common people have better preserved that character for thrift without which independence of character cannot exist among the poor. I attribute much in the character of the Scotch people to these circumstances, rather than to the general diffusion of the latter is also chiefly owing to them that Scotland has so long been saved from the dire necessity of an English poor-law."

COST OF ALDERSHOTT.—It appears that 1,421,153*l.* have been expended at Aldershot in the purchase of land, erection of barracks and huts, supply of water, and other works. Further works, approved by the Government, will cost 91,563*l.*; and a vote of 54,563*l.* towards that sum, it is said, will be proposed this session.

THE POST BANKS.—In answer to Sir Andrew Agnew, in the Commons, the Chancellor of the Exchequer said that the Post-office Savings Banks Act, now passed, would be applied in the first instance to England, Ireland, and Scotland; and, if the experiment prove successful, the system will then be extended to other parts of the United Kingdom, such as the Channel Islands, &c., which may require savings-bank accommodation.

LINCOLN ART EXHIBITION.—The building for the exhibition of arts, science, and manufactures, to be opened in the Temple Gardens, Lincoln, on the 30th of July, is now in course of erection under the superintendence of Messrs. Bellamy & Hardy, architects.

WHITE LEAD DIRECT FROM THE ORE.—Mr. T. Cobley, of Meerholz, proposes first to grind and pulverize the ore, and then oxidize it in an ordinary furnace. After oxidation he treats it with acetic acid, or acetic gases, to form a saturated acetate of lead: this liquid salt is gently heated, and impregnated with heated carbonic acid, when the white lead deposits itself; and, being washed, pressed, and dried, is ready for use. Mr. John Arthur Phillips (of Phillips and Darlington), claims an invention for a similar object; which, however, according to our authority, the *Mining Journal*, has the advantage over Mr. Cobley's, that a better quality of white lead is produced at a cheaper rate.

THE FORCE OF AN ARMSTRONG GUN.—In the House of Lords, on 15th instant, a short conversation took place with reference to the quality of iron most suitable for the construction of ships of war; the Earl of Hardwicke explaining that, during a recent experiment, the shot from an Armstrong gun had penetrated bar iron *eight inches thick*, which had been put together endways and welded in that form; and that the shot had penetrated at the welding. The Duke of Somerset said that Lord Herbert and himself had appointed a committee of scientific men to test the various qualities of iron applicable for ship-building; and, with regard to the iron penetrated by shot referred to by the Earl of Hardwicke, it was composed of bars which were not welded but bolted together in the strongest possible manner.

REARING PLANTS BY STEAM.—This seems to be what horticulture at least, if not agriculture, is coming to. Hatching chickens by steam is a very ancient invention, still pursued in Egypt, and now adopted in Europe; but we have scarcely yet come to the rearing of plants by steam; hot-house experience notwithstanding. Earth heat and water heat, however, are at last seen to be amongst the essentials of a garden; and plant-hatching by steam will doubtless soon follow. Earth heat is just bottom heat, the importance of which has long been known; and indeed it was one of the forcing agencies of nature in ages long gone by (as was also steam itself); but we never heard till now of streamlets of hot water regularly supplied to gardens. This it seems is actually the case, however, at Berlin. "We" (writes Professor Lindley in the *Gardener's Chronicle*) "have lately published the speculations on this subject of M. Naudin, an eminent French botanist, whose plans of geothermal cultivation may, we think, be assumed to have grown out of the theory and practice of England; and we would now direct attention to a German illustration. In Mr. D. Moore's report to the Royal Dublin Society the following passage occurs: 'The next garden I visited in the neighbourhood of the Prussian capital was that of Mr. Borsig, at Moabit, where there is a fine private collection of plants, the grand feature being the amazing number of tropical aquatic plants cultivated in the open air. This is effected by supplying a winding stream which passes through the garden with a constant flow of hot water from the adjoining iron works. This stream is about 100 yards long by 20 wide. The gardener, Mr. Goeds, informed me that only three years ago a single plant of *Nelumbium speciosum* was planted, which has already spread itself over a great portion of the stream; and on the day I visited there could not have been fewer than 100 expanded blooms of this loveliest of flowers. At the same time there were many flowers of *Victoria regia*, *Nymphaea Devoniana*, *Nymphaea carulia*, *Nymphaea dentata*, &c., altogether producing such a charming floral picture as can hardly be imagined.'

THE TURKISH BATH IN AUSTRALIA.—In the *Sydney Herald*, received by last mail, is a report of the opening of the first Turkish bath in Australia, an event which appears to have produced considerable interest in the colony. Dr. Le Gay Brereton, having been instrumental in establishing them in several of our English cities, left this country for Australia two years ago; and it is he, it appears, who is inducing the laborious colonists into the luxuries of the ancient Romans.

CHEAPSIDE.—We observe that two large houses, nearly opposite Bow Church, are being taken down, and the materials sold off for the purpose of clearing the site and rebuilding. Most persons who frequent the City will have noticed that the blockade of the thoroughfare commences at about this church: in fact, the street is contracted a little there, and gradually becomes beautifully less until it joins with that painful defile, the Poultry. Surely, it would be a good opportunity now for the City Commissioners to buy up a few square yards of the ground thus being laid bare, and cause any new buildings to be set back 5 feet or 6 feet, so as to relieve the traffic, pedestrian and vehicular. It is much to be regretted that this step was not taken with the adjoining property, where some 100 feet of lineal frontage, extending to Lawrence-lane, has just been covered with new buildings. By watching opportunities of this kind, much would be done economically and almost insensibly; instead of waiting for some grand scheme or prodigious new route, which is deferred, from its own weight, decade after decade.

RAILWAY MATTERS.—A wooden bridge between Leamington and Kenilworth, on the Coventry and Leamington branch of the London and North-Western line, gave way last week while a goods' train was passing over it, and the engine-driver and fireman were killed. Though Leamington and Kenilworth are between five and six miles apart, the crash was heard at both stations. Another slip, unfortunately on this occasion with fatal results, has taken place on the works of the Underground Railway. The catastrophe occurred at the junction of Marylebone-road, in Lisson-street, and one of the workmen received such extensive injuries that he died as he was being conveyed to the hospital. The carriages for Mr. Train's street lines in London and Birkenhead are decorated from the designs of Mr. Owen Jones, and will cost about double the price of common street omnibuses. Every improvement is adopted in their construction, and especial care paid to light and ventilation. The traffic returns of railways in the United Kingdom for the week ending June 1 amounted to 545,453*l.*, and for the corresponding week of last year to 567,477*l.*, showing a decrease of 22,024*l.* The gross receipts of the eight railways having their termini in the metropolis amounted to 250,634*l.*, and for the corresponding week of 1860 to 252,577*l.*, showing a decrease of 1,943*l.* The receipts on the other lines in the United Kingdom amounted to 294,819*l.*, and for the corresponding week of last year to 314,900*l.*, showing a decrease of 20,081*l.*

THE QUESTION OF LIGHTING THE BRITISH MUSEUM WITH GAS.—The superintendent of the London Fire-engines Establishment, Mr. Braidwood, in giving his opinion as to lighting up the British Museum in the evenings, says that, independently of the danger of explosion, to which every place where gas is used is liable notwithstanding the accuracy of the fittings, the use of gas desecrates everything within its reach, especially ceilings; rendering them much more inflammable, and making what would otherwise be a trifling fire a serious conflagration; besides which the heat and fumes evolved by the combustion of gas are most decidedly against the preservation of any vegetable or animal substances, and tend to discolour stone and marble in such a manner that it is very difficult to restore the original colour. Mr. Braidwood maintains that on no consideration should the British Museum, containing such invaluable property, be subjected to the risk of gas-lighting. Mr. Smirke, the architect to the Museum, reported that he doubted the expediency of introducing gas; but that with regard to the escape of mischievous vapours Mr. Braidwood had omitted to allude to the successful contrivances adopted in various buildings for preventing that escape,—contrivances, however, adding very considerably to the cost, and requiring constant and careful attention. The trustees, after considering these opinions, have resolved unanimously that they would not be justified in allowing the collections of the British Museum to be open at any hour which would require gas-light. So we must wait probably till the electric or some other new light be made practically and generally useful.

PROPOSED CONVERSAZIONE, ROYAL INSTITUTE OF BRITISH ARCHITECTS.—The Institute's conversazione is fixed to take place on the 10th of July. Any good pictures, tapestry, models, and other works of art will be gladly received for exhibition.

THE NEW THEATRE AT BIRMINGHAM.—We spoke of this building, lately opened by Mr. Chute, in a recent number; but we omitted to mention that the crystal chandeliers and brackets for lighting it were designed and manufactured expressly by the firm of J. Defries & Sons. We willingly rectify the omission.

MRS. BUTLER DIAMOND'S CONCERT.—Mrs. Diamond, who has been heretofore known as an amateur, gave a concert on the 17th inst., at the Hanover-square Rooms; wherein she was ably assisted by Miss Banks, Mr. Wylbye Cooper, Miss Eleanor Ward, and others. Mrs. Diamond sang with good effect, amongst other works, "The Green Trees" (of Balfe), "The Minstrel Boy," and in the beautiful quartetto from Rigoletto, "Un di si ben." A full room showed the number and regard of Mrs. Diamond's friends.

TO BLACKEN IRON AND STEEL.—For some time I have been trying to find an acid that will render iron and steel of a dead black colour;—I say an acid, because any of the varnishes and other usual recipes do not answer the purpose: these all rub off with a little ordinary friction. Nitric acid, I have been informed, will effect this object; but on trial I find it will not: it rather brightens, or renders the metal whiter. I should imagine that there is such an acid or acids. Can any of your chemical readers propose the required solution? I have seen lead, when laid on a floor, blackened with some preparation, which has stood the wear of traffic remarkably well.—W. P.

"CHEAP AND NASTY."—Sir: I have just added to the conveniences of my town residence a neat and commodious W. C. All that now remains is to glaze the window thereof in a style suitable to the sentiment of the place. Would you kindly use your influence with the Dean and Chapter of Winchester to procure for me the name of the makers of that blue and yellow glass with which they are now repairing the great west window of being admirably suited to my purpose; and, from what I know of that disinterested and amiable body, I am sure it must be cheap. Pray let me hear soon, and oblige.—X.

THE LATE MR. WOODWARD, ARCHITECT.—Many of our readers will have heard with regret of the death of Mr. Woodward, of the firm of Deane & Woodward, the architects of the Oxford Museum. It took place a few weeks ago in the south of France; where he had proceeded in search of health; and, if we are rightly informed, under somewhat distressing circumstances. The exterior of the Library, Trinity College, Dublin; and the Crown Life Office, in Bridge-street, Blackfriars, are amongst the buildings with the design of which he was more or less connected. To an early volume of the *Builder* Mr. Woodward contributed some sketches; and his thoughts were first led, as we have heard him say, to the real consideration of that phase of Mediaeval art which coloured later all his own designs, by an engraving given in our pages of one of the Venetian palaces.

SCULPTORS AND THE ROYAL HORTICULTURAL SOCIETY.—The Fine Arts Committee of this Society met in the Council Room at South Kensington on Saturday afternoon last, his Royal Highness the Prince Consort (President) in the chair. There were also present Lord Llanover, Sir Coutts Lindsay, Mr. Henry Thomas Hope, Mr. Wentworth Dilke, Mr. Sidney Smirke, R.A., and Mr. R. Westmacott, R.A. The object of the meeting was to make a communication to the sculptors of the country. The following is a list of the sculptors and gentlemen connected with that department of the fine arts who had been invited by the committee to attend, almost the whole of whom were present; viz.—Messrs. Baily, R.A., Foley, R.A., MacDowell, R.A., Marshall, R.A., Weekes, A.R.A., Baron Marochetti, A.R.A., Messrs. Adams, Baron, Behnes, Bell, J. Davis, E. Davis, Durham, Earle, Edwards, Hancock, Jones, Lough, Leighchild, Miller, Munro, Nicholl, Noble, Physick, Papworth, Steuphes, Theed, Thomas, Thornycroft, Thrupp, J. Westmacott, Woodington, and Woolner. The proposition, as we understood, was, that the opportunity should be afforded to sculptors for certain months of the year to send their works to the gardens for exhibition: the society guaranteeing, as an inducement, to spend, say 500*l.* a-year, in the purchase of such works; and hereafter, probably, to appropriate to the purpose a larger sum.

DISTRICT SURVEYORSHIP.—The death of Mr. Aitchison, architect, which took place last week, leaves a vacancy in the district of Woolwich, of which Mr. Aitchison was the surveyor under the Metropolitan Building Act.

THE RESTORATIONS AT ROSLIN CHAPEL.—We have received copies of a correspondence between the Secretary of the Architectural Institute of Scotland and the Earl of Rosslyn on this subject, but are obliged to postpone further allusion to it till next week.

ST. STEPHEN'S, WALBROOK.—THE LATE DR. CROLY.—At the vestry meeting held on Friday, Mr. Rock stated that 200*l.* had been subscribed towards the proposed memorial windows to the late rector, the Rev. Dr. Croly; and that the Worshipful Company of Grocers had given the munificent donation of 100*l.* towards the same object. It was proposed that, while a niche was being prepared for the reception of the bust of the late Dr. Croly, a niche should be made for a bust of the distinguished architect of St. Paul's and of the model church of St. Stephen, Sir Christopher Wren.

A TOWER STRUCK BY LIGHTNING.—On Wednesday week, during the prevalence of a thunder storm, Publow tower, Somerset, was struck by lightning. The battlements of the tower were first struck. The lightning then passed through the roof of the church, up the middle of the edifice, destroying some of the seats in its progress, and finally passed out under the communion-table. The building has lately been completely restored and re-seated, and the damage now done is considerable, and will oblige an outlay of over 100*l.* Doubtless there was no proper lightning-conductor, and the erection of one ought to be forthwith seen to.

RAILWAY BRIDGES AND LONDON.—Sir: As you take a great interest in the improving and beautifying of London, allow me to call your attention to the railway bridges over the Thames, and the monster viaducts that are to run through our metropolis. If not looked to whilst building they will spoil London, or, rather, prevent its future improvement before this century has run out. To avert this as much as possible, I propose that each bridge over the river shall be double: the one level with the street to be for general traffic—horse and foot—and free; the bridge above to connect the viaducts, and for running the trains at each end of the bridge. I would have two roads, running right and left into a leading thoroughfare. This is assuredly a subject of vital interest to the public; as, at Hungerford, Ludgate-hill, Cannon-street, &c., bridges are to run over. The arches crossing streets ought to be both ornamental and useful. Its benefits (if the plan were followed) would be many: it would ease the over traffic of the other bridges, get rid of many vile rookeries, and convert much valueless property into valuable.—OES.

THE SQUALID AND THE PICTURESQUE.—An account of a disgraceful hovel in Forfarshire is given in the *Scottish Farmer*. It is inhabited by a small landholder on the estate of Lord Dalhousie, and is merely an example of a class of similar holdings. The house is constructed of sods, each about 2½ feet long by some 9 or 12 inches broad. They are laid one row lengthways, another broadways. Outside, the hovel had a most tumble-down appearance. The sides, or walls, if they can be so called, overhung the perpendicular, in some places, at least 30 degrees, and were only kept from toppling over altogether by wooden props, some of which themselves stood in need of propping, being much decayed by the action of the weather through long years. The gables bulged out almost as much as the walls, and maintained a precarious place only by the support of long poles, with lateral pieces of wood nailed across at the top. The chimney top, originally formed of perpendicular rods rolled round with straw ropes, was partially blown down, and the straw ropes stripped completely off, leaving the broken rods standing up gaunt and bare—a perfect picture of ruin and desolation. The interior was even more squalid than the exterior, and was found to be inhabited jointly by an old woman and a cow. The human occupant did not appear to feel the discomfort and danger of her dwelling any more than her fellow lodger; nor, indeed, that there was any degradation in living "but and ben" with a cow. She had heard that "there were sic like hooses in the Highlands," and she was "telt that that auld hooses made unco gran' picturs. A pictur was took o' my ain hoose," she said, "wi' the cat intil't, and a' jist like as it stood, ye ken; and the gentleman that took it gae'd awa' to England wi't, and I'm telt that there's no a granner pictur in a' England."

CARVINGS IN WOOD.—Messrs. Christie & Manson advertise a sale of carvings by Mr. Rogers, some excellent works, and specimens of carvings by Grinling Gibbons.

GUILDFORD ASSIZE COURTS' COMPETITION.—We hear that the committee appointed to examine the several designs sent in for the above competition have selected the one bearing the motto "Hope," which will be submitted to the shareholders.

"ARCHITECTURAL EXAMINATION."—A special general meeting of the Royal Institute of British Architects will be held on Monday evening, July 1st, to consider the report of the council on this subject. The regulations and curriculum, prepared by the committee appointed for the purpose, have been printed for previous consideration.

THE DRINKING-FOUNTAIN MOVEMENT.—A drinking-fountain is about to be erected in the Forbury, at Reading. It is the gift of Alderman Palmer. The casting has been executed by the Coalbrookdale Company. The figures and ornamental work, says the local *Mercury*, look as if they came from the chisel, and the metal is covered with a coating of bronze. The cups are of wrought-iron, covered with blue enamel.

DUBLIN.—A Dublin merchant, Mr. Alexander Findlater, has offered to build, for the congregation of St. Mary's Abbey, Dublin, at his own expense, a new church, capable of holding 1,000 worshippers, in a prominent part of the city. This offer has been accepted. It is supposed that the cost will be 8,000*l.*

ACCIDENTS.—The whole of the back part of a house, situate on Chatham Hill, has fallen. Fortunately, the inmates had just proceeded to the front part of the house, which prevented any loss of life occurring. The house stands close to that part of Chatham Hill where a recent fatal accident occurred, when two persons were killed by a chalk-slip.—An accident has occurred at Blaydon Church, which might have been very serious. The church is undergoing considerable repairs and alterations; and the clergyman, the Rev. Mr. Brown, and his curate, the Rev. Mr. Stevenson, were upon the scaffold, inspecting the progress of the masons, when the uprights on which the temporary platform had been laid gave way, and the ground, a distance of some 20 feet. Mr. Brown was cut in the head, Mr. Stevenson and two of the men considerably shaken, but not otherwise injured. The other workman was, we are sorry to say, severely bruised. The roof of the church is being raised: a tower is being erected at the west end; and the building altogether is undergoing alterations.—Two young men have been suffocated, while emptying a cesspool 18 feet in depth, at Kent's Court, Brighton.

TENDERS

For restoration of St. Leonard's parsonage, near Tring, Herts. Mr. F. Gotto, architect:—

Fassnidge	£568 0 0
G. & J. Honour	445 0 0

For building four houses and stabling at Woolwich, for Mr. A. M. Blest. Mr. W. Barrett, architect. Quantities not supplied.—

Dobson	£2,010 0 0
Vaughan	1,800 0 0
Scarle	1,796 0 0
Wardle	1,773 0 0
Tongue	1,669 18 0
Brake	1,680 0 0

For additions and alterations to premises, Pencost-street, Windsor, for Mr. Hooper. Mr. T. M. Rickman, architect. Quantities supplied by Mr. A. Cates:—

Hawke	£1,957 6 6
Macey	1,834 0 0
Wilson	1,890 0 0
Manners	1,707 0 0
Hollis	1,688 0 0
Sharpington & Cole	1,639 0 0
Dabbs	1,697 10 0

For taking down and re-building the Blue Anchor Inn, at Seasalter, near Whitstable, for Mr. Wm. Rigden. Mr. Adkins, architect:—

Potter	£2640 0 0
Creed	537 0 0
Jell	477 0 0
S. M. Shrubsole	495 0 0
Lewis Shrubsole (accepted)	464 0 0
Wilks	463 10 0

For seven pairs of gatekeepers' and platelayers' cottages, for the London, Chatham, and Dover Railway Company, at level crossings between Faversham and New Brompton Stations. Mr. Wm. Mills, engineer. Quantities not supplied:—

S. M. Shrubsole (accepted) ..	£2,370 0 0
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The Builder.

VOL. XIX.—No. 960.

Hints from Paris.



HEN a London builder has anything to do at the front of a house, he must begin by the erection of a scaffold, which consequently makes a considerable item of cost. The only exercise of ingenuity, directed to the saving of expense, consists in the contrivance by which he avoids taking up the flagging, that is to say, where he puts feet to the scaffold-poles, formed of casks filled with sand. In the north of England, indeed, they build very frequently, and tolerably good brick-work, with no other scaffolding than that which is extemporized inside, and carried

by the floors. In Paris, a scaffold is never used for such an operation as cleaning and putting a fresh face on a building. In many cases the whole business would be, and indeed is, done from ladders; but there are other appliances, some of which display ingenuity. The most common plan (not wholly unknown in London) is to suspend from the top of the building something of the nature of a gangway, extending the full length of the front. It is raised or lowered by ropes running through blocks, to whatever height may be required. The lower end of each suspending rope is attached to a sort of large stirrup, through which the bottom and rails of the gangway pass, so that the whole is clapsed, and effectually prevented from overturning. The bottom, before boarding is laid upon it, resembles a ladder in appearance; but it is usually hinged into two or three lengths, for convenience of removal and storage. Sometimes each length is trussed with light iron rods, like a girder. Beyond this contrivance, over the street, the contractor often projects a large net, partly to break a fall, and partly to protect passengers from falling materials. The net is very necessary from the manner of new-building in Paris. A somewhat different arrangement is used by Mr. Leclair, the "entrepreneur de peinture," whose name is known to our readers in connection with the subject of the use of white of zinc. The stage or scaffold here, is not in one length for the front; but there are several lengths, so that each can be moved without reference to the state of the work in the remainder of the front. A windlass is fixed at each end of the length; by which means the workmen raise or lower themselves with the greatest facility. The stage itself is very like the railed gangway used for landing passengers from a steam-boat, though trussed with iron, and lighter. What we saw lately, appeared from below to be of bamboo-cane, or something as light; and probably might be quickly taken to pieces. The stages were made decorative even, by brass-headed screws or nails. They are, of course, hung so as to be clear of window-cornices and other projections. A species of *maulstick* is fixed at each end. None of such arrangements are so steady as a scaffold: they are, nevertheless, in constant use. There

is a more curious contrivance, where one man ascends a rope, and manages to wash and colour the end of a building, having no other support. The rope is knotted with large knots, about 1 foot apart, and it is hung down from the cornice to the ground, as well as another rope, running through a block beside it. The man gets up the rope by means of suspenders to his feet and body, the ends of which he clips alternately on to the knots, making the ascent almost as quickly as he could go up a ladder. When he arrives at the required height, he is seated, whilst his feet are supported as by the stirrups, and he performs his work with materials and tools sent up to him by the second rope, which also serves to sustain them within reach. To attach the ropes, of whichever of these contrivances, large hooks frequently are fixed to the roof timbers on the original construction of a building, or so as to project in face of the slating. Similar hooks are to be observed in most high-pitched roofs, of Mediaeval date, on the Continent; and they are sometimes copied in modern Gothic, though not always, in such cases, with the knowledge of their original use.

With reference to the practice before spoken of, of executing ornament *in situ*, and which even extends to mouldings, it is evident that there is considerable advantage in the system, both to architect and workman, in everything that concerns the art. It might be supposed the difficulty or trouble of execution would be increased in certain seasons; but we have noticed carvers at work in all kinds of weather. Another advantage is derived from the constant practice of "offering up" a model or other representation of an intended detail. Considerable expense is often incurred in this respect. To execute full-sized drawings a few yards of brickwork are sometimes run up expressly, and covered with white plaster.

The "exploitation" and quarrying of stone and plaster in and about Paris have necessarily increased largely with the building operations. Every one has heard of the catacombs, now seldom allowed to be visited. Like the catacombs of Rome, those of Paris were originally quarries. They were appropriated, in 1784, to the reception of bones of the dead from the cemeteries, estimated as the remains of 3,000,000 of people. One account makes the extent of the excavations about one-tenth of the total superficies of Paris, and the quantity of material which they have furnished 11,000,000 of cubic metres. There are upwards of sixty staircases, besides other openings to admit air. The catacombs extend under the chief streets in the faubourgs St. Germain, St. Jacques, and St. Marcel, and also, it is said, under some of the most important buildings, as the Pantheon, the Luxembourg, and the Observatory. The most recent statement gives the number of quarries at present in the Department of the Seine, as 932, "producing annually materials worth 10,000,000 francs, and employing 4,000 workmen." Judging from the multitude of shafts, which are to be seen at one time in work about Montrouge, which is part of the south-western suburbs of Paris, and from the extensive works at the opposite point of the compass, this statement must be now quite within the mark. In another direction is Montmartre, which is so undermined as to be regarded as in danger of sinking. One report imputes to the municipality an intention to clear the whole away. We can believe much, seeing the gigantic levelling operations which are in progress elsewhere, and in which the action of taste is not always in the direction meant; but we trust that there is no need to think of depriving the French capital of a feature which provides one of the finest views of a great city which there is in the world.

The French modes of proceeding in the removal of earthwork are somewhat peculiar: they are labour-saving, but not always free from danger

to those employed. A hill is not cut down from the top, but is undermined by galleries, tunnelled in, till the upper mass can be allowed to fall; but this sometimes happens before the workmen have made their escape.

There are some recent inventions deserving to be mentioned as applicable to excavation and quarrying, though there are several contrivances similar, English and American. One of the French machines is that invented by Messrs. Vallauray & A. Buquet, which is intended to work directly upon the rock, or without the use of gunpowder. It is, therefore, especially to be considered in connection with the formation of long tunnels, or, most of all, in such cases as that of Mont Cenis, where the work must be performed without the use of shafts from the top. The apparatus consists of a number of circular discs of iron at regular distances, on an axle, armed at one point of their circumference with tools of steel. The discs being made to rotate, the rock is worked into grooves, when what is left can be readily removed by wedges and levers. Another machine, constructed by Messrs. Claparède & Commartin, seems to have been employed with considerable effect in operations connected with the covering of the Canal St. Martin and the formation of the new boulevard there. It is a digging and elevating machine for earthwork. The hoisting part of the contrivance is similar to that in the dredging machine. It is said to be capable of digging and depositing very nearly forty cubic metres of earth per hour.

A third invention is applied to the quarrying of material for paving. It has been almost impossible, from a deficiency of labour of this kind, to procure and fashion the quantity of stone demanded; and the consequent price has led to that use of macadam, or asphalt, which is so general in the streets of Paris. The cost of paving-stones delivered appears to be about 650 francs the thousand; of which, 300 francs belong to the labour of shaping. In the ordinary work of quarrying, there is considerable loss of material in the blasting and shaping, and danger to those employed thus and in carrying the stones. Mr. Laudet, civil engineer, has provided a machine by which the principal part of the labour referred to can be readily effected by steam power, without danger, and with considerable economy. It is to be employed at Marcoucy, where a quarry of considerable extent has been lately purchased by the municipality of Paris. The machine is 32 metres in length, and can be made to act on any point. It is provided with two pairs of moveable inclined planes and a rammer, or "marceau-pilon," of the weight of many thousand kilogrammes, but moveable easily. Of the two pairs of inclined planes, one serves in removal of the superincumbent earth, and the transport from the quarry, that is, by means of waggons, one ascending full whilst the other descends empty. This earth removed, the hammer, or "marceau-pilon," gets to work, and the workmen below have merely to square the stones, and deposit them in the waggons of the second inclined plane. Mr. Laudet is the inventor of a steam-crane which is used on the Quai d'Orsay. Recollecting the question raised some years back, as to the paving of all streets with macadam, and which has recently excited attention in Regent-street we have not failed to give some little attention to what is so extensively used in Paris. We may state that the opinion of those who have charge of the sewers is decidedly opposed to the method for towns: the quantity of deposit is very great. It should be added that Paris is peculiarly a dusty place, and the streets would be unbearable in summer without the watering. Great attention, we ought to say, is given in this particular; indeed, the street cleansing is so good, as to be an example to London. That subject and what is connected with it might deserve separate notice from us. We have before alluded to the water-supply as excellent, so far as quantity in the

streets is concerned. Not only are there the fountains, sixty or seventy in number, and of an architectural character, to be set against what we may find in Trafalgar-square, besides several others; but there are more than 2,100 of what are called *bornes-fontaines* and *bouches d'eau sous-troitoirs*; or, jets of water for the *arrosement* of the streets. To some of these contrivances hose can be attached. In the Bois de Boulogne, and roads where there is not constant traffic, the hose is fixed on a number of what may be described as diminutive wheeled carriages, whereby one man can easily draw it about, and get through much work. Our slight notice of the street paving is hardly complete without a description of the manner of laying the asphalt in masses, adopted in the Rue Neuve des Petits Champs. It has, however, been spoken of in the newspapers; and the durability of the pavement has to be tested. It is laid very quickly. There is a construction covering the whole width of the street and work in progress, which moves on wheels as the work proceeds.

We apprehend it is commonly supposed that the French are not good carpenters. This would be quite true, applied to their shoring; and the walls of the Pavillon de Flore must be less ruinous than they seem externally, or that part of the Tuileries would not now stand, pending the work of rebuilding that portion of the palace which, with much other work, is to be immediately commenced. That carpentry is understood on the Continent is shown by the timber bridges which are so common, and of which there is an excellent specimen in a temporary work at Charenton, just above the confluence of the Seine and Marne, south-east of Paris. The *Ingénieurs des Ponts et Chaussées* are a highly educated class of men, which is not always to be said of the architects of France in matters of construction. Only some, however, of the recently-executed bridges over the Seine are satisfactory in point of taste: and the Pont des Saints-Pères, or "du Carrousel," seems even deficient in stability or strength, judging from what is felt in going over it when there are carriages. In building this bridge each arch was first formed in timber, and on that the lengths of iron were fixed and bolted: so that they are tubular, excepting that the centering still remains inclosed within the iron. Carpentry, generally, is being displaced by the use of iron. Enormous quantities of rolled-iron joists are supplied to the new buildings.

AN ADDRESS TO BRITISH SCULPTORS.

ON the occasion mentioned in our last, when H.R.H. the Prince Consort, at the Horticultural Society, laid before a body of British sculptors (nearly forty in number) a proposition, the gist of which we gave, his Royal Highness made an admirable address, which was listened to with great pleasure by all present. After the interview, and when the Prince and the Fine Arts Committee had retired, Professor Westmacott, R.A., himself a member of the committee, remained, and addressed the sculptors present. First congratulating them upon the compliment that had been paid to them personally, and to the profession generally, by the reception that had been given; Mr. Westmacott said:—"It is not necessary for me to make any lengthened remarks on the admirable and valuable address you have heard to-day; but I may say that no one of the large number of artists present can have been otherwise than gratified by the interest in art shown by his Royal Highness, and impressed with the soundness and good sense of the observations offered in that address; while, at the same time, all must have felt how great an opportunity is presented, by this occasion, for establishing the position of the true artist, and for advancing the credit of sculpture in this country."

I do not think we can overrate the importance to our profession of the opening that this meeting affords us for placing the practice of sculptors on some sound and established footing. The character and position of the true sculptor have long been misunderstood; and circumstances have occasionally occurred, owing to the absence of united action among acknowledged artists quite as much as to the

want of art-knowledge in the public, that have led, it must be admitted, to serious degradation in the character of a large portion of the art produced among us of late years. The irregularities and abuses that have, unfortunately, occasioned this unsatisfactory state of things are a legitimate subject of consideration for the profession. Your meeting here in so large a number this day may, I have fancied, be made the commencement of a new and important era in the destiny both of the sculptor and of his art; and if, on due reflection, you can agree in recognizing the causes of the evils adverted to, it may be possible, by consultation, by good intention, and by the force of union—without which it will be vain to expect any useful result—to supply something like a remedy for the abuses complained of. One object I have had, in taking the small part that has fallen to me in procuring for the sculptors the honour that has been done them, is to assure them, first, of their recognition as regular artists, holding a high and responsible position; and next, to impress upon them the great fact that they may exercise, if they choose to do so, an important influence upon public taste, in the various departments of the art they profess. I say departments, because many branches of the art, all of value and importance in their respective classes of sculpture, are comprehended in the general term. But such influence can only be established and maintained by certain conditions; by the efficiency of the sculptors, as practical artists; by the claim they may establish to public confidence, as competent and judicious critics; and, give me leave to say, by the character they have acquired, or may acquire, among their brethren, not only for ability, but for generous, upright, and honourable conduct.

It has appeared to me, and I take the liberty merely to state to you my own impressions, after much reflection upon the subject, that one very efficient means of improving the opportunity now offered, and of placing the whole profession in a more advantageous and, I will say, respectable position, would be for the body of sculptors to unite in establishing some few simple rules for the government and regulation of the practice of sculptors. There are present here all the materials for doing this with effect.

Their attention should be turned, in the first place, to the question of the qualification of artists; an essential groundwork for securing public respect and confidence in the members of the profession.

Next, to the manner in which employment should be sought and accepted by artists.

In this very important subject would be included, among other questions, especially that vexed one of competition for the execution of public and private works.

Upon this I will venture, being no longer a practising member of the profession, to say a few words.

The dissatisfaction felt by the higher class of sculptors with the present practice, with reference to public and national employment, seems to render it imperative upon those who really feel an interest in the character of national art, to take a lead in this movement, and to endeavour to propose some remedy for what has become a matter of very serious importance to the interests and honour of our art. Any combined action on their part must not be considered either in the light of an assertion of their comparative superiority over other sculptors, or to push the interests of the few; but as a movement in supporting the character of art, and of sculptors generally; and in vindication of the honour and credit of the country in the production of public monuments of all kinds.

If disparaging remarks are made upon such works when exhibited, it is but a poor satisfaction to say that they are not by the most able sculptors England can produce; or that the highest talent is not called into play when such works are required; and yet, this, as a general rule, is the fact. And why, it may be asked, is not the best talent employed? and why does it not put itself forward, instead of allowing all the chances to be left, as is usually the case in competitions, to artists of an inferior grade? The chief cause of it, as all professional men know, is the want of system and of proper management in all competition invitations. The higher class of sculptors are disinclined, and who can blame them, to subject themselves to the judgment of ill-constructed even if well-intentioned tribunals, by whom their merits are to be decided? This is a subject on which I can only briefly touch; but I believe I am correct in saying there is not a sculptor in England, whether he has been favoured or not favoured in this mode of getting employment, who does not feel

and know that,—whether from incapacity in the judges—self-elected, and, even when meaning well, but little acquainted with the commonest principles of art; sometimes from intriguing in the tribunal itself; or from the employment of indirect and often very unworthy means by some or other of the candidates, in order to influence the judges in their favour,—competition, as at present conducted, affords no security that a work will be given to the most competent artist.

Ought not those sculptors, then, who think more of the honour of their art than of their personal profits, to exert themselves to discover some means to assist and direct the public taste, in the first place, and to insure, if possible, not only honest but just decisions in matters of so much importance, not merely to the artist, but to the character of the country?

There are many ways of effecting improvement in this direction, without any offence to really well-meaning committees, or committing any possible wrong to any class of real artists.

I would suggest, with great deference,—for I would carefully guard myself from appearing to dictate,—that the sculptors—a large body now—would probably find a great advantage in forming themselves into a society or guild, to which all qualified sculptors should be eligible, under easy and liberal conditions.

The fact of a sculptor being a member of this body, whatever his age or grade, would be an acknowledgment of his position as an artist; giving him, in all respects, equal rights and privileges with every member of the society. This membership would in itself be a kind of guarantee to employers of a sculptor being a qualified artist. It is well known that, when competition is invited, many persons send in designs whom the profession cannot recognize as qualified sculptors, and who are utterly incapable of properly carrying out any large work; even if, through some caprice of decision, the small trial sketch shall obtain the suffrages of the judges. Here would be a simple means of testing an artist's capacity, by referring to the list of known sculptors to see if the execution of the design could safely be intrusted to the candidate. It scarcely can be imagined that any real artist, who desires to see his art honoured, and its practice conducted on fair, open, and liberal principle, would decline to receive the recognition of his brethren, and take his proper position among his fellow-sculptors, by refusing to become a member of such a body as would thus be constituted. The society would have no object in this, but simply by conferring a *degree* as it were, to let the public know, on all occasions when works of sculpture are called for, who are acknowledged by the profession as legitimate and educated artists, as distinguished from pretenders and incompetent practitioners. Surely no real sculptor could shrink with propriety, or without subjecting himself to invidious reflection, from an association which should secure him from being confounded with unworthy competitors for fame and employment. All the regulations and objects of such a society, it can scarcely be necessary to say, should be based upon the most liberal and generous principles, and with the most careful attention to the interests and welfare of all. No personal or jealous elements should be allowed to affect the large and comprehensive character of such an institution. An organization of this kind might, I fancy, tend more than anything to elevate the feeling of the body of sculptors, individually and collectively; and this again would, there can be no doubt, act also on the character of the art. It might require time for its development; but of the good result of some such plan as has been roughly sketched, I should feel no misgiving.

In conclusion, I can only assure you that I shall always be ready and happy to give my best efforts to promote the interests of the sculptors, and to co-operate with you in advancing the honour of the English school.

THE GREAT FIRE IN TOOLEY-STREET.

DURING the last ten days the number of fires which have taken place has been as remarkable as the consequences are disastrous. All, however, have been eclipsed by the terrible conflagration which lighted London on Saturday night last. This calamitous event, moreover, has suddenly deprived us of one of our most useful public servants,—a man who was by name familiar to the whole community, and who for many years past has bravely done his duty in saving life and property.

Within a few hundred yards of the spot now

ravaged, there have been more frequent and more extensive fires than are known in connection with any other spot in London in modern times. On one occasion the venerable church of St. Saviour's was partially destroyed by the firing of the neighbouring wharfs; and several times since it has been placed in great jeopardy. Vast quantities of various articles of human food, and an extent of other property which cannot readily be calculated, have been consumed in this locality during the past half-century. On the present occasion the loss has been estimated at two millions sterling; an amount probably not exaggerated; and which, at the rate of five per cent., would represent an annual income of one hundred thousand pounds.

Several points in connection with the fire seem to demand inquiry.

1st. The fire is said to have been discovered at half-past four in the afternoon: intelligence of the outbreak reached the head-quarters of the Brigade in Watling-street, at ten minutes to five. In these days of the electric telegraph, even twenty minutes seem to be a long time to spend in sending intelligence between Tooley-street and Watling-street.

Are the telegraphic arrangements in connection with the fire-engine stations sufficient?

2nd. It is well known that when the news reached Watling-street there would be little delay in sending off the engines and driving them to the place required; nor would Mr. Braidwood lose any time as the engines arrived one after the other in placing them in the best positions; but even on the arrival of the engines the fire had made considerable head. In the meanwhile the workmen, on discovering the fire, entered the place with buckets of water; but the smoke was so dense and suffocating that they were compelled to retreat. One man, on his hands and knees, succeeded in getting a view of the seeming origin of the fire, which was confined to so small a space that it is thought the man could have extinguished it but for the density of the smoke. On this point it may be remarked, that, at Mandalay & Field's, the engineers, and at the General Post-office, there are ranges of water-pipes passing through all parts of the premises: there are besides buckets and hose in sufficient quantities provided. At Hatfield House, which was some years ago partly destroyed by fire, similar precautions have been taken; and on the top of the mansion there are immense tanks of water always ready for use. Prompt means at hand in the Tooley-street warehouse might have extinguished the fire at the commencement. It has been asserted that there were such means, but that they were overlooked.

3rd. On the arrival of the brigade they were surprised to find smoke proceeding from the central building, which has only recently been erected, and which adjoined the warehouse in which the fire at first took place: it was then ascertained that the workpeople had made the fatal omission of not closing the various doors which communicated with the several floors throughout the range. Mr. Braidwood at once foretold the danger of the fire; and—

4th. A large number of land engines had taken up their position in Tooley-street, and were prepared for action; "but," says a newspaper report, and this is confirmed in other ways, "the firemen being unable to obtain a sufficient supply from the mains, most of them stood idle for an hour and a half before water was obtainable from the plugs; and, at nearly all the large fires which have occurred in this locality, there has been the same inadequate supply of water." Such neglect as this calls for the most careful and immediate inquiry; for it may be chiefly owing to this cause that by six o'clock the flames were bursting from all parts, and had assumed such an ascendancy that it was beyond the power of man to prevent the entire destruction of Cotton's Wharf, and the spread of the fire in other directions.

It was soon after this that Mr. Braidwood met his death, by the falling of one of the external walls, while kindly encouraging a party of his men. At this time the scene which was presented from several points was grand and terrible beyond expression. The roaring of the fire was tremendous; and above all were heard loud reports, and crashes of the falling floors and the valuable materials with which they were loaded. Besides, there were the cheering of the firemen and those engaged in the working of the engines; and, from all points, the murmur of the immense multitude, which occupied every available point except that in the immediate vicinity of the fire. But the incidents and progress of this conflagration have been so well

described in other journals, that we will confine our remarks to points which have a practical bearing; and note that Mr. Scovell's wharf was not long ago an immense pile of timber warehouses, which was rebuilt in 1857 at a great cost. The warehouses were seven stories high, including the cellars; each being filled with hops, jute, pepper, teas, coffees, oils, tallow, and almost every description of merchandise, besides a large quantity of sulphur and saltpetre; and, it is suspected by some, gunpowder. Warehouse after warehouse rapidly caught fire, and molten tallow and hot oil flowed into the streets, and ran blazing into the Thames. It was, in this scene of terror, a noble sight to witness the exertions of the firemen—their wonderful exertions and seeming disregard of all danger.

It appears that the fire was at first discovered amongst a quantity of jute, which it is said was somewhat damaged. In the official report, it is mentioned that certain of the warehouses contained tallow, jute, cotton, and rice. In the absence of other known cause, we should have no hesitation in ascribing it to spontaneous combustion; and it is worthy of remark that, during the ten days or a fortnight during which so many fires have taken place, the air has been much charged with electricity.

In Manchester, exactly a week before, a fire occurred on the premises of Messrs. Parr, Curtis, & Madely, when damage was done to the extent of between 100,000*l.* and 120,000*l.*; and no fewer than 1,780 workpeople were thrown out of employment. This is, perhaps, the largest self-acting mule manufactory in the kingdom. The buildings covered an area of 10,000 square yards. In parts the building was eight stories high: there were a joiner's and other workshops four stories high, moulding shops, &c. The floors of the various stories were saturated with oil; and, in the joiners' shops, there was a large quantity of very inflammable materials. In the various rooms of the building destroyed there were 300 tons of metal, being used for the processes of manufacture; and it is supposed that the stationary machinery was not of less weight. In this instance the alarm was given about a quarter to six o'clock on the Saturday night: by eight the whole premises were in a blaze: the floors fell one after the other with great crashes: some of the walls also fell; and before twelve o'clock this great manufactory was reduced to a mass of smoking ruins.

When thinking of the destruction of an immense quantity of property which is yearly in this country occasioned by fire; and, what is of even greater value, the large loss of life; it seems surprising, in this age of advanced science, that means are not taken to prevent the erection of buildings which are so frail in a contest with the devouring element. Since the time of the Great Fire of 1666, the construction of party-walls between buildings has, to a considerable extent, prevented the spread of fires; and it is owing in a great measure to the absence of walls in warehouses, that fire, when it occurs in one of them, is usually so disastrous. If, in the case of Cotton's wharf, the iron doors of communication had been kept properly closed, it is probable that, with a good water supply, the engines of the brigade would have soon vanquished the fire.

The storing of warehouses—without systematic arrangement—with the most inflammable materials, which are calculated to encourage the spontaneous creation of fire, and the introduction, in the midst of dense population, of immense quantities of saltpetre, sulphur, in some instances gunpowder, naphtha, spirit of turpentine, and such like dangerous matters, are practices requiring stringent preventive measures; and if even these be taken, we require on all large premises the means at hand, such as are ready at the Post-office and elsewhere, to arrest fire ere it becomes formidable. The workmen in manufactories, spinning-mills, &c., should be drilled into the use of apparatus; and a means of rapid communication established with those men who live in the vicinity of the works. Besides, we want a better class of watchmen,—some who understand the nature of fire: if this had been the case at Cotton's Wharf, the first thing which would have been done on the alarm of fire being raised would have been to close the doors of communication. We trust that out of this calamity, great as it is, good may arise; and that the teaching of this formidable fire may lead to the introduction of means which may prevent the frequent occurrence of such disasters. It is not only in warehouses that we need change in this respect; but, in the dwellings of nearly every description provided for the multitude, danger from fire requires to be lessened.

WHAT MAY BE LEARN'T FROM THE FIRE.

THE awful conflagration which took place on Saturday, in the Borough of Southwark, will doubtless have the effect of calling peculiar attention to warehouse property from the numerous companies and persons who will be sufferers by it.

There are destroyed about three acres of warehouses, with about one-eighth of a mile of river frontage, including some of the largest and best-built wharfs in London, and involving a loss which probably it is no exaggeration to put at say 2,000,000*l.* for the contents, and 200,000*l.* for the buildings.

By far the greater part of these buildings have been erected since I was appointed district surveyor in 1842, and I believe that every rule of the three successive Building Acts has been strictly complied with, except in the case of Hay's Wharf, in which the magistrate allowed the division into compartments by party arches (instead of walls), on cast-iron girders and stanchions, which have not only fallen themselves, but have assisted, doubtless, by their thrust when the tie-rods became red-hot, to throw down the party walls also. Now, the inference naturally drawn from the extent of this conflagration, where, with this exception there were all the party walls and iron doors required by the Building Act, is, that the Act is insufficient for the prevention of large fires. This is to some extent just, and perhaps in this instance almost all of the building defects of the various Building Acts may be illustrated. Probably it will be of use to put them on record, for the purpose both of showing what should be aimed at in any new bill, and in the meantime of calling the attention of wharfingers and warehousemen to defects, many of which they may obviate for their own benefit.

1. The last two Building Acts, through their defective application to buildings erected under preceding Acts, have allowed any new building to be erected freely communicating with several already built buildings, thus forming an extensive group of connected buildings, where, before this, all were properly and securely divided by party walls.

2. In the case of a building (Beal's Wharf), which is fortunately only scorched, and which contains a million and a quarter cubic feet without fireproof divisions, it was admitted to be contrary to both the late Act, under which it was begun, and the present one, under which it was completed; but owing to the defective legal provisions of the present Act, as the magistrate said, "it slipped in between the two Acts." The above two defects very extensively operate against the efficiency of a new Act superseding a former one, and should be carefully guarded against, as in these respects each new Act has, I believe, created more mischief than it has done good.

3. Another defect exists in the case of several new buildings, where they were not allowed by the Act to be enlarged without a proper separation of the addition from the former buildings by party-walls, in its permitting the addition to be built within, say 6 inches from the former building, thus communicating fire as readily as if it had been connected, though nominally detached.

4. The case above mentioned of Hay's Wharf, as decided by the magistrate, has been, and, I hope, permanently, reversed by that of another magistrate, which reversal is likely now to be generally acquiesced in; but the confusion of language in the 27th and other sections of the Act ought to be remedied, or it may give rise to further litigation in cases where the interest of individuals may make it worth their while again to try the question.

5. The main structural cause, however, of the spread of the fire, in this instance, is to be looked for in the number of windows in the several buildings, and the manner in which they are placed without protection from fire.

There are three alleys, about 30 feet wide on an average, running from Tooley-street northward towards the river, and dividing the warehouses into ranges of buildings having their windows and loophole doors opening into these alleys on opposite sides, and at the north end of them. It is through these that fire has most readily communicated from one building to another; and as any particular building in one of these ranges is generally opposite part of two others in the opposite range; after it has taken fire from one of the opposite buildings, it has communicated it to the other opposite building, and thus the fire has proceeded till it has communicated throughout both ranges; whereas if there had been only one range

the fire might have been confined by the party walls to one building.

I would suggest in such cases, in a future Act, the provision of external wrought iron shutters when the windows are opposite to, and within a certain distance of, one another. The easiest and best methods appear to me to be either to hang them on centres just above the sill, so as to open and shut vertically, between side cheeks of the same material, and so as to be easily opened and shut by a chain from the inside; or else to fix wrought-iron louvres, say from 12 inches to 18 inches wide, made to close from the inside, and of course the reverse way from weather louvres, so as to admit the light. Or another partial protection would be a fixed wrought-iron hopper to the outside of each window. Probably a notice in your pages may call to it the attention now of wharfingers and warehousemen, and lead many of them to secure their windows by these or similar means.

6. The wrought-iron doors usually provided to openings in party-walls, though in accordance with the Act, are inefficient. They are required to be 4-inch thick in the panel, but what the stiles and rails are to be in substance is not specified. The common method now is to rivet the rails to a wrought-iron plate or plates; but the rivets, when hot, are of course useless, and the plate buckles and twists, and no longer closes the opening. Again, the method of hanging is faulty; the hinges (if hung to the jambs) or the axles of the rollers (if hung to slide sideways), give way to the heat, and the door, owing to its heavy weight, falls down. With reference to the fault of riveting, I would suggest (in deference, however, to what perhaps a practical worker in iron might propose as more efficient), whether it would not be better to make the doors with panels let into grooves in thicker rails and stiles, properly welded together. One such door is standing now in the hottest part of the fire. With regard to the hanging, efficiency might be obtained by fixing a wrought-iron sill, say 3 or 4 inches wide, on which the door would rest if the hinge or rollers gave way; but I think the sliding-doors are better than hinged ones, as allowing more room for equable expansion in the heat, without being confined in a frame, which is not required. All jambs, heads, and sills too, are much better of brick, as usually now adopted, than of stone, which is also allowed by the Act. Much mischief arises from the use in such cases of stone, which becomes calcined by the heat. I would also incidentally observe that common stock or even place bricks are better for walls and arches which are to resist fire than any kind of compressed, perforated, or hollow bricks, which are sometimes used, and which are liable to fly or flush off in extreme heat.

7. In speaking of the inutility, and even danger of attempting to make fireproof divisions by arches on iron girders, I would, however, strongly urge that, as far as possible, all well-holes for stairs through the various floors of a warehouse should be discontinued, and that separate stone staircases between brick walls, for communication to the several floors, be substituted. If the floors should then be pugged, or, as I have seen done effectually by Alderman Humphrey, filled in between the joists with slates, covered with mortar, I believe that, in almost every case, the fire would be confined to the story of the compartment in which it originated.

These observations may appear commonplace; but I offer them because, for that reason, they are the more likely to be practical; and, with the aid of more careful regulations as to stowage of different classes of goods, and such other precautions as will probably be now devised, might assist in obtaining for London perfect immunity from extensive fires, except in buildings such as railway stations (which are exempted from the control of the Building Act), and the surrounding houses, where, in case of fire, a still more awful calamity than the present one is almost certain to arise,—such, indeed, as would have been more than possible in this instance, with regard to the London Bridge Terminus, if the wind had been in a northern quarter.

R. HESKETH.

THE DESTRUCTIVE CHARACTER OF FRENCH RESTORATION.

CONTINUING the discussion of this subject reported in our last,* Mr. Street, following Mr. Ruskin, said he feared that the debate was likely to languish, from all the speakers being on the same side; for even Mr. Ruskin, while intending to differ from Mr. Parker, had really confirmed him. His own opinion, he confessed, quite coin-

cided with that of the previous speakers. He did not think they had any right whatever to assume to themselves the authority of making a formal protest against the manner in which restorations were being carried out in France. It became them rather to look first at home, and see whether their own work of the same kind was everything that it ought to be; for he was clearly of opinion that damage done to English buildings during their restoration was at least as great as that which they were deploring in France. There was, however, this difference between the two cases; that the damage done to French buildings had often touched that which was the most valuable portion of the inheritance we had received from remote times,—that exquisite sculpture which was so universally admired, and which the French had not in general treated as they should. He must say, on the other hand, that he thought Mr. Ruskin had taken too gloomy a view of the question; for there were still many examples that would enable him satisfactorily to complete the work which he told them he had been desirous to prepare. They were most anxious that the architectural history of the thirteenth century should be written; and ten-fold more so now that they had heard of its having been contemplated by Mr. Ruskin. It was a history which many of them wished to see, and which would certainly be as interesting as it was instructive. As regarded the question immediately under discussion, he thought it would be better advice that they should first understand what ought to be attempted in English restoration instead of supporting the committee in any course of remonstrance, however general.

The Chairman.—We have no such intention. We have memorialized the Institute of British Architects, and there we have let the matter rest.

Mr. Street was very happy to hear that statement; and he would now proceed to say a few words more about restoration. He hoped they were all agreed that they ought to be as conservative as possible in their restorations. He thought he saw an eminent destructive before him; and if so, he could argue the case with him. For himself he confessed he was not in favour of sharp angles and arisies, or of clean surfaces inside and out. It was a curious fact that in English restorations three-fourths of the mischief that was done arose from the attempt to make the inside of the edifice look cheerful. Almost every old building when cleaned disclosed some trace of colour on its walls; and these being carefully removed, they had, instead of the early building, one in which all real interest was lost. That was no doubt the case to some extent in the French restorations; but what Mr. Parker said was quite true, that the Government did take an interest in the work, and did endeavour to prevent ignorant restorations; and, under the intelligent supervision of M. Le Duc, he did think we should escape a great deal of that mischief they were now despairing of. In France, three-fourths of the damage was generally done without the knowledge of the architect at all. His work was commonly the designing of new buildings; and an old one was not an object of particular interest to a man under him, when his employer was out of sight. An English workman was almost as bad as a French workman if he were left; for, on their return, they would probably find that he had destroyed some great feature of the building, a fine piece of sculpture, or a moulding. It, therefore, not unfrequently happened that the architect was not the responsible person. No doubt a great deal depended upon the method of restoration that was pursued; whether by buttressing, tying with iron rods, or using timber struts under the porches and other parts, as at Chartres. He could not entirely concur with Mr. Ruskin in the view he had expressed of the architects of the thirteenth-century restoration. They loved old work, and took an excessive pleasure in all they did; but he did not think that they ever destroyed old work for the mere purpose of making it look cheerful. It was a rare thing to find old work which had been touched merely for the sake of cleaning it. One of the greatest delights he took in looking upon an old restoration arose out of its historical interest. They must remember, however, that, while we had restored our own churches ourselves, the restoration of large buildings in France had been done by the Government, while smaller buildings had been left completely untouched. There were districts in which buildings were not registered as historical monuments, and those were untouched. He was sorry to say that great apathy existed with reference to these buildings, which were thus suffered to go to decay. Here he would do an act of merited justice, however, to the priest of Notre Dame, at Châlons-sur-

Marne; who, having an architectural taste himself, saw every bit of cleaning done with his own eyes. He should, therefore deprecate any resolution or expression of opinion going forth from that meeting, that they in England were prepared to condemn the restorations now going on in France; for, though he did not like to see those noble cathedrals and churches bristling with scaffolding, he did not think it would be becoming in them to offer any such remonstrance.

Mr. Neale said he quite agreed with Mr. Parker that the French clergy were as anxious about their churches as they in England were. Only two years ago he was at that noble church, La Chaise Dieu, where he was greatly struck with the tapestry, which was a most wonderful piece of needle-work. Well, the priest of this church made every effort to have it registered as an historical monument, but in vain. He could name many other instances where the priests were willing and anxious to have their churches restored; but, being too poor to have the work done themselves with the means at their disposal, and the Government only interfering in cases where the building was registered as an historical monument, the work was thrown back upon their own hands, and so remained unexecuted. He agreed with Mr. Ruskin, that it was only too common, and always very provoking, to find the richest specimens of old French cathedral architecture blocked up with scaffolding. Last year he found Amiens Cathedral so blocked up, and also the west end of the Cathedral of Chartres, and the eastern end of those at Le Mans and Laval. At Nantes, he found the fine church there similarly blocked up; and also two or three of the finest churches of Brittany, either in their choirs or at their western ends. One important church between Evreux and Le Mans was completely blocked up with scaffolding, both inside and out. But he did believe that the priests in France were extremely willing to do the best they could with the comparatively limited means and power they could command; and he should be exceedingly sorry to come to a resolution that might even appear to cast a slur upon them.

Mr. Scott said he should not presume to criticise the view expressed by Mr. Ruskin; but he must say he fully concurred in the remarks made by Mr. Street. As to the propriety of their not passing a resolution, which might get into the hands of the leading French architects, and do great mischief; he was quite of opinion that it would be most unbecoming in them to pass one. If he were called upon to propose a resolution, his reply would be, "Let him who is without sin cast the first stone." Though they certainly had a most interesting object before them, it was one of extreme difficulty of attainment. If they could lay down a principle, they would often find it impossible to carry it out. It would frequently happen that a building was so frightfully rotten,—its stones so rotten, that they gave way almost immediately upon being touched. If that were not the case—and, happily, it was only exceptional—they would probably find that the clerks of the works, or the builders, were determined to enter into a combination to frustrate their purpose. He happened the other day to be sent for to a church in Bedfordshire, to enlarge it; and though he necessarily had to disturb many parts, he endeavoured to preserve what he could consistently with the due execution of the works, and the demands that were made upon him. The builder, however, as he was sure, unintentionally destroyed one of the most interesting things he wished to preserve. He was sent for for two reasons; first, because the Archaeological Society of the district very properly protested against that destruction; and secondly, because the parish protested against his destroying anything but the tower. They would not employ the clerk of the works, but the builder he found to be inveterate against anything in the way of preservation. It was with the utmost difficulty he could get him to prop up the arches, and that was a feeling he met with continually. In fact, they found themselves generally placed in a position of extraordinary perplexity. They did not know what to do themselves; they could not do it if they did; and those who were under them would not assist them. As to French architects, he thought they were open to some charges,—not more than they themselves were. They were certainly too fond of shortening up their work; and, having almost unlimited funds at their disposal, they proceeded on the principle of renewing stones that were only slightly decayed, and sculpture that was only in a small degree impaired. If they were to assume any right of remonstrance at all, it could only be in the course of friendly conversation; for, if they attempted to do that publicly, they would be

* See page 422, ante.

certain to meet with unpleasant reprisals. In the restorations at the *Sainte Chapelle*, and the arcades connected with it, that was notably the case; for he had found some of the original capitals in the Hôtel Cluny almost as good as new. In general, he found that for some little fault as to colour, figure, or expression, the originals had been condemned, and new objects substituted. At the Hôtel Cluny he met with specimens of some of the most delightfully tender art that could well be imagined; and he felt quite confident that it would be utterly impossible for any but the men who executed them originally to execute them as they were, and to express the same sort of feeling. A copy of the original should express all the feeling it possessed; but, from the manner in which the substitution had been needlessly effected, it was certain to be devoid of it. It was in that respect, as he conceived, the French architects were mostly in error—their needlessly ruining fine sculpture—and, if they could remonstrate against that as often as they had their opportunity, they might be doing good; but they would be doing still more good if they carefully avoided the commission of similar faults themselves.

The Rev. Mr. Webb said that, having spoken of Mr. Hussey, he would now try to make a short explanation respecting Mr. Butterfield. That gentleman had assured him that no one could love or respect the buildings at Merton more than he did. It was necessary for the good of the college to enlarge it; and the only way in which that could be done was to take the L part of the library and turn it the other way. He observed in reply that he did not think the change would be an improvement; but Mr. Butterfield insisted upon the correctness of his views, which he considered to be of a nature so imperative, that the most sacred associations of the place must yield to them.

Mr. White said it had struck him whether, instead of a remonstrance, mutual discussion between the parties interested in restorations in the two countries could not be invited, as to the best mode of preserving monuments of art. It appeared to him that that might be done without offending the susceptibilities of their neighbours, and with benefit perhaps to both parties.

The Chairman said he thought they must all feel that their debate that evening had been most instructive. They had no intention of submitting any resolution on the subject that evening. They had confined themselves to an expression of their opinions in the memorial which they had addressed to the Institute of British Architects, to be made use of by that body, or not to be made use of, as it might think fit. What they had desired to do was to obtain a debate on the very interesting subject of restorations in France; as to which, as it appeared, they had all said the same thing—that a great deal of restoration was going on in France; that some of it was well done, and some even ably done. As Mr. Ruskin truly said, the national vanity of their neighbours stood in the way of any hopeful result arising from a friendly representation of their views; for they would probably follow the example of their American friends, and construe neutrality into hostility. That was a matter, however, in which delicacy might be carried too far, and in which they might be wrong to be nearly-mouthing. A full appreciation of the question was only to be had by freedom of speech and freedom of discussion; and that, unhappily, France did not possess. With respect to the want of education among the priests, he must say that he made that statement, not on his own authority, but on that of some of the most eminent men in France; and on their authority he still persisted in saying that, with many admirable exceptions—such, for example, as those men, the Dean and Chapter of Bourges, who, as Mr. Parker had told them, had executed that splendid work for their cathedral at their own expense,—the late Père Martin, and some others,—in spite of those exceptions, he did not think the French clergy possessed as a rule the spirit of historical inquiry which marked English clergymen. It was an undoubted fact that, without the free promulgation of facts and of opinions, without free discussion, and without a free press, they could not have artistic liberty, or true artistic excellence. Those works of restoration in France, about which so much had now been said, were now, he was willing to believe, much improved; but even Mr. Scott himself, in what he had said about the capitals of the *Sainte Chapelle*, had pronounced a stronger condemnation of French restoration than could have been conveyed in the most flowery phraseology, or the most fervid declamation. Certainly they lived in glass houses, and a stone would smash a great deal of our self-esteem; but, as he had already observed, good as

was the principle of not throwing stones until we were ourselves conscious of being blameless; yet in criticism and in art there must be a limit to it, or where then would there be any sympathies in art and in painting between nations and individuals? There was no resolution before them; but the subject had been well considered in a discussion which had elicited many interesting facts. The main object of the discussion, indeed, had been to get facts, and those which had been brought out while they were eminently suggestive, would no doubt set many of them thinking for the year that was to come; and, if they should only set them thinking about what they in England had done or undone, rather than about what the French had done or undone; though their main object might still be unattained, they would at least have gained a useful and practical advantage. He might now declare the proceedings of the meeting terminated.

The Dean of York then moved, and Sir Henry Baker seconded, a vote of thanks to the chairman for his liberality, zeal, and courtesy, as president of the Society; and the motion having been cordially agreed to.

The Chairman returned thanks, and moved that the name of the Dean of York be added to the list of vice-presidents.

Sir C. Anderson seconded the motion, which was unanimously agreed to.

Mr. Scott, before the meeting separated, wished to offer a suggestion to Mr. Ruskin, which was this; that, if he would only leave the railways, and take the common roads, he would soon find materials enough for his history of the thirteenth century, and in England too. Let him take the ruined abbeys: there was no restoration there, and they might enable them to enjoy and to profit by a most instructive book.

Mr. Ruskin replied, that it was most encouraging to find himself thus urged to the performance of a relinquished task. He was speaking with perfect sincerity when he adverted to the subject, but he did not give every reason that had induced him to abandon it. He felt so strongly that their artists ought to endeavour to bring out a life and a feeling of their own, that no person, however feeble his powers, ought to go back any more to those old dates. It was rather their duty to encourage the genius of the day in bringing forward the spirit of the nineteenth century, and not that which was dead.

THE LABOUR QUESTION.

The dispute is now brought to a single issue. On Monday last one of the most important and influential meetings ever held in the building trades took place at Radley's Hotel: the senior partner of the firm of William Cubitt & Co. presided. Members from nearly all the leading firms were present; and, after a short discussion, a resolution was passed, without a single dissentient voice, agreeing to adopt, on and after Monday next, the 1st of July, the system of payment by the hour; this being felt to be the most fair and equitable arrangement for both men and masters. It was understood that the time for closing on Saturdays should be decided by each individual employer.

Very nearly all the large builders have now determined to make their stand on the payment of 7d. per hour for skilled mechanics, other rates in proportion. If the masons hold out against it, the inconvenience will doubtless be great for some time to come; but the masters feel satisfied that eventually those now in London must assent, or their places will be supplied by others from the country. The masons, it will be remembered, ask to leave off at 12 o'clock on Saturdays, and have 6s. per day, and 3s. for the Saturday, making 33s. By the hour system of 7d. per hour, leaving off at one, they would get 32s. 11½d. In practice, therefore, there would be about an hour's difference, but they object to payment by the hour.

No alteration whatever is contemplated of any customs in the trade; and the only change is the payment by the hour, which, after all, is more in the name of it than anything else; because all men are now paid for the time they work; and whenever men leave off—and it happens daily, at all hours—they say they want their money, to go to another job, and they are paid up to the hour at which they leave off work.

Previously to the meeting of builders already referred to, Mr. Robert Kerr, architect, personally annoyed by the stoppage, through the masons' strike, of work under his direction, addressed a letter to their committee, and proposed that they should agree with the contractors to refer their dispute to a committee of the Royal Institute of British Architects. After some negotiation the

masons agreed to the proposition, and sent the following letter to the Council of the Institute:—

"Gentlemen,—You are aware that for several years past differences have arisen between the contractors for building operations and the masons of this metropolis with regard to the hours of labour and the mode of payment; which has led to strikes on the part of the men and a general lock-out on the part of the contractors, which they admit to have cost them 300,000*l.*, and by which they subjected the men to considerable privation and loss.

At the present time an innovation has been introduced by the contractors in their mode of payment which the masons look upon as the most disagreeable light, and felt it due to their interest to resist; and the result is a general strike of the whole body throughout London, which threatens to extend to all the trades engaged in building operations. It has been suggested to us that this dispute might be settled by arbitration. Gentlemen, judging from your intimate knowledge of every thing in connection with building matters, with your everyday experience in arbitration, and the high position of the Institute, that your council is the fittest body to whom we might refer the dispute; whereupon we convened a general meeting of the masons of London, at Wilcox's Rooms, Lambeth, on June 22; when it was unanimously resolved,—'That your council be solicited to appoint a committee, before which we are prepared to offer evidence and answer any questions which may enable you to arrive at a just and equitable settlement of the dispute, if the contractors on their part consent to similar investigation.' Gentlemen, we are led to adopt this course; not that we have any doubt in our ability to resist successfully this infringement on our privileges; but knowing the reasonable nature of our demands, and judging from the justice and wisdom that must necessarily characterize a committee selected by you, that you will come to a decision which the masons can cheerfully accept, and will have the effect of restoring that peace and good feeling between us and our employers which we so much desire.—By order of the committee,

RICHARD THOMAS, Secretary.
Sun Inn, Mason-street, June 24th, 1861."

The Council, we believe, have expressed their willingness to arbitrate, but require, of course, a joint reference by both the parties. It is to be regretted that the proposition was not made before. After the decision, on the part of the contractors, arrived at on Monday, it seems more than likely that they will decline the proposed reference.

We are glad to be able to state, as a promising incident, that, on Wednesday evening last, the men in the employ of Messrs. W. Cubitt & Co., embracing all trades, held a meeting, at which it was decided to accept the offer of 7d. per hour for skilled mechanics; and to leave off work at one o'clock on Saturdays. We sincerely hope this example will be followed; and that, removed from further agitation and uncertainty—masters and men alike satisfied with each other, and mutually performing their duties—the building trades may flourish, and that the individual lot of all concerned in them may steadily improve.

BLIND LEADERS ON THE LABOUR QUESTION.

Sir,—Mr. Potter's reply to my remarks is thoroughly weak and unsatisfactory. Without claiming to be "a high authority in social science," I certainly mean to avail myself of my rights, as a working man, to denounce the falsity of the doctrines which are employed in defence of the nine-hours movement; nor will his sneers prevent me from doing so. The manifesto which was alluded to in my previous letter is a total misapplication of facts and figures to the case of the operative builders, and is calculated to mislead the unwary or thoughtless reader. Very few, if any, of the statistics adduced by Mr. George Potter are based on the real or alleged grievances of the building operatives. The whole tenor of Mr. Chadwick's paper was to prove that much of the mortality amongst the working classes arose from the neglect of *sanitary reform*; not because the builders have to work ten hours per day. The evidence of Mr. Baker proved the good results arising from child labour in factories being partially prevented, and the former unlimited hours of labour being reduced to ten!

John Stuart Mill's writings are in direct opposition to the principles maintained by the nine-hours advocates. They would reduce the hours of labour, and raise the rate of wages, in the face of a superabundance of labour; whereas Mr. Mill shows that such a result is impossible. Mr. Potter cannot bring a line of Mill's works in defence to such a movement as that of the nine hours. Most of the other authorities so frequently quoted by Mr. P. have at times expressly declared that strikes are not the way to derange the condition of the working classes.

True, thousands of the working classes are suffering, and deeply so, from lengthened hours of labour and fearfully low rates of wages; but not all the strikes in the world will ever better their condition.

With the building operatives could hear the murmurs of several of these men, and learn how gladly they would accept 33s. per week for ten hours' daily labour, in place of 10s. or 12s. for fourteen or sixteen hours' daily labour, each week, in close unhealthy rooms or workshops.

All the heartrending sickening facts, adduced by Mr. Chadwick and other gentlemen, were based on the condition of other classes, than those of the building trades. The masons, bricklayers, and others, are generally cited as being amongst the healthiest of the working classes. Mr. Potter has no right to employ statistics based on the condition of the silk-weavers, bakers, miners, and others, as proofs of evils existing amongst another class. He has never yet shown or even attempted to prove that ten hours is not a fair average of daily labour. True, he has mustered an apparently alarming array of grievances existing amongst the working classes at large; but he has not shown or proved that the adoption of the nine hours would remedy these grievances. Let the nine hours be the law of the land at this very moment; still nothing would be remedied in the least. Masters would be just the same, while the men would not be a whit improved.

Assuming that wealth has increased in a greater ratio

than population; still it is absurd to state that the people do not participate in that increase. Not a penny is added to our national wealth but it *does* relatively affect the condition of the working man. This increase of wealth has opened up fresh sources of labour, increased the number of articles of utility or luxury within the reach of the labourer; and is, despite the assertions of Mr. Potter, exerting a tendency to *reduce* the hours of labour.

But if the working classes are to receive their share of the national wealth, on what grounds are the master builders selected as victims to the socialistic experiments of Mr. Potter and his colleagues? Cannot he perceive that, if every other section of the working classes were to act on his doctrines, and received advanced wages, the price of every article would rise in proportion; and that, consequently the state of the work-people would be worse than ever! Clearly, it is not high wages or short hours of labour alone which are the "only" means of elevating the condition of the labourers. He states that, in large towns, "the working classes do not live half the time of the wealthy." True; but will the reduction of one hour per day in the labour of the building operatives lessen the rate of mortality? If he will examine the statistics on which the assertions of Mr. Chadwick were based, he will find that this excessive rate of mortality arises from the employ of infant labour by parents in the manufacturing districts; from the neglect of sanitary science, from intemperance, and many other causes; but in no case whatsoever from men working ten hours per day instead of nine!

In a question where the interests of thousands are at stake, and where the ruin and misery of numbers hang on the utterances of such men as George Potter, it is perfectly justifiable to condemn the use of "hyperbole."

After quoting statistics, facts, and arguments, applicable or not to his case, he gravely stated that "advance of income, and reduction of the hours of labour, is clearly the 'only' means by which labour can be elevated." Now he turns round and states this to be merely "hyperbole." If so, how much of his assertions consist of "hyperbole," and how much consist of fact?

I never did, and never shall, advocate long hours of labour; but I have yet to learn that *ten hours* daily labour for five days of the week, and six hours for the sixth, is detrimental to the health, morals, and general welfare of the working man. Let this writer prove such to be the case before he encourages the working men to waste their time, money, and energies, in rash and futile strikes. He underates the mischief arising from the prevalence of intemperance amongst the working classes.

Is it the rich, or is it the poor, who support the armies of gin palaces and beer-shops which teem in every thoroughfare in every village, town, and city throughout the kingdom? Does Capital compete with Labour to squander its money in debauchery and intoxication?

True, thousands of the working classes are an honour to the land; but they suffer not the less from the folly and misdeeds of their fellow toilers: nor will any strike or "nine-hour" agitation remedy the evil.

It is not the desire of political economists to lecture men on abuses; but when Mr. Potter, and those like him, lay everything on the shoulders of Capital, it is but right that they should meet with a contradiction.

That man is a traitor to the people who fetters their prejudices, encourages their antipathies, and glosses over their failings. I never the working classes are to rise—as I feel assured that they ultimately will—in the social scale, they must be told the truth. They must understand how much of the evils which afflict them are producible from their own shortcomings, and how much from the errors of others. They must thoroughly understand that there are certain principles the exercise of which influences communities no less than individuals, in proportion as they are acted on or disregarded; and that mere "strikes," or petty agitations, are utterly useless to produce those results which arise only from a general practice of the principles of religion, temperance, and economy.

Mr. Potter may say what he likes; but I can only look on him as one of those who, by their pernicious teachings, sow the seeds of mischief and discord wherever they have the power, and help to retard the cause of social progress; and I sincerely trust that the building operatives of London and the provinces will discard his senseless, foolish, and irrational doctrines, before it be too late to retrieve their trade from utter ruin. JOHN PLUMMER.

THE PROPOSED EMBANKMENT OF THE THAMES.*

I CAN think of no subject more important in itself, or more interesting to the members of this Institute, than that great constructive and sanitary problem which for so many years has occupied the attention of successive Governments; of many of the most enterprising members of the scientific world; and indeed of the inhabitants not only of this metropolis, but of the country at large; viz, the improvements of the banks of the River Thames by an embankment; and, at this moment, the best way of forming an intercepting sewer.

In dealing with this subject I desire to say only as much as may be necessary to bring forward the main features of the different schemes so as to provoke an instructive and interesting discussion upon this occasion; and I must believe that should this meeting come to an expression of definite opinion upon it, it will be received with all respect out of doors, and be by no means without influence upon the public feeling in this matter—or even upon the pending Report of the Royal Commission now sitting. If I may use such an expression, the honour of this Institute is to some extent compromised if it could be possible that so great and important a work should be prominently under public notice and yet receive no attention from us (as a public body), who ought to have so much at heart every question bearing upon the

improvement of this metropolis; particularly a question like this, which has much more than a mere engineering element in it.

I do not propose to say much about the intercepting sewer: that is certainly almost entirely an engineering question;—and, if an embankment be formed, no matter how, there can be no great difficulty in forming the sewer in, under, or through the embankment; or, if the embankment be not formed at all, of iron pipes along the foreshore of the river; and I also confine myself to the north side of the river, as there is no immediate prospect of anything being done at present with the south side.

The question of the embankment must be met with reference to certain other requirements and peculiarities involved; and the broad issue here to be raised is, as to how this great improvement can be effected so as best to fulfil these requirements and to meet these peculiarities:—thus—

1. Provision must be made efficiently to relieve the crowded streets, and also to improve the navigation of the river.

2. This must be done with a due regard to existing interests of very great magnitude, which must be affected as little as possible; since, if these are disregarded, an insurmountable obstacle is raised to the desired work,—the obstacle, in fact, which has hitherto defeated its performance.

3. Constructive difficulties must be overcome,—by which I mean that they must be dealt with so that the expenditure is within reasonable bounds.

In these days it may be said that nothing is beyond the reach of engineering skill; but the real triumph of the engineer and architect is to achieve the work before him not only most effectually, but with only a really needed and commensurate outlay.

Before proceeding to note the chief points of some of the various schemes which have been proposed to solve the problem before us, a word is due to Sir Christopher Wren and Sir John Evelyn; and again, more recently, to Sir Frederick Trench; who, in 1828, advocated a plan of an ornamental and architectural character, based chiefly upon philanthropic and popular views of the subject; and also to the more comprehensive scheme of Mr. John Martin (which he laid before this Institute in 1856), and in which, with the provision of an intercepting sewer, he combined an embankment and great public promenade, with a view to relieve the streets; which, however, are now far more overcrowded than they were then. He proposed intercepting sewers or receptacles, in portions of a quarter to one mile or more in length; these receptacles having a width of about 20 feet, and being formed close along the existing quays, or in the embankment, which latter would run close alongside the present shore. The sewage was then to be pumped into elevated receptacles or close barges; and part of the scheme provided for its distribution in rural districts. Over the embankment colonnaded wharfs upon the quay were to be formed, so that the wharfers would have a private use of the quay; and the colonnade supported a promenade, which it was thought would be a great public boon. At the present time it is universally considered that there must be not only accommodation for foot passengers, but for a large carriage traffic; and it is nearly as universally agreed that this will not meet the case, but that there must be a railway as well.

He also proposed floating piers attached to the embankment; forming docks for the barges; the whole plan being in many respects very ingenious, and calculated to answer its purpose. At the same time, Mr. Walker, Mr. Page, and Sir Charles Barry proposed schemes to the special committee of the House of Commons; and of their plans Mr. Page's was, in 1844, adopted by the Government, and great exertions were made to get it carried out. The schemes of Sir F. Trench and others failed, partly because, being mere extensions of the river bank, they totally destroyed the wharf property; and Mr. Payne was, I believe, the first who proposed to detach the embankment from the warehouse frontages and to form docks within it,—or rather not distinct docks, but to leave almost an entire water space within the embankment. At this time it would seem that no apprehension of the evil consequences of turning the sewage into the Thames was felt; for it was only intended in these schemes to continue the sewers under the embankment, and to allow them to discharge into the Thames as before.

Mr. Page's estimate of the cost of his scheme was 366,000*l*.

In 1855, the select committee of the House of Commons on Metropolitan Communications received much valuable evidence upon that subject; and among others, Mr. Lionel Gisborne proposed

to embank the Thames from Westminster to London Bridge; but, beyond Blackfriars, to construct only a quay wall; giving the river a uniform width of 700 feet; the foundations to be laid 20 feet below low water upon hollow iron piles, as at Rochester and Chertsey bridges; with tidal basins. He proposed also an esplanade for foot-passengers, 20 feet wide, covered with glass from Westminster to Paul's Wharf; behind that a range of residential buildings 50 feet wide; behind that, a road 200 feet wide, with stacks of warehouses 60 feet wide. The cost to be about two millions. Also a similar construction of road-shops and houses, and tidal basins, on the south side.

Other schemes were proposed before that Committee; but which, as well as Mr. Gisborne's, were again produced before the Committee of 1860; with the proceedings of which we have more particularly to do; as leading at once to the present position of the subject. Of these schemes almost all were conceived upon the principle that the right mode was to make an embankment a long way into the river, so as to reduce its width by many hundred feet in some places; and behind, to have docks or tidal basins for the use of the wharfs. These schemes are all by men of great eminence in their profession, and are conceived in the most comprehensive spirit. In the main idea they are alike; but they vary in their details.

The mode of construction is also similar. It appears generally agreed that the hollow cylinder and iron-plate construction, which has been adopted at Westminster Bridge, and at the Victoria Dock, Fresh Wharf, and other places, is the best. Thus, the iron cylinders, with grooves on their sides, being driven well into the earth every 6 or 7 feet, 1½ iron plates, strengthened by flanges, would be filled in, and in this a cofferdam would be provided; then, by means of a cross wall, a chamber might be formed, the water pumped out, the ironwork backed up by brickwork and concrete, and the embankment be completed. One gentleman, however, preferred brick and granite to iron for the quay walls, as it is said that the iron becomes so brittle in frosty weather as to be easily injured. I am alluding now to the schemes of Mr. Bidder, Mr. Jno. Fowler, Mr. Bazalgette, Mr. Bird, Mr. Page, and Mr. Gisborne. Viewing these more in detail, we find that Mr. Bazalgette proposed an embankment with a roadway 100 feet wide, upon iron columns, high enough to give access to the docks two hours before and two hours after high tide. The total cost was estimated at about one million.

Mr. Bidder also proposed an embankment with roadway on brick arches of 86 feet in width; but the embankment is in all about 180 feet wide, and the road passes all but Hungerford Bridge on a level. On the surplus space warehouses would be built, with shops at the level of the road; and the docks are entered not only by gates, but by locks; and it is intended that craft should thus have four hours before and four hours after high water to enter and leave the docks. In certain places where docks could not be got, craft would lie along the outer wall of the embankment to load and unload. The estimated cost is one million and a half.

Mr. Gisborne proposed a road 70 feet wide; and craft would go in and out of the docks two hours before and two hours after each tide. The cost was estimated to be 1,200,000*l*.

Mr. Fowler proposed a road 100 feet wide, and parallel with it a railway; so that the space left for the docks is less than in either of the other schemes.

Mr. H. H. Bird also combined a railway with his scheme, running nearly at the low-water level. The docks are reached by means of aqueducts across the railway, both with tidal gates and locks. The tidal gates give a free entry 1½ hour before and after the tide; its estimated cost was 733,000*l*, including the railway.

Mr. Sowell submitted a scheme for a railway only 11 or 12 feet above high-water mark; the railway being carried on screw or hollow piles, so that craft could pass underneath it to the wharfs just as at present.*

NEWCASTLE JUSTIFIES US.

On the 14th instant a meeting of the rate-payers of All Saints' East, Newcastle, was held to hear the representatives of the ward in the town council express their opinions upon the sanitary condition of the district, to which attention had been directed by the statements in our papers.

Mr. Harle said that, under the guidance of their new representative, Mr. Oliver, he last evening

* To be continued.

* Read by Mr. James Edmonston, as elsewhere stated.

perambulated perhaps the principal portions of the ward, which required immediate attention. Now he must say, in all sincerity, long as he had known that neighbourhood; often as he had trudged every part of it; he was astounded at the misery, filth, and destitution, so far as regarded cleanliness and sanitary comfort, in almost every portion of that vast region. Could every man present lay his hand upon his heart and say "The best has been done that could be done to accommodate these great objects?"

Mr. Harford said he knew of places in that locality that were a disgrace to that or any other town—a disgrace, moreover, to civilized life. He was particularly sorry to be obliged, from his own observation, to say "Amen" to much and many of the remarks that had been recently put forward in the *Builder* on the subject. Some places called public conveniences he would rather have labelled "public scandals." There were only some three or four in that district; and every one of them, except one, was a perfect scandal to the age in which they lived. He contended that hitherto the drainage of the town had been carried out in a fragmentary manner; and recommended the adoption of a complete and comprehensive plan.

The *Northern Daily Express*, speaking of the meeting, says, "It's an ill bird that fouls its own nest; but it's a foolish bird that looks on the foulness as a matter of no consequence. There is a nest on the Tyne which has long been in a state that does us by no means credit; and though—as it is said the fiend himself is sometimes made blacker than he is—the filth of Sandgate may have been somewhat exaggerated,—if exaggeration indeed be possible,—in the *Builder's* article on Newcastle, there is no denying that we are entering on what promises to become a season unusually hot, in a condition but ill adapted for such a state of the atmosphere." And afterwards, "Lovers of cleanliness and humanity though we be, disguise the thing as we may, out of every thousand inhabitants we are in the habit of stinking fourteen annually to death. The writer in the *Builder* has been abused for speaking of our dirt disrespectfully; and we have received some blame even for giving his description a local publicity. But what has the *Builder* said which has not been affirmed by others? Sir John Fife, the foremost patriot and most spirited citizen we possess, has declared that the sanitary condition of Sandgate, had the place even an adequate sewerage, would still be perfectly hopeless. Mr. Lee, in describing the dilapidated houses with a family to each room, and at the rate of one water-closet to about one hundred tenants,—an execrable atmosphere filling the wretched apartments in which generation after generation live and sicken and die—this gentleman asserts that the only remedy is bombardment. The condition of the locality is such as can only, and of necessity, issue in suffering, widowhood, orphanage, pestilence, pauperism, crime. At last a crisis has come when we may hope that the question will be dealt with."

We earnestly hope so too. And Newcastle may yet vote us the freedom of the borough, in a gold box, for the part we have played in awakening their slumbering resolves.

GLASS-FLOORED OPEN STREET GALLERIES.

A SCHEME for the "Improvement of the chief thoroughfares of London by means of glass-floored open galleries, giving free ascent to air, and subtended throughout by a system of parabolic reflectors," has been proposed, in the form of a pamphlet, printed for private circulation (Stanford, Charing Cross), by Mr. Julius Jeffreys, F.R.S., the inventor, we believe, of the well-known "Respirator." The title of the pamphlet, as we have given it, explains the leading ideas of the project, which resembles that of Mr. Gye, to which we some time since alluded; but in this case the street shops are proposed to have light shed into them by means of parabolic reflectors, mounted in sets, easily accessible and adjustable, beneath the glass floors of the galleries, and which, Mr. Jeffreys states he has ascertained, by large models and otherwise, will give an abundance of light to the street shops,—more, indeed, than they generally have at present. Provision is also made for free ventilation of the under sides of the galleries, so as to prevent all stagnation, and even to promote the ventilation of the shops and houses; which will also have the advantage of open shop and other doors to the second floor, or to the glass-floored and ventilated galleries. The cost per house of galleries 8 feet wide and 20 feet frontage is estimated at 100*l.*; and of galleries

18 feet wide and same frontage, at 200*l.* An endeavour is being made to establish a company for carrying out the project with the aid of an Act of Parliament. The galleries would be made of iron castings and glass slabs, &c., in *fac-simile* parts, so as to be cheaply and readily produced.

THE RESTORATIONS AT ROSLIN CHAPEL.

As mentioned by us last week, a correspondence has taken place between the secretary of the Architectural Institute of Scotland and the Earl of Rosslyn on this subject.

The purpose of the Institute in instructing their secretary to write to the proprietor of the chapel was to protest against the restorations which have been and are being carried out. One of the series of resolutions announced in the secretary's letter was to the effect that "nothing in the shape of restoration except what is expressly called for to prevent the building falling into decay can be acceptable to those interested in its preservation;" and another states,—

"That they consider the cutting away of the brackets under the niches in the piers of the east wall, with those in the jambs of the windows adjoining, and the substituting copies in their place; the re-carving of the string course under the windows, with portions of the carving on the Prentice Pillar, the renewing of the awmries in the east wall; and the rebuilding and finishing of the altars, as now executed; with the scraping and cleaning of the east range of pillars; as not only unnecessary but highly mischievous in principle; tending to throw doubts on the authenticity of the whole of that portion of the Chapel, and thereby entirely destroying its value architecturally and pictorially."

Lord Rosslyn's reply was, in effect, a refusal to comply with the request of the Institute that his lordship should desist from carrying out any further the restorations in progress. He says,—

"No sculptured stone has been or will be removed, except to be replaced with an exact *fac-simile* from what I believe to have been the original quarry. I cannot admit that an anxiety to preserve pictorial effect is a valid reason against the restoration of architectural ornament to its original purity and design; nor against the removal of dirt and incrustations which conceal the sculpture or obliterate the beauty of the original workmanship. It has cost no little anxious labour, and no slight artistic skill, to trace out and restore, in their perfect entirety, the original forms of many of the architectural ornaments, of which the Fellows of the Architectural Institute consider the restoration to have been unnecessary and mischievous. Had these restorations not been made, the lapse of a few years would have made their decay so complete that it would have been impossible to have traced out their original design; and a knowledge of the details of the ornamentation of the Chapel could only have been acquired by posterity by a reference to drawings of doubtful accuracy, or to the meagre accounts of it which have from time to time been published. I apprehend that the question at issue between myself and the Fellows of the Institute is,—Shall Roslin Chapel be a ruin, or shall it be preserved as a sacred edifice from the natural decay of ages?"

In their rejoinder the Institute repeat their regret at his lordship's determination, and remark that the question as to *fac-similes* embraces the whole point at issue, and that it is a mistake to suppose that sculptured stone can (with propriety) be removed to be replaced by a *fac-simile*; all that ought to be done in such case being to try by care to arrest the further progress of decay.

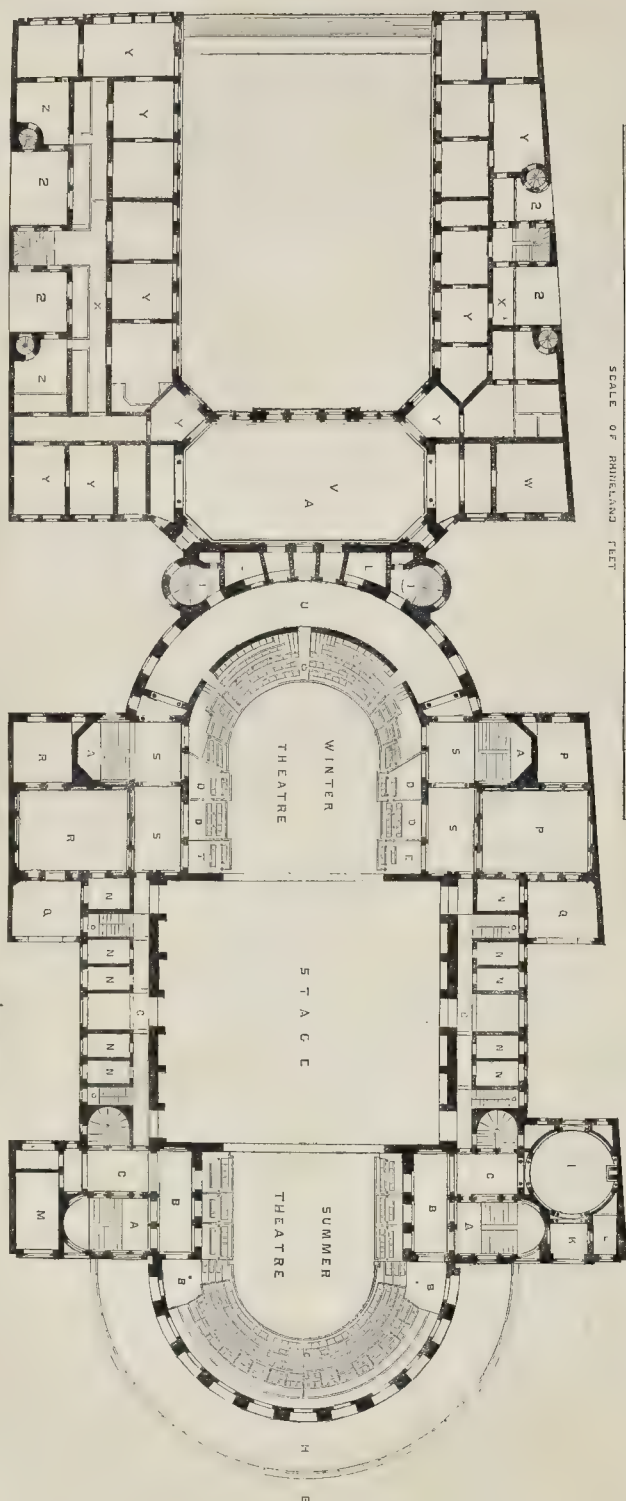
THE NEW VICTORIA THEATRE, BERLIN.

THIS building, already referred to in our columns, we have now much satisfaction in bringing more prominently under the notice of our readers. It is one to which great interest must be attached; since it forms one of those new and large places of public resort for which Berlin is so well known to travellers. It is a counterpart on the opposite side of the town to the large establishment of Kroll, but takes a rather higher rank in the class of its entertainments. In bringing it before the English public, we trust to be not only of service to the professional architect, but to the amusement-seeking society at large; for it fully represents a species of popular public establishment on the Continent, and that too of the highest order, whose like in England is sought in vain. In Germany, where the stage is but one member of the great machine for the education and refinement of the people, theatres at once capacious, roomy, and open, half *à la fresco*, become a necessary adjunct to every town, as places where the acting may be enjoyed without heat and discomfort on a summer afternoon. We believe also precisely this style of amusement would be popular in England; where, from our habits of comfort and home, we are loth to leave our rooms of an evening. If there were such a thing as an opera by daylight, in the afternoon, in a building with a fine public garden attached, where cooling refreshments were served at reasonable prices; there can be little doubt but that it would be visited by many families who now never set foot in any theatre at all. Such a theatre cannot be otherwise than beneficial: its effects upon the population of a crowded city like London would be marvellously refining; for it is the lower

middle classes, the tradesmen of our metropolis, who know the least of art, and are the least open to mental improvement in reference to an appreciation of the beautiful in music, painting, and the fine arts generally. Hence, a garden richly stocked with flowers, to delight the eye with that brilliancy of colour which is the property of nature, surrounded by an arcade, whose interior walls should bear the fruits of the painters' and sculptors' labours,—and all this, with a building devoted to the opera, well placed at one end,—would be an *ensemble* of art which, from its very composition and extent, could not exist without inducing the most excellent and improving æsthetic results to the million. This social aspect, though not foreign to our columns, and perhaps of less interest to the architect, is not without its weight, both as regards the amusements of the people and the position of the stage as an ever-continual element; for no one can shut his eyes to the fact that the professional actor is daily rising in the opinion of English society; and he is now a member of the great art-brotherhood, to which but a few years since he was hardly admitted on a footing of equality. However, let us now consider more closely the building in question, and of which we this week give two engravings,—a view of the front towards the garden, and a plan of the whole building. But, before speaking of these in detail, we will give a short history and description of the building in general. The design from which the theatre is built is not the original one projected, but had the advantage of being more deeply considered and carefully worked out in its general disposition and arrangements; and the architect, Herr Titz, did well merely to take the original plan as a guide in the one he was about to create. The Victoria Theatre is not one of the royal establishments, but is in every sense a private undertaking; and for the various reasons is sublet to any enterprising *impresario*.

The ground upon which the property stands has a general breadth of 180 feet, and length of 720 feet, therein including the pleasure-garden at the back of the building. The theatre itself covers an area of from 33 to 34,000 square feet, and stands in that part of the town called Königstadt, colloquially, "on the other side of the water." It will be observed, from the plan, that between the actual theatre and the street, in front of the winter theatre, there is a large saloon for concerts; to which, on either side, are joined two wings of the building, containing rooms and apartments, to be let, in order in some way to aid in defraying the expenses of the establishment; the ground-floor of the street façade of these wings being appropriated to shops, and the whole bound together by a screen. The general style of the architecture is that modern adaptation of the "Classic" now usual in Berlin. Before all, to save any confusion that might arise in the reader's mind from the novelty of the plan, we must mention that it is a *double* theatre: there are two auditories for the public, with a double stage between them;—hence a theatre for the winter towards the street, and a summer theatre on the garden side, at the back. The materials employed are brick covered with stucco, the common mode of building in Berlin. The appearance of the external elevation towards the street—the open court-yard, surrounded on three sides by a fine building of four stories—is most effective; the proportions being very good; and, from the continuation of the horizontal string lines, there is a connection in the whole which is very pleasing, and a depth in the windows that gives that grandeur so remarkable in the fine Venetian palaces, such as the Pesaro. The cornice and balustrade are simple, and the former is neither too large nor too great in projection; and the capping of the whole by the great central square block—which we need scarcely state is above the stage—is very fine. The design of this is simple: the arcade of windows, with plain wall at each end, is well suited to the interior arrangement; and the greatest advocates for roofs will observe that the architect has not shrunk from displaying them. The two towers at the side give finish to the *ensemble*, as well as take off from the otherwise too great breadth; and at the same time serve as outlets to the roof in case of fire. Our engraving represents, as before said, the front towards the garden; and is to be noticed as an excellent adaptation of the Dresden form to a summer theatre. The two external balconies offer agreeable promenades, where also the public can stand and listen to the performance without entering the house: they may also serve as open-air *restaurants*; and nothing can be conceived more pleasant than, on a summer's evening, this lounge for a cup of coffee, with the charming *coup d'œil* upon the garden. All the

THE NEW VICTORIA THEATRE, BERLIN.—Plan at level of First Floor.



windows open down to the base, and hence permit a free and uninterrupted entrance to the house. Many of our readers will doubtless remember the grand effect of the round façade of the Opera House at Dresden. Here the same effect is much enhanced by the position of the building; standing, as it does, boldly upon the garden; and, when viewed from the far end, with the intervening fountains, trees, and flowers, it is certainly what one may consider an admirable specimen of a place of public resort and amusement. The windows being so large, the house is as light inwardly as it is possible to conceive; and this is a point all architects having to build similar edifices should not forget is most essential. In order to explain the interior arrangement of the passages, rooms, halls, &c., of so vast an establishment, we should have been forced to have given the plan of each floor; since, in a theatre, and this is a double one, it is the most important question to be attended to,—that of properly and conveniently disposing the various rooms necessary to the good working of the establishment. As to the wardrobes and dressing-rooms connected with the stage, we propose in a future article to explain them more fully; and as far as it is within our power to show what stage arrangement ought to be; for in this our architects, at the present time, from want of practice, are behind their German neighbours. Thus we shall content ourselves here with referring to the general disposition of the two theatres. As it was impossible for us to give the whole series of plans as they are published in E. Titz's "Entwürfe,"* we have chosen the first floor, as giving, perhaps, the best general notion of the whole building; but we will ascend in order from the basement upwards. The underground tunnelling and cellarage are extensive, and there is abundance of room for kitchens and other accessories to a *restaurant*; which, by the by, is on a very large scale; forming, as it were, the cellarage under the ground-floor, corridor, and balcony of the summer theatre; and, as will be seen from the drawing, is of easy access from the garden. The entrance to the winter theatre is from the yard that opens on the street, and consists of a large vaulted hall, resting on six pillars. From this you go directly into the grand ground-floor corridor; of great breadth, and well adapted for the easy egress of a large crowd. At the ends of this corridor are the entrances to pit and stalls. The arrangement of the summer-theatre ground-floor is similar, except that it has a more *ad fresco* character; every window opening upon the balcony. The form of the auditories is that of a semicircle, extended at its ends in two straight lines, and both are about the same size. The pit-floors are both capable of being raised to the height of the stage, which then forms a superb saloon in every way suitable to great festivals or masked balls. From the centre of the stage, at the foot-lights to the back of the boxes of the winter theatre, is a length of about 70 Rhineland feet: the proscenium is wide,—47 feet, and its height is 40 feet: these dimensions will also be within a few inches the same in the summer theatre. The only great difference in the construction of the two arises from the absence of corridors in the summer theatre, except in the ground tier; they being then unnecessary on account of direct exit to the balconies, and the more open distribution of the seats. We must here make a remark with reference to Herr Titz, in his conception of a summer theatre. The usual idea of such a building is a stage without any covered saloon for the public: such a building is, however, utterly unsuited to our northern climates: nevertheless, it was necessary to retain at least the idea of something in the open air; and he has well succeeded in arriving at the desired end, by the large windows, balconies, roomy seats, &c.; whereas the winter auditorium has a thorough air of comfort throughout. It is most noticeable in this building how the staircases and steps are equally arranged on both sides of the house. It is hardly possible, with such wide and well-balanced passages, that the crowd can ever be stopped for any length of time when leaving the house,—a fault, it seems, beyond the power of architects to avoid in modern English theatres. We propose to return to this theatre in a future number; to consider its internal decoration and elevation, as well as the roof construction; and give some account of the stage machinery, in which last matter this theatre is exceedingly interesting, and far in advance of anything in this country: in fact, to those accustomed to German theatres, the cumbersome working of a large English modern stage must seem ludicrous. At the same time we will give the references to the letters on the plan.

* Nicolaische Buchhandlung, Berlin. London: Williams & Norgate.



THE NEW VICTORIA THEATRE, BERLIN.—HERB. TITZ, ARCHT.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE closing ordinary general meeting of the session was held on Monday evening last, at the House in Conduit-street.

The chair was occupied by the President, Mr. Tite, M.P.

The minutes of the last meeting having been read and confirmed, and the receipt of a number of donations to the library announced and acknowledged.

Mr. T. Hayter Lewis (hon. secretary) read a letter which had been received from Mr. E. P. Brock, containing the prospectus of the South London Museum (the first suburban institution of the kind), and inviting the assistance of the Institute towards the object of its promoters.

The President observed that, before proceeding to the business of the evening, he wished to state how forcibly they were reminded of the truth of the inspired admonition, that "in the midst of life we are in death." He referred to the sudden and deplorable death of the Lord Chancellor, whose life was a forcible illustration of the manner in which the highest honours and the most exalted position might be achieved by patient industry, aptitude for business, and honesty of purpose. He had passed from among us in a very afflicting manner, and in the full possession of all those faculties which he had developed so much to his own credit and the advantage of the public. It was but the previous day, hearing a case, he had stated that he would "take time to consider his judgment." That time, however, never arrived; for, in a little time afterwards, he was found lifeless in his chair. The late noble and honoured lord was not in any way connected with the Institute; but its members would, no doubt, join in deploring the loss of a great man, who had set a salutary example to his fellows, and who had adorned the profession of which he was a member. In the deplorable death of Mr. Braidwood, too, the public had lost another benefactor. He (Mr. Tite) knew him when he first came to London, to originate the Fire Brigade with which his name was associated. Previously to the year 1838, the principal fire insurance companies in the metropolis maintained individual engines and corps at their separate expense; but, owing to rivalry on the one hand, and apathy on the other—in cases of corps whose office had no interest in the conflagration—the system was found ineffective and expensive.

Mr. Braidwood then conceived the idea of uniting all the corps into one; each fire insurance company to contribute in proportion to the assurance effected by it. The idea was a happy one, combining much good sense and practical utility, if it could be placed under one efficient and controlling mind. The plan was examined by Mr. Ford, of the Sun Office, and himself; and they arrived at the conclusion that it would be well to adopt it; and Mr. Braidwood was appointed superintendent of the London Fire Brigade, which soon became completely re-organized under his watchful and intelligent inspection. Mr. Braidwood was a zealous, intelligent, and energetic man; and particularly well informed on all social subjects, and questions connected with fire insurance and remedies against fire; and, although architects might occasionally have found him exigent in enforcing the rules and regulations of an Act of Parliament, his own lamentable death was sufficient proof that he had not been more exigent than was necessary. Mr. Braidwood's advice to architects, in building, was, not to construct any single building too large; or—as he himself expressed it—not to make that which might be converted by accident into "a larger mass of fire than he could manage." He had died in the performance of his duty; and it might well be said of him, that he was a valuable public servant, and a most honest and honourable gentleman. These remarks had occurred to him (the President) as applicable to two valuable men, of one of whom he had known a little, and of another a great deal. It now became his duty to direct their attention to the death of one of their own body, Mr. Benjamin Woodward, the architect of the new Museum at Oxford. They had all no doubt seen that building; and, although there might be differences of opinion as to manner, there could be no doubt that the author was a man of singular skill, deep study, and great industry. He had passed away at an early period of life; and the profession to which he belonged had to deplore the loss of a talented and zealous member. He had also to announce the death of an honorary member of the Institute, Mr. Eaton Hodgkinson, whose researches in connection with testing the strength

of iron were well known. He was sure that these frequent losses of distinguished men would lead us all to remember that our days upon the earth were but limited, and that it behoved us all to endeavour to be as useful to our fellow men as those whose names he had mentioned had pre-eminently proved themselves to be.

Mr. James Bell then read a short memoir of the professional career of the late Mr. Woodward, whose decease we mentioned last week.

Mr. Burnell exhibited a specimen of "Garth stone" found at the base of the North Wales coal-fields. It was somewhat similar to the Bramley Fall stone, but it had not the same hydrous oxide of iron, or sandy impurities. It had been used as long ago as the year 1200, in the erection of the Abbey of Valle Crucis, and in the bridge over the Dee at Llangollen, built in the year 1340. The Abbey of Valle Crucis had been destroyed by fire in the year 1530, but there was a portion of the stone in the room; and, on examination, it would be found that the corners were as sharp and well defined as the day they were first cut. In bringing the stone under the notice of the Institute, he had a double object in view. The first was, that he believed the material to be valuable; especially for works either under water or exposed to the action of water; as it could be brought into the London market at the same price as Kentish rag; and, secondly, because he was engaged in a series of investigations on the nature of stone, and was most desirous of obtaining from the members of the Institute any assistance by way of information which they could find. He believed there was a great deficiency of information on the subject of building stones; and, as the subject was now occupying his attention, he would be happy on a future occasion to submit to the Institute the result of his researches.

Mr. James Edmonstone next read a paper on the proposed metropolitan embankment of the Thames, a portion of which we give elsewhere.

At the conclusion,

Mr. Newton, in obedience to a call from the President, observed that he believed the architects as a body had, so to speak, a command of the question which no one else possessed. The subject was, undoubtedly, an engineering question; and, if engineers regarded the action of architects with jealousy, they ought to remember that if they had combined more with architects they might have done a great deal for the public in the way of metropolitan improvements. Whether there were to be buildings or not in connection with the proposed embankment of the Thames was an open question; but if it were ultimately decided that there should be buildings, let the architects in some sense be consulted; so that whatever might be done would produce that which would result in the greatest architectural masterpiece.

The President.—I think Mr. Newton has a suggestion of his own to make; and, as I find he has brought his drawings, I hope he will explain it.

Mr. Newton said that his scheme was merely a viaduct through which an intercepting sewer was to run, and, secondly, a viaduct for the purpose of carrying the railways and canals behind. For the variations of tides it would only be necessary to form here and there large openings for heavy traffic. The question of buildings could be considered as there were buildings, it would be necessary to add another 40 feet in width. The height of the causeway would be on a level with the lowest bridge, except at the Waterloo, where it would be necessary to raise the level in order to be equal to the level of the railway which might be introduced if necessary.

Mr. Turner, of Dublin, then explained, with the help of diagrams and models, the plan which he proposed; and he said that he had considered superior to the plan of the Thames, which was certainly most beautiful and picturesque, had been enlarged from the idea of Mr. Angel, architect; who was the person who proposed an embankment and an intercepting sewer. He was persuaded that any scheme were proposed to run above the level of the Temple Gardens the opposition from the lawyers would be fatal to it.

Mr. Burnell said he had hoped to have heard the question debated somewhat in a philosophical spirit, as he feared it was suffering from a lack of some discussion of that kind. The question was not what might be done between London and Westminster Bridge; but it involved the interest of the navigation of the Thames, and it might be said to involve the stability of all the property from Teddington Lock to the Nore. This was a point of view in which he ventured to say it had never been regarded. The Thames had an extraordinary and peculiar flow of tide, and was also exceptional as regarded its upland waters. The extraordinary system of locks and mill-dams in all probability retained the alluvial matter carried down by the upland water; and he fancied that, if the subject were properly inquired into, it would be found that the

alluvial matter with which the river was charged came more from the sea than the land. This was, he thought, a subject which required consideration. There was then the history of what had taken place in the Thames since the removal of the starlings of Old London Bridge. As long as the old bridge existed, the tidal water did not flow up; but when the starlings were removed, the tide ran up, and all the upper bridges had become affected. The tide did not even except Waterloo Bridge; as to his knowledge it had not been necessary to throw in materials from time to time to protect the feet of some of the piers. If, then, the proposed embankment were carried out, the course of the river would be that the flood tide would run up with greater velocity; and one of two things would happen—either the flood tide would carry more matter with it, which would be deposited above; or, if the water could flow out and remove the new matter, it would still deepen the bed of the river, and the existing structures would be yet more seriously affected. In all the discussions which had taken place on the subject, this question appeared to have been entirely overlooked. In many of the schemes,—that, for instance, of Mr. Newton, represented by magnificent drawings, which were, in fact, charming works of art,—it seemed to him that the authors had dealt with the question as one of art only, leaving entirely out of consideration the engineering question; for, instead of directing, as far as possible, the current against the convex portion of the bed of the river, or instead of cutting off the large concave portion, they had taken off portions of both sides of the river. In his opinion, the principle to be observed in these operations ought to be to shorten the course of the river, and to drive up the current, so as to deepen the bed. With respect to the scheme of making a sewer, he might observe that latterly it had been his fortune to have a good deal to do with the banks of the river, and he could affirm that the scheme which ran out of the sewers seemed, as compared with the river itself, to be in a state of remarkable purity. He did not, therefore, think there need be much apprehension on that score with regard to the docks or canals.

The point, however, which overrode the whole matter was, that the gentlemen who had presented schemes for the consideration of Parliament and the public had confined themselves exclusively to the limited space under their immediate review, and had disregarded the large and general principle. If this system prevailed, depend upon it we would have to do in regard to the Thames embankment what had been done with other large works in London—namely, do them all over again. The President said, he quite agreed with the last speaker, that the question had never been viewed in a large and philosophical manner. The history of whatever embankment had already taken place was this.—The corporation of London, who were the conservators of the Thames, finding themselves applied to by various proprietors to be allowed to embank their river frontages, employed Mr. Walker to make them a plan of the river, and to draw upon it a line to which they might allow embankments to be carried. Mr. Walker was assisted by a very clever and sensible man, Mr. Bullock, the harbour master of the port of London; and between them the plan was drawn, and the lines marked out. Subsequently, when the Crown and the corporation got into a dispute about the conservatorship of the river, and as to the right to the soil and bed of it; Mr. Page, the Government engineer, was employed to make a plan, and to draw a line. He accordingly laid down a line which differed from Mr. Walker's, but not substantially. The result was that, whenever any one wanted to embank his premises, he applied to the corporation for leave, and, upon the payment of a certain sum agreed upon, he got permission to embank into Mr. Page's line. In viewing the subject of a general embankment, a question arose which seemed to him to be invariably shirked; namely, what was to be done with the large-owners' interest, which was a large and important trade connected with the commerce of the metropolis. This trade was managed in a peculiar way, and included lighters without rudders, straw barges, and other heavy lumbering vessels, which went up and down with the tide, and which ran into the wharfs, and settled down on the shore, until it suited the convenience of the owners to load or unload. It was the difficulty of dealing with this interest which destroyed the Bill of the Government. It was impossible to deal with them without buying their trade; and their answer was, "If you want to interfere with us, buy us." It was idle to try to buy them.

"We will give you a dock or a lagoon, into which your barges can run like mice into a hole, and where they can be secure, and be burdened or unburdened;" for their answer would be—"We have our easement on the river, and you cannot compel us to give it up because you say you mean to do something which will better our condition." A suggestion had been made that all questions of compensation, and so forth, should be postponed until the work was done; and then that a jury should say whether the wharfinger was injured or not, or whether he should be sold or bought; but any practical man of business knew that such a plan would not work, because the jury would always find a verdict for their neighbour, and the expenses would swamp the whole concern. The question, however, resolved itself after all in one of two things. The scheme suggested by Mr. Page was, he thought, a sensible one; because, instead of embanking the river solid, he proposed simply to build a wall, and to allow the water to flow in at certain openings to docks at West India Quay. It was objected to this plan that, if the sewer were carried 8 feet above the level of low water, vessels could not enter the docks except at certain periods of the tide. This difficulty, however, Mr. Page proposed to remove by laying an iron conduit close up against the ancient river wall, which would leave the opening to the docks clear. He himself could not see his way clearly in the matter; but he presumed that they would have to buy up the property and make a solid embankment. With regard to the proposed railway, he confessed he could not see the necessity of it. He could understand a good road, but he could not see the use of a railway. What he wanted to see was a plain elevated showing where the road was to run. Let them for a moment contemplate the difficulties which any scheme for a railway would have to encounter. Starting from Westminster Bridge, at the Middlesex side of the river, they would meet the new mansion of the Duke of Buccleuch, upon which he was probably expending £60,000, or £80,000; and surely it was not to be supposed that he would tolerate a railway under his windows. Then came the mansion of Sir Robert Peel, the houses in Whitehall Gardens, and afterwards Somerset House and the Middle and Inner Temple. On the whole, he was convinced that there never was a public scheme of improvement so fraught with so many difficulties; but no doubt money and talent would in time overcome them all. With regard to

the question incidentally raised by Mr. Newton as to any conflict between the engineering and the architectural professions, he was bound to say that he thought it was the business of an architect to put in iron, stone, or brick wharfs. He had done so himself for the last forty years, and he could point to many large works, at both sides of the river, and in all materials, with coffer-dams, and with half coffer-dams, and without coffer-dams at all, which had been executed under his supervision. He therefore called upon the Institute to claim their right as architects to execute such works. It was a great economical question, and he could not help thinking that such men as Mr. Bunning, Mr. Hardwick, and he might add himself, were quite competent to deal with it. The embankment of the Thames was in all respects an important national undertaking; and, if technical difficulties could be got over, he believed that with the assistance of the coal dues the work might be executed in a manner which would redound to the health and beauty of the city and to the credit of the architectural profession. He thought they were much indebted to Mr. Edmeston for the excellent paper which he had read and the suggestions he had made. The work was, no doubt, one of great difficulty; and unless they set about it with earnestness they would never accomplish it. He therefore invited the architects of England to try their hand upon it.

In reply to an observation from Mr. Newton on the subject of river encroachments,

The President referred to the Hibernia-wharf, at Southwark, the property of Mr. Alderman Humphrey, which he said was originally purchased by the South-Eastern Railway Company as a portion of the site for their terminus. The embankment there, which was carried out to a considerable extent, was erected after the usual application to the corporation, who granted leave "during pleasure;" which, however, was so worded that they never interfere so long as Mr. Page's line was adhered to.

Mr. Jennings referred to the fact that no notice appeared to have been taken of the manner in which vessels, especially in the coal trade, were moored in the river. He presented the coal-owners had almost the exclusive use of the river. Below bridge they moored their vessels in the stream, and thus saved dock charges; while above bridge the shore, or aloft, was covered with their barges. Now, if the sea-borne coals were to be discharged lower down in the Pool, they would have them carted through the streets, and the waggon would very much impede the existing traffic. It was to prevent this inconvenience that the railway scheme was proposed. With regard to the lagoons, he did not think they would be any improvement to the river, as the deposit arose from the tide flowing up and not down. He apprehended there could be no doubt that the mud in the docks was to be traced to the action of the rising and not that of the falling tide.

A vote of thanks having been unanimously accorded to Mr. Edmeston for his paper.

The President announced that the present was the last ordinary general meeting of the session; but that a special meeting would be held on Monday evening, the 1st of July, to receive and consider the report of the council on the subject of architectural examinations. He believed that in consequence of a requisition forwarded to the council, another special meeting might also be held; but of that the members would have due notice. With regard to the approaching *convention*, he hoped that members would assist the committee in contributing works of art; so as to make the occasion as attractive and interesting as possible. It would be also understood that tickets issued to members and their friends would not be transferable.

COMPETITION.

Totnes, Devon.—Eight local architects having complied with the application of the directors of the Devon and Cornwall Banking Company to submit designs for a new bank in this town, the directors, at their last board meeting, selected for adoption the design marked "Alpha," by Mr. Hine, of Plymouth. To Mr. Appleton, of Torquay, was awarded the second premium; and to Mr. Julian, of Torquay, the third premium.

CHAMBERS AND LODGINGS.

"SELIM." "Architect," and other of your correspondents, have got some ideas into their heads on the above subject as regards non-married people; but they seem either not to have made up their minds as to what they do want, or to be merely throwing out hints for others to work upon. I have lived in chambers, and believe that, in many respects, for bachelors or men who are of retiring habits, there is nothing like good chambers. But where shall we find them? Here and there in the Temple are gaunt, massive, worm-eaten, time-eaten edifices, with full garniture of cobwebs and Johnsonian smoke-stains; for Temple Chambers seem as if originally built to be *cured*, like your true Westphalia hams. Whither shall we go? Surely those barn-like beams, black doors, six-foot-wide elm staircase,—the whole structure like some Devil's Tower of Ainsworth, with the devil in it besides, as one gazes from the parchment panes on the jelling rear chimney-stacks, looking as ditch-delivered by a bricklayer; these, with a huge obsolete kitchen-range, like a petrified skeleton of a megatherium, would not quite meet the views of "Selim" or of "Architect,"—unless, that is to say, they can imagine Johnson, Goldsmith, Reynolds, Garrick, *et hoc genus omne*, tankard in hand, wit in brain, genial in heart, on a winter's evening, oil-nerving the rafters with feast of reason and flow of soul.

In the first place, with regard to chambers, we do not want too much light: it injures the retina in summer, and spoils the fire in winter. Paper Buildings seem as much too light as, half a cen-

tury ago, Chambers were too dark. Secondly, we do not want too much *charwoman*: the less the better of that commodity. It seems to me that he who would live like a king, without a king's restraints and impedimenta, must carefully read some late letters in the *Builder* on "Improvements in Dwellings." The more servants a man has the worse he is served, is no new adage. "Handy Andy" iced the champagne by drawing the corks, and turning the lot into the refrigerator; and, though the refrigerator was an oyster-tub of fish-mongers' ice, the flavour of the *denizens of the briny deep* did not improve the wine, or the sparkle of it. Men in chambers pay 5s. to *char* for every pound of tea, possibly; but suppose that *char* pays 3s. 8d.? Suppose that *char* attempts to get *best fresh* at 1s. 5d., when that commodity is 1s. 8d.? Innumerable are the mortifications occasioned by *char*. There are good *chars* and bad *chars*, though most are black in visage, in skin, or in garb, as—*char-coal*.

What "Selim" and "Architect" want, if they did but know it (although, I dare say, they do not know it, not having tried so many experiments, perhaps, as I have, in the highways and by-ways of life), are such chambers as shall ensure privacy, freedom from too much of London's thundering wheels, cheerfulness of aspect, convenience of accessories of comfort, and sanitary appliances. I shall be happy to send you plans and elevations in *detail* as to what I should consider approach to perfection in this matter of bachelor-craft. Every occupant should have access to a bath, to a well-ventilated water-closet (rarely this), to gas, &c., &c. (see "Improvements in Dwellings"). It is all very well to say, "I am a gentleman, sir; I do no drudgery. I am waited upon by *char*, or by my man, who comes at eight bells and goes at ten bells, and who is within hail!"—"Of course, sir," let me say in response, "I cannot help you to see as I do." However, I know this, that servants do not come when wanted, more than Peeters or Dame Fortune; that they do not do exactly what is wanted; that they *strike* sometimes when all one's chattels are of a heap, like a 6th of November bonfire that is to be, during some clearing out. At Aldershot a little true independence is being learnt by many a brave heart. In the huts there a man must often serve himself, and bless Soyer and his, or some other, "magic stove."

Look down the yard of the Salutation Tavern (Raskin's), in Newgate-street, and see the red-tiled yard, the red-ochred flower-pots so well contrasting with their complementaries (in colour) of evergreens and plants, like unto some hotel at a watering place. Why should our so-called "chambers" have such dismal aspects,—all dungeon? Why not, instead of so much chimney-stack, extemporise a few Babylonian hanging gardens of hardy plants. "Pan" has puffed away much of London smoke. Venetian blinds, too, are desirable in chambers; giving a green tinge to sunlight, without copper or arsenic in such medium.

If beneath the chambers there be a sort of neighbourhood of—Spread Eagle, Gracechurch-street kind of store, at which the Cerberus or his wife may preside, viz., a club commissariat, it will be a great advantage; free-trade tariff. No high protection duties laid on by gold-band or gold-headed cane Cerberus.

Of all places of lonely suicide, rank and unwholesome, damp and mildewed, with no echo but to the tread on the icy flags of the stairways, and then a rolling one far and wide, from garret to basement, in desolate corridors; Danes' Inn seems to me most a case in point. We want more gravel and green, and not quite the silence of the tomb. It is not worse than some other nooks for forlorn single breasts.

I am a married man; and, inasmuch as the late census still shows increasing majority of females, I advise a choice of one of Eve's sisters, when a bachelor can find the right one. Look to the heart more than the ankles, the disposition as well as the dimples, softness and womanliness of nature as well as softness and luxuriance of tresses. But, until you know well, do not be entrapped. Woman's wiles are legion; their snares are past understanding. But,—talk to stones: "quand l'amour nous tiens d'ors adieu prudence." Otherwise I would not take pains to convey impressions as to some of the desiderata for bachelor residences, or "residence chambers."

Fancy a barrister locking his door and going off to Norfolk-street to sleep: fancy using walking-stick to toast his muffin, and no milk to his cocoa: fancy all dirt and rust in frowsy washing-place and on fire-bars. All this is a common thing, although we are improving. *Char*

is an institution. *Char* is (Dickens, to my rescue) the MACSTINGER of solitary manhood life. With your permission, I will on another occasion throw out a few promiscuous suggestions in further consideration of the subject. H. B.

BOAT-BUILDING BY MACHINERY.

MR. NATHAN THOMPSON, of New York, marine engineer, has just introduced to the British public a new, elaborate, and ingenious process, or series of processes, for the building of boats by machinery. Mr. Thompson has already erected, near Old Ford, Bow, a factory for the fabrication of boats under the several patents which he has secured in this country. He claims to have perfected (and he has obtained strong testimonials, in this country as well as in America, to the effect that he really has perfected) a system, simple and effective, for the construction of boats of every size and build; to be wrought into form, not as of old by hand labour, but by the application of steam machinery of remarkable perfection and accuracy. From the nicety of the mechanical appliances which are brought into play, not only is perfect uniformity in the whole construction of the boat said to be attained; but any particular part may be formed in duplicate at a moderate expense,—a principle of *facsimile* production which, as our readers know, has been proposed for the construction of cottages, of course by processes especially adapted to the purpose. Another and a still more important advantage is despatch. By this machinery a boat of large size, 30 feet long and of corresponding depth, may be (and has been) made and delivered to order within a few hours after the receipt of the order. A third advantage is that of economy. Mr. Thompson boldly affirms that the amount of labour which, performed manually in a Government dock-yard, would be required by 167, can, under his system, be accomplished for 17. 15s. or 21s.; and so rapid and almost illimitable is his facility of construction, that it is calculated that, by extended application of this machinery, 2,500 boats could, on an emergency, be turned out in thirty days. The master shipwright of Woolwich dockyard was appointed by the Admiralty to examine and report upon the subject; and he is said to have fully corroborated the favourable opinions expressed by other authorities. The machines erected at Bow cannot be clearly explained without diagrams. The most ingeniously constructed of them, however, is one which Mr. Thompson calls the "drunken saw." It is a circular cutter, but so adjusted on a screw axis as to have, when in action, what may be called a "wabbling" movement; and, in the course of its eccentricities, it cuts laterally as well as longitudinally, and the effect is to form what is known as a groove or rebate in the timber with extraordinary accuracy. The "drunken saw" can easily, it is said, do the work of forty men. A scarcely less useful and clever machine is one for giving the required bend and curve of the planking for the ship's side, which is done to the most perfect nicety by a combination of knives or cutters fixed on two rollers, the upper being concave, and the lower one convex. It appears that there are some 25,000 boats built every year in this country, so that there is ample scope for building boats by machinery.

NEWS FROM NEW ZEALAND.

Bridge at Meanee.—A tender for the erection of the bridge at Meanee has been accepted, and the contractor has gone to Auckland (north of Northern Island) to obtain the timber for the work.

Bridge over the Whararangi.—Tenders, according to the *Hawke's Bay Herald*, have been invited for erecting a bridge over the Whararangi stream.

Roads: Te-Aute, &c.—Tenders were also, in same paper, invited for completing the unfinished part of Te-Aute-road, crossing a deep gorge between the Kaikora Creek and Waipawa; also for making 72 chains (4,752 linear feet) of road between Meanee Flats and Puketapu, according to the specifications.

Court House, Waipawa.—A court house is to be erected at Abbotsford, Waipawa.

Improvements at Napier, Province of Hawke's Bay.—The Union Bank buildings seem to be in a forward state, although, with all large buildings in New Zealand, the contractors are greatly retarded by the irregular supply of timber. It is believed, however, that the residence of the manager will be shortly ready for occupation. The Presbyterian Church, including the lower part of the tower, now appears on the side of the

hill adjoining Mr. Tiffen's residence, in Tennyson-street. The builders are proceeding rapidly in the work of boarding, &c.; and two or three months would probably see the opening of this edifice. The timber for the Church of England is now being prepared. This structure will occupy an admirable situation in the vicinity of Shakespeare-road and Tennyson-street, accessible from both these thoroughfares.

See Improvements at Napier.—The dredge has now for a considerable time been at work at the entrance to the Iron Pot, which, it is said, has been greatly widened.

CHURCH-BUILDING NEWS.

Leicester.—A restoration of the buttresses, walls, &c., and the insertion of five new tracery windows, of the church of St. Margaret, in this town, under the superintendence of Mr. Gillett, architect, are to be commenced forthwith. Messrs. Harford, Brothers, are the contractors for the works.

Pickwell (Leicestershire).—All Saints' Church, which has been under repair for some months, was reopened by two services on the 20th ult. The restoration comprises new roofs on nave and aisles, the rebuilding of the south aisle and porch, window restorations generally, opening out the tower arch, removal of the plastering, new pulpit, reading-desk, and open benches, and vestry and tower screens. The aisles are paved with black and red quarries, in patterns. The tower, which is a good specimen of Perpendicular work, has been greatly improved by opening the lower portion of the belfry windows, which had been walled up. The general effect of the interior of the church is much marred by the chancel being nearly as high as the nave, and having a very flat roof. The original designs for the restoration included a chancel arch; but as the funds would not allow of it the architect has brought down the end principal, and filled the spandril with tracery. The font has been restored, and placed near the south doorway. A vestry has been screened off in a recess at the east end of south aisle. The pulpit is of oak, on a stone base. The Earl of Gainsborough, the patron of the living, is a large subscriber to the restoration fund; as are also the rector, and A. Smith, esq., of Leesthorpe Hall. The works have been carried out under the superintendence of Mr. R. W. Johnson, architect, of Melton Mowbray.

Newport-Pagnell.—The river Lovett, in Bucks, after being crossed by the bridge at Newport-Pagnell, meets the Ouse, before approaching the bridge at Sherington. At the junction of these two rivers there has been formed a cemetery, in a field having on two sides the rivers Lovett and Ouse, which run into one at a corner of the field. The size is two acres, less not being allowed by law for a town of 3,600 inhabitants. Much levelling has had to be performed; the ground having been thrown into heaps during the civil war, to intercept the traffic on the road, which last-named at that time was there. The only archaeological remain found is a shilling-piece of William III.'s reign. The Dissenters have a chapel on the ground, and the bishop will soon consecrate the church part.

Devizes.—An appeal is now being made, by circular, to the members of the Wiltshire Archaeological Society, to unite in a subscription for the purpose of restoring the Norman arcade of St. John's Church, in this town, as a public memento of their association. The estimated cost of the proposed restoration, including the re-opening of the Norman windows in the transept, is about 1500*l.*; and it is said that a favourable opportunity is now presented for endeavouring to effect this work; as extensive improvements in the church are about to be introduced, under the direction of Mr. Slater, the architect.

Liverpool.—The foundation-stone of a church, which it is intended to erect in the ecclesiastical district of St. Augustin, Everton, has been laid. The site is in Rokeby-street, Richmond-crescent. The church, of which Mr. Gee is the architect, will be rather unfavourably placed as regards situation; but the site was the best which their means placed at the disposal of the building committee. The architecture is of a mixed order, Gothic predominating; and the edifice will consist of a nave and chancel, with a tower and spire at the north-west angle, the spire being 90 feet in height. There will be a triple window of Gothic design at the front; and at the eastern end another window similar in design, but without all its details. The building will be fitted to give accommodation in open sittings to about 900 people, all free. There will be no gallery. The

building will cost about 2,600*l.*, exclusive of 600*l.* which has been entrusted to Mr. J. Burroughs; who, it is said, has signified his intention of appropriating in aid of the building fund any profit he may derive from the contract.

Birmingham.—A chapel has been built for the Baptist connection in Bristol-road, near to St. Luke's Church, under the name of "Wycliffe's Chapel." It is in the Gothic style of the fourteenth century, treated with unusual freedom; and, in the attempt to adapt it to the wants and requirements of the age and the place, runs into somewhat extreme elaboration, according to the local *Gazette*. The most prominent feature of the exterior is the tower and spire, rising to a height of 150 feet. The tower is square at the base, with angular buttresses; and from an octagon, several feet in height, rises the spire, crocketed at each angle with sixteen pinnacles at the base, and four large ones, with square buttresses, on the top of the square part of the tower. The chapel is 82 feet long and 54 feet wide; the extreme height of the interior being 45 feet. It affords accommodation for about 900 persons. The seats are of deal, stained and varnished; which is also the material of the roofs, doors, and other woodwork. The floor is laid with tiles, arranged in geometrical patterns. The sides and end are fitted up with galleries, entered by stone staircases: they are supported by light iron columns, which run up to carry the roof; with smaller columns grouped round them, and hammer-beaten metal foliage round the capitals. The fronts of the galleries are of framed woodwork, with quatrefoils and trefoils pierced through the panels. A small organ-gallery has been erected over the raised platform on which the pulpit stands; and behind which is the baptistery, lined with marble. The chapel is lighted by two tiers of side windows; the upper tier being under gables, with roofs intersecting the main roof; and by a six-light end window next to Bristol-road; these are all filled with tracery. In the rear of the chapel are three vestries, a library, a lecture-hall, 52 feet by 26 feet, a school-room of similar dimensions, besides necessary offices and kitchen underneath. The ventilators on the roofs are covered with lead: they have metal terminals and crockets, and stand upon a narrow lead flat, with fringes of ironwork on each side. The materials used in the chapel walls are Horton blue stone and Bath stone dressings. The schools are built with red and blue bricks, relieved by Bath stone dressings. The system of ventilation adopted is Muir's patent four-point ventilators, fixed upon a continuous air-chamber along the centre of the main roof, with air-valves inserted in the window-sills and other available parts of the structure. Muir's hot-air apparatus supplies the method of heating the building. The architect who has carried out the work is Mr. James Cranston, of Birmingham. The carving, which consists principally of natural foliage, conventionally arranged and grouped, was done by Mr. Philip Wood, of Lichfield; and the metal work by Mr. T. Brawn, of Birmingham. The builders were Messrs. Hardwick & Son, also of Birmingham. The cost of the building, exclusive of the site, was about 7,000*l.*

STAINED GLASS.

Oxford Cathedral.—A stained glass window, by Mr. E. B. Jones, has been placed in the east end of the Latin Chapel of Oxford Cathedral.

Sandy Church (Beds).—A stained glass memorial window has been placed in the south chancel window of this church, the restoration of which was recorded some twelve months back. The window is a memorial to the wife of the Rev. John Richardson, rector of Sandy. It is 10 feet high by 5 feet 9 inches wide, and divided into three long openings with mullions of stone, with five compartments in the tracery head. The top spandril contains the monogram of the deceased lady, entwined with a lily and surrounded with a background pattern of mosaic work and borders worked in deep colours, the other four compartments are filled with corresponding work of red and blue diapers with golden yellows and green intermixed. The three long openings are filled with six subjects, "The Acts of Charity" (Matt. xxv. 36), and are worked into flowing geometrical shapes. The first left-hand opening contains two subjects,—"I was hungry and ye gave me meat; naked and ye clothed me;"—the centre opening,—"Sick and ye visited me; a stranger and ye took me in;"—third opening,—"Thirsty and ye gave me drink; in prison and ye prayed to me." The backgrounds of the subjects are worked on diapered blue. The entire grounds of the window are formed of borders with trellis-work of red and

blue and other colours intermixed, with three medallions filled with flowing ornamental work of various colours. The artist was Mr. C. Gibbs, of London, who also recently executed the east window in All Saints' Church, Hastings, to the memory of the late Earl Waldegrave.

Great Mongeham Church.—A sister of the rector of Great Mongeham, near Deal, has lately presented four stained-glass windows to the church of that parish. The subject of the east window is the Transfiguration. The effigy of our Saviour occupies the centre light, having on his right the figure of Moses, and on his left that of Elias. At the feet of the Saviour is St. Peter, whilst St. James and St. John fill the lower compartments of the two other lights. In the tracery, consisting of a trefoil and two quatrefoils, are angels bearing labels, with Scripture texts as legends. The north window is filled with the figure of St. John the Baptist, and the south windows with figures of St. Peter and St. Paul, on a diapered background; the first representing the mission preparatory to the Gospel; the two latter, the Gospel preached throughout the world.

St. Martin's, Worcester.—Two memorial windows, by Hardman, of Birmingham, have been placed north and south of the chancel of this church. The subject of the northern window is "The Resurrection." The risen Redeemer, the principal figure, is represented bearing in his right hand a cross, and attired in white robes; the background being of ruby glass, spangled with stars. On either side are angels, and at the base the Roman guards. The whole is bordered with roses, on a ground of foliage. The window on the south side is erected to the memory of Miss Wheeler, daughter of the rector. It represents the presentation of young children to Christ. Our Lord is represented in a sitting position, his robes of dark blue and ruby; the disciples are arranged on either side, and in front are the children and their parents. The back is occupied by trees and foliage, and the bordering is similar to that of the opposite window.

St. Mark's, Anderston, Glasgow.—The representatives of the late Mr. Houldsworth have presented the new church of St. Mark's, now building in Anderston, with the memorial window which, through the influence of the local committee, was refused admission into the cathedral. Mr. Houldsworth was the last provost of the burgh of Anderston, and his father the first provost; and the family have always had a close connection with the congregation and parish of St. Mark's, and have still a large interest in that part of the city. "It will be recollected," says the *Glasgow Citizen*, "that the window thus disposed of was exhibited, some months ago, in the Queen's Rooms, and called forth almost universal admiration—connoisseurs generally admitting that, as a decorative adjunct to Medieval architecture, it was greatly superior to the windows from the school of Munich. Even Mr. Ballantine himself, who has the merit of producing this fine window, must be almost reconciled to the shabby treatment he received from our Glasgow committee, when he hears of its singularly appropriate destination."

A QUERY ABOUT GREY SLATE CISTERNS.

KNOWING the attention you have always paid to sanitary matters, I will not make any apology to you for mentioning the following circumstance:—Behind my house, which is situate near the Regent's Canal, Islington, is a cistern of slate, supplied with water by the New River Company. Since the spring has commenced, the impure state of the water has been remarkable; although the cistern is emptied, and thoroughly cleansed once a fortnight, and often once a week, the sides become covered with a thick coating of an emerald green coloured weed: this, with great rapidity, grows to a considerable length; and in a few days the water is so filled with this offensive-looking material, that it is unfit for use. Leaving it for a time, by way of experiment; using water in the meanwhile from the main; I found that it threw off a most unpleasant smell like the miasma which arises from stagnant ponds. On mentioning this circumstance to several persons, I find that those who have slate cisterns generally make the same complaint. At first I thought that the fault might in some way rest with the water: on, however, calling a few days since at Chelsea, I surprised a friend industriously engaged in scrubbing his slate cistern, fearing that if he did not take the matter in hand some of the children would be made ill.

Some think that it is better to leave the lid off the cistern: others are of a different opinion.

Some suggest that minnows, gudgeons, and other small fish, put into the cisterns, would help to purify the water. But then there is the risk of their getting into the pipes and causing a stoppage. The question as to what is the best material for cisterns is a matter of very great sanitary importance. Lead will evidently not do; would earthenware or glass, made of considerable strength, be better than slate? Or how would it answer to coat wood, or any other material, with galvanized iron? I, however, write to you, being quite puzzled in the matter, in the hope that this may be the means of causing the subject to be usefully ventilated in the *Builder*.

PATERFAMILIAS.

THE PAINTERS' COMPANY'S COMPETITION.

THE exhibition at the Painters' Hall, is most certainly, a step in the right direction; but, like many other newly-founded schemes, it requires improvement before it will bring forth fruit; or, in other words, call forth the energies of the class of workmen for whose particular benefit it has been instituted.

In the first place, why have the promoters chosen such unreasonable hours for the opening and closing of the doors of the hall?

The exhibition is to continue through June only: the doors open at ten in the morning and close at four in the afternoon; the most unlikely part of the day for workmen to have sufficient leisure to visit the collection; especially if they happen to live a mile or two from Trinity-lane. Consequently, the visitors must, in chief, consist of persons who have but little interest in the matter, while those who are principally concerned have the doors shut against them.

In the next place I would ask, are the judges chosen from practical men? Are the persons who awarded the prizes in the writing department themselves practical writers? Judging from what I saw, I feel convinced they are not. There is no distinction recognized between writing on glass and writing on anything else; yet, in fact, the manipulation of the two is so widely different that it becomes absolutely necessary to keep them apart in cases of competition for merit. To the inexperienced eye the glare of the one kills the excellence of the other.

A man may execute a passable piece of writing on glass, yet make a most wretched attempt on a board. The reason is this: in the case of glass writing, the letters are all cut up with a chisel and square, and the fine lines trimmed with a penknife; but in the other case, the letters must remain as they come from the workman's pencil, and they stand either a credit or dishonour to him. I do not undervalue the skill which is necessary in glass writing, but I do protest against its being the medium for testing the ability of the writer: and there is another thing to be considered before a just estimate of the relative qualities of several workmen could be formed; that is, the competitors should have the same work to do: the matter they write for exhibition should be chosen for them, not each one choosing for himself: some inscriptions admit of better arrangement than others, and some people are very apt (when deficient themselves) to borrow the ideas of others, and produce a copy of something they have seen somewhere else, and pass it off as entirely their own. I certainly think the only fair course would be to offer the first prize to the best specimen of a given inscription, in black letters on a white ground (or gold letters on a black ground), to be written on a board of certain given dimensions: let the promoters do this, and give a few weeks' notice in the *Builder*, and also the names of one or two thoroughly practical writers as part of the judges: they would then find their efforts met with success; and, as each year came round, fresh aspirants would enter the lists; and in a few years it might indeed be an honour to carry off the first prize for writing at the Painters' Hall. There might be a prize, also, for ornamental writing; another for ecclesiastical writing; and one for glass writing. There is no need for a number of silver medals or any other costly prizes: the honour is the prize; and that honour would be as acceptable if inscribed on a piece of parchment as it would on a few shillings' worth of silver. I believe it would cause regret to most writers should this movement die out; but I believe, also, that not one skillful workman in twenty will contribute his talent to the Exhibition until he has the assurance that excellence of manipulation, freedom of style, and good taste in arrangement, and not the glare of colours, will secure the highest honour a tradesman aspires to.

Should you, Mr. Editor, agree with these few remarks, and deem them of sufficient importance to appear in your paper; they might, perhaps, induce the originators to consider the subject before the next exhibition comes.

CHARLES GORDON.

ARCHITECTS' AND ENGINEERS' ACTIONS.

Hughes v. Vignoles.—*Court of Queen's Bench.*—Mr. M. Chambers, Q.C., and Mr. T. Jones appeared for the plaintiff; Mr. Hawkins, Q.C., Mr. Needham, and Mr. Shaw, for the defendant.

The plaintiff in this action, E. B. Hughes, is a civil engineer in Parliament-street; and he sued the defendant, C. Vignoles, the well-known civil engineer in Duke-street, Westminster, to recover the sum of 37*l.*; being the amount which the plaintiff claimed as his remuneration, at 2*½* per cent., for certain designs, &c., which he had prepared for the defendant, of a station at Bilbao, in Spain.

The defendant pleaded the general issue, and also paid 40*l.* into court, and denied any further liability.

It appeared from the plaintiff's evidence that he was a civil engineer, and had been employed under Mr. Watson, a railway contractor, to prepare some designs for the erection of a station at Bahia, in South America. The plaintiff, by hard work, and some assistance, completed two designs, with specifications, in about three weeks; sent them in; and requested the defendant to let him know which design was approved. No answer was received; and, when the plaintiff pressed the defendant to let him know which design was adopted, in order that he might proceed with the working drawings, the defendant put the matter off till his return from Spain. This occasioned considerable delay; but eventually, on his return from Spain, the defendant, instead of sending the plaintiff the particulars necessary to prepare the working drawings, wrote to him and asked him for his account; saying that short accounts made long friends, and that nothing could be done till the defendant knew what expense had been incurred. It turned out that the intention of erecting a station at Bilbao was abandoned for the present, and that it was determined to make use of a temporary one. The plaintiff wrote in reply that he was not prepared to make any charge for the drawings delivered, but that his charge would be the usual 2*½* per cent. upon the cost of the proposed station; viz., 15,000*l.* The defendant took no notice of this; and therefore, after some correspondence, the present action was brought. The plaintiff gave evidence that, when designs were prepared by an engineer, he was entitled, according to the usage, to make the working drawings; and, whether he did so or not, he was entitled to be paid by a per centage of 2*½* per cent. for the designs which he furnished. Several witnesses were examined to establish this usage, and that in preparing the designs it was necessary for the engineer to have arranged the details well in his mind. The plaintiff was cross-examined to show that he had undertaken with Mr. Watson to work for the defendant upon the same terms as he had done for him (Mr. Watson); viz., at the rate of a guinea a day, but the plaintiff positively denied that he had made any such arrangement.

The defendant and Mr. Watson were both called for the defence; and from their evidence it appeared that they had arranged together, and Mr. Watson had arranged with the plaintiff that he was to be paid a guinea a day; but, though both witnesses spoke to an interview at which all three were present, it did not appear that at that interview any mention was made of terms. The defendant called several witnesses to disprove the usage on which the plaintiff relied, and also to prove that the plaintiff had exaggerated the extent of his labour, and that one guinea a day would be ample remuneration. Several of these witnesses were clerks in the employ of Mr. Watson, who had had a quarrel with the plaintiff; but the last witness called by him, who appeared to be a respectable and independent witness, valued the designs at from eighty to one hundred guineas.

The trial terminated by the jury finding a verdict for the plaintiff for eighty guineas, in addition to the amount paid into court.

Books Received.

A Treatise on the Steam-Engine; with Theoretical Investigations and Practical Instructions for the Manufacture and Management of every species of Engine in actual use. By JOHN BOURNE. Fifth edition. London: Longman & Co. 1861.

HAVING heretofore given a favourable notice of Mr. Bourne's standard work on the steam-engine, almost all we need now do is to note its progress into a fifth edition. Though professedly a reproduction of the treatise by the "Artisan Club," the additions and emendations of the original treatise are so numerous and extensive as to render the work substantially a new one by Mr. Bourne, who now declares it to have assumed the most complete shape he is capable of giving it. The present edition is prefaced with an address to Mr. James Kennedy, of Liverpool, the president of the Institution of Mechanical Engineers, of whom the author says,—"The outside world has yet to learn how much the success of the early locomotive is attributable to your intervention; when, as foreman of the late George Stephenson, you remodelled its structure, and introduced those improvements which established it in public favour on the Stock and Darlington Railway." We have then another "maturer of the locomotive" to add to the list of those to whom the public is indebted for the modern system of locomotion. By the way, we would have liked to have seen something more about locomotion on common roads in Mr. Bourne's work than he has as yet devoted to it: as it is, there is little or nothing except as to the traction-engines actually in use.

On Heat in its relations to Water and Steam; embracing New Views of Vaporization, Condensation, and Explosion. By CHARLES WYKE WILLIAMS, A.I.C.E. Second edition, revised and extended. London: Longman & Co. 1861.

THIS is another work already favourably noticed in the *Builder*, and hence now requiring only a brief note of progress. Mr. Williams's speculations are very ingenious; and, as we have before said, are well worthy of consideration amongst scientific men and philosophical investigators into the physical economy of nature. One very notable and practical idea which Mr. Williams conceives he has established is, that, when heat is applied to water, it converts the water into steam, which for a time mechanically mixes with the water as gases do; but that the water itself does not thereby become hot; so that (to give a popular illustration of the idea) the heat of boiling water, for example, must be contributed to substances boiled in it, not by the water, but by the steam which is mixed with it, though escaping from it. And so, consequently, with respect to the important and practical question of

the condensation of steam in water: the steam ho regards as still mechanically mixing with the water till its heat be dissipated, when of course the steam becomes water, as it is popularly supposed to do when first absorbed or condensed by or in the water. We cannot here enter speculatively into the various interesting questions started by Mr. Williams, and can only direct attention to them so as to aid in exciting discussion in scientific circles on the subject. Mr. Williams's speculations, we have not the least doubt, will long survive their author, who is now an octogenarian, but who has devoted something like half a century to their elaboration. The new edition contains a good engraving from a photographic likeness of the author.

Miscellaneous.

THREATENED DEMOLITION OF MERTON COLLEGE, OXFORD.—Notwithstanding the exposure already made, this threatened vandalism appears to be persisted in. The strongest protests should at once be forwarded. The council of the Oxford Architectural Society have presented an address, pointing out, as to the buildings in question, "that they are the only remains of any collegiate buildings of so early a date as the fourteenth century existing in the whole of Europe;" and "expressing a hope that some arrangement may be made by which these interesting buildings may be preserved." We received a strong letter on the subject from a correspondent signing F. S. A., but it was too late for insertion.

MADAME CATHERINE HAYES'S CONCERT.—Madame Catherine Hayes, one of our few really great singers, gave her first *matinée musicale*, on Tuesday, June 26th, at the house of Mrs. Rawson Reid, in Park-lane. The rooms, good ones for ordinary purposes, were crowded to the extent of impending apoplexy. Madame Hayes sang, with the power and feeling that belong to her, "*Com' è bello*," from "*Lucrezia Borgia*," two songs by Virginia Gabriel ("Maureen," and "The Fisher's Bride"), besides part in two quartets; and was ably supported by Madame Sainton-Dolby, Mdlle. Whitty, Mr. Tennant, Mr. Jules Lefort, and Herr Femore. Miss Arabella Goddard played Handel's "Harmonious Blacksmith," with marvellous delicacy and taste; and afterwards a duet with Signor Regondi and his concertina. It was an irreproachable and charming morning, showing the taste of Madame Hayes as a caterer, as well as her skill and great accomplishments as an artist.

YARMOUTH SCHOOL OF ART.—The distribution of prizes took place on the 18th June, the deputy mayor in the chair. The chairman stated that the list of this year, as regarded medals and prizes, was larger, and, therefore, more gratifying than the list of any previous year of the five during which the School had been open. It had been expected, however, when this School and the School of Navigation were established, they would have become self-supporting at the end of three years; but he regretted to say this was not even yet the case, although he could not but believe that in a year or two it would be so. The chairman then distributed the medals,—15 in number, and the prizes, amounting to 10*l.*

THE LATE PROFESSOR EATON HODGKINSON.—On the 18th of June, at Broughton, Mr. Eaton Hodgkinson, professor of mechanics and engineering in University College, London, expired, after a tedious and lengthened illness. Mr. Hodgkinson, as our professional and other readers well know, had become an authority of European fame on the properties of iron, cast or wrought, with regard to its applications in architecture and engineering. He was born at Anderton, near Northwich, in Cheshire, in 1789; and, in early life, became devoted to mathematical studies. At Manchester he first turned his attention to the subject of the strength of materials; in investigations carried on at the expense of Mr. Fairbairn, whose own investigations he greatly assisted; and also by means of grants from the British Association for the Advancement of Science. The data for the construction of the Britannia Tubular Bridge were provided to Mr. Stephenson by Mr. Hodgkinson, to whom Mr. Fairbairn referred him. The nature of Mr. Hodgkinson's discoveries may be gathered from his edition of "Tredgold on the Strength of Cast Iron and other Metals," and its supplementary volume, as well as from other publications, our own pages inclusive. Mr. Hodgkinson was a fellow of the Royal Society, and an honorary member of the Royal Institute of British Architects, and of the Institution of Civil Engineers.

INSTITUTION OF CIVIL ENGINEERS.—On March 19 and 26, and April 9, Mr. Bidder, president, in the chair, the discussion upon Mr. Murray's paper "On the North Sea, with Remarks upon some of its Estuaries, Rivers, and Harbours," occupied the evenings.

THE WALLACE MONUMENT.—On Tuesday, being the anniversary of the Battle of Bannockburn, the foundation-stone of the Wallace Monument was laid upon the Abbey Craig, near Stirling. The monument, as our readers know, is to be an imitation of a Scottish baronial tower, 200 feet high and 36 feet square. The site is one which commands a magnificent view of the castle rock of Stirling, and the picturesque reaches of the Forth. A view of the proposed monument will be found in our last volume.

DEATHS THROUGH DEFECTIVE VENTILATION.—An inquest has been held at Macclesfield on the bodies of two children who have died from diarrhoea, attributed by the medical witness to the unwholesome dwelling inhabited by the family. The locality is Pott's-yard, Bridge-street. The rooms occupied are at the rear of several cottages fronting to Shaw-street, and would naturally be taken to be the cellars of the cottages alluded to. The two children and their mother had not lived in the place a fortnight. Prior to that time it had been closed for six or eight months, the last person occupying it having died after a few days' illness. The walls, especially those of the bedroom, were almost saturated with damp; whilst the back yard, as the neighbours averred, was sadly deficient in sanitary provision. The medical witness stated that he had no hesitation in saying the children had died from diarrhoea consequent upon living and sleeping in a damp ill-ventilated cellar without proper covering. The place was not fit for any one to live and sleep in. The jury returned a verdict of "Death from natural causes," in accordance with the medical testimony.

ARMORIALS IN ARCHITECTURE.—A correspondent of *Notes and Queries*, Mr. Carey, writes,—"The information that you were so kind as to furnish respecting the arms of Henry of Blois, the founder of the hospital of St. Cross, has led to a singular discovery. There is on one of the arches in the oldest part of the church a very remarkable moulding, having something the appearance of a Greek fret. It was evidently original work, and not inserted subsequently. Hence the question arose, 'What has that Classic moulding to do in a building of the twelfth century?' But it is now evident that what was supposed to bear the likeness of a Grecian fret was in fact taken from the *cotise potencie*, forming part of the arms of the founder. It is stated that coats of arms were not used in the way of architectural ornamentation till after the twelfth century. The present instance appears to illustrate one of the first steps that led towards their being applied to that purpose. It would be interesting to ascertain whether, in any other building of about the same date, there are any architectural devices to be found that can be traced to armorial bearings?—Some of our readers may be able to say.

METROPOLITAN WATERS, MAY, 1861.—The unusual dryness of May has exercised a purifying action on the waters supplied to London for domestic use, according to the analyses of Dr. Robert Dundas Thomson, F.R.S. For the sake of comparison the composition of the water introduced into Glasgow from Loch Katrine, as analyzed in March last, and that of Manchester, examined at the same period, is appended, together with the constitution of a surface London well contaminated by sewage:—

	Total Impurity per gallon.	Organic Impurity per gallon.
grs. or deg.	grs. or deg.	grs. or deg.
Distilled water	0.0	0.0
Loch Katrine water, new supply to Glasgow	2.35	.605
Manchester supply (March) ..	5.33	.980
Well at Camberwell	62.67	10.69
THAMES COMPANIES.		
West Middlesex	17.32	.64
Grand Junction	17.41	.80
Chelsea	17.52	.92
Southwark	17.39	1.38
Lambeth	16.69	1.26
OTHER COMPANIES.		
New River	18.96	0.76
East London	20.0	1.88
Kent	23.64	1.20

The table is read thus:—Loch Katrine water contains in the gallon 2.35 degrees or grains of foreign matter in solution, of which .605 degrees or grains are of vegetable or animal origin.

GAS.—In accordance with a clause inserted in their recently obtained Act of Parliament, the Swansea Gas Company have just reduced the price of gas from 6s. 10d. to 4s. per 1,000 cubic feet. This reduction, remarks the *Cambrian*, will doubtless cause a very large increased consumption. The Athy Gas Company, according to the *Leinster Express*, has just paid a dividend of 6 per cent.

PRODUCTION OF PURE ALUMINA.—M. Louis le Chatelier has patented an invention which he anticipates will remove the difficulty of obtaining alumina economically. He employs a mode of precipitation which, at the same time that it produces alumina by means of substances abundant in nature or in the arts, gives another substance, which possesses a value sufficient to pay at least a part of the expense of manufacture. He also employs the sulphate of alumina in a state of solution, or paste, without the necessity of bringing it to a solid state. The principal re-agents used are magnesia, sea-salt (chloride of sodium), and sulphate of barytes.

THE NEW RIVER.—This stream, which for so many years has run through "merrie Islington," has been drained off, and the bed of the river presents just now anything but a pleasing appearance. Probably, when the great water-pipes are laid down and the surface levelled, we shall have, instead of the running water, shrubs and flowers. The change will protect the water from a good deal of contamination by smoke and dirt. Nevertheless, we miss the water, particularly in front of the house which was formerly occupied by Charles Lamb. This pleasant and kindly writer liked the New River, notwithstanding that a friend who had called to visit him, on departing, walked into it by mistake, instead of keeping on the proper path; and it was with difficulty that the worthy was fished out by the vigorous servant-maid. A last peep at the bed of the New River in this part recalls recollections of the struggles and difficulties of Sir Hugh Myddleton in carrying forward and completing this great work.

A SUGGESTION AS TO CHIMNEYS.—Sir: My kitchen chimney being very wide at bottom, and smoking badly on windy days, led me to observe that, at such time as the smoke drew off, the wind seemed to come down the one side, while the smoke rose at the other; from which I thought that, if the chimney was divided, by means of terra cotta or other clay flue-linings, having a thin withe in the middle; or by means of a withe of pottery built in the brickwork; leaving a small chamber at bottom; a complete syphon would be formed to draw off the smoke gradually as it generated, and preserve our old English fireplace from being reduced in size to the diminutive openings with narrow throats to cure smoke (and drive the fuel up the chimney). Many prefer the ancient fire-dog with open fire, in which case this system might prove useful. Perhaps you will kindly insert this in your valuable journal; and in these days of enterprise some one may be disposed to give it a trial.—L. J. L.

SANITARY STATE OF BEDFORD.—In the annual report of Mr. Simon, the medical officer of the Privy Council, on the proceedings of the year 1860, are some remarks on the state of Bedford, from which we may quote a few passages. Cesspools, unfortunately, are almost universal, and they are constructed so that the liquid may soak away from them rapidly into the surrounding soil, a local Act "forbidding the drainage of any cesspool matter into the sewers." The wells from which the inhabitants drink, mostly shallow, are frequently in close proximity to these cesspools. The sewers and drains, also, are described as not properly constructed; and, in some instances of sewers at little depth, foul liquid filters through them into the cellars of houses. In short, almost the entire system of sewers, drains, and cesspools, is one of percolation and saturation of the soil; and it is almost impossible, with the liquid refuse of 13,000 people constantly passing into such a limited body of water as is in these few feet depth of gravel, that any portion of the supply could escape more or less pollution. Bedford may suddenly become the seat of some very violent outbreak of disease. Mr. Austin, the principal engineer of the Local Government Act Office, reports that nothing but a new and complete system of drainage and water-supply will bring the town into a proper state; but that there would be no difficulty whatever in the execution of the works. Mr. Simon states that, at Christmas last, the Town Council had determined to appoint a committee of their body to report on the drainage of Bedford; but that no information had been received of the results of that measure.

LIQUID GLUE.—In reference to a recipe in our columns of 1st June, extracted from the *New York Tribune*, a correspondent, Mr. L. M. Wolfe, of Westbourne-terrace, informs us that he has tried the recipe, and found it to be a valuable one. He states, however, that 5 drams of nitric acid suffice for 8 ounces of the best glue dissolved in half a pint of water; the nitric acid, or aquafortis, to be added slowly, with constant stirring; and the liquid glue to be kept well corked.

PUBLIC WORKS IN INDIA.—The competitive examination for appointments in 1861, in the civil engineer establishment of the Public Works Department in India, took place on the 3rd of June, and four following days, at the India Office. The examiners were Professor Cape, M.A., F.R.S.; Lieut.-Colonel Auchterlony, Madras engineers; and Mr. George Preston White, C.E. Thirty-two candidates presented themselves for examination; of whom, we understand, eleven have been selected for appointments.

THE DESIRED ROAD ACROSS HYDE PARK.—With reference to the proposed sunk road through Hyde Park at its junction with Kensington Gardens, Mr. Harry K. Newton writes that he last year suggested "carrying a low level roadway (3 feet lower than surface of water), through the centre of the piers of the bridge crossing the Serpentine; so as to prevent the nuisance of public traffic crossing the thoroughfares at the most pleasant part of the Park and Gardens."

MISSION STATION, SHOREDITCH.—A Mission Station, or School Church, has been erected at Old Nichol-street, Church-street, Shoreditch. The walls are built with the patent perforated bricks, and tuck-pointed Bath stone dressings to door and window openings. The roof is stained. A skylight is framed in the roof, on each side of the ridge, and glazed with rough plate: the opening is 2 feet 8 inches by 40 feet. There are two vestries and offices. The room is capable of seating 500 persons. The cost of the building, including seats, &c., has been 1,000*l.* (exclusive of the ground). Mr. T. G. Tolley was the builder.

MANCHESTER ARCHITECTURAL ASSOCIATION.—At the last meeting of this Association, Mr. Jos. Shaw read a paper on "Gothic Architecture." The essay opened with a review of the peculiar beauties of the various periods of Gothic art, and the causes which led to the gradual transition from each style to that which succeeded it; it being urged that such changes did not result from the eager love of novelty which characterizes the present age, but from a sincere and earnest love of artistic truth and beauty; and that, until we have attained an intimate knowledge of the works of our forefathers and masters in the art (not only in general effect, but in the refinement of their detail), we can never hope to excel their productions. The views which had been brought forward were discussed by the members; and, in connection with the present position of art-workmen, it was suggested, and the idea generally approved, that a drawing class be formed for them, under the direction of the Association.

ST. ALBAN'S ARCHITECTURAL SOCIETY.—The annual meeting of the St. Alban's Architectural and Archaeological Society was held in the Assembly-room of the Townhall. The walls of the room were hung with rubbings of monumental brasses, &c.; and in the room was a collection of coins, casts, impressions of seals, and other antiquities. The attendance was both large and fashionable. The Earl of Verulam presided. The secretary read the minutes of the last meeting which were confirmed and signed by the chairman; and also the annual report, which alluded to the operations of the society for the past year, and the interesting papers which had been read on subjects of local interest, of which "College Architecture" had been one. The Rev. Dr. Nicholson, in alluding to the gradual accumulation of earth on the north transept of the Abbey, said the workmen had brought to him from time to time coins which they had dug out. They first brought to him a coin of George III., then of George I., then of Charles II., and then they got to a St. Alban's token prior to that day. They afterwards found coins of Henry VI. and Edward I. Lastly, they discovered at the basis a seal which he now produced, which represented our Saviour *in nimbus*, with a Latin inscription. The discovery of these proved that there had been an accumulation of earth for many centuries. The officers of the society were then re-elected. The Rev. R. Gee, M.A., then read a paper "On the Needlework of Earlier Ages." Mr. A. Ashpitel, F.S.A., explained the new invention in the art of Tapestry, by which a great saving of time and labour is effected.

COST OF ENGLISH WORKHOUSES.—The Poor-Law Board state, in their report, that, since 1834, at least 5,000,000*l.* have been expended in building new union workhouses in England and Wales; and the same report shows that the mean number of inmates in the workhouses averages as low as between 110,000 and 120,000.

CENSUS OF 1851.—The increase of population in the parish of Islington, since the census of 1851, is 59,962. As a single parish, the increase is greater in Islington than in any of the London districts. Kenington has increased 66,459, but this district contains the Fulham and Paddington unions. The East London, West London, and City have decreased 15,804; Strand, 1,461; Holborn, 1,760. Several other central districts have decreased slightly, while nearly all the outlying districts have increased.

CLASSIFIED LISTS OF TRADES: INTERNATIONAL EXHIBITION OF 1862.—A shilling pamphlet containing "Alphabetical and Classified Lists of the Trades in the United Kingdom," has been issued by the Exhibition of 1862 Commissioners (office, 45, West Strand), and is sold by all booksellers. The lists show the number of the class or subclass of the industrial sections in which the exhibitors' productions will be arranged. Besides, their obvious use, however, in thus suggesting how each trade may represent itself in the new Exhibition, these lists have an interest of their own in showing how minutely the industries of the United Kingdom are subdivided. The lists are still subject to correction, and suggestions are invited. The alphabetical list comprises about forty-four pages, with about seventy entries on each page; so that already there must be entered about 3,000 distinct trades, beginning with accordion makers, and ending with zinc workers and drawers.

TENDERS

For new mill, engine and boiler houses, skutch building, chimney, &c., at Salterhebble, near Halifax, Yorkshire, for the Kiercott Cotton Spinning Company. Messrs. J. E. & J. D. Oates, architects. The company deliver on the ground all bricks:—

Brickwork and Masonry.	
Waterworth	£6,043 9 4
Rawnsley	5,890 0 0
Pratt	5,650 0 0
Sykes	5,566 6 7
Farrar	5,500 0 0
Birkby & Holdsworth	5,420 0 0
Charnock & Booth	4,435 14 5 1/2
Siddle, Brothers (accepted)	4,840 0 0

Carpenter's and Joiner's Work.	
Townsend	£2,153 11 11
Fox	1,966 0 0
Pulman	1,950 0 0
Scott & Climer	1,948 0 0
Dyson & Son	1,940 0 0
Kershaw & Noble	1,887 0 0
Frith & Co	1,861 9 0
Lister (accepted)	1,799 8 0

Ironfounder's and Smith's Work.	
Walker	£1,835 0 0
Head, Ashby, & Co.	1,660 0 0
Pearson	1,413 14 0
Crosland	1,385 0 0
Cliff	1,356 9 4
Stead	1,240 0 0
Bates (accepted)	1,200 0 0

Plastering.		Slatting.	
Taylor, R.	270 0 0	£290 0 0	
Taylor, J.	258 18 8 1/2		
Rancroft	251 12 0	306 6 0	
Taylor	247 0 0	259 0 0	
Webb	245 0 0	283 0 0	
Hole	233 0 0		
Sanderson		308 0 0	
Ellis (accepted)		226 15 0	
Ambler (plastering and slating)		£500 0 0	

Plumbing and Glazing.	
Horsfall	£429 0 0
Walsh (accepted)	410 0 0

Whole Tender.	
Neill	£10,460 0 0

For improving the wharf and dock belonging to the Bourne Valley Pottery Company, Nine Elms, Vauxhall. Mr. James Harrison, architect. Quantities supplied by Mr. A. W. Q. Nicoll:—

Jackson & Shaw	£530 0 0
Sharon	500 0 0
Williams	397 0 0
Coleman	365 0 0
Gates (accepted)	335 0 0

For wash-house, laundry, &c., at the Eastern Refuge, Spitalfields. Mr. James Harrison, architect. Quantities not supplied:—

Falmer	£570 0 0
Maers	515 0 0
Little	497 0 0
Hill	493 0 0
Smith	473 10 0
Perry	470 0 0

For new south aisle and presbytery, at St. John's, Hackney. Messrs. Hasckey & Nicholl, architect:—

Kelly (accepted)	£1,232 0 0
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For seven cottages, at Southgate, Middlesex. Mr. James Harrison, architect. Quantities not supplied:—

Kerry	£1,200 0 0
Newby	1,195 0 0
Farr	1,181 0 0
Cushing	975 0 0
Carter	950 0 0

For additions to the Oratory, Edgbaston, Birmingham. Mr. Henry Clutton, architect. Quantities by Mr. Crocker:—

Myers	£3,350 0 0
Pritchard & Shelton	2,850 0 0
Barnesley & Son	2,880 0 0
Branson & Gwyder	2,735 0 0

For roads, Eversfield Estate, St. Leonards-on-Sea. Mr. F. H. Fowler, architect:—

Howell	£1,111 0 0
Aches	1,082 0 0
Kenwood	1,073 0 0

For house, Hollington Park Villas, St. Leonards-on-Sea, for Major W. S. Stuart. Mr. F. H. Fowler, architect. Quantities by Mr. Smithers:—

Harding	£2,407 0 0
Ellis	2,329 0 0
Harman	1,998 0 0
Howell	1,795 0 0
Hughes	1,770 0 0
Kenwood	1,738 0 0
Parks	1,697 0 0
Jones	1,694 0 0

For a villa, at Battersea, for Mr. John Johnson. Mr. G. H. Simmonds, architect:—

Piper & Son	£3,297 0 0
Jacobs	2,900 0 0
Outwaite	2,875 0 0
Read & Son	2,842 0 0
Ashby & Horner	2,800 0 0
Wood & Sons	2,773 0 0
Bass	2,750 0 0

For repairs to tower of Church of St. Michael, at Plea, Norwich. Mr. Barry, architect:—

Stanley	£225 0 0
Rust	220 0 0
Lacey	220 0 0
Lloyd	198 13 0

For building an Independent Chapel at Ryton. Mr. John Tillman, architect:—

For Chapel.		Boundary Wall, &c.	Total.
Davison	£772 0 0	£79 0 0	£851 0 0
Thompson & Young			693 0 0
Place			673 0 0
Gowland	441 10 0	63 0 0	504 10 0
Lee (accepted)	416 0 0	78 0 0	494 0 0

For the erection of storehouse, carpenter's shop, &c., at the Fulham Works, for the Imperial Gas-light Company. Mr. F. Edwards, architect. Quantities by Welch & Atkinson:—

Ashby & Horner	£1,170 0 0
P. & C. Paterson	1,146 0 0
Patrick & Son	1,137 0 0
Mansfield & Son	1,128 0 0
Patman & Fotheringham	1,125 0 0

For alterations and repairs at the "Rising Sun," Easton-road, for Mr. Turnham. Messrs. Finch Hill & Farquar, architects:—

Hodges & Co.	£2,176 0 0
Lawrence	1,859 0 0
Mathews	1,835 0 0
Fowler	1,749 0 0
Jefferies	1,483 0 0

For erecting Independent Wesleyan Sunday Schools, Crescent-road, Plumstead. Mr. J. Fisher, architect:—

Tongue	£770 0 0
Lidbetter	675 0 0
Bennett (accepted)	400 0 0

For building house, at the Woodlands, Wandsworth, for Mr. F. Williams. Mr. W. Lee, architect:—

Wilson	£3,175 0 0
Newman & Mann	3,040 0 0
Freeman	2,900 0 0

For works at Baker's Farm, Kempston, near Bedford. Mr. W. Watson, architect:—

Convin	£1,340 0 0
Day & Son	1,338 0 0
Bryant & Co.	1,324 0 0
Harrison	1,276 17 0
Conquest	1,260 0 0
Joy	1,193 0 0
Freshwater (accepted)	1,185 0 0

For alterations at Pickle Herring Upper Wharf, Tooley-street, Southwark, for Messrs. Beresford & Elmslie. Messrs. Newman & Billing, architects. Quantities not furnished:—

Wells	£1,289 0 0
Thompson	1,274 0 0
Coleman	1,195 0 0

For painting and repairs at 134, Westbourne-terrace. Mr. Horace Jones, architect:—

Bell	£298 0 0
Clemence	287 0 0
Goodwin	250 10 0
Phillips	224 0 0

For repairs and decorations at 3, Albion-road, Holloway, for Mr. Wright. Mr. L. H. Isaacs, architect:—

Bywater	£177 0 0
Goodwin	147 0 0
Sansum	125 10 0

For church (including tower and spire proposed), Upper-street, Islington. Mr. T. C. Clarke, architect:—

Batterbury	£3,046 0 0
Mansfield & Co.	5,798 0 0
Ashby & Sons	5,792 0 0
Patman & Co.	5,077 0 0
Higgs	5,072 0 0
Browne & Robinson	5,533 10 0
Dove, Brothers	6,285 0 0
Axford & Co.	5,264 0 0
Carter	4,660 0 0

For the erection of the first portion of the church of St. Bartholomew, Havelock Park, Southen. Messrs. Goodwin & Butcher, architects. Quantities supplied:—

Sharpinson & Cole	£3,139 0 0
Wilkins & Bottom	2,892 0 0
Dove, Brothers	2,695 0 0
Ellis	2,674 0 0
White (accepted)	1,950 0 0

For taking down and rebuilding the church at Harpenden, Herts. Mr. William Slater, architect:—

Biggs & Son	£5,779 19 0
Conquest	4,950 0 0
Carter	4,890 0 0
Conquest & Brown	4,882 0 0
Jackson & Shaw	4,505 0 0
Foster	4,494 0 0
Elkins & Sons	4,435 0 0
Rady	4,380 0 0
Brown	4,300 0 0
Cushing	4,300 0 0
Haynes	4,295 0 0
Arnold	4,278 0 0
Young	4,050 0 0
Williams (accepted)	4,000 0 0

For two shops and one public-house, to be built at Bromley, in Kent, opposite the railway station, for Mr. J. Brothers, architect:—

Jeff, Brothers	£1,020 0 0
Morris	9 17 0
Chatter	5 30 0

TO CORRESPONDENTS.

C. P. P. (the suggestion is not a new one).—B. G.—A. B. C.—M. M. (next week).—M. F. (editorial notice to one who can use the building).—J. H.—M. V. A. (should send his name).—E. H. C.—Messrs. H.—J. T.—F. W. (next week).—W. M. R. (thanks).—J. H. (we know of none that can be recommended).—T. B. Q.—Alpha (we are forced to decline advising in such matters).—B. A. P. (the table is not necessary).—T. B. S.—W. & A.—T. B. G.—P. R. W.—D. E.—J. R.—An Old Subscriber.—T. R. S.—F. G.—H. R. (the first plan would make the more permanent work).—D. & Co.—G. H. S.—G. B.—W. C. T.—A. F. (we cannot comply).

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A View of Kingston-upon-Hull.

"Without base flattery or false-cry'd words,
To mouldy madams, or unworthy lords;
Or whatso'er degree, or townes, or nations:
I ever did and still will scorn such fashions
Hearsay, sometimes vpon a lye may light,
But what I see and know I dare to write,
Mine eyes did view, before my pen set downe
These things that I have written of this towne."

John Taylor, the water poet's "very merry wherry
ferry voyage to Hull, 1632."



At the west bank of the river Hull, where its placid waters keep tryat with the broad ripples of the Humber, and thenceforth flow—two loving streams in one—towards the sea, stood the small port of Wyke. This seaport, doing a modest trade in the export of wool and import of wine, found favour in the sight of Edward I., and was enfranchised by him under the name of Kyngeston-scur-Hull. Hereupon new roads were made; a ferry was established; a mint and four furnaces were set on foot; a harbour was formed; embankments thrown up; and the foundation laid for that increase of commerce which Hull has ever since enjoyed.

Not long afterwards the king, journeying northward, came some miles out of his way to inspect the condition of the newly-created borough; and, although this visit was but of short duration, the effects of it were soon visible in the various improvements by which it was succeeded; being more especially shown, perhaps, in the paving of the streets. The clumsy and fantastic ships of this old time brought home large stones as ballast, and with them the energetic Corporation paved their prosperous town:—"At such time as al the trade of stokfish for England cam from Isleland to Kingstoun, bycause the burden of stokfish was light, the shipes were ballesed with great coble stones brought out of Isleland, the which yn continuance paved al the town of Kingstoun thorough-out."

This account of the benefits accruing from a royal visit of inspection suggests a consideration of the very important results that would be attendant upon a similar progress made by our gracious Queen. If our chief towns were in the annual expectation of a visit from her Majesty, with a sanitary commission in her train, invested with the necessary powers, the authorities of each would be vying with the other to secure the royal approbation; and the bickering of cliques, which, in too many instances, delay the progress of sanitary improvement, would be absorbed in a general determination to present the most thorough completeness.

The revival of the art of brickmaking is claimed by Hull, and the fact of the magnificent parochial church of the Holy Trinity having been found to be built partially of brick, beneath its casing of stone, goes some way to prove this assumption correct. It appears that bricks, under the name of wall-tiles, were in common use in Hull in Henry VI.'s time; and Queen Elizabeth passed a decree which made them still more in vogue:—"No person thereafter theake or cause to be theaked any house, tenement, or stable in Kingston-upon-Hull in part or in all with straw, reade, hay, or otherwise than with theake tyle under penalty of ten pounds." The manufacture of the modern

mantle of brickwork—cement—is now carried on to an immense extent. Vast cargoes of fine plaster and Roman and Portland cements are exported by Messrs. George & Thomas Earle to Russia; and besides, there is great supply manufactured for home consumption. Hull also claims the credit of having originated the Greenland whale fisheries, two ships having been fitted out from this seaport in 1589. As many as sixty whaling ships, in the course of a season, have sailed from Hull; but, owing, perhaps, to the use of gas, Colza, and paraffine oils, and to metal hoops having superseded whalebone, this branch of maritime commerce is nearly extinct. It has, however, been provided with a traffic of still greater extent, Hull being the second centre on the eastern coast for the ocean steam packet service. Iron ships, too, are now constructed here for the Baltic and Russian trades, concerning which we shall have more to say hereafter.

The principal modern commerce consists in an immense import and export trade: countless bales of cotton, forwarded across country from Liverpool, are exported to Sweden, Russia, and elsewhere: salt from Cheshire is shipped in enormous quantities; sheep-skins, sheep's wool noils, linens, painters' colours, varnish, antifriction grease, mill grease, "muncibona," bone size, stoneware, earthenware, hardware, haberdashery, turnery, machinery, India rubber manufactures, photographic apparatus,—even such out-of-the-way commodities as perambulators and mother-of-pearl,—are sent out in bales, in bags, in bundles, in baskets, in packages, in cases, in casks, in kegs, in piles of such dimensions as leave the spectator capable of entertaining no other conviction than that a new world has been discovered which requires "fitting up" immediately.

The import trade is still extending itself:—the tonnage entering the port during the past year being 1,212,521 tons—an increase of 74,332 tons over that of the preceding year. Canada and the Baltic ports send timber: America, the south of France, Russia, and the Baltic send wheat: Denmark, Sweden, the Rhine, and the Saale and Elbe districts send barley, besides oats, peas, and beans. Red and white clover seeds that have ripened on the broad plains of Germany, the north of France, and America; linseed from the Black Sea, from Bombay, Petersburg, and Königsberg; rape-seed from Dantzic and Stettin; tar from Finland; olive oil from Italy; prunes from Bordeaux; oranges from St. Michael's; currants from Patras; tea and sugar; wines and spirits, cattle-bones and ash, flax, tow, codilla, hemp, shoddy, spelter, bloom iron, ultramarine, basket rods, bark, bran, pollard, bulrushes, and "sundries" are all unshipped, side by side, on the quays of Hull, and thence distributed over the kingdom, or, in a manufactured state, again shipped for exportation. Some idea of the traffic thus created may be gained from the consideration of one single fact—that 523,790 quarters of linseed were imported last year from the districts above named; and as many as 19,352 tons of oil extracted from linseed were exported to Rotterdam, Hamburg, Dunkirk, Rouen, Caen, Christians, Stockholm, Montreal, &c. The ships carrying on this sea traffic for the most part belong to Hull, being owned by such merchant princes as the late mayor, Z. C. Pearson, Thos. Wilson & Sons, Brownlow & Lumsden, and Gee & Company. Then there is a large amount of wealth realized in the trades that are carried on with the agency of mills: thus we find, besides the mills for crushing the various oil-yielding seeds, in the neighbourhood of which the air is unctuous with an aroma as of oil-cake and cattle food, into which the residue is prepared,—mills for sawing timber and veneers; mills for grinding corn and colours; mills for grinding bones; and mill-stone makers—from the French burr.

The approach to Hull by railway, past the town of Selby, famed for its ancient, extensive, and beautiful parish church, is extremely prepossess-

ing. It is along some miles of a slightly embanked avenue of trimmed trees, whence there is a prospect of the Yorkshire wolds on one side and of the dimpled wavelets of the Humber on the other. The favourable impression is confirmed when the neat and commodious terminus is gained—which is light and airy, with peculiar roof-work like an entanglement of iron cobwebs—and we enter the very handsome Royal Station Hotel. And here we would applaud, generally, this modern feature of railway management—first-class hotels in addition to the conveniences of a terminus—where travellers or visitors may sojourn at ease, free from the commercial buzz of the heart of the town. Of this particular Royal Station of Hull we would speak in terms of praise: we find the plan, like the interior of a grand palazzo Romano, to consist of a large and lofty central covered entrance saloon, having arched corridors on four sides, whence the different public and private apartments, and the staircases of access to them, are readily visible: although in process of embellishment, the interior was replete with almost regal comfort and accommodation.

When we leave the hotel or the terminus, the favourable impressions they have created are dispelled by the unpromising aspect of the streets of entry to the town. The first is a street occupied on one side with a series of ephemeral erections for strolling photographic artists, and box-like shops on wheels, some occupied, others closed, backed by the rear view of "Wilson's Buildings," and on the other side by a timber-yard and a row of small Gravesend-looking lodging-houses, dignified with the name of Station-terrace. Farther on, when this same line of road has raised greater expectations by assuming the name of Paragon-street, we come upon a huge magnified dolls' house, with deep-blue paper curtains to the windows, which the posters, with which it is placarded—announcing the prospective arrival of our admirable tragedians, Mr. and Mrs. C. Kean,—proclaim to be the Royal Queen's Theatre. This building, since the destruction of the Theatre Royal the only one in the town, is both common and tasteless; and is surrounded with the bleary shops peculiar to the neighbourhood of a theatre,—supper-rooms, oyster-rooms, and cigar depôts. Then we pass the Paragon Carriage works, where we note the latest style of dog-cart and other saucy equipages occupying the pavement of approach to the boxes, pit, and gallery. Then the Paragon Stables, with Paragon-buildings over them, then the Paragon Inn: except that this thoroughfare is well paved, and except for the Egyptian-fronted and yet business-like cabinet manufactory of the Messrs. Andas & Leggott, the aspect of this street certainly belies its name, and is unlike what that of the approach to a large and thriving town should be. In continuation of, and still in line with, this self-vaulting street, we come to a junction of Chariot-street and Waterworks-street, where we are perplexed at the sight of innumerable long poles, inclining and projecting from the fronts of the houses. We conclude we are in the barbers' quarter, and perhaps we are partially correct; but we find that this free use of flag-poles is due to the nautical taste of the inhabitants, which displays itself more especially on gala days, when the low, irregular houses are decked with flags. Turning into Junction-street, we perceive the Wilberforce monument, erected in record of the abolition of negro slavery in 1834; which, owing perhaps to the same nautical predilections, very much resembles a light-house in its outlines. But what is the meaning of this crowd? Horses, carriages, cabs, passengers on foot, merchants pressing on to their several appointments, clerks due at a certain time to a minute, housewives going to market, doctors hurrying on their morning rounds, lounging idlers and fashionable callers, all mixed up with the *pelloi* filling the street "en queue?" "Why, sir," replies very civil P.C. No. 10 H., to our astonished query, "they are only moving the bridge to allow a vessel to go

through the dock." We then ascertain that the ancient part of the town of Hull has been surrounded with the river and with docks so completely that there is no ingress or egress except by means of four similar drawbridges: these docks being full of shipping, it follows that the bridges are frequently being drawn aside. It must be understood that Hull proper, like the city of London, has become the commercial centre of a city that has quadrupled its original dimensions; the principal business streets, the market-place, the High-street, the ancient parish church, the banks, the Post-office, the Custom-house, the Sessions House, the Townhall, the Corn Exchange, as well as the merchants' offices, being contained in the ancient boundary. As in our own case, the wealthier merchants reside in less crowded localities, but resort daily to their respective offices: their clerks follow suit. The main market roads from Anlaby and Beverley converge at this bridge: the amount of incoming traffic is therefore prodigious; and there is, besides, that produced by the necessities that compel the inhabitants of the ancient city to enter the suburbs, where, as is usual, the railway station, the public park and gardens, besides the residences of the poorer and the wealthier classes, are situated. Since the establishment of railways, when minutes have become of more consequence than before, a regulation has been made that the bridges should not be opened during the ten minutes previously to the starting of trains; but even with this rule the oft-recurring delay upon these thoroughfares—for ships are passing in and out sometimes a dozen times a day, and the manœuvre occupies about ten minutes—must be very vexatious. Let the reader picture such a scene occurring on Ludgate-hill, Cornhill, or the Strand, and note the rapidly augmenting crowd, he would perceive the great aggregate loss of time thus daily suffered by the citizens of Hull,—a goodly crew, to adopt the prevailing nautical tone, of 96,509 souls, according to the last census.

While the crowd is waiting we take a turn round the magnificent new dock which the bridge in question separates from Prince's Dock. It is named in honour of her Majesty's visit, "The Queen's Dock;" and is about 600 yards long and 100 yards wide. The north side and west end are full of small craft laden with coals, bricks, and slates; and here and there are fishing smacks. On the same side and end are rows of crazy, tumble-down erections in the shape of houses, presenting the appearance of having been constructed from wrecks or from old ship cabins. They have small windows with bull's eyes to most of them, through which the passers-by catch distorted evidences of the sea trades carried on within. Here are ship-painters, ship-joiners, ship-sheathers, ship-mercers, ship-chandlers, vendors of ships' tar, pitch, varnish, oakum, quadrants, compasses, and telescopes, and an announcement indicating "ship undertaking." This is a fine site wasted.

Meanwhile the bridge has slowly swung into its place, and the crowd has disappeared. Calling to mind the fact that the dock accommodation is avowedly inefficient, and that a Parliamentary Bill has just bestowed necessary powers to a company to form new docks on that portion of the town forming the foreshore of the Humber, it is to be hoped that the great inconvenience caused by this arrangement will be taken into consideration, and a permanent bridge built in this central line of traffic. The utility of the Queen's Dock would be by no means decreased, except for vessels of large tonnage, there being another outlet at the west end into the harbour.

We cross the narrow neck of the dock, and find ourselves in one of the main streets of the ancient part of the city—Whitefriars Gate—the "Corso" of Hull. This is a street in which many of the principal buildings are situated, as well as the handsomest shops. On the left-hand side of the road, immediately facing a palatial drapers' shop—Marris, Willows, & Smith's,—there is an "entry,"

leading to a partly untenanted settlement of cabin-like tenements, pebble-paved: on the same side, a few paces further, facing the *Hull Packet* and *Times* Publishing Office, there is a similar bluish. The first "turning" is Parliament-street, appropriately chosen by the lawyers for quarters,—a street of houses precisely alike on both sides, after the Hurley-street type,—a snug street to come upon, full of attorneys, notaries, registrars, accountants, and law stationers, with a police-station in the midst having a new blazing red splashed granite portico; its mundane necessities admitted, however, by the residence of a surgeon, an architect, a wine-merchant, and an ale and porter store. Coming into the busy thoroughfare again, we note that the Bank of England has set the good example of building the branch premises,—having a solid façade, of Italian character, with high mansard roof, and handsome chimneys and dormers,—a few feet back; thus making the street more commodious, for which the bank deserves commendation. The Custom-house, with a large building of the Queen Anne style, with carriage-way in the centre, leading to a central square court, and slightly projecting wings. We next near the Post-office, which, for a town so far in advance in many respects as we find Hull to be, is curiously ill placed. It is out of the thoroughfare, and up a passage in a court; but, when found, is large and convenient. At a junction, formed by the Land of Green Ginger and Bowl Alley-lane, are the new "County buildings,"—a two-storied block of offices, of red brick and stone, with wide semicircular arched windows and doorways, and heavy cornice. Whitefriars Gate now becomes Silver-street, possessing the same characteristics as before,—Delapole House, a large linen-drapery and tailoring establishment, standing conspicuous, as a very original treatment of shop-fronts and doorways, as regards street effects. It has a cloister-like arcade, with coupled detached iron columns, and two stories above, of plain red brick arched windows, deeply recessed, with, for a sky line, a trussed cornice. The bronze colour of the sashes of this front has a dismal appearance; but it is an effective piece of street architecture. Silver-street terminating in the market-place, we are suddenly ushered into the region of empty carts and full stalls. Here additional space is very much wanted, for all the surrounding streets and even the church side are crowded with the overflows of the market. Butchers, green-grocers, and farmers, would be all the more comfortable for a little additional elbow-room, and we will presently point out how this may be advantageously obtained. When the site of the market-place was determined it was quite central, but the town having stretched so far away on to the roads towards Beverley, Hessle, and Anlaby, it is now for all housewifery purposes at the very extremity. The houses around the market-place are deformed with huge lettering, which makes them appear out of all proportion: in one instance a dwarfish house has the name of Roberts, in letters about 8 feet high, occupying the whole width of the parapet of the front. The King William Hotel adjoining, commits a like enormity to a smaller scale, the word "hotel" being represented in letters about 5 feet high; and other instances obtrude themselves on the eye. This want of taste is more to be regretted, because the fine equestrian statue "erected," says the pedestal, "in the year 1731, to the memory of King William III., our great deliverer," gives a bold rich tone to the neighbourhood in which it is situated. Both horse and rider are entirely gilt.

The market-house itself is off the market-place, approached by a narrow street: it is very small and inconvenient although tolerably cleanly kept. There is a transept devoted to the fish-market and urinals—a disposition which is offensive. There are two plans by which the market might be improved without any distant removal of site. It is clearly quite inadequate for the require-

ments of the overgrown town in its present locality, built up as it is with houses all around. (The ash-bins of surrounding householders are positively built on the roofs of the butchers' stalls, the contents of which are only to be removed by conveying them downstairs through the houses.) We would, therefore, strongly suggest that it should be removed to the space on the west side of the church, where the demolition of a block or two of inconsiderable houses in Princes-street, Robinson-row, and Dagger-lane, would leave an ample space of easier access to the districts without the docks, or,—and we are coming to an ugly spot in our journey,—there is a quarter of slaughter-houses in this crowded part of the town which could be well displaced. We numbered as many as *seventy-nine* of these abominations, nearly all clustered together in narrow lanes, bearing the fit names of Pig's-lane, Sewer-lane, and so on. This valuable site being cleared of these unhealthy shambles, there would be a great accession of comfort for the frequenters of the market, besides the removal of a plague spot, that in the heart of a city cannot but be fraught with dangerous results. Queen-street, a continuation of the open road line, formed by Lowgate and the market-place, and in which are situate the principal commercial hotels—Glover's, the Vittoria, and Marshall's,—would benefit greatly by this arrangement; for although the Humber flows past the foot of the street, the effluvia from so many slaughter-houses within a few paces of their back premises must be very disgusting in hot weather. To make matters worse for this neighbourhood, there is a huge cataract of sewerage which discharges into the Ferry Dock, at the end of Queen-street.

Close by the market-place is the ancient church of the Holy Trinity, or, as worded within, Saint Trinity. This is a beautiful Early Perpendicular cruciform edifice, consisting of a nave and choir, both with aisles and north and south transepts. The nave is fitted up as the parish church, the transepts and choir being cut off by means of a glazed rood-screen, and forming a vast unseated vestibule to the nave. On the occasion of the administration of the Holy Sacrament, the communicants must quit their seats in the well-aisled nave, and remove to the stalls in the aisles of the choir. But as we are aware that the restoration of the edifice is under the care of Mr. G. G. Scott, in all probability these irregularities will be overcome. The fittings—stone pulpit, with massive open-pannelled parapeted staircase, brass eagle, and poppy-headed seats,—are very costly. The flat spaces between the beams of the low-pitched roofs of nave and aisles are of blue, sparkling with tiny gold stars; the rest of the wall surfaces being but dirty whitewash. The choir and transepts are adorned with many very interesting monuments, both ancient and modern. We may not linger among them save to notice two modern monuments of great merit, by T. Earle; the one telling a story of much pathos in bas-relief, with this simple inscription: "Our son William, in the sixteenth year of his age, on the night of January 19, 1858, was swept by the surf of a heavy storm from the pier-head into the sea;" the other an alto-relievo monument to the memory of a sheriff and mayor of Hull, who died in 1630, erected by the Trinity House Company as a mark of the admiration of his character two hundred and thirty years after his death. A good name is a glorious heritage.

Traversing Church-lane to gain the High-street we observe two new buildings in red brick and stone, presenting examples worthy of imitation in all similar localities. They are the premises of Messrs. Copesteake and Moore, and of the Temple Steam Printing-office. Set back from the road, they widen it; and having a series of large, round-headed windows, plenty of light is ensured within. Church-lane is one of the many small intersections of High-street, which, under the name of stalls, slope down to the harbour. A roaring traffic is in full play, as in Thames-street; and the

stairs and lanes, as well as the High-street, being very narrow, dead locks are of continual occurrence. A little judicious pruning at the junctions of some of these places would be of great service. High-street, where the footway is only one foot wide and the roadway but fifteen feet across,—once the residence of the princes of the place,—is now occupied by merchants' offices, warehouses, tenements, and seed-crushing mills. The birthplace of Wilberforce, a heavy brick building with a projecting centre, set back in a court enclosed with a heavy brick wall, is shared by the Hanoverian, Homberg, and Bremen consulates. The mayor's (Mr. Hodge's) very large new mill, well built of light brick with stone heads and sills, with a lofty octagonal chimney shaft, faced by W. & W. Darling's mill, of many stories in height, are noticeable features; as is also the imposing new Corn Exchange, a spacious room, 180 feet long by 50 feet wide.

Charity may be said to walk open-handed in Hull, the institutions for the aged, the poor, the sick, and the young, being very numerous. There are also various institutions which modern philanthropy has suggested, a penitentiary, a dispensary, a sailors' institute, a mechanics' institute, and baths and washhouses. The last-mentioned buildings present a showy façade to Trippet-street: they are fitted up with every contrivance to lessen labour; but the internal accommodation appears to have been sacrificed for the sake of the exterior. The compartments for the washerwomen are very cramped, and the heat from the hot water and drying-closets stifling. The mangle-room, attained by a narrow, awkward staircase, is over the boilers, and is, as may be expected, oppressively hot: the result is that in summer these baths are not much in favour, and are nearly deserted; and at other seasons the heat is so unbearable that the women divest themselves of all but very necessary attire when frequenting them. The workhouses are ornamental buildings, in the Tudor and Italian styles. The public schools, too, are numerous. And the Royal Institution would be an ornament to any town. There are two cemeteries (and a prospect of a third by the closing of the Trinity Church burial ground), the one at Scalcoates with a single cardboard chapel in the midst; the other on Derringham Bank, approached by a long row of young trees, extending the whole length of the road. We observe that there are some few—a very few—of the institutions going down for want of public support; and these are those which would be supposed to be most popular. The Zoological Gardens, for instance, so much esteemed by the younger portions of most communities, are advertised for sale: the Botanical Gardens, and the Public Baths in Bath-place, appear to be in disregard. The Citadel, too, seems to be one of the objects that are now overlooked, the use for it having ceased. It occupies a triangular site at the mouth of the Hull, and is surrounded with water. An idea was once entertained of converting it into a public park; but was relinquished when the Pearson Park was munificently presented to the townspeople: it is now partly occupied by the great timber yards of Smithson, Lee, & Co., R. & T. Harrison, and R. Wade & Co.; and the volunteers make use of it as a drill ground. The general appearance of the barracks, officers' quarters, magazines, and garrison moats, is forlorn.

Recurring to the subject of the iron ship-building carried on in Hull by the makers, C. & W. Earle, Samuelson & Son, and the Navigation Iron Works, it must be admitted that the substitution of iron for wood is an improvement; but it is a question whether the construction is not too slight. Several losses have occurred of the iron ships leaving these docks during the last winter for the icy seas of the north,—the *Wesley*, *Bothnia*, *Kingston*, *Moscow*, *Thor*, and *Edinburgh*, never returning to port. Iron ship-building must be considered as only experimental as yet, and every fact bearing upon the working of iron ships under

different circumstances should be carefully noted. Thus, it having been found that the seas dashed over the engines and put the fires out at a critical moment, the machinery is now completely covered, and ensured against such a catastrophe. One or two ships have been wrecked from this cause alone. Many similar after-thoughts could be brought to bear advantageously. There have been some fine steam ships launched upon the waters recently,—the *Anglia*, *Lion*, *Gertrude*, *Z. C. Pearson*, *Pacific*, and the beautiful screw, *Hero*,—whose fortunes will be watched with interest.

Hull has had all the difficulties attendant upon a low-lying site to contend with; and these are not altogether overcome yet. In the fourteenth century floods were very disastrous; and the commissioners charged with the superintendence of banks for the protection of the country against inundations found it necessary to raise the road between Hull and Anlaby 6 feet. Archbishop Corbridge (says the painstaking antiquary, Mr. Charles Frost) writing to the Prior and Convent of Giseburn, in 1307, tells them that in conveying the bodies of deceased persons from the chapel at Kingston to the parish church of Hessele for interment, it often happened that the bodies and attendants were all washed away by the waters of the Humber. From time to time measures were taken to meet similar contingencies; and by the time the seventeenth century was ushered in, a systematic system of protection appears to have been in operation:—

"It yeerely costs five hundred pounds besides,
To fence the towne from Hull and Humber's tydes,
For stakes, for baving, timber, stones, and piles,
All which are brought by water many miles,
For workmen's labour, and a world of things,
Which on the towne excessive charges brings."

When we visited Hull we found the question of sewerage and water-supply in warm discussion: both were avowedly insufficient;—the points at issue being the respective merits of the various plans for their improvement. At Newcastle the mischief is in the obstinate refusal of the corporation to adopt a general well-ordered scheme; but in Hull the delay occurs from too much counsel. Numerous are the authorities that have been consulted.—Mr. Hawksley, C.E., Mr. Austin, C.E., Mr. Ranger, Mr. Clarke, Mr. Newman,—besides the surveyor and assistant surveyor to the board, Mr. Marillier and Mr. Butler, to say nothing of the pet theories of Messrs. Samuelson, Eccles, Lambert, Nightingale, Wilkinson, Galloway, and other members of the local board of health. On the inland side of the town four large open drains or dykes,—Cottingham-drain, Barnston-drain, Skidley-drain, and Sutton-drain,—some miles in length, bring down their quota of refuse matter to empty into the Hull. The mouth of the river being very muddy, the bottom is impregnated with sewerage matter, which is prevented from going to sea by the silting produced by the harbour. A length of one of the dykes, appropriately called Drain-side, has houses on either side of it,—Wilson's-row, Cottingham-place, Richmond-terrace, and Clough-terrace, and has annual cleansings "just before the summer, when the solid matter taken from it is sold." The sewerage of the town has three cavernous outlets into the Humber—one near the Barton Ferry pier, another in Limekiln Creek, the third on the site of the proposed new dock—which are provided with flood-gates: when the tide is low a cataract of foul sewage vomits forth on to the muddy shore, with clouds of seething malodorous vapour.

The surveyor and inspector of nuisances have important tasks before them. There are very many districts where the working population live in "cribs and folds," small houses of two stories, with tiny forecourts before each house: out of the streets in these localities branch countless passages, squares, places—in other words, wide alleys of houses of similar peculiarities, each possessing the smallest imaginable forecourt. Opposite one of these alleys, called Success-place, there stands Barber's-yard, where a notice states "Pigs are

kept and killed by C. Bishop." But the general aspect favours the assumption that the residents pride themselves upon the neatness of their homes. They therefore seem to us to deserve every assistance in their efforts to promote these objects. Even the Irish quarter—Mill-street, Middle-street, and Cross-street—is less terrible in Hull than in towns where the houses are many-storied, notwithstanding that slaughter-house, No. 47, is within scent. The inhabitants of a "pottery district" complained to us of a mountain of town scavengage; and a notorious cod-liver oil manufactory was not considered a pleasant neighbour. It was gratifying to find that the corporation consider local improvement, like charity, should begin at home, and have boldly attacked the condition of their own offices, which are situate in very questionable vicinages.

The water-supply in the seventeenth century was obtained from Springhead.

"Some ten yeeres since fresh water there was scant,
But with much cost they have supplid that want,
By a most ex'lent water-werke that's made,
And to the towne in pipes it is conval'd;
Wrought with most artificiall engines, and
Perform'd, th' art of the industrious hand
Of Mr. William Maully, gentleman;
So that each man of note there always can
But turn a cooke within his house, and still
They have fresh water always at their will
This have they all vnto their great content,
For which they each doe pay a yeerly rent."

Since Taylor, the water poet, thus quaintly sang, two hundred years ago, the supply has been taken from the river Hull, below the town of Beverley; and as the sewage of that town falls into the river, it is certainly very desirable that a further change should be made. It is now proposed to return to the original source. As this subject is at present under consideration and execution, and a very lively interest is taken in it, we trust that "a most ex'lent waterwerke" will be once more realized; and that the "great content" testified to by Taylor, will again descend upon the inhabitants, not only to "each man of note," but upon one and all.

THE PRESENT AND PAST BOUNDARY OF THE RIVER THAMES AT LONDON.

WHILE many of our antiquaries are busily engaged in pursuit of the works of man, in an early stage of society, either on the banks of the Nile, the Tigris, or the Euphrates; and others, with the greatest enthusiasm, are exploring his works in a more advanced state of refinement, on the banks of the Ilissus or the Tiber; there are very few who take an interest in searching the musty records of remote antiquity, concerning the banks of the Thames; and still fewer who will take the trouble to travel fifty miles along the shores of our metropolitan river, to investigate the alterations which have been made on its boundary at some former period.

In attempting to describe the history of a particular district, and at the same time to point out some of the conclusions that may be inferred, from certain well-known facts, it is always difficult to avoid uninteresting and tedious detail; while it is indispensable to notice many important truths, which may convince those who have not previously paid attention to the subject, that the author is not wandering in a wilderness of crude hypotheses, or of unsupported assumptions. In a short sketch of the history of various changes which have taken place, during fifteen or twenty centuries, on the banks of a beautiful river, it is almost impossible to avoid going precipitately into certain general conclusions, when various self-evident facts pass rapidly before us. There is no river in this country whose course is more instructive than the Thames, as the united efforts of nature in the first instance, and afterwards of man, have effected so many important changes on its banks; changes and operations which have been more or less under the dominion of its rulers for a long series of ages—indeed, so long, that both history and tradition are silent upon the subject: therefore the ingenuity of the antiquary is at full liberty to wander through ages of past time, amidst the memorials of epochs long since forgotten.

When the traveller passes over those fertile plains, where gently-flowing streams nourish in their course an abundant vegetation for the sustenance of lowing and bleating herds; or where the soil is studded with flourishing villages and

opulent cities, adorned with superb monuments of human art, and inhabited by a numerous mercantile population, he is not led to suspect that at some remote period of our history the same district was daily overflowed by the neighbouring river; and that it would at this time be a marshy swamp, had not the industry of our ancestors prevented it by their embankments. We have before us their vast and important labours, which the idle or the ignorant pass daily without observation, without inquiry, and without thought.

According to poetical notions, the grandest dwelling-place on earth, for man, is the mountain-top; the cloud-capped throne of the eagle, where the wind and the storm unboundedly revel—and where, far as eye can reach, the imagination may luxuriate over a vast expanse of terrestrial grandeur. Ever restless nature has been industriously at work during countless ages, in changing the surface of the world we inhabit. The smallest islands, as well as the largest continents, are subject to the very same laws: all present very different surfaces from those which existed in times long past. The various kinds of earth, which once clothed the summit of the loftiest peak, that is now bleak and bared to the primitive rock, are in time removed to a lower region by atmospheric influences, by rain, and the agency of chemical and mechanical decomposition; assisted, in no trifling degree, by changes which are brought about through vegetation, and feeding numerous tribes of animals, from the microscopic insect to the lowing herd, and even up to man: each performs its part in the general disturbance and rearrangement of the earthy surface. A drizzling rain will gradually soak into the ground; a gentle shower will drain into the rivulets without injuriously disturbing the soil, and the neighbouring streams will be but slightly tinged with colouring matter; but a copious thunder-storm falls so violently, that it removes the finer portion of the earthy surface from the meadows and arable land, into the water-courses, leaving the flints and stones on the field, thus deteriorating the vegetative qualities of the entire district. The same physical agency continuing in operation, will gradually transport the softer and lighter portion of the soil from the valley along the rivulet to the chief river. The velocity of a large river current is most rapid in the centre, or where the water is deepest, and least on the sides and bottom, where the current is retarded by friction; consequently the transporting power of a river is smallest where it comes in contact with the substances to be transported. Whenever a running stream, charged with mud or fine sand, has its velocity checked, as when it enters a lake or overflows an extensive plain, the sedimentary matter, previously held in suspension by the motion of the water, sinks by its own gravity to the bottom. In this manner layers of mud or sand are periodically deposited one above another, so as to form marshes by the side of a river, which in time become raised to the level of the highest tides. During the same interval, the deep and more rapid part of the current carries the alluvial matter, held in suspension by the water, to the sea, where it forms an estuary at the mouth of the river. Thus it appears that there is a universal tendency to bring all terraqueous things to a level; and were this law of nature to continue in operation alone, the whole superficial strata of the dry land would in time be removed into the depths of the ocean, when terrestrial animals and vegetables must cease to exist. But volcanic influence, by upheaving mountain masses, raising new islands from the bottom of the sea, and many other extraordinary phenomena, acts as a redeeming feature for the future conservation of plants and living creatures which breathe air.

When the ancient Britons were sole lords of this island, the population was probably very limited; their towns were few and far between; and their rivers flowed freely over the low lands of the adjacent country, confined by no artificial barriers, and having no other limits to their overflow than such as nature had provided. The spot on which the City of London is built—that is, the part actually included within the old boundary walls—is situate on dry gravelly soil, rising gradually from the level of a beautiful river, sufficiently distant from the sea for inland convenience, yet within the influence of tidal currents; a locality desirable in every respect, and apparently destined by nature for the site of a city. The earliest mention of London by the Roman historians occurs in the annals of Tacitus, in which it is described as the residence of merchants, and the chief mart of trade and commerce in Britain. These expressions may be adduced in favour of the argument for the British origin of London; as it cannot be

supposed that a place would be thus characterized if its foundation had been so recent as the time of Tacitus; for, in all probability, not more than thirty or forty years had elapsed from the Roman conquest to the time mentioned by him, which is a term much too short to admit of such high mercantile prosperity as is there recorded.*

With the exception of superficial changes, effected during the lapse of ages by atmospheric influences and repeated inundations, to all appearance the country bordering the river Thames, in the counties of Kent, Surrey, Middlesex, and Essex, has undergone no material geological change since the period when it was raised from the waters of the last ocean beneath which it had been submerged, and when the Thames, together with its tributary streams, first began to flow in their present channels.

Taking the circuitous windings of the Thames into account, the length of the river between Oxford and London cannot be less than a hundred miles. In this distance, the fall of water is about 230 feet. The farther from the sea, the more rapid the current. For instance, between Oxford and Maidenhead the average is about 30 inches fall per mile; from thence to Chertsey, 26 inches per mile; between Chertsey and Mortlake, 20 inches per mile; near London the fall is not more than 1 foot per mile; afterwards the fall diminishes gradually till the river unites with the sea. These calculations are entirely independent of tidal influence. Throughout the greater part of this distance, west of London, appearances seem to infer that the river has generally been confined within its natural banks, and that the stream has rarely risen above the level of the neighbouring meadows; consequently inundations are of small extent, and of rare occurrence.

In descending the river towards the sea, the first district that appears to have been subject to occasional overflowing of waters, at a remote period, is that of Chiswick on the northern, and Barnes on the southern margin of the Thames. If these places were not entirely overflowed in early times, it is more than probable they were swampy marshes, liable in some degree to temporary inundation at high spring-tides. Proceeding along the Middlesex side of the water to Fulham, we find an extensive tract of low land between Parson's-green and the river, chiefly occupied by market gardeners, who have been induced to settle on it by the great depth and richness of the soil compared with that of more elevated situations. Part of this land still retains the name of "Eel-Brook Common," indicative of its aquatic celebrity in days of yore. The whole of Battersea, as far as Vauxhall Bridge, including Nine Elms, and the fields proposed to be converted into a public park, was formerly entirely overflowed by the river at high water; and at this time the neighbourhood would be a shallow lake, and a boggy morass, at the flow and ebb of every tide, were it not for the excellent embankment which still remains.

Nearly all that part of Westminster, which lies between Chelsea Hospital and Scotland-yard, may be said to have been originally within the influence of the river; Grosvenor Canal and Basin have long been supplied by letting in the water at high tide; the greater portion of that neighbourhood, especially about Eaton-square, which is now covered with dwellings of an aristocratic order, has been artificially raised ten, and in some places as much as 15 feet above the former level of the "five fields," which were marshes, at one time frequently overflowed by the river, as the Penitentiary and its vicinity would now be, if there were no embankments. A water-mill belonging to the abbot of Westminster, situate at the end of the present College-street, and turned by a little stream which passed along that street eastward into the Thames, gave rise to the name of "Millbank," which formerly extended from the entrance to Grosvenor Canal, near Chelsea Hospital, all along the river-side to the Abbey and Palace. These buildings, the most ancient and most remarkable of any (west of London), were evidently erected on the highest and driest ground, called "Thorney Island," being naturally elevated rather above the general level of a swampy neighbourhood, consequently not often inconvenienced by floods.

In attempting to trace the extraordinary changes which have taken place in certain districts under the government of various rulers, or in describing the situation and appearance of Westminster, when in the rudest state of nature, and

when wholly unfit for the abode of civilized men, there will be some difficulty in concentrating the scattered rays of fact and probability to a clear focus, and in separating the reasonable and genuine from the improbable and fabulous. But the same continuity of ideas which induces us to listen to the traditional account of "Thorney Island," with its sacred and palatial edifices, will lead us to imagine, with every probability of truth, that at some remote period of our metropolitan history, the shallows of the river extended, uninterruptedly, over the present site of Parliament-street, Whitehall, and nearly the whole of St. James's Park, up to the Abbey and Palace of Westminster.

I am aware that the mere assertion of such a statement, will have no more weight than that of an individual opinion, unless certain facts are adduced in proof of such argument; but if any one will take the trouble to observe the mark of high water at Whitehall Stairs, he will see that it is very little below the pavement in front of the Horse Guards; and that the gravelled surface of the parade has a gradual declivity, for drainage, towards the west, or towards the pleasure-garden and plantations within the railings of St. James's Park, where the surface of ornamental water is actually lower than the highest tides. Circumstances in favour of this hypothesis have exposed to view, some of the uppermost strata beneath Whitehall and Parliament-street; namely, during the summer of 1850, while constructing the new common sewer from near the Abbey, through Privy-gardens and Scotland-yard, into the Thames, I observed, where the men were digging through Parliament-street, that the ground from the surface to a depth of 7 or 8 feet was a modern accumulation of refuse matter of all kinds, including foundations of old walls, and a large quantity of brick, stone, and mortar rubbish, the whole of which rests upon a considerable thickness of black, muddy, alluvial deposit, evidently transported matter, which has been washed away from some other place by the force of the current, and deposited in its present situation, where the waters were shallow and the current very gentle: immediately beneath this sediment is the original gravelly bed of the Thames. That these beds of mud and silt, which are spread over the surface of much older formations, have been deposited in their present resting-place, by the running waters of the Thames, cannot reasonably be disputed; for, in addition to other evidence, they contain various species of recent fluviatile shells, precisely similar to those which still inhabit the neighbouring river. Thus it may be said that, although we have no positive proof, nevertheless we have every reason to believe that, in days of yore, the fisherman may have cast his net in six, eight, or ten feet of water where there is now erected on solid ground rows of substantial edifices, with public roads, above the reach of the highest tides, and such as a sovereign of the most important nation in the world can use when proceeding in her state carriage to the British senate.

In pursuing the course from Westminster, along the north or Middlesex bank of the Thames, the ground is considerably elevated above the river all through the town, and it is not until we have passed the Tower, which is the eastern boundary of the City of London, that there is any land below the level of high water. The site of St. Katharine's Docks may, originally, have been marsh land, below high tides; this appears pretty certain, because, when the docks were being excavated, a vessel was disinterred from the alluvial plain of the Thames, the interior of which was filled with fluviatile silt. The situation of the London Docks and the whole of Wapping would be liable to frequent inundations were it not for the embankments, part of which still retains the name of "Wapping Wall."

The most easterly part of London, comprising Poplar and Blackwall, the East and West India Docks, the Isle of Dogs, formerly called Stepney Marsh, is, according to recent surveys, the lowest ground round the metropolis, the greater portion of meadow land in the Isle of Dogs being at least 8 feet below the Trinity high water mark.

The great spirit of embanking has been continued, where needful, along both sides of the river. We find strong and durable ramparts erected against the tides on the Essex shore, at the levels of Plaistow, East Ham, Barking, Dagenham, Wappington; and on the Kentish coast, at the marshes of Greenwich, Plumstead, Erith, Dartford, Swanscomb; and the same on either side to the mouth of the Thames.

On returning to the Surrey side of the river, opposite the City, we find a larger space of level ground beneath the overflowing of the tide, than

* According to the learned editor of the Welsh "Archæology," Wm. Owen, Esq., Llyn-Din signifies "the town on the lake," Llyn being the British term for a broad expanse of water, or lake.

of honourable distinction. No candidate under thirty years of age shall be permitted to present himself for an acknowledgment of honourable distinction without having previously passed the examination in the class of ordinary proficiency.

The examination shall in no respect be conducted *à la carte*. It shall take place in the last week of the month of January, as often as there shall be five candidates seeking an acknowledgment of ordinary proficiency: and it shall occupy not more than three days for the candidates in that class, with not more than three additional days for the candidates seeking an acknowledgment of honourable distinction.

The first of such day's examination shall be in drawing and design; the second in mathematics and physics, with professional practice; the third in materials and construction, with history and literature; while the fourth, fifth, and sixth days shall be assigned to the same purposes in similar order; languages being included on the fifth day. The hours of attendance shall be from ten till five, except on the sixth day, when they shall be from ten till two; and on each day there shall be an interval of one hour, during which time no work shall be allowed, and the Institute shall provide some simple refreshment.

Upon the days of examination the candidates shall have access to such books of tables as may be provided by the honorary secretaries, under the advice of the examiners.

A candidate, who has passed in the class of ordinary proficiency, shall not be required to attend on the first three days of any subsequent examination at which he may present himself for the class of honourable distinction.

The examiners shall be not less than three in number, and they shall be elected, as well as two moderators, by the fellows of the Institute, at the first general meeting in January. No examiner or moderator shall be concerned in the examination of any candidate connected with him by any tie of relationship, tuition, or business. No examiner shall attend at the Institute during the hours of examination.

The papers of questions and requirements of work shall be framed by the examiners as much as possible with direct reference to architecture, and in conformity with the applications of candidates, regulated by the subjects in the following programme.

COURSE OF EXAMINATION. CLASS OF ORDINARY PROFICIENCY. *Preliminary Work.*

A measured sketch of some existing building, or portion of a building; a perspective sketch of some existing building, or portion of a building; a drawing of some ornament from the round or relief; and a perspective view with working plan, section, and elevation, of a design by the candidate for some building, together with its whole specification, and a portion of working details at full size.

Work to be done in the Presence of the Moderators.

	Number of Marks.
<i>Drawing and Design.</i> —A design for some building, or portion of a building, in the style named by the candidate, the subject being given by the examiners	1,750
<i>Mathematics.</i> —Arithmetic, including the square root; algebra, including simple equations; Euclid, books 1 and 2; mensuration ..	500
<i>Physics.</i> The elements of mechanical philosophy, and specially heat, light, and ventilation; the composition and resolution of forces ..	500
<i>Professional Practice.</i> —The principles of estimating, the laws relating to accident, agency, contracts, and disbursements	500
<i>Materials.</i> —The general nature and properties of building materials, including their decay, preservation, quality, and strength	750
<i>Construction.</i> —The detail drawings and specification for such branches of the work suggested in the above-named design (including drainage), as the examiner may indicate	750
<i>History and Literature.</i> —An outline of the characteristics of the principal styles of architecture in Europe; the particular characteristics and history of any one style named by the candidate	1,250
	6,000

CLASS OF HONOURABLE DISTINCTION. *Preliminary Work.*

Original details at full size of work for wood, stone, marble, mosaic, glass, iron, brass, precious metals, textile fabrics, or embroidery; sketches or measured drawings of existing buildings or other subjects of design; a drawing of the human figure from the round or from memory; a subject of landscape gardening; an architectural subject in colours; a subject of decoration, in colour or otherwise; and some specimen of skill in modelling, or in carving, either in stone or in wood; specimens in four at least of these branches being necessary for the admission of the candidate.

Work to be done in the Presence of the Moderators.

	Number of Marks.
<i>Drawing and Design.</i> Such designs, drawings, and specimens of skill, in the style or styles named by the candidate, as may be thought needful to test his skill with regard to such preliminary work as may have been attached to his declaration: the subjects to be given by the examiners	600
<i>Mathematics.</i> —Algebra, including quadratic equations; Euclid, books 3, 4, and 6; plane trigonometry; conic sections. The candidate to name the extent of the examination that he thinks himself capable of passing	600
<i>Mathematics and Physics applied to Practical Purposes.</i> —Mechanics; statics; dynamics; hydrostatics; hydraulics; land surveying; acoustics; chemistry; electricity; galvanism; geology; and theory of colour. The candidate to name the portions chosen by him	400
<i>Languages.</i> —Translation from Greek or Latin, and translation from or composition in one or more living foreign languages; architectural nomenclature in any living foreign language. The candidate to name the languages	300
<i>Professional Practice.</i> —Cases of property relating to buildings, including fixtures and rights of adjoining owners; arbitration	500
<i>Materials.</i> Detail of the nature and properties of building materials, including materials which are not in ordinary use	400
<i>Construction.</i> —Complex construction in scaffolding, shoring, securing dangerous structures, pulling down work, alterations of foundations, foundations, walls, partitions, floors, roofs, arches and vaults; formulas for calculating the strength of materials	500
<i>History and Literature.</i> —The structure of architecture, writers on practice and theory, and works illustrating styles or structures, in any style or styles named by the candidate	700
	4,000

The number of marks to be allotted by the examiners to their questions shall be 10,000: of which 5,000 shall be in the ordinary, and 4,000 in the honourable class of the above programme, and also shall be as above noted, Drawing and Design, ord. 1,750, hon. 600; Mathematics, ord. 500, hon. 600; Physics, ord. 500, hon. 400; Languages, hon. 300; Professional Practice, ord. 500, hon. 500; Materials, ord. 750, hon. 400; Construction, ord. 750, hon. 500; History and Literature, ord. 1,250, hon. 700. If these marks 3,000 in the ordinary class shall gain an acknowledgment of ordinary proficiency: if increased by 2,000 in the other class they shall gain an acknowledgment of honourable distinction: but the candidate shall not be held to deserve this acknowledgment of ordinary proficiency unless he obtains at least half of the number of marks allotted to the divisions of Drawing and Design, Materials, and Construction respectively, in addition to at least a fifth of the number of marks allotted to each of the other divisions in that class.

In order to secure unquestioned impartiality in the examination, each candidate upon complying with the form of application shall receive from the honorary secretaries of the Institute a paper containing a number which he shall employ instead of his signature to all work during the examination. Such number is to be so placed that it may be easily removed by the moderators, who shall substitute their own sign as hereinafter provided. A particular sign shall be affixed by the honorary secretaries to the drawings, specification, and objects of skill submitted with the declaration, so that the authorship may not be known to the examiners.

The examination shall be superintended by two moderators, one of whom must always be in the room during the days of examination. Their function shall be to supply the question papers, and to see that the work of the examiners are fulfilled; to explain the objects of the questions, to take care that no assistance be given by one candidate to another, and that no other persons than the candidates, except themselves, shall be in the room, or hold communication with the candidates during the hours of work; to allow no other books to be used than those above permitted; to verify the production of the work in the room by each candidate; to see that the work produced in their presence by each candidate is distinctive and numerically distinct sign; and to supply at the close of each portion of the day to the honorary secretaries such productions with a register of the signs, accompanied by an index, showing the number designating the candidate. The moderators shall be remunerated by the Institute in regard of their services at each annual examination.

The examiners shall furnish to the honorary secretaries, in time for the opening of the examination, sealed notes, marked as containing in each the subject for work in the division of drawing and design in the class of ordinary proficiency. The examiners shall meet on the first day of examination; and, upon consideration of the drawings produced in the presence of the moderators during the day, as well as of the drawings and specimens of skill attached to the declaration, they shall forward to the honorary secretaries notes of the branches of work for which the respective candidates shall be required to make the detail drawings and specification in the division of construction in the class of ordinary proficiency, and the subjects for which they shall be required to produce specimens of their skill in the division of drawing and design in the class of honourable distinction. At the same time the examiners shall furnish to the honorary secretaries sealed questions and requirements for each remaining portion of the examination. The contents of those papers shall be, as far as possible, uniform for all candidates; and shall be multiplied only in manuscript or lithography, under the immediate superintendence of the examiners. The honorary secretaries shall enclose each paper separately in another envelope, on which they shall mark the class, division, and number of the candidate for whom it is intended, and these addressed envelopes shall not be supplied except through the moderators to the candidates at that portion of the examination for which each is intended.

As the following articles must be ready for return on the last day of examination, the examiners at the same time or by adjournment, shall take into consideration any degrees, diplomas, certificates, or medals obtained from any society of architects (approved for this purpose by the Council of the Institute) whose president or

honorary secretary, at the time when such distinction was adjudged, shall have been a fellow of the Institute, or from any royal academy of art, or from any university in Great Britain, as well as any prize literary proficiency, which may be submitted by the candidate; and the designs, drawings, specification, and specimens of skill attached, as hereinafter required, to his declaration; by granting to each group of such objects any number of marks not exceeding two-thirds of the number allotted to the division or divisions appropriate thereunto in the class or classes in which the candidate presents himself.

Within seven days of the last day of examination, the examiners shall furnish to the Council their report, stating the number of marks granted to the above named objects in each division, and to each sign affixed by the moderators to the works produced before them by the candidates.

Upon receiving the report of the examiners, the honorary secretaries shall form a list of the numbers given by them to the candidates, with a schedule of the appropriate signs substituted by the moderators, as well as of the sign chosen by the hon. secretaries themselves for the designs, drawings, specification, and specimens of skill, submitted by each candidate; and shall affix to such list and schedule the marks granted to each moderator's sign, and to each previously-obtained diploma, certificate, medal, literary work, design, drawing, specification, and specimen of skill, so as to ascertain the marks due in each division to each candidate's number; and the report thereof shall be delivered to the Council within a fortnight after the examination.

The Council shall deduct from any marks granted by the examiners to previously obtained diplomas, certificates, medals, literary works, designs, drawings, specification, or specimen of skill, the whole number of marks gained in the appropriate division or divisions in presence of the moderators, if less than the half of those signs required for such division or divisions of the class or classes in which the candidate presents himself.

The total number of marks then due to each candidate's number shall thereupon be calculated by the hon. secretaries. Should the marks amount to a number sufficient to pass the candidate, no further notice shall be taken. An alphabetical list of candidates successful in the class of ordinary proficiency, and a list of candidates successful in the class of honourable distinction, shall be publicly exhibited at the Institute within one month after the examination. The number of marks gained by each candidate shall not be communicated to any person.

All diplomas, certificates, medals, literary works, designs, specifications, and objects of skill, submitted with the declaration, shall be returned to the candidate at the close of the last day of his examination. No drawings, papers, or other objects produced by work in the presence of the moderators during the examination shall be returned to the candidate.

[The list of works recommended to gentlemen proposing to become candidates we will give next week.]

Fees.

Each application for an acknowledgment of ordinary proficiency must be accompanied by a fee of two guineas; and each application for an acknowledgment of honourable distinction must be accompanied by a further fee of one guinea.

The committee have the honour of making the following recommendations—

That the rules of the Institute as to students and their prizes be taken into consideration by the council with a view to the formation of some system that shall lend educational towards the voluntary examination now instituted.

That if fewer than six days be devoted to any examination, the examiners should be at liberty to vary the distribution of time prescribed in the regulations.

That the council should be empowered to fix for the first examination a smaller number of days and a less proportion than that above arranged of marks necessary to pass; and to raise for the second examination the proportion of such marks to an average between that of the first and that provided in the regulations, which shall be used for the third.

That, after the third examination, the council should request the examiners to report any change that they may deem desirable in the system.

On the motion of Mr. A. Ashpitel, who spoke at considerable length, the report was received.

In the course of the discussion, Mr. Robert Kerr, Mr. Street, Mr. Newton, Mr. Gray, Mr. Charles Barry, and others, spoke.

Ultimately, the further discussion of the subject was adjourned till November next, to give time for the consideration of the report by provincial and other bodies of architects.

THE PROPOSED EMBANKMENT OF THE THAMES.*

In the six great schemes (the merest outline of which I have already described) are correctly based upon the assumption that a system of docks is the best way to provide for the rights of the wharfers, there is little more to be said; for, without doubt, they develop in the most complete manner all that can be done to that end. I, however, after much inquiry and much consultation with those well able to judge, came to the conclusion that the provision of the docks was an entire mistake, and that a simpler plan would be more efficacious, much less costly, and more likely to avoid that rock upon which all previous schemes have foundered,—the rights of the owners and tenants of the river-side property.

These parties at present enjoy the river itself as the great highway, always free and open for their use, the traffic upon which is carried on in cumbersome barges, most of them navigated without

* By Mr. James Edmeston. See page 442, ante.

rudders, and not easily guided through tidal-gates and locks under any circumstances, but which could only with great difficulty be so managed in a rapid tide, the velocity of which would be increased if the sectional area of the river is diminished, and which could not lie outside an embankment projecting very far into the river without obstructing the navigation, and being also liable to get injured or swamped.

Unless also each occupier of an existing wharf had at least a water frontage equal to what he at present enjoys,—and that within a very moderate distance of his warehouses,—he would have cause to complain; while, if he had to cross a public way, and if this frontage was not in his private or sole occupation, it would really be almost useless to him.

Further, anything less than the maintenance of one large dock, from end to end, behind the embankment, must diminish the water frontage of some directly, and of all indirectly. Again, a main object of the embankment is missed if the banks of the river are exposed at low water. But would not the docks be receptacles in which there must be a considerable sediment? Are not all docks invariably more or less offensive? Or, if you must have the docks, instead of the river itself, it will be said, "it may be cleansed." No doubt. But who is to do this? Who is to bear the permanent expense, not only of that, but of attending the gates and locks, and of repairing and keeping them in order, which would altogether be no trifle? Unquestionably it is more advantageous to the wharfingers to come to the river front, where there is unfettered navigation; and it must be remembered that at neap tides there would often be less water by some feet on the sills of the dock-gates than has been calculated in the several schemes. It is desirable that no part of the bottom of the river should be uncovered at low water; but what is the gain of going out hundreds of feet into the river, and narrowing a noble sheet of water, some 1,000 or 1,100 feet across, to the 600 or 700 feet which it has at Southwark Bridge. When the sewage is taken out of it, there will certainly be nothing to regret on its broad expanse; and it must be admitted that to go far into the stream, even with all the scientific aids at command, must be to incur a far greater expense than to go only a moderate distance. With these views I proposed to the committee of last year a scheme, according to which the claims of the wharfingers for disturbance would be reduced to a minimum. They would each have still the use of the river, with a direct and private access to it, and that at no great distance from their existing premises; while they would get under the roadway stowage room, which in itself would be valuable; and at the same time the required public road would be provided, and the streets would be relieved, and at a cost which must be far less than if the construction went as far again into the river, and required docks to be made as well.

It may be said that a construction only some 15 or 20 feet above high-water level would not give the river that architectural magnificence which it might gain from a design which would combine the erection of large piles of building. The intended roads would, however, almost hide any such buildings; and I think that question may be much more safely left to time and the ordinary course of events. The river-side is far more likely to gain a picturesque aspect as each warehouse becomes rebuilt separately from time to time; for in these days the exhibition of architectural feeling and taste may almost be said to be sought after and considered necessary, even in building for the merest business purposes, such as workshops and the like; instances of which I might easily enumerate if it was necessary.

All the above schemes have been reproduced before the Royal Commissioners now deliberating, and who have not as yet made any report upon the subject referred to them. But there have, also, been some other schemes brought forward by Mr. Brooks, Mr. Weller, Mr. Bardwell, Mr. Aicken, Mr. Sich, Mr. Newton, and others, which, as no access can be had to the documents in possession of the Commissioners, it is impossible to describe. I can only hope their authors are now present to do so.

Mr. Shields has also submitted a plan for a mere roadway, 80 feet wide, in front of the wharfs and warehouses; which, I fear, destroys them. And I cannot see why their owners should not have the private use of the river side, as I have suggested, while the road itself is provided very nearly in the same position.

I do not pretend to predict the decision to which the Commissioners will come; but it is

currently reported out of doors that they will decide against all the great schemes, and in favour of some plan which, like that of Mr. Shields, is simple in its character, and comparatively inexpensive.

In this place it is impossible not to say something of the style to be adopted. In the several schemes I have mentioned this appears to have been very little thought of. It would not, however, be fair to criticise the designs architecturally; for, no doubt, their talented authors regarded that as only in the faintest way connected with the great work. We, however, think differently, and ought not to allow a silent indifference upon the subject to give colour to an impression, general enough among the public I have no doubt, that in such a matter an architect was somewhat of an interloper. The designs comprise arcades, most extensive colonnade arrangements, and massive buildings. We have most favourable circumstance of position,—the majestic river covered with its many vessels—a most picturesque line of foreground; here, public buildings of the most important character; there, ornamental gardens and pleasure-grounds, the piles of warehouses and residences,—an ever-varying panorama, not laid out in a straight line, but curved, and to be viewed in an ever-shifting perspective at almost every point. What is wanted but the master-hand and artist mind so to deal with all this as to make it a picture of architectural richness never equalled in the world? The mixture of busy life with the gaiety of the pleasure-seeker, the view intercepted by the many bridges—railway and other; the vistas beyond,—the lights thrown back from the water,—the deep shadows and mirrored reflections in the purified stream;—I say that this is, of all others, a theme for the architect; and I would that we, as a body, were more alive to the necessity of not allowing these great opportunities to pass without striving for the victory, even with giants such as those I have named.

I will not pretend to argue in any way the style to be chosen. For my own part I would say, let the buildings be broken into masses; but let there be an element of repose, of conscious strength, if I may so speak, in the work which sets bounds to the mighty river; let there be simplicity of treatment with broad effects; not much ornament,—not any breaking up of surface with small projections; and, whatever may be the leaning in the architect's mind towards any particular style or period of art, it will matter little: the result will be sure to satisfy.

Finally, let me express a hope that I have stated fairly what little it has been possible to say within the compass of this brief introduction of the subject, concerning the schemes that I have alluded to; and let me add that a tribute of admiration and praise is due to their authors for the public and spirited way in which they have come forward at the expense, not only of large pecuniary outlay, but of very great thought, labour, and trust, when the nation asked for information as to what was to be done; an expenditure, be it borne in mind, which, in most cases, must be without any return whatever.

WESTMINSTER IMPROVEMENTS.

Now that the railway station is complete, and the hotel begins to disclose its handsome exterior, it is to be hoped that Victoria street may emerge from its chaotic and long neglected condition. The fine range extending on one side, about one-third of the street, towards the station, is finished, and fully occupied; whilst the India-House, with some Government offices, have taken up another range at the Abbey end, all the finished blocks amounting to about one-fourth part only of the entire street. Near the station, however, and opposite the new church, ranges of buildings have been finished, and occupied as chambers for the last year; and other blocks, on a very extensive scale, in Morpeth-terrace and Carisle-place, are being carried up by Mr. William Jackson. These latter are constructed more especially for families, and are arranged in large or small suites, as complete abodes, on the Parisian plan. There are but four stories above the entrance floor; thus showing less of the hotel, and more of the domestic character, and therefore preserving comparative quietude, when contrasted with portals which give *entrées* to a score of quarters.

There is still a want which is obvious to every observer in passing this grand thoroughfare, and that is an opening to communicate with St. James's Park, on the east side. At present, from the India-House, throughout the whole length of the street, there is none through which any

prudent person would venture to drive, and hardly to walk.

A wide traverse-way, cut along the south side of the brewery, and opening out to the barracks, in St. James's-street, would vastly enhance all the property in the vicinity; afford a much needed duct for public traffic; and at the same time circulate the medium of free breathing to her Majesty's Guards, and to whole troops of groundlings in this *terra incognita* of St. Peter's.

As for the rest, the wide streets once cut, the decrepitude of Old Westminster will soon right itself.

DINNER TO MEMBERS OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

On Saturday evening last, June 29th, Mr. Tite, M.P., President, entertained very magnificently, at the Star and Garter, Richmond, the council, past-council, and some other members of the Institute, inviting to meet them the heads of various cognate societies and other distinguished individuals. The guests numbered more than 100. In proposing the health of the Queen, the chairman pointed out the importance of the grant made by Her Majesty, through the Institute, of a royal gold medal annually, for the furtherance of architecture. To the toast, "The Army, Navy, and Volunteers," Captain Haywood (of the City) replied in a soldierly manner. The Lord Mayor, in responding to the toast of his health, which had been proposed in complimentary terms from the chair, said he would undertake to state that the corporation of the city of London, invested though it was with great antiquity, was still constantly endeavouring to adapt itself to the wants and requirements of the time; and that, while boasting of age, it had all the vigour and elasticity of youth, for its council was composed of men elected, not exactly by universal suffrage, but by the great mass of the citizens. Playfully alluding to the presence of Mr. Ayrton, his lordship added, that to those men the reform of the corporation, if it needed reform—for no common institution could pretend to perfection—might be safely intrusted.

The President then proposed the toast of the evening, "The Royal Institute of British Architects, and success to it," amid great cheering. When, he said, the architects of England felt the necessity for greater advantages than the Royal Academy afforded them, he himself well recollected the period when being a student at the Academy, he and others urged on the Council of that day the propriety of opening their library to students, an advantage which was immediately conceded. The architects were growing into an important body at that time, and among them two distinct societies were formed; the first being the Architectural Society, which he joined, and the other the Institute of Architects. The latter received very early indeed the patronage of the Queen, and after her marriage that of her Royal Consort: they obtained also a charter, and long enjoyed the liberal patronage of his late Royal Highness the Duke of Sussex, a most generous and discriminating patron of the arts. Eventually the Architectural Society became merged in the Institute, and the two bodies, so amalgamated, elected, as their president, the late Earl de Grey, a position which that nobleman held for upwards of twenty years, to the incalculable advantage of its members; for to his influence at court was doubtless to be attributed the charter which her Majesty granted to the society, and the gold medal she annually gives for presentation to some distinguished architect, and which is presented alternately to an English and a foreign architect. The Prince Consort had also repeatedly manifested the kindly interest he takes in the Institute by coming among them in the most unostentatious manner, and taking the chair at their meetings. Mr. Cockrell was elected president on the retirement of the noble earl. After alluding to the existing contest in reference to the Classic and Gothic styles of architecture, Mr. Tite, anxious that architecture should flourish and take the place it was entitled to assume in the great community of Art in England, appealed to his professional brethren to sink minor differences of opinion, and to aim at attaining that great object.

The toast was drunk with acclamation.

Mr. Digby Wyatt, as one of the vice-presidents, said,—Happily, the study and practice of architecture was not exactly like the function of defending "hearths and homes;" its business was to make them, and therefore it was entitled to a niche in all our hearts. In the further course of his remarks, he maintained that architec-

ture was now walking hand-in-hand with the intellectual developments of the day. The Royal Society (the president, of course, did not forget that Wren was an early member of it) was spoken for by Dr. Whewell; and Sir Charles Eastlake, Lord Talbot de Malahide, and Sir Roderick Murchison, replied to the toasts of "The Royal Academy," "The Society of Antiquaries," and "The Royal Geographical Society."

The following is a list of those who were present:—The Lord Mayor, Lord Talbot de Malahide, the Hon. William Cowper, M.P., Sir Roderick Murchison, Sir Charles Eastlake, Mr. Kennard, M.P., Mr. Moffatt, M.P., Mr. Ayrton, M.P., the Master of Trinity, Mr. Dilke, the Rev. R. Burgess, Mr. Du Chaillu, Mr. Landseer, R.A., Mr. Knight, R.A., Mr. Frazer, Mr. Sampson, Mr. Smee, Mr. E. Barry, Mr. Smirke, R.A., Mr. Godwin, Mr. Kerr, Mr. Curry, Mr. Jos. Clarke, Mr. P. C. Hardwick, Mr. Thoms, Mr. Whichcord, Mr. Aspitel, Mr. Mair, Mr. Vardon, Mr. M. D. Wyatt, Mr. Burnell, Mr. Prestwich, Mr. Clifton, Mr. Bonham Carter, Mr. Austin, Mr. Thwaites, Mr. G. Vulliamy, Mr. H. Ashton, Mr. C. Barry, Mr. J. Bell, Mr. Boulnois, Mr. D. Brandon, Mr. Cates, Mr. W. L. Donaldson, Mr. Edmeston, Mr. Fergusson, Mr. Ferrey, Mr. C. Fowler, Mr. Francis, Mr. Garling, Mr. Gibson, Mr. Hansard, Mr. Haywood, Mr. Jennings, Mr. H. Jones, Mr. Lamb, Mr. Leicester, Mr. Hayter Lewis, Mr. Marnable, Mr. Mayhew, Mr. Nelson, Mr. Newton, Mr. Norton, Mr. J. Papworth, Mr. W. Papworth, Mr. Pennefather, Mr. Porter, Mr. Scoles, Mr. Slater, Mr. Roger Smith, Mr. Stevens, Mr. Street, Mr. Waring, Mr. S. Wood, Mr. Woodthorpe, Mr. Penrose, &c., &c.

ARCHITECTURAL ASSOCIATION.

THE concluding ordinary meeting of members for the present session was held on Friday evening last, at the House, in Conduit-street; Mr. T. Roger Smith, president, in the chair.

The Chairman acknowledged, on behalf of the Association, a donation from Mr. E. L. Paraire, consisting of a set of perspective models, and a work explanatory of them, entitled "Perspective Practically Explained."

Mr. A. Smith (hon. sec.), having announced that the registration was now in the hands of Mr. Moody, at the rooms in Conduit-street; to whom all applications from employers and assistants should be made;

The list of names of officers of the Association submitted to the last meeting was then considered, and the following gentlemen were elected for the year 1861-2:—President, Mr. A. W. Blomfield, M.A.; Vice-President, Mr. Thomas Blashill; Ordinary Members of Committee, Messrs. W. Gritten, C. H. P. Lewes, G. B. New, E. L. Paraire, J. W. Walter, E. Wimbridge, R. O. Harries, J. A. Bunker, E. J. Tarver, H. A. Reeves; Honorary Treasurer, Mr. Arthur Smith; Honorary Solicitor, Mr. Francis Truett; Auditors, Messrs. S. C. Rogers and J. W. Penfold; Curators, Messrs. C. H. F. Lewes and R. O. Harris; Honorary Secretaries, Messrs. Arthur Smith and C. J. Adam.

Mr. Harris called attention to the state of the modelling class, and suggested whether it might not be continued during the recess; but the suggestion did not meet with the approval of the meeting. The progress of the class was said to be very satisfactory.

The Chairman then referred to the report of the examination committee which had just been made to the council of the Royal Institute of British Architects on the subject of the proposed examinations, and recommended the members of the Association to study the document, and to prepare themselves for examination on the first opportunity. He had no doubt whatever, if they would do so, many of their members would pass with honour to themselves, and reflect credit on the Association. He did not think that in presenting themselves for examination they would be expected to know more than young men in their position might fairly be supposed to do, who had used the means of education at their command. With regard to the other examination for honourable distinction, it would be of a more extended character; and some gentlemen might not feel themselves prepared at that moment to present themselves to the examiners; but he had no doubt that many of the members of the Association would present themselves at the first favourable opportunity, and pass through the ordeal with credit.

Mr. A. Allom said he must own that to some extent his feeling was against voluntary examination at all, because he feared it would not be as successful as it ought to be. His reason for ar-

riving at this conclusion was, that young architects of the present day were not educated in that careful manner that would enable them to pass such an examination with *delat*. It was, however, he thought, judicious, on the part of the committee, to recommend the number of marks to be lessened at the first ordinary examination; so that young men might be induced to present themselves who would otherwise be deterred from doing so.

Mr. Adams proposed that during the recess the committee should consider what should be the subject for Mr. Tite's prize, and proposed that they should make a report at the commencement of the session, suggesting three subjects, which should be discussed by the general body, and one eventually decided upon, so that three months might be given for preparation.

This was agreed to.

On the motion of Mr. Harris, Mr. T. R. Smith, Mr. Blomfield, Mr. A. Allom, and Mr. Blashill, were appointed judges of the Association prizes for an essay on street architecture, and for the best sketch in the class of design.

The Chairman, in taking leave of the Association as president for the past session, referred in appropriate terms to the satisfaction which he had derived from its progress, and expressed a hope that the members would continue in their desire for self-improvement. Notwithstanding the difficulties with which the Association had had to contend, it had effected much good, and he believed that it would prove a useful agent in the acquirement of professional knowledge. In conclusion, he thanked the members for the manner in which they had supported him during his year of office.

The officers of the class of design were next appointed; and, after some complimentary votes had been passed, the meeting separated.

LIVERPOOL ARCHITECTURAL SOCIETY.

THE scene of the annual excursion of this Society, on the 22nd ult., was Hawarden Castle, Flintshire, when about forty members, in the face of threatening weather, crossed over to Tranmere, and proceeded by two of the Liverpool Omnibus Company's 'buses towards Queen's Ferry, on the Dee. On leaving Tranmere the weather cleared up, and the tourists were during the remainder of the day gladdened by continued sunshine. Arrived at the Queen's Ferry, eight horses, two 'buses, and all the passengers crossed over the river in one large boat. The utility of such a ferry is patent to all those who have used it, and the Liverpool people hope a similar system will be before long in use on the Mersey, between Liverpool and Birkenhead. From the Hawarden Castle Hotel the Society proceeded to Hawarden Church, which is situated on a considerably elevated plateau, sloping down towards the east end of the village. About three years ago the edifice was nearly destroyed by a fire, which was the work of an incendiary, but it has been since restored, under the superintendence of Mr. Scott. The other objects of interest in the excursion were to have embraced the Buckley Brickworks, Messrs. Whalley, Burrows, & Fenton's Wire Rope and Telegraph Cable Works, and, lastly, the old ruins of Enloe Castle, near which, in a deep defile, Henry II. suffered a severe defeat in one of his wars against the Welsh, who attacked his army in front and rear after having drawn the troops into the trap. These various places could not be visited, as the time was limited; but the visitors were accompanied by Sir Stephen Glynn and the Rev. Rector to Hawarden Castle, which stands in the magnificent park at the east end of the village. The mansion of Sir Stephen Glynn was first viewed. It was erected in 1752, and remodelled in 1809, in the style of the thirteenth century. Surrounding it are some giant forest trees.

The ruins of the old castle stand on a high hill commanding a fine view of the surrounding country, including Enloe Castle. The remains are said to be of the Edwardian period; but it is believed that a castle existed on the spot before the Norman Conquest. It is, however, authentically known that in 1282 the castle was taken by surprise by Llewellyn, the last of the Welsh princes; and it was subsequently granted by Henry VI. to Sir Thomas Stanley, in whose family it remained until the death of the Earl of Derby at the battle of Worcester, in 1651; when it was purchased by Sergeant Glynn, of Cromwellian celebrity. Since that time it has remained in the possession of the Glynn family.

It was now four o'clock, and the hour for dinner had arrived. From Aston the section went across the country again to Queen's Ferry, where the

party once more became consolidated at the Hawarden Castle Hotel; and if it be true that "a good dinner sharpens the wit while it softens the heart," then indeed must "mine host" have succeeded in making his guests very sharp wits and very soft-hearted, for everybody was delighted with the repast.

The chair was occupied by Mr. J. M. Hay, the president of the Society, who had Sir Stephen Glynn on his right, and the Rev. Rector Glynn on his left. The vice-chair was filled by Mr. Stubbs, who was supported by Mr. Robert Rawlinson and Mr. Fenton. The cloth having been drawn, and grace said by the Rev. Rector Glynn, the usual loyal and patriotic toasts were given from the chair.

The health of the hon. secretary, Mr. W. H. Pictou, was most cordially drunk, and the last toast—that of "The Ladies"—was proposed in a felicitous speech by Mr. Hardy Hay, and responded to by Mr. Doyle.

The 'buses were again brought into requisition, and the party reached home again shortly before midnight, well pleased with their excursion.

THE MERCHANT SEAMEN'S ORPHAN ASYLUM, SNARESBROOK.

THE foundation stone of this asylum has been laid by His Royal Highness, the Prince Consort. The weather was fair, and the inhabitants of the district made quite a gala day of the occasion. A triumphal arch was erected in honour of the Prince near the railway station, and a pavilion which was crowded by 1,000 persons covered the site of the stone; after the laying of which, and a brief reply by His Royal Highness to an address by the honorary secretary, the ladies who had collected subscriptions deposited their purses on the stone, and in a brief space a little hillock of offerings had been raised. Lady Morrison laid down a neat little purse, containing 1,000 guineas.

THE WESTERN COLLEGE, PLYMOUTH.

THIS institution was founded in 1752, for the education of young men for the Congregational ministry, and is the oldest college connected with this denomination. The new building, the foundation stone of which was laid about fifteen months ago, was formally opened on Wednesday, the 19th of June, in the presence of a large concourse of persons.

The building is in the Geometric Pointed style; and is, for the most part, erected of dark Devonshire limestone, with Bath stone dressings, and having string courses, capitals, and spandrels, enriched with carving from natural foliage. The central feature of the structure is an apsidal projection from the south facade; which, on the ground-floor, includes an open porch, having three arched openings; and which forms, above, the south end of the library, pierced by three two-light windows, having double middle shafts. This central part is surmounted by a high-pitched roof, surrounded at the base by a freestone parapet, intended at some future time to be carved. Through the porch, which has steps and pavement of granite, we enter the hall, 20 feet 3 inches by 18 feet, on either side of which are eight students' studies and a lecture-room, 18 feet 6 inches by 16 feet. In the rear are the refectory, 23 feet by 16 feet, housekeeper's apartments, kitchens, &c. The floor of the hall is laid with encaustic tiles; and at the north end, directly opposite the entrance-doorway, is an open freestone screen, on which are incised the dates of the foundation of the college and the erection of the new building; and above the inscriptions, on scrolls, "Thy kingdom come," and "Thy will be done." A broad flight of Portland stone steps leads from the hall to the first-floor apartments. In the centre is a library, 40 feet 6 inches by 18 feet, with open-timbered roof, and having at the north end a gallery. The room is fitted with bookshelves all round, and is furnished with table lectern and benches of appropriate character. The chairs, which are of oak, are of the "Glastonbury" pattern. The library is lighted at night by a handsome corona. On each side of the library is a lecture-room, 20 feet 3 inches by 18 feet 6 inches, and over the studies on the ground-floor are an equal number of dormitories. In the rear are the bed-rooms for servants, &c. At the west end of the college proper, and set back about 16 feet from the main front, is the resident professor's house.

The contract amount (not including fittings) was about 4,000l. The architect was Mr. Hine, Plymouth: the contractors were Messrs. Call & Petlick.

NEW STREET MESSENGERS AT BERLIN.

In Berlin a successful experiment has been made by an enterprising individual who has just formed a brigade of Dienstmänner. These new soldiers of the public hold themselves in readiness for all kinds of service, such as carrying messages, letters, and performing commissions. In addition to the ordinary duties of street messengers, they also take upon themselves many of the smaller household duties, such as cleaning rooms, windows and doors, blacking boots, and making themselves generally useful. "These accomplishments," says the correspondent of the *Daily Telegraph*, "are so varied in all the thousand and one arts not already occupied by special handicrafts, that they may be said to range from the fourth hand at whist, or fourteenth place at the dinner-table, to the hoisting of heavy woollacks or bringing home the Sunday's dinner from the bakehouse."

There is nothing, perhaps, very novel in this extensive range of the Dienstmänner's activity, but the one point deserving of all credit lies in the fact of the public not having to deal with the individual, but with a company, who guarantees the honesty and good character of each of its servants, and also dispenses with the hitherto invariable accompaniments of similar transactions by the arrangement of a minute and comprehensive tariff, exhausting in its catalogue the list of possible services. Not only is the general behaviour of the commissionaires vouched for by the proprietors; but, as in each case the Dienstmänn has to give a numbered ticket to his temporary employer, the latter is in a condition to claim compensation for every article lost or damaged by negligence or misconduct.

By these tickets, which vary according to the duty performed and its place in the tariff, an effective check is also placed in the hands of the proprietors, serving to control the casual income of the day. The men are in the receipt of a regular pay of twelve thalers a month, and have, consequently, no further interest in the monetary returns; though, no doubt, many occasions arise when the generosity of the employer steps beyond the strict limits of the scale. The tariff itself comprehends many varieties of payment, including time, distance, and other special arrangements, and is in every respect very moderate in its charges. For the whole day the services of a Dienstmänn may be secured for two shillings; for an hour or less, about three pence; for a short distance, not exceeding a mile, a groschen (something more than a penny) is charged. In the case of a longer journey, the messenger may have recourse to a map of Berlin, with which he is furnished by the company; and the distance is determined by a small foot-rule, which he also carries on his person. The uniform of each man consists of a simple blouse, with fustian trousers, a kind of Austrian cap, carrying a brass plate with the inscription "Dienstmänn" and his respective number. The new institution is already a success, and, from the original brigade of less than 100 messengers, has increased, until there are now four companies in the field, employing upwards of 1,500 men.

THE NEW BRIDGE OVER THE RHINE AT KEHL.

THE bridge which crosses the Rhine at Kehl forms part of the railway between Strasbourg and that town,—between France and Germany, in fact,—and has been completed for the company of the "Chemins de Fer de l'Est," and the administration of the Grand Duchy of Baden, in the short space of thirty months, notwithstanding many difficulties, both diplomatic and local. In placing before our readers a view of the bridge and a diagram illustrating the mode adopted for constructing the piers (for which, probably, less praise on the score of originality will be awarded in this country than has been claimed for it abroad), we avail ourselves of a memoir published in the *Illustration de Bade*, to give full particulars of the undertaking.

The junction of the French railway with the Grand Duchy of Baden line commences at the Strasbourg station, and the former borrows about 3,500 yards of way from the Basle and Strasbourg line. At Köniqshofen the road curves, and proceeds to the Rhine, after passing successively Mühlbach, L'III, the Rhone-and-Rhine Canal, the windings of the Rhine, Ziegelwasser, and the Little Rhine. Finally it terminates at the bridge over the Rhine, crossing the imperial road of Germany by a viaduct, near to the monument raised by the army of the Rhine to Desaix, in 1806.

By the imperial decree of April 20, 1854, the construction of the line between Strasbourg and Kehl was conceded to the *Compagnie de Chemins de Fer de l'Est*; but it was not till July, 1857, that an international convention, signed by the representatives of France and the Grand Duchy of Baden, permitted the preliminary investigation to be made relative to the construction of the bridge over the Rhine, and the completion of the line between the two stations. In September of the same year, the international commission held its first meeting at Strasbourg.

The decree of the 20th of April went to the suppression of the bridge of boats which forms the double line of railroad was to be reserved for carriages. Upon this the diplomacy of the right bank set its veto. The result of this opposition was the maintenance of the bridge of boats, and the establishing of a swing-bridge on each of the banks, 26 metres in span, and 36 metres in swing, with a balance end of the same length. These swing-bridges will only be fully understood when the stream navigation, which now ceases at Mannheim, shall have installed itself on the Upper Rhine. This exigence of the Diet of Frankfurt has damaged the appearance of the work, and interfered seriously with the budgets of the administration.

A whole year was devoted to studying and discussing the plans. The result of the deliberations of the commission was to give the construction of the foundations to the company *de l'Est*, and the works of the superstructure, including the fixed portion of the road, the swing-bridges, and the entrances, to the Duchy. Mr. Fleur St. Denis, engineer, was charged with the execution of the foundations, under the direction of Mr. Vuigner, the company's engineer-in-chief; and Mr. de Kagenack was charged with the execution of the upper part, under the direction of Mr. Keller, of the *ponts et chaussées*.

The works of the foundation were commenced, September 15, 1858. Grave events made the abandonment of the enterprise to be feared in the following year, but the company put aside all apprehension, and redoubled its activity during this doubtful period. The work was vigorously pursued. Great difficulties presented themselves. It was necessary to provide against the washing away of the stony bed of the river. An idea may be formed of the force to be counteracted, when it is remembered that the enormous body of water moves here sometimes with a rapidity of 300 metres a minute. It was, therefore, decided, that the foundations of the piers should not be laid at a less depth than 15 metres below the deepest known water; but on examination it was found that no solid base for such heavy constructions could be obtained at a less depth than 20 metres.

The commissioners had determined to employ the compressed air system in laying the foundations, originated by Mr. Tigrer, who had employed it in sinking shafts for mining, and which had procured for its author, in 1853, the great prize for mechanics at the Institut Impérial des Sciences. Nevertheless, this decision of the commissioners was not altogether obligatory; the French engineers were left at liberty to adopt any other system that appeared to them preferable.

Mr. Fleur St. Denis, engineer of the *Compagnie de l'Est*, after having carefully studied various systems, and that of Mr. Tigrer more particularly, adopted a mode of his own, having, however, the use of compressed air for its starting-point. His system had the additional advantage of a considerable saving in time.

According to Tigrer's method, thirty tubes would have been required for the piers. Mr. Fleur St. Denis substitutes for the tubes one single caisson for each pier: in this consists his invention.

Messrs. Vuigner & Keller, the engineers-in-chief, adopted Mr. Fleur St. Denis's system, and associated themselves with it completely by taking part of the responsibility. The caisson employed is a sort of parallelepipedon, closed above and open below, constructed of wrought-iron plates one centimètre in thickness, and weighing 140,000 kilograms.

Some extracts from an account given by a correspondent of *L'Illustration de Paris*, of a subaqueous journey made by him, will aid in conveying an idea of the works.

The iron caissons, open below, descend into the water, which they disperse by means of the compressed air contained within their sides. Within these caissons a dredge raises the gravel, and makes a funnel, at the same time that workmen, placed along the sides of the caisson, second

its efforts. Thus, a pit is formed, continually deepening beneath the tooth of the dredge and the shovels of the workmen. The caisson penetrates into these abysses, carrying on its back a block of masonry, which is supported above the water in such a manner that the whole mass descends slowly. Arrived at the specified distance, the works stop; the dredge and the men rest from their long labours; concrete is poured into the sides of the iron chambers, and thus rises in the middle of the river a large column of masonry, iron, and concrete, forming one piece, and standing like a monolith in the midst of the beds of gravel which it has traversed.

The execution of the various portions of the work, conducted by Messrs. Joyant & Defranc, was not accomplished without the difficulties that always attend such an undertaking. When the caissons, plunged into water, received the first discharges of air from the pump, they trembled in the water, and then rose to the surface like balloons: supported as they were by the compressed air, their own immense weight, and the masonry which they carried, were alike incapable of resisting its powerful action. And after this commencement, what unlooked-for obstacles, what ever-growing difficulties! At one time a flood of the Rhine, which threatens to sweep away in a moment the fruit of several weeks of toil; anon, chains break, and dredge cylinders choke up; and then, workmen habited as divers, are forced to descend between the sides to raise, with immense labour, links of chain tangled into knots of iron.

There are also unforeseen manifestations of a little-known and rebellious element. The caissons descend; the air pumped into them is not able to drive away the water that surrounds their feet; and yet, by sudden jerks, it precipitates itself outside, and mounts up the whole length of the iron sides, discharging itself between the caissons with a horrible noise that awakens all the echoes of the subterranean caverns. Or, again, the physiological effects of compressed air combine against the workmen, and sorely tax all the ingenuity and watchfulness of the engineers, and their self-devotion to the same perils as their men undergo. They must pay with the risk of their lives for their want of knowledge of their new enemy.

The drawing we give presents a section of different portions of a work which it is difficult to describe in detail. The pier which is formed in the Rhine is, in the drawing, only seen in front, 7 metres broad, but its length is 23 metres; and the caisson which our drawing shows is only the first of a row of caissons of which each is pierced with the dredge-cylinder in the centre, and two cylinders for descent.

The men working in the caissons, placed one behind the other, are sixty in number.

On the floor of the upper platform of the pier is shown the arrangement required to effect the descent of each caisson.

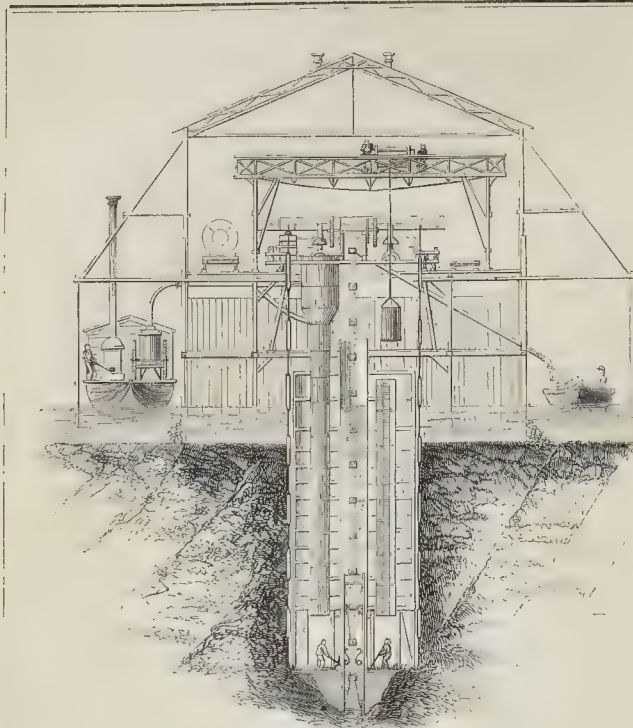
Each of the four dredges empties its buckets by an iron conduit into a large sledge to the side of the pier; and the eight cylinders of descent give passage to the workmen and to the materials that are sent down into the bottom of the caisson to fill it up as a solid block.

On the lower platform is carried on all the mason's work of the pier, on which masses of granite are fixed, covered at their base by the water, but rising 7 metres above it, and bearing the bridge.

To the left of the pier are seen the boats which bear the air-pumps; flexible caoutchouc tubes allow of the oscillation of the boats, and are bound to fixed copper tubes, which join on to the cylinders of descent.

One who had made a descent to the bed of the Rhine during the last few days of the work says,—"A few strokes of a hammer on the cylinder was the signal, and a valve or clack opening (which allowed the condensed air to escape with a sharp whistle), gave admission into a little dark chamber, lighted by a small round hole, dignified with the title of a door. We descend by a ladder, and the clack closes after us. While we lighted our candles, communication with the tubes of the air-pump was established. The pressure on the tympanum of the ear caused extreme pain, and sharp neuralgic twinges encircled the forehead, and pressed like a gimlet behind the temples and into the cavities of the brain.

Fortunately for me, I remembered the method of counteracting this evil, and of re-establishing the equilibrium between the outer higher pressure of air and that less compressed which was contained within the ear. This was by taking a long inspiration and swallowing at the same time.



THE RHINE BRIDGE AT KEHL.

Section of Caisson for Construction of Piers.

Gradually I felt relieved; the tingling in my ears ceased, and I could once more hear the conversation of the workmen. I repeated this mechanical operation each time that the external pressure, which continued to increase, exceeded that of the air I had taken in; and when at last the equilibrium was established, I no longer experienced these painful sensations.

Presently a door opens at our feet, and the eye endeavours, but in vain, to penetrate the black darkness of the long tube below. The guides beg of each visitor to hold fast by the ladders, which descend vertically into the abyss. We cling closely to the wet bars of the iron ladder, and descend under a fine cold rain, that distils upon our faces, moist with perspiration, while our feet are seeking for their next resting-perch, and the hand dreads to let go its hold of its slippery support. One thing is imperative—not to miss the footstep: the fall would be terrible. One offers up prayers for the safety of one's companions as well as of oneself. If one of those above you missed his footing, the weight of his body would infallibly drag you down also. The descent lasts four or five minutes; eighty-five steps bring you to the bottom.

At first the eye can scarcely distinguish anything beyond the flickering ray of the candle. Nevertheless, one of our party, inspired with a feeling of relative comfort, unhopied for in these regions, impulsively exclaimed—'Here we are, like fish in a river.' Scarcely had he uttered the words, but he would fain have recalled them. He had forgotten the workmen who are obliged to pursue a painful task of several hours' duration in these dismal depths. Looking around more attentively, we were at length able to perceive, in the dark corners of the caisson, men half hidden by the scaffolding, handling the shovel, bent down, and with their feet in the water. Thus, in this atmosphere of triple pressure, which alone is sufficient to cause congestion in less strong constitutions, the men work on for three hours at a stretch, the head bent down, and the feet chilled by the waters of the Rhine.

Bravely do they endure these painful toils, and little time have they for meditating over them. For myself, I was drawn from my philanthropic

musings by a shout of laughter from my companions, who had all at once made a discovery that any one of us might have perceived long before, in the air-chamber. Under the effect of atmospheric pressure the voice changes singularly: one speaks no longer with the mouth, but through the nose; the most pure organ accentuates each word in the strangest manner. One of us, an advocate who piques himself on speaking elegantly, was explaining the theory of the Rhine works just as if he himself were a skilled engineer, to our guide, Mr. Hersant, who, with the utmost politeness, listened to him most patiently. In the excitement of his subject he did not notice the peculiar accent which changed every one of his words, and when he had run the whole gamut of this nasal chanting, and was arrived at the end of his phrases, instead of the mark of consideration which he anticipated from his audience, he was greeted by a general roar of merriment, which, under this sonorous vault, drowned for a moment with its hoarse sounds the noise of the dredge and the splashing of the water.

But now a chilly damp began to take hold of us. The temperature is some degrees lower in the bottom of the caisson than in the upper chamber of the cylinder. This depression, produced by the water of the Rhine surrounding the sides of this compartment, plunged, as it were, in a well, becomes very perceptible to the visitor, who, a moment previously, was covered with perspiration. The signal of departure is quickly given, and we ascend, not however before each one of us has picked up his little pebble from the bed of the Rhine. It reminded me of those travellers who never resign themselves to quit a cathedral, or any other monument they may be visiting, without breaking off some portion of stone, which they transmit to their grandsons as a memento of their journey.*

The ascent is made more rapidly than the descent, and the entrance chamber is again reached. Arrived at the top of the ladders, not the slightest fatigue or stifling sensation is felt. Breathing is accomplished slowly, and with a sort of voluptuous sensation that renders it a delight. It seems as if

* A very bad practice, by the way; for each visitor, thus indulging his own selfish wish, renders the monument less beautiful for those who come after him.

the chest were distended and swelled out like a cuirass. One longs to have this feeling last for ever, that one might always breathe with such well-filled lungs; even were one condemned to live in an atmosphere charged with dust and soot, it seems as if it were possible to resign oneself cheerfully to that. But we are obliged to go out, and here recommence the traveller's tribulations.

The under-valve is closed, and that which gives passage to the compressed air in the chamber slowly opened; and this by degrees puts the respiration on an equality with the external atmosphere.

The sharp whistle of the air which is escaping with great speed, again distresses the ears; an abundant perspiration breaks forth all over the body, the effect of rapid respiration caused by the absorption of a triple quantity of oxygen. Suddenly a freezing cold seizes you: the air, in escaping, lets fall upon you the watery vapour with which it was charged; a fog, thicker than any you have ever experienced on the borders of the Rhine, envelops you, and hides your companions from your sight; and scarcely is the candle you carry in your hand perceptible to you. Again the singing in your ears occurs, you breathe with the mouth wide open, striving to drink in the air, which rarifies and eludes you.

At length the interior atmosphere of the chamber is equalized with the exterior; the valve opens, you ascend, throw an enraptured glance on the Rhine scenery around, and here we must leave our eye-witness.

The works were materially advanced by the employment of a steam-hammer, intended for the driving of piles. Our authority, of Baden, of course does what he can to lessen the credit due to Mr. Nasmyth for this invention, but without much effect. We must pass on, however, to give a few statistics.

The first pier of the Kehl bridge—that nearest to the French border—commenced the 22nd of March, 1859, was finished on the 28th of May, after sixty-eight days' labour. The second, on the Baden side, was concluded in thirty-five days. The third occupied only twenty-nine days; and the fourth but twenty-six.

While the piles were being driven, 250 Baden workmen were forming the trelliswork of the roadway. All the iron was furnished by the factory at Creuzol. The metal works were established on the French bank. Each of the beams of which the trellis is formed is six metres high. These large solid pieces are bound together by rivets driven in red hot; 150,000 of these rivets being used. The trellis-roadway was constructed by the Messrs. Benckiser, of Pforzheim. It is 177 metres long, and represents a weight of 1,200,000 kilos.

The most interesting portion of the whole operation was, decidedly, the bringing into position of this enormous cage. From the dock on the French side, where it was put together, it was pushed on to the piers by a horizontal movement, and with the help of a series of cylinders each turning on its own axis. The operation commenced on the 8th of September, 1860, under the orders of Mr. de Kagenack, engineer, and the direction of Mr. Keller. The average progress was 30 to 40 metres a day. To facilitate matters still more, the engineers adopted a sort of fore-arm (an adjunct of 20 metres in length), which enabled them to span the interval of 60 metres between the various piers without constructing intermediary scaffolding.

On the 22nd of September this large construction was placed upon the piers. The exploit was saluted by loud acclamations from the spectators on the river side. The French flag floated on the left bank, and facing it were the colours of Baden.

From this time the concluding labours were energetically carried on. The swing-bridges, brought to the barge heads, took their station each upon its pivot. These are from the French factory of Graffenstatden. Each bridge weighs 250,000 kilogrammes.

From the same factory were obtained the caissons used in forming the piers.

On the 11th of March, 1861, experiments were commenced for testing the bridge, and all proved very satisfactory.

A commemorative stone has been inserted in the pier nearest the shore on each side of the river. It is a mass of granite, on which are cut the names of the sovereigns and of the functionaries under the reign and administration of whom this work has been brought to its successful termination. Eight millions of francs have been laid out to place this solid act of union between France and Germany.



NEW BRIDGE OVER THE RHINE AT KEHL.

ORIGINALITY OF STYLE.*

LET us imagine ourselves meeting early in the present century instead of now, and try to fancy the kind of inquiries that might be engaging our attention. Many questions, important then, have been set at rest for ever, and this that brings us here now was not then urgent. We should be following enthusiastically after everything Greek in the good company of those who are now passing out of our high places in age and honour. The Greek style was to supersede the Roman, and be itself superseded by the Italian and the Gothic. The bulk of the materials that go to form the basis of our present practice were to be accumulated or revised. The chief monuments of ancient cities were to be copied carefully and set up in our towns, familiarizing us with the best examples of classical art, which few of us could travel to see, and which books could very imperfectly teach.

It would be unmanly to turn away from the pioneers of this good work, who carried it on with such ardour and learning, to a subject so different in kind, in a sense so opposite, but in no degree hostile, without recognizing that we owe it to them that we are in a position to turn to it at all, and it is their labours that have hurried us into other times. In our own day we neglect these matters a little, perhaps; there is much work to be done in investigating the history and characteristics of the Medieval style, something to be done for present exigence; for, however indifferent it may be to the rest of the world, it is necessary to us that we live—and even a generation of thinkers cannot be thinking of everything at once. The styles of our own country have been imitated with much success; we are rapidly getting to understand them better by study of contemporary foreign examples, and much that is valuable in the age of Romanesque.

Nothing could be more unwise than to check prematurely this line of action; but, even now, it is becoming of prime importance that we think of our future course, understanding the causes that lead to the formation of styles, and will influence our progress, by our own permission, or, if necessary, in spite of our resistance. I will not pretend to be able myself to go very deeply into this question; but you will form some idea of the spirit of the remarks that follow from the title by which I have strung them together. It will be getting rid of a couple of hard words which somehow always rise up when we start a question of this kind. If I disclaim all connection with anything of a "transcendental" or "utopian" character, there is plenty of good substance to be dealt with, and we will have nothing to do with shadow.

The word "originality" is generally used as a term of praise; and, in selecting it for my present purpose, I intend it to mean, "the healthy exercise of invention in architecture." We are likely to misapprehend the nature of originality from a wrong idea of the terms "change" and "permanence," and to imagine that it is natural for things to be fixed, and exceptional for them to vary. So far is this from being the fact, that one might almost say that change is the only fixed principle, and anything pretending to permanence is an innovation and an anomaly. It is not wonderful that the revival of classical architecture should have led men to suppose they could extract out of it, or compose from it, certain perfect specimens, which, being acknowledged to be the best that could be contrived, should be received contentedly as precedents for the rest of time. That was perhaps the first false application of the principle of finality that was quite unconnected with superstitious motives. We are generally of opinion, now that the results have been such as to make us thankful that the efforts which have been made to introduce it into the Gothic styles have not met with success.

At first sight one might suppose it reasonable to contrive out of old examples, certain arrangements of design, which, being right once, should be kept for ever. The mistake of attempting to keep a thing fixed while the rest of the world is moving, is twofold. One of the first things we learn at school is, that there are three tenses, past, present, and future. By stripping from a thing all record of the changes which time has wrought upon it, and the influence of different minds, and making it a thing of the present, you deprive it of history; by fixing it as a thing perfect and complete, you take the life out of it, and deprive it of hope. It is possible

to see this very distinctly if we compare the impressions we shall gain of classical architecture according as we study it by one or other of two methods: we may study it, if we will, by the royal road of the five orders. For those who wish to do a thing in a business-like way, without much trouble, or strain on the imagination, this course is to be recommended. You get five interesting diagrams, which you know have been most carefully and diligently compiled and purified, and may be really the best central ideas of the orders they profess to represent. Perfection, if such a thing can exist, has been attained, and you enter easily in a few weeks on the fruits of other men's labours,—perhaps the ceremony is about as interesting as so many sums in the rule of three. Our law-makers have thought it necessary to prevent the past and present from transpiring over the future by preventing a testator from tying up his property for more than thirty years; in the five orders architecture might be said to be tied up in five bundles for ever.

The other method of study may be called the historical method. We can imagine the surprise of a student on learning for the first time that the five orders are modern embalmments of that which was with the Greeks and Romans a living thing; that they were weak mortals like ourselves, whose art began rudely, and rose to its highest point slowly; grew luxurious and declined; had merits in its youth and simplicity that it lost when it grew older and richer; how it varied continually through many centuries, and expressed in its changes the varying moods, manners, power and splendour of two nations. The subject is immediately invested with a new interest, and we feel in the life which is in it, its alternations of truth, error, and repentance, a sympathy that the cold and pure, and perfect orders cannot excite. It seems for the first time that we have some interest of our own in the matter, that we might under pressure of circumstances venture to alter the size of a member the fraction of an inch; but then this follows, and nothing shows so clearly the great value of the classical styles, if one member is materially altered we must vary others, as they cease to accord with it; each member is as dependent on the others as the notes of a piece of music. The orders were so varied in the classical times, and might, if they suited our convenience, be varied similarly now. I suppose no musician ever professed to compose a centrally perfect piece of music; yet the sense with which he would have to deal being so much more exact than that of sight, one may suppose that the experiment would be tried under much more favourable circumstances. I very well remember the first architectural work that was placed in my hands; it was an attempt to reduce Gothic architecture to five orders, by Batty Langley, and was lent me by an accomplished architectural artist, who took an interest in me in those days, as a warning and an example "how not to do it." I know the thing seemed very reasonable at that time, and I could not understand why he should express such abhorrence and contempt. It is, perhaps, desirable that people would now and then compliment a youth of sixteen with reasons, or, at any rate, analogies, which may be more valuable than your reasons, for it is somewhat past the age when dogmatism begins to be distasteful. I admit that there are in all professions very many subjects which ought to be taught dogmatically: some professions are almost entirely composed of such; but the farther you get from technical matters and matters of history, the less is this principle advisable. It should, at any rate, be understood that, if a reason is not given, it is for want of time, and not because it is unnecessary. The difference caused on our minds by the two systems of teachings is, that in one case we look upon ancient examples as instruments for our use, in the other as shackles to bind us.

There is no question more important than that of the constitution of our perceptions, with reference to impressions from without. We should consider how much of antiquity and how much of novelty is good for us, and whether we are constituted for a system of torpor, or progress, or revolution. We have certain propensities towards change, and certain powers which enable us to produce it. The power of producing novelty is one of those which we most value as distinguishing us from the lower orders of animals, and bringing us nearer to the Producer of all things. Without inquiring how applicable the term "creative" and some others of like kind which we do not understand, is to so short a step in such a long journey, it will be useful to take lower ground, and see the order of things amongst which we live, from which we receive

our impressions, and of which we form a part. We are so little accustomed to anything fixed that our travellers are startled and almost horrified on entering the tombs of Egypt, which have stood still during all these centuries that the world has been moving. The poetry of everything is in its motion. The charm of astronomy is in the orderly progression of the heavenly bodies, and their intimate union and sympathy with each other. The charm of geology is in its gradual succession of events, and evidence of life and action. There is a fine analogy in this science which we ought not to miss, because it shows how little of shock, comparatively, and how much of quiet progress have assisted at the building of this great work upon which we build our little works. Down in the foundations of the world we find a state of things that has been changing continually since the commencement of vegetable and animal life. The whole system of creation has been renewed again and again; through long periods of progress, and rare periods of catastrophe, there have been dark ages and then *renaissance*; but it was renewing of life only, not of the lost style: new things arose under the new conditions, and we see in that history as clearly as in any I know the true type of our own originality.

It is essential to look for analogies in this direction, because, if there be such a thing as perfection or fixedness, it is in nature, if anywhere; and if such a thing is desirable, we can hardly expect to succeed where nature has failed. It is difficult to imagine the misery in which we should live if we were not formed to accept and enjoy a state of things in which change is a continual element, and feel a lively and healthy pleasure in turning from one object to another, and uniting our sympathies most closely with such as grow and progress as we do ourselves. It is difficult to imagine the state of our existence if we had not given to us the power and the propensity to adapt ourselves to altered conditions, and the power of producing new ones: it is a propensity that has woven itself into the thread of our life, and we cannot check its development nor force it violently without acting untruly to our proper instincts. We attach the most pleasant ideas to that word, "life": it is freshness, growth, vigour, motion, progress, power in action and in reserve. We give all manner of hard names to its opposites, of the brood of stagnation. You may find them applied by bookfools to the works of dead and flat periods in art. And perhaps the chief danger of the present day is, that the recoil from old restrictions will be too violent, and force us into the opposite extreme of convulsion, for which nature, except under special circumstances of restraint, has very little analogy. We may get a principle or two out of these and similar considerations, which we can all believe in whatever may be our favourite style. The first is, that the desire for change is as constant, and when not forced, as healthy a feeling as any we possess. The second is, that we have no reason to desire violent change, but must depend as much as possible on gradual progression. The third may be, that even such times as those through which we are now passing are better than listless times, as convulsion is more hopeful than lethargy.

I do not know what the originators of great styles thought about these things, but I rather think they would make little discussion about it, but do the thing they were impelled to do, and recognize no other system. Our civilization is more complicated, and our diseases different in kind. It ought reasonably to seem strange that we should have yet to establish, as a maxim, that each age must, if it will only think about the matter, judge best of what is best for itself—that we should now be balancing between the adoption of styles of different periods as a point from which to start afresh. With classic, active and vigorous, and anything but discouraged, and Gothic as lively and springy as one of its "good grotesques" if neither scale kicks the beam, we cannot dismiss all apprehension that it will kick the opposite one.

If an intelligent oculist were made suddenly aware of the position of the two parties who are amusing themselves in the "battle of the styles," his first impression must be that there was some difference in the construction of eyes that could be got at with the knife and the microscope; it seems at first sight so odd that so much difference should arise from what is so much more a question of education than of deep feeling. The recipe for making out of a youth of fifteen a Greek or a Goth may not be absolutely infallible; but put him in the right office, and with due precautions against external influences, the process is at least as certain as that by which we bring it to pass that a young tradesman shall spend his life soiling silks

* Read by Mr. T. Blashill, as mentioned in a previous number.

with his fingers, or his fingers with raisins. There must be some good reason why we have not now flourishing two styles of war-making, both after good ancient examples. Probably it is this—that men become earnest when their skins are in danger; they become less classical and more original. We must not force comparisons between things totally distinct, but the thing that has come down to us freshest from both Classical and Medieval times, side by side with architecture, is this same war-making. Usually, before we know how to draw, we have dipped pretty deeply into fable and romance, and chosen our line of action between the rescue of distressed maidens and the contests of the Iliad. Our soldiers have their inspiration as we have ours,—down in Trafalgar-square we have just given honour to a hero—after our manner. One would like to know in what spirit he marched on Lucknow, and stratagized, and marched again through that awful season. He could not have forgotten altogether his schooling at Greyfriars, nor the legends that give vigour to the spirit, as exercise hardens the muscles. Yet it was not for being classical that we set him on that bad eminence, but because he had done his work as an Englishman, and we could place his originality by the side of ancient models without being ashamed.

We are no more Greeks nor Goths than was he, though it does not follow that we can safely forget their example. Yet it is impossible that we can very closely resemble either, and we may as well try to put back the hand of time through twenty centuries as five. The principle is the same in each case, and cannot be other than wrong. The idea of starting from a particular period of art, is, I fear, no less fallacious, though more plausible. We have tried most honestly during many years, to carry on the pure and beautiful style of the thirteenth century, with a result which nobody calls success. We are all now perhaps more or less pleased with many of the details which are being introduced into our own style from the early Gothic of France. It would have an effect upon our minds similar to that which would be produced by original conceptions, if we could forget that the store from which it is being drawn must soon be exhausted. There is no class of buildings that better deserve study than those of the Romanesque period; it is Gothic architecture in youth. And although we are very apt to talk about the vigour and freshness of anything that happens to be comparatively new to us, I am much mistaken if we do not draw much that is valuable from study of works of that period; but it is easy to see, I think, that some of the more advanced Gothic schools are running headlong into the same experiment that has failed so often before—this time under slightly different conditions. Satisfied of the hopelessness of the attempt to improve on the best period of Gothic, the idea now is to take up a style confessedly inferior, in the hope of refining it into a better kind of Gothic. I fear very much that this is a new version of the short and slovenly formula for providing scope for improvement—viz., to begin badly.

This question of the starting point is really the most important of any that arises just now,—it is at the very foundation of originality. I hope that nothing I say can be taken as advocating the idea that we can hope to be entirely new; we may as well expect to see some day a new creation rise up around us. The contest now to be decided is one between principles which are of far more importance than Gothic and Classic. We know perfectly well that every attempt to twist an old style into our modern ways has failed entirely. The style was not elastic, and it is only owing to the accident that our forms of worship have changed less than we ourselves have, that the Gothic style succeeds so well in that exceptional case. I ought to make partial exception of the Italian style, which, while it answers very well the demands of a wide range of purposes, has been very far from successful in exciting that sympathy and warmth of feeling which is necessary to raise the work of utilitarianism to the rank of art. If the question were,—Shall we continue sacrificing real convenience and utility, as we notoriously do daily, in deference to the demands of style; or shall we take convenience of construction and arrangement as our basis and sacrifice at whatever cost everything that cannot be modified so as to accord with it, we should be compelled to adopt the latter alternative. And indeed we must ultimately come to something as near to this as the ancients did, if we wish to equal them in the end. For the present we may be content to light the lamp of sacrifice more liberally than some of the extreme

advocates of the constructional reform seem to admit.

We have existing within us counteracting to some extent the passion for progress, a strong leaning towards the past. We are influenced insensibly in every-day life by the views of old people. We do not trouble ourselves about logic, but from the respect we bear them we make their ideas our own. It is a right feeling, and carries the past into the present as we may hope to live in the future. That is the poetical view of it, and we must not rob our art of any portion of true poetry. The practical effect of it is that we have got another element to deal with besides scientific construction and abstract ideas of beauty, and can, if we like, put them altogether into one of those horrid tables such as one finds in Tredgold.

There is our knowledge of construction, and materials, and the demands of convenience. This may be called engineering, and is not an art, but a science. Then there is archaeology, which is not art, but science. Lastly, our study of nature, which is the foundation of both art and science.

Our use of engineering may be called "common sense applied to building." Our use of the facts of archaeological science may be called "common information applied to building." Our knowledge of the sentimental part of archaeology leads to "common feeling applied to building."

There is room for those who have faith in statistics to fill up the table, and price them out, as we find a similar class of questions treated in the works of a gentleman, to whom we owe much; but here are elements by the right application of which we may escape being fantastic, and shall not fail to be original.

If I give my own opinion of one or two developments of so-called originality (to which I must ask you to attach just so much importance as you find due to it on quiet reflection), I would not be understood as alluding to their professed leaders; and this applies also to what I said about the extreme followers of other schools. You will find as a rule, that it is chiefly the followers or private admirers of leading men who run into extremes and do mischief. You all know the well-known story of Wilkes, who protested that "he never was a Wilkie."

The natural recoil from the extreme severity of the classical school has produced a kind of taste which, not without some reason, alarms those who have lived down to us out of the quiet times. From being entirely given up to copyism, we are now devoted to the extreme of originality. There is in many quarters a restless longing for something to break the monotony of ordinary art. We now and then see designs so entirely out of the line of our common life, that we are compelled to forget all we know before we feel we can give them fair notice. To begin with the extreme case of a design, which is not only entirely original, but, in the abstract, beautiful, it is worth while to consider the chance of its real beauties being thoroughly appreciated from the suddenness and want of preparation with which it comes before us. The same novelty, used more sparingly, in many buildings might have gradually gained upon the minds of people who will now pass it without notice. There is nothing to connect our minds with that of the designer, and although his may be no less true than ours, it fails of its effect from want of sympathy, and a common understanding. After all, one of our objects in speaking, besides that of speaking well, is speaking so as to be understood. Read the opening pages of the "Lamp of Memory," where the effect of isolation on natural scenery is very poetically expressed. Looking on a lovely ravine in a pine forest in the Jura, the writer suddenly imagines it to be in a solitude of the new continent. "The flowers in an instant lost their light, the river its music." One may qualify this strong expression as he does; but there is sober prose in our feeling with respect to a design which asks too much of our faith and too little from our sympathy. If it were part of a style and of history we might think it exquisite, because we should take the trouble to learn the character in which a nation had written its life in stone: it is not worth while to do as much for the idea of a man in the next street.

The extreme picturesque school can hardly be accused of this error. Originality in their language often means the introduction of as many features as possible of styles in which we feel interest, with no superfluity of care in arrangement into one design, under the mistaken notion that we shall transfer our admiration for the old buildings to such as have surpassed them in irregularity. Amateurs who care for art at all are almost certainly of this school. We were advised

in these rooms, the other night, to design each building in our streets as in itself a unit, standing by itself. I feel convinced we had better construct it designedly for the position in which it will really stand; not more to do it justice than to give its neighbours fair play: this is more courteous, and, I think, more artistic, if less picturesque. Time will bring those gaps, and additions, and patchings, and rebuildings which we admire so much in old buildings, quite as soon as we can give them historical interest; and after all is said, these things are in themselves blemishes, and we only take pleasure in them because they are the marks by which we have known old friends.

Whether these marked and unstudied irregularities appear in plans or in details of old buildings, do not let us mistake them for beauties. Imperfections are always easiest to copy, and most liable to be taken as characteristic of a style. It would be as reasonable to imitate the peculiarities of people we meet in order to catch the tone of good society. One may see any night for a shilling one or other of those performers who profess to mimic our well-known public characters: there are the familiar peculiarities of voice, gait, and manner, and more of them crowded into half a minute than the original would show in an hour: the effect is most comic and amusing. But all these points are really such as distinguish the man from the true central type of a gentleman. To attempt that type, would deprive the performance of its personal and imitative character, and its interest; but if he can do it, he is a gentleman, and no mimic.

The worst error into which we are likely to fall is, from its coarseness and rudeness, the extreme opposite of the starved gentility which characterises the worst classical imitations, and from its being so opposite it is likely to be mistaken for vigour. If our houses are carefully coarse, the furniture will be even worse, as it is the nature of furniture to be. It must be perverse ingenuity that extracts from Gothic art, which abounds in elegance and congruity, models and modes of execution which must have tended to vulgarity in their own day as now. The name of Gothic is sometimes passport enough to carry into churches and drawing-rooms specimens which look like the joint production of a hedge carpenter and a shoeing smith, and if they are polished and filed up, we are not the better for having rudeness without the excuse of rusticity.

We are seeking novelty in the direction of science also, and disregarding both old forms and beautiful forms in favour of forms which are intended to express very naked—indeed naked—truth. All possible colours are introduced to give emphasis to important features, and destroy breadth and repose. The beauty of the exterior of a house is the gift of the owner to those whom he does not ask into his house, and the sensations these things excite are of the kindred of those felt at an entertainment where every bit of trouble taken to accommodate and please are exhibited and magnified, and one usually feels that a mild neglect would be more tolerable.

None of these things are necessary to true originality; there is abundance of variety possible in right ways—nobody ever exhausted all the manners of doing well. True originality I have endeavoured to exhibit to you as a thing of slow growth, and not a spasm. It was so in all ages where art was flourishing, and will be so now. I feel confident that progress is to be made in this way, and not by waiting for a heaven-born genius. What we want is true vigour and life, and not the alternation of luxury and coarseness, that used to lead men from drawing-rooms to the prize-ring and the cock-pit. In good times of Gothic art, men were given to be in earnest; for good or evil, they did not mind matters then. People are fond of voyaging, and exploring, and mountain-climbing now, who, a century since, would have rather climbed the back-stairs of palaces—they are more manly, and not less loyal and true. A thin-blooded race may be minute and careful, but is not likely to be very original. So as constitution is an element in originality. It is well that in our summer tours we should get skyward sometimes, and take pleasure in looking down on the life of villages, and the life of field and forest and winding river, with a dozen counties lying blue in the distance—a healthier blue at most times than that into which people pitch steeles at Brighton.

It seems likely that the tendency will be to form a very liberal kind of what one must call Italian for want of another name, out of the Classical styles, with a tendency towards the Gothic type; and in a similar way the various phases of Gothic art are being united into one

style: every addition from the source of our own originality will bring these two classes nearer together; but if we are to make any progress towards the formation of a united style, the professor of architecture must not confine his studies to the works of any particular period. We may tolerate in the well-intentioned amateur ideas that are less the result of narrow-mindedness than of narrowness of information; but the architect who neglects to study any of the styles of his predecessors can hardly hope to produce designs worthy of the praise of posterity.

We may step any day from between English hedge-rows into the wreck of a Roman city, and tread amongst the confused relics of a bygone time. We look with curiosity now on the ruined baths, and the deeply worn steps at the door of the market. Will any age ever look with such interest on our works in ruin, waste good steel in shovel and pickaxe, and give up to excavation their beams and barley? They will respect our classicality and antiquarianism, as we do all honest learning; but in those far-off times when the world is older, and wiser, and busier, if they are to trouble their heads further about us, we must, besides being honest and learned, be original.

NORWICH CASTLE AND CATHEDRAL.

COMMENTING on a paragraph in a recent lecture on the "Restoration of Ancient Buildings," to which reference has been made, Mr. John Diamond Ellis, dating from the Cathedral Close, Norwich, writes,—

In your last impression I saw a letter from Mr. Phipson, supporting Mr. Street in his views, so far as regards the cathedral (namely, that the walls have been plastered with cement); for he says, this is true as far as the cathedral is concerned, but with regard to the castle it is entirely erroneous.

I am happy to say that Mr. Phipson has fallen into an error in endeavouring to correct Mr. Street. All the restorations to the cathedral which have been carried on during the last twenty years have been effected with stone: quite recently, three sides of the tower have been under thorough and perfect inspection; and where the old stone was good and sound, it was left: where new was required it was substituted, exactly of the same size, form, and dimensions as the old; and the annual restorations which are still going on are executed in stone. With the exception of the interior of the tower turrets, and the partial stopping of the stonework, where decayed on the south side of tower arcades, and the circular lights over it, which were executed some twenty-five years ago; there is not, I am glad to say, a yard superficial of cement work to be found on the external surface of Norwich cathedral; and I am informed, on good authority, that the parts now partially formed with cement will soon be taken down and restored with stone. The south transept and turrets of the tower were restored some thirty years ago, in rubbed and fair-jointed Bath ashlar, which certainly has an unsatisfactory appearance; but still it is stone, and not cement; and I think it must be admitted, that the recent external restorations have been carried out in a very careful manner, especially after the dilapidated state it had been allowed to assume; for "Britton" says of this cathedral, in 1812, "although the interior has been repeatedly repaired and beautified, as is commonly termed; the exterior architecture and masonry have been much neglected; and nearly the whole surface displays a ragged, crumbled, and decayed appearance, from the friable and loose quality of the stone: its surface is shivered off in many places: nearly all the mouldings of the arches, with the string-courses, capitals, and bases, have lost their forms and features."

A quarter of a century ago and the present time are two different epochs in the restoration of Gothic architecture; but the architectural public may assure themselves that, should the Dean and Chapter ever allow cement to be used in the restorations of the cathedral, a tower almost as powerful as that of Babel would be raised against them.

The Castle keep was restored and cased with stone from 1834 to 1838, as stated; but was commenced under the direction of Mr. Frank Stone, then county surveyor of Norfolk. The death of this gentleman taking place before the works were completed, Mr. Salvin was called in to do so, and they were finished under his superintendence. An excellent drawing, made by Mr. J. H. Hake-will, bearing date, I think, 1835, shows the commencement of the casing to have proceeded about as far as the original flint-faced base extended;

and I am informed, by old friends to the building, that it is a very faithful view of it. I believe the restoration was made with the view of exactly following out the features in the old building, which certainly was in a very dilapidated condition; but the unfortunate part of it was that, instead of being cased with rubble, or rag ashlar, the work was done with large fair-faced Bath stone ashlar, with rubbed joints and beds, and the whole presented an even, smooth surface. Great objections were made to it at the time, when the whole of the surface was covered with false joints, sunk into the stone about three-eighths of an inch, and filled in with black mortar, so as to make it appear that it was composed of ashlar about 18 inches by 19 inches, &c. it certainly has not a very satisfactory appearance; but that it is stone, and not cement, is evident to any one who glances at it.

EXCAVATIONS AT CYRENE.

LIEUT. SMITH and Lieut. Porcher, R.N., have been engaged for some months under the auspices of the Foreign Office, in making excavations among the ruins of Cyrene. They have already discovered marbles of value and antiquarian interest, which have arrived at Malta, and are shortly to be conveyed home. The articles consist of a colossal statue of *Æsculapius*, 8 feet high; a *Bacchus*, 6 feet high; a statue of a female, between 4 feet and 5 feet high; a statuette of a female strangling a lion, supposed to be of Diana; and upwards of twelve heads of various sizes; amongst them one life-size of *Minerva*, most exquisitely sculptured, and in an excellent state of preservation: the face is of a beautiful contour, without a single blemish; the projecting peak of the helmet, slightly broken in falling off its original pedestal, having probably saved it from injury. With the exception of *Bacchus*, which was found in a temple by itself, all these remains were dug out of the ruins of the Temple of *Æsculapius*, and the whole of them are of pure white marble. The statue of *Æsculapius* is said, by persons who profess a knowledge of such matters, to be in the best style of Greek art in the period to which it belongs.

In connection with this notice of the results of Lieut. Smith's operations in the ancient Cyrenaica, it may be interesting to our readers to learn something of the quarter from which originated the idea of searching the site of Cyrene for art treasures. The present Earl Somers, before he succeeded to the peerage, had made many extended journeys in the classical regions of the Levant; and, being a very able artist, his attention was directed to the remains of Greek and Roman times, in a fine-art point of view, rather than in a more purely antiquarian spirit. Each trip made by him added a fresh series of sketches and paintings to his fine collection of original drawings, many of which were finished on the spot in water colours. In the course of one of his early journeys among the celebrated ruins of Asia Minor, he visited *Halicarnassus*—the *Boodroom* of the Turks,—observed particularly the sculptured marbles built into the walls of the castle there,—and succeeded in carrying away a daguerreotype of one which formed a prominent object on the exterior of the opposite castle of *Stanchio*. The exhibition by him of this to Mr. Newton and other officers of the classical department of the British Museum, and his general account of the site of *Halicarnassus*, formed the germ of the expedition afterwards undertaken with so much success by Mr. Newton. It was Lord Somers's intention to follow up the matter himself; but, owing to his being in Parliament, he had not the necessary leisure; and although he went so far as to procure a *firmman* from the Porte, authorizing him to dig and remove stones at *Boodroom*, he was obliged to forego the work; which was then prosecuted by Lord Stratford, and resulted in the securing of the first series of *Boodroom* marbles for the British Museum. Among the places which Lord Somers had marked down as most likely to reward exploration was the Cyrenaica which he had fully made up his mind to examine in detail. Being at Rome three years ago, when Mr. Newton, of the British Museum, was there; he communicated to that gentleman the opinion he had formed of the art riches concealed at Cyrene. The remarkable discoveries recently made by Lieut. Smith in Barca may justly be considered as the practical carrying out of Lord Somers's views with regard to that most interesting territory.

There yet remains one other portion of classical ground which Lord Somers has pointed out as likely to repay an antiquarian expedition, by

bringing to light treasures of another kind. This is ancient Cilicia, on the southern coast of Asia Minor; where, in travelling in the fall of 1843, he met with most extensive remains of the early Christians. Here are to be found vast cemeteries filled with Christian monuments, containing many curious inscriptions, and numerous churches of the earliest centuries of our era, which have never been investigated. This would probably be found as fruitful a field for the labours of the Christian archaeologist as *Halicarnassus* and *Cyrene* have proved in respect to classical art.

OZONE.

SCHONBEIN has been industriously following up his researches respecting the presence of this peculiar and most important agency in the atmosphere. He has just found that when a strip of paper, moistened with a solution of pyrogallio acid, is introduced into an atmosphere containing ozone, it is rapidly darkened; whilst, if no ozone be present, the paper retains its original whiteness. A test of this body ought to be as common in a house as a barometer. The test recommended by Dr. Angus Smith, Miss Nightingale, and others, as we have before remarked, is the alkaline permanganate, or Condy's fluid, which, besides, is itself a vehicle of ozone; and, as a free contributor of it, is in extensive use as a sanitary agency identical in its nature with the very ozone of the atmosphere itself—the great scavenger and cleanser of nature. Ozone is almost equivalent to health. In crowded cities or unhealthy neighbourhoods it is scarcely ever to be detected; whilst, on the ocean, the sea shore, or elevated open tracts of country, it is almost invariably present in quantity. The first outbreak of an epidemic such as cholera is always heralded by a rapid decrease of ozone in the atmosphere; whilst its re-appearance is almost as certain a sign of the cessation of the sickness. Ozone appears to be essentially electrified oxygen; and that, in truth, is the vital air which we breathe, and which sustains life and health. Were the oxygen of the air entirely neutral, or unelectrified, it is doubtful whether it could sustain life or constitute *vital* air at all.

THE LABOUR QUESTION.

London.—The reports we receive are conflicting, and we prefer silence to error. This much is certain, that the number of firms who have determined on paying by the hour is increasing, and several inform us that their men are well satisfied. One large builder writes us as follows:—"As far as I am concerned my men have all agreed to the change with the exception of some plumbers and foundrymen. The latter were unanimous in favour of the alteration, and took part with the other men in deciding the time (one o'clock) they should leave off on Saturday; but were withdrawn by the society at the last moment. The delegates sent here said they could not understand why masters should offer such an advantage to the men without some sinister motive lurking behind."

Stockport.—The disagreement which, for several weeks past, has existed between the master and operative joiners, in the shape of a strike and lock-out, has been considerably modified, if not altogether settled. A general meeting of members of the society was held; when the advice of the magistrates—to settle things amicably—was acted upon, and all grievances were set aside; the men consenting to return to their work. This was intimated to the magistrates, accompanied by an application from Mr. Howard, solicitor, on behalf of the Messrs. Longson, to withdraw the prosecutions for intimidation.

Chester.—The principal employers in Chester have issued a statement, in which they say,—

"The masons are still on strike for the terms they turned out on the 1st of April, which were 28s. per week for the nine summer months, and 26s. per week for the three winter months; and a further curtailment in the hours of labour; the offer made them being 27s. per week for the summer months, and 25s. per week for the winter months, the hours of labour to remain as they were: upon these terms we have obtained men to supply the place of the turn-outs that left us then. With the exception of the work at St. John's Church, which has been kept standing, we have all been able to carry on our works better without the class of men we had before the turn-out than with them, as at that time we had in our employ men who were tramps, temporarily located in the city, and who sowed the seed of discord amongst those who were working for us. The workmen who were settled in the city being perfectly satisfied with their employers, refused to accede to the unreasonable demands of these men and to turn out, and they have remained at their work ever since; and we are only glad that the city has been sifted of the unionists, who neither benefit themselves nor their masters."

RAILWAY BRIDGES.

THE following evidence has been given by Mr. T. Hawksley, C.E., with reference to the recent fall of a railway bridge at Wootton, on the London and North-Western Railway. The casualty, it will be remembered, was unhappily attended with the death of two men. Mr. Hawksley said:—"The cause of the accident, in my opinion, was not from any defect in the trussing of the bridge, but from defects in three of the transverse iron girders, particularly in the one which had been fractured. There were two fractures in that girder, one of which had been attempted to be sliced, by putting angle irons on the sides. I apprehended at the time of that repair there was no other observable fracture; but there is now, and has been observable for some time, a fracture a distance of 15½ inches from the original fracture: the second fracture has taken place through a bolt-hole, which had been drilled to secure the angle iron. Another of the girders is affected by a blow-hole in the interior of the metal, caused by the confinement of air in the cast. A third is similarly affected. The cause of the accident I believe to be this:—The engine, being a very heavy one, came upon the bridge so that its whole weight was, as nearly as possible, sustained by two of the girders which would represent a strength of about fifty-two tons, or not quite double the weight of the engine: as a general rule the strength of a bridge should be four or five times greater than the extreme weight to come upon it: at the time the bridge was erected I believe its strength was calculated in that manner, and that it would have borne four or five times the weight then required to be put upon it. Since then circumstances have very much altered. Twenty years ago engines did not weigh more than eighteen or twenty tons, whereas now they run engines of thirty tons weight, and upwards, I believe."

The inquest has terminated in a verdict ascribing the accident to the insufficiency of the bridge, which had had a crack in the second girder long enough to allow of its detection. They do not assert that the omission to detect this flaw amounted to criminal neglect, but they find that Elliott Sewell, the inspector of permanent way, had not satisfactorily performed his duty. Captain Tyler, the Government inspector, who was examined, said that railway companies were getting into the habit of putting more traffic on their lines than they were originally constructed to bear.

MONUMENTAL.

Mr. Lough's Monument to George Stephenson.—Newcastle will have reason to be proud of the statue of George Stephenson, which Mr. Lough has just now completed, ready for casting, as part of the monument which is to be erected to him. The figure, 11 feet high, stands beautifully, full of life and mind. Enveloped in his plaid, great breadth has been obtained without sacrifice of truthful representation. We sincerely congratulate Mr. Lough on his achievement. The whole monument will be about 30 feet in height. At the foot of the pedestal, as our readers know, are sitting figures typifying the pitman, the blacksmith, the working engineer, and the plate-layer. We shall hope to see the whole, complete, set up in the approaching International Exhibition, before it goes to Newcastle. We are glad to hear, and many of our readers will be so too, that Mr. Lough's noble group, *Nilo*,—his first work, the ground-stone of his fortune, laid amidst struggle and privation,—is at last to have the permanence of bronze. It is to be cast immediately.

The Hooper Monument.—Tenders for executing the designs of the architects, Messrs. Medland & Maberly, privately invited from several builders, have been opened. We understand that, before either of the tenders was opened, it was resolved that, as the builders communicated with were persons of respectability, who might be relied upon to erect the monument in the best possible manner, the lowest tender should be accepted. This happened to be that of Mr. Oliver Estcourt, at 275*l.*, which was, therefore, accepted. The highest tender exceeded that of Mr. Estcourt by 25*l.* only.

The Montgomery Monument, Sheffield.—This long-delayed monument to the memory of James Montgomery is at last on the eve of completion. It was intended that it should be inaugurated on the 30th of April, the anniversary of the poet's death; but some difficulty in procuring the necessary materials for the pedestal has caused delay until this time. This week, however, Mr. Edwin

Smith has completed the building of the base and the erection of the pedestal. Within a few days the statue will be received from the works of the Coalbrookdale Company, where it has been cast in bronze, and will be raised to its position. The statue will stand, as recommended by Mr. Bell, facing the south-west, with its back to the tower of the cemetery church.

CHURCH-BUILDING NEWS.

Exeter.—The foundation-stone of a new chapel-of-ease to the parish of Heavitree, Exeter, was laid on Wednesday, June 26th, by Lord Poltimore, who has presented the site for the chapel and burial-ground. The assembly was addressed by the Rev. Canon Woolcombe, vicar of Heavitree. The chapel is close to the hamlet of Whipton, and is to consist of nave, 49 feet 6 inches by 21 feet; chancel, 16 feet by 16 feet; transept, vestry, and porch. It is to be of Early Decorated architecture, the facing of Killerton stone, and Bath stone dressings. The cost will be about 1,300*l.*, and accommodation for 200 persons. The builder is Mr. Kenshole, of Heavitree; and the architect Mr. Edward Ashworth, who has recently designed a reredos for the parish church of Heavitree, of Perpendicular work, at a cost of about 70*l.*

Darlington.—Mr. Scott, architect, who had been requested to survey and report upon the condition of the old church of St. Cuthbert's, Darlington, gives it as his opinion that the edifice is in a most dangerous condition. The church, which he characterizes as being "one almost perfect and uniform in its design, as well as one of the handsomest in the north of England," was built in the twelfth century by the celebrated Bishop Pudsey, during the transition period of architecture from the Romanesque to the Pointed style. Mr. Scott makes various suggestions as to the best mode of restoration, and sets down the total cost at 6,100*l.*

Durham.—The Primitive Methodist Jubilee Chapel has been opened. The building is situated on the North-road. It is in the Geometric period of Gothic architecture, and is estimated to hold about 600 persons. The principal feature in the front elevation is a large four-light window, with tracery, moulded jambs, &c. On each side of the central window is placed a single-light window with tracery. The whole of the glass is of extra thickness, and ground, so as to prevent the necessity of using sun-blinds. The carved casings of the large window were done by Mr. Beall, of Newcastle. There are two entrances to the chapel, which have square-headed doors, with pierced tympanums below pointed arches. The interior woodwork is of Peterborough and pitch pine wrought, stained in tints, and varnished. Instead of the usual pulpit there is a platform, the front of which is ornamented with trefoil and circular-headed cusped panels, and hung with drapery behind. The lighting of the chapel is by a star-light of fifty-one jets, suspended from the ceiling, and also acting as a ventilator. There is a vestry attached to the chapel, which may be used for class and similar meetings. On three sides of the chapel there are galleries, supported by cast-iron columns, which are also made available for the purposes of ventilation. Foundations for the building had to be dug 14 feet below the floor, and filled in with concrete. The architect was Mr. G. Kyle, of Durham; contractor for masonry, Mr. T. Punshon; joiner work, Messrs. Bridges & Cockburn, Hartlepool; plumber, Mr. Laidler; plasterer, Mr. Pearson; glazier, Mr. Houseman; Spennymoor; slater, Mr. Rule; smith, Mr. W. Howison.

Wilton Gilbert.—The foundation-stone of a new Methodist chapel has been laid in this village. The site is central. Accommodation is provided for about 200 persons, in addition to a class-room, &c. The style is Early Pointed. The interior will be fitted up with open seats, of Peterborough deal, stained and varnished. The design is by Mr. G. Kyle, of Durham, architect; and the contract is taken by Mr. T. Smith, of Spennymoor.

Jarrow.—The foundation-stone of a Methodist chapel has been laid at Jarrow. The chapel, when completed, will accommodate about 300 persons on the ground-floor, where there will also be a minister's vestry and class-room at each side of the entrance lobby. The design is of Italian character, and will be executed with pressed bricks to the walling, and moulded brick cornices, stringcourses, &c. The interior will be fitted up with open benches of stained and varnished deal, arranged so as to rise by steps from the level of the preacher's platform. The chapel has been designed by Mr. G. Kyle, of Durham, architect; and the contractor for the works is Mr. W. Prior, of Shields.

South Shields.—Mr. J. Elliott, of North Shields, the contractor for erecting the church near the Tyne Docks, South Shields, has commenced with the foundation. The church is to be erected near the main entrance to the dock. The contract is about 4,000*l.*

Sunderland.—The foundation-stone of a Jewish synagogue has been laid here. The building will have a classic front, and be built of brick, with stone dressings. It will be 25 feet high, 42 feet long, and 36 feet wide. It will seat 120 males in the body of the building, and 70 females in the gallery, where they will be screened from observation, as is the custom in such places of worship, by a metallic screen. At the east end of the building the ark will be placed; Corinthian pillars, in Caen stone, being the ornamentation of it. In front of it will be placed the altar, and then the warden's pew. From the vestibule two folding doors will lead to the two aisles in the body of the building. Mr. Tillman is the architect, and Mr. T. Younger, junior, has obtained the building contract.

St. Andrews.—St. Salvador's Church, St. Andrews, is about to undergo a renovation, internally and externally, according to plans prepared by Mr. Matheson, of Her Majesty's Board of Works. The contracts have just been settled; the cost in the meantime being 1,019*l.* Messrs. Kidd & Son, of Dundee, are the joiners, and Mr. John McIntosh, of St. Andrews, is the builder employed.

Ballymolee (Ireland).—The *Sligo Champion* reports the progress made with a new Roman Catholic chapel here, in the form of a letter from the architect, Mr. G. Goldie, to the parish priest. "The first division of the contract," he says, "is now approaching completion. It was to include excavation, masonry, and cut-stone work, and to cost 5,515*l.* To this amount is added stone arches for 100*l.*, and a portion of the tower for 260*l.*, making in all 1,875*l.* Of this Mr. Barker (the contractor) has drawn 1,683*l.* 10*s.*, leaving a balance of 191*l.* 10*s.* to complete the arches, clerestory, west rose window, and chancel window and arch. But to this balance may be added the value of the roof to scistery, and porch, slates, lime, sand, bargeing, &c., on the ground, which may be estimated at 50*l.*, and which belong to the second portion of the contract, so that you have a sum, or an equivalent, for 241*l.* 10*s.* to complete the first portion of contract, the value of which is about 199*l.* The important point now to be decided, and that as speedily as possible, is that of carrying on the second portion of the contract, namely, roofing and slating, to which was apporportioned the sum of 868*l.* Your present chapel is in a dangerous and unfit state for divine worship. The walls of the new church, if left exposed for the winter, will be sure to suffer from wet and wind."

Jersey.—The English Congregational Chapel here will soon be opened. The entire cost is 1,800*l.*, including architect's fees, gas, warming, &c. The cost of the land was 580*l.* They intend to raise 300*l.* for part purchase of the land, leaving a ground-rent of 15*l.* per annum.

SCHOOL-BUILDING NEWS.

Dudley.—New schools have been erected by Mr. Cochrane, at Holly Hall, about a mile from his ironworks at Woodside. The buildings are of red brick, with stone window and other dressings, and the roofs are covered with red and blue tiles. A clock-and-bell-turret rises to the height of 60 feet. The boys' and girls' schools are at right angles to each other, and are each 46 feet by 15 feet. They may be thrown together; and opposite the girls' school and in the centre of the boys' an apse projects, containing a communion-rail, table, &c.; so that the building may be used for Divine service; the apse forming a small chancel, the two parts of the boys' school transepts, and the girls' school the nave. An infants' school, 35 feet by 18 feet, is at right angles to that of the girls'; and two class-rooms are provided by the boys and girls respectively. The play-grounds are extensive; and, as the ground falls considerably in that direction, advantage has been taken of the circumstance to erect cloisters in which the children may play in wet weather. Houses are provided for the master and mistresses at opposite angles of the building; and each has a bay window in front. The interior height to the spring of the roof is 14 feet, and 32 feet to the top; the roof being open and of stained wood. The building has cost 2,500*l.*, exclusive of the land. Mr. Bidlake, of Wolverhampton, was the architect; and Messrs. Elliott & Lovatt, and builders, Mr. Evans, of Handsworth, provided the clock; and Messrs. Hill & Smith, of Woodside,

manufactured the iron railings, from the design of the architect.

Malton.—The foundation-stone of new schools for this parish has been laid. Mr. W. J. Hopkins, of Worcester, is the architect; and Mr. P. Alder, of West Malvern, the builder.

Newhaven (near Edinburgh).—The foundation-stone of new parish schools at Newhaven has been laid. The erection of these schools, the estimated expense of which is 1,100*l.*, has been promoted by persons belonging to all the religious denominations in the district. The architect of the building is Mr. John Lessels, of Edinburgh; and the contractors for the works are Mr. J. Bisset and Mr. J. Gilliland, also of Edinburgh.

STAINED GLASS.

Westfellow Church.—A mosaic lancet window, about 9 feet high, with two lights, has been fixed in the nave of this church by Messrs. David Evans & Sons, of Shrewsbury. It is erected at the expense of the Hon. Mrs. Kenyon, of the Prado, in memory of her two sons. Each opening has two medallions. Those on the right represent Daniel in the lions' den. The figure of Daniel is from Westall's picture. The medallions in the left compartment are illustrative of the Babylonian captivity. In the apex of the window, on scrolls, are the passages:—"Behold thy salvation cometh;" and "He will swallow up death in victory."

Glasgow Cathedral.—Other three stained windows have arrived at the cathedral, from Munich. The donors are Lady Montague, Mr. Middleton, of Glasgow, and Mr. Graham Sommerville. The window of the last-named will be placed on the left side of the church, and the other two in the north aisle of the nave. Mr. Mathieson, of the Board of Works, was to inspect them previously to their being put in their places.

PROVINCIAL NEWS.

Bedford.—The Three Counties Asylum is erected on a site in the parish of Stotfold, and stands nearly north and south. The south and principal front, says the *Bedford Times*, consists of a large centre building, covered with the clock-tower, and containing the superintendent's residence, with private entrance; committee-room, clerk's room, and waiting-room, together with store-room; surgery, and apartments for matron; and two long wings, for the most part three stories in height. These are severally devoted to the patients; the males being located in the west wing, and the females in the east wing. These wings contain corridors communicating with large rooms, which, on the ground floor, form the day-rooms for the patients. On the first and second floors the large rooms and corridors form the dormitories, out of which open smaller rooms, containing three or four beds a-piece; and also single sleeping-rooms, every patient having a separate bed. The corridors and large rooms have all open fireplaces. To the several wards are appended sculleries, lavatories, bath-rooms, waterclosets, &c. The infirmaries are placed near the centre of the building. The north side contains the kitchen, larder, and store-rooms, beer-cellar, dairy, bakehouse, coal-cellars, &c.; and over the kitchen is the chapel, which is constructed to hold 400 persons. Three covered passages connect this building with the main building of the asylum. The water-towers rise to the height of 48 feet, and near to the top of each is a large tank, holding 10,000 gallons of water. There is also in each tower a smaller tank, which is supplied with hot water from boilers, erected in the basement of the towers: from these four tanks the general distribution of hot and cold water throughout the asylum is made; and fire-mains are placed in different parts of the building, from which, by the addition of hose, cold water can, by pressure, be thrown over any part of the asylum. Beyond the water-towers, on the male side, is an irregular wing, containing the tailor's, shoemaker's, and carpenter's shops; and behind which are the brew-house, malt-stores, plumber's, and smith's shops, with a forge, and various offices. On the female side the corresponding wing contains the laundry, washhouses, &c. There are also farm buildings, with suitable yards, and a gashouse, &c. The buildings are all of white brick, having a line of red brick in the cornices and chimneys, with stone mullions to the windows. The total cost of the new asylum, including land, outbuildings, and contingent expenses, has been 114,831*l.* 6*s.* 1*d.*

Littlehampton.—Mr. E. Corney's tender for the first portion of the outer harbour extension works for 850*l.* has been accepted; the harbour-

master's estimate being 850*l.*; and the other tenders, viz., Butt's, 909*l.*; and Bashby's, 1,165*l.*

Banbury.—The following tenders for building a police-station, in Newland, Banbury, have been sent in:—

Jones	2,473	10	0
Claridge & Son	2,100	0	0
Orchard	2,147	0	0
J. & T. Davis	1,999	0	0
Kimberley	1,940	0	0

Mr. Kimberley's tender was accepted.

Malvern.—The following were the tenders for the erection of public offices for the Malvern Improvement Commissioners. Mr. James Shipway, Great Malvern, architect:—

Holt	21,742	10	0
Wilson	1,615	0	0
Smart (accepted)	1,589	10	0

Cardiff.—The new County Lunatic Asylum may now be said to be commenced; by the architect, Mr. Bell, of London; Mr. Clittendon, of Cardiff, clerk of the works; and Messrs. Barnsley, of Birmingham, the contractors, staking out the ground for the various buildings. The contract is to be completed in something under eighteen months, and the entire cost of the buildings will be between 22,000*l.* and 23,000*l.* A correspondent of the *Cardiff Guardian* asks "how it is that the local contractors are beaten out of the field; for, while Messrs. Barnsley have built the Swansea Gaol and Howell's Schools at Llandaf, Mr. Webb, of Cardiff, and formerly of Birmingham, has built the gaol at Cardiff, the Militia Stores, the Police-station at Llandaf, and is now erecting the public Baths and Washhouses, besides other important private buildings in the town." The site selected is about a mile and a half from the town of Bridgend, on the road to Court Coleman, on elevated ground. The buildings will be of the native stone.

Brecon.—Various public improvements are being effected at Brecon, according to the *Hereford Times*. Turkish baths have been erected at Mount Pleasant. They were fitted up by Mr. Thomas Allen, of Westminster, Turkish bath builder. The old Priory Church is now in the hands of the builders, Messrs. James & Price, of Cardiff; who, under the direction of Mr. Scott, architect, are proceeding with the restorations; a good many men being employed on the works. There has been discovered, close to the Honddu bridge, at Priory Groves, a spring of saline or chalybeate water. The proprietor, Mr. Thomas Davies, who occupies the Forge Villa, discovered last year the springs, and got them analysed by a medical gentleman, who pronounced them equal to the continental mineral springs of Karlsbad and Kissingen. Mr. Davies has erected a pump-room, bath, and other conveniences, adjoining the well, which have just been thrown open to the public. The College buildings are just being commenced at Brecon, under the direction of Messrs. Pritchard & Seddon, of London, architects, by Messrs. Williams & Sons, builders, Brecon. The Head Master of Christ College School is soliciting additional subscriptions towards restoring the Church of Christ College, which adjoins the proposed new buildings. He has received the promise of several hundred pounds. Messrs. Griffiths & Sons, contractors, are at work with a staff of men at the new Government Rifle Range, at the foot of the Beacons, erecting accommodation for sixty men as a commencement; and they have received further orders for laying out a new 1,000 yards range with proper drainage, a bridge over the gully or ravine, &c. The contractors are under orders to finish the huts by the 30th of this month. The building is of stone walls, with timber and slated roof, and is to be finished in a very substantial manner. Two parish churches are about to be opened by the Bishop of St. David's—the one at Merthyr-Cynog, nine miles from Brecon, and which has been restored under the direction of Mr. C. Buckeridge, architect, Oxford, by Mr. David Prosser, builder; and the other at Aberyskir, near Brecon, which is nearly all rebuilt, under the direction of the same architect, and carried out by Messrs. Griffiths & Son, builders, Brecon. There are new schools being built at Talybont and Llanspyddyd, near this town. The different railways in progress will have stations at Brecon.

Birmingham.—The merchants and manufacturers have asked the mayor to call a meeting for the purpose of establishing an Exchange in Birmingham. The only subject for surprise is that it has not been done before.

Tynemouth.—Mr. Joseph Elliott, builder, North Shields, it is understood, has entered into contracts to erect a large number of workmen's cottages at the Tyne Dock, for the North-Eastern Railway Company.

Edinburgh.—The rumours which excited atten-

tion here lately regarding some alteration of intention as to the new Post-office, may be considered, says the *Scotsman*, as having been a "false alarm;" Mr. Matheson's plan having been finally approved and signed by the Chief Commissioner. "There had at one time," continues our authority, "been, as was previously known, some hesitation between Mr. Matheson's plans and those of a London architect; but Professor Cockerell and Mr. Pennethorne having been consulted, their approval was given to the designs of Mr. Matheson. The question formerly causing the delays would appear to have been one of architectural taste; but latterly the acceptance of Mr. Matheson's plans seems to have been a settled matter, and nothing to have been in the way but the consideration of some quite trifling changes and compliance with the necessary forms."

IMPROVEMENT IN LONDON STREETS.

SIR,—As you are an able advocate of all improvements in the streets of London, you may agree with me that the three following are amongst the most deserving of the public notice:—

The first is the continuing of Marlborough-street through Noel-street and Hollen-street to Dean-street.

The second is opening that fine wide street, Broad-street, Golden-square, both east and west.

The third, and not least, is the continuing Old-street to Tottenham-court-road, or perhaps Gray's-Inn-lane at present, through the grounds of the old monastery called Sutton's Hospital, and better known as the Charter House. This Charter House, by the way, is a disgrace to the age. It is as much a monastery as ever in spirit, and wants the light. A. B. C.

THE ACOUSTIC PROPERTIES OF ROOMS.

If I am not trespassing too much upon the space you may have to spare in the columns of your excellent publication, I would wish room for a few remarks upon a subject which nearly all of us must admit is of the first importance as regards our edification and pleasure; namely, the difficulty we experience in hearing clearly and correctly public speakers, preachers, and singers, in most of our churches; and particularly in our great public buildings, especially in some parts of the buildings. This does not rise so much from the deficiency of the speaker or singer as from the peculiar size, dimensions, or proportions of the buildings. Several instances of this difficulty of hearing occur in such buildings as the noble room in the Leeds Town-hall; the large room of the Blackburn Town-hall; and even the magnificent St. George's Hall, in Liverpool, is not free from this great defect. These buildings are splendid specimens of architectural skill as regards size, form, and general character; but, as regards the facility for hearing, sadly defective; and, though several remedies have been tried, and are being tried, at the present moment, I think none has been found to remedy the evil complained of.

I think it must be admitted that sound, having its laws, is affected by the proportions of the room wherein it is emitted; consequently, a building of a certain height, length, breadth, form, and arrangement in its details, is required to enable an assembly of persons to hear clearly and distinctly in every part of the room. Now I have no doubt but your numerous correspondents are able to point out many buildings which they consider as good examples in this respect; but for myself I only know of one room (and I have been in many throughout the kingdom) which I consider as near perfection as possible, and that is the concert-room of the Cheltenham Pump-room, Harrogate; and, being desirous of contributing my small mite of information for the benefit of those who may be pleased to make use of it, and also for the purpose of stimulating further inquiry and investigation on this important subject, I have procured from Mr. Whitehead, of Harrogate, the exact dimensions, &c., of this room, which was built in 1833, from the designs of Mr. Clark, of Leeds, and contains the following dimensions:—

	Fe. In.
Length of room inside	86 6
Width of room	33 9
Height to ceiling line	22 7
Ditto to centre	24 2

The ceiling is a segment of a circle rising 1 foot 7 inches. There are nine sunk panels in the length of the ceiling, and seven in width: these are 9 inches deep. There are nine large windows along the north wall, three windows at the east end, the same at the west entrance, and on the south wall there are two doors and one window, a

small orchestra about 10 feet high, and two noble Doric columns on each side of this orchestra, projecting 1 foot 6 inches from the wall.

It struck me at first sight (and does even now) as being too low in height for the length and breadth, considering it as to form and appearance; but I question whether, if it were raised even 4 or 5 feet only, it would be as perfect as to sound as it is at present; and it is worth while for any one who has the time and ability to investigate and inquire, from the proportions and dimensions I have already given, whether the architect of this building has not happily (and may be by chance) hit upon the best proportions; and also whether, after having calculated the exact contents in square feet of this room, any department (though containing precisely the same number of square feet) from its present form and proportions could with safety be made.

T. B.

P.S. Since writing the above my attention has been called to an article in your paper of the 22nd ult.; but I may observe that this Harrogate concert-room cannot be said to exhibit the features and requirements of a good room, such as Mr. Roger Smith speaks so ably upon; yet it is standing as an example of a good room to be heard in; and such being a fact which I think cannot be doubted, it affords good data to reason upon.

THE EXTINGUISHMENT OF FIRES.

SIR,—The lamentable catastrophe which has happened, and shown so forcibly the incompetency of our present system, induces me to lay before you the following propositions:—

1st. Instead of using a flexible hose, having to be carried up or placed by the firemen where required (witness the difficulty encountered by Mr. Hodges in so doing), I would have a pipe of wrought-iron, or a hose attached to a fire-proof pole or rod, placed upon a suitable carriage (similar to that of fire-escapes, &c.), and capable of being lengthened or shortened, so that it could be at once placed or directed against the highest parts of buildings, without exposing the firemen to the flames or smoke, they having only to attach their hose to the lower end of the pipe.

2nd. That every great warehouse should have a system of pipes uniting in a main, which should be carried out of the building at a point that would be most accessible in case of fire to receive the hose of an engine (say by the place of the door-scraper). This opening to be closed by a valve, &c., to be opened by a universal key kept at the nearest engine-house. The ends of the pipes in the compartments of the building to be closed by suitable bungs of gutta-percha, which would melt in case of fire; so leaving the ends of the pipes in the required part open, whilst the others would remain closed: all the water would thus be directed where wanted; the ends or openings of the pipes in the warehouse being so arranged (in the ceiling, &c.), that the required pipe would be as it were unsealed, and the water play only upon the ignited part, not unnecessarily damaging the rest of the property. The pipes could not get choked with dust since all openings would be closed except in case of fire.

3rd. That floors be made as fire-proof as possible, but water-proof also, and having cavities between the ceiling and next floor, of say 6 inches, with pipes opening into them, with gutta-percha bungs or stoppers as above; so that when the heat has attained to them they will be softened and forced out by the pressure of the water forced in at the main by the door-scraper.

R. F. C.

In all storehouses I would suggest to have the partitions formed in wrought-iron plates, divided and subdivided into cellular compartments, each plate (internally only), both upright and horizontal, to be perforated; each partition to be of a thickness equal to the weight it has to support; all thoroughly riveted, and resting in front and rear walls upon a hollow story tie, composed of wrought plates, with upright divisions, for the support of superincumbent weight, these divisions also perforated. Over each partition a segmental beam to be set, resting and riveted to said story tie, with straining and tie rods, as may be required. Door openings can be left where required in each partition; a trough, similar in every respect to story tie, to be placed in position of wall-plate for rafters to rest upon. Similar troughs to be placed in depth of joisting of floors connected with the tubular story ties; so that the entire of partitions, story ties, joisting, and roof, will form one piece of framework. All connected and all cellular compartments kept constantly supplied with a flow of water from tank in roof. The under surface of tubing of joists

to be tapped at short spaces with screw taps, for screwing on of hose; both sides of partitions to have screw nozzles left for same purpose; and all hollow tubing in front and rear walls to be also supplied similarly.

Should my suggestions be found applicable, I will be most happy to furnish a plan and sections of the proposed supply, together with a mode of extinguishing fires in underground storerooms from the exterior.

E. K.

DURING my experience I have had one or two fires arising from spontaneous combustion, and this has given rise to some consideration on the means to prevent the extension of fire on such occasions. Some of the reports of the late conflagration attribute the early spread of the fire to the impossibility of approach to close some iron door, on account of dense smoke. I beg to suggest that, in ALL rooms containing stores liable to spontaneous combustion, there should be iron doors and shutters, so hung that, by withdrawing a bolt, they would fall together, this bolt being connected by wire to the exterior of the building, so that all might be closed at the earliest moment.

THOS. HANCOCK.

THE GREAT FIRE IN TOOLEY STREET.

SIR,—As the architect who has been engaged, in conjunction with my partner, Mr. Henry Stock, in the erection of the greater portion of the houses at Cotton and Depot Wharfs, belonging to Messrs. Scovell, and also the whole of those on Hay's Wharf, belonging to Mr. Alderman Humphrey, I must be excused offering objection to some of the remarks made by Mr. Hesketh in your last number; at the same time giving him full credit for some of the suggestions therein made; and which, doubtless, would offer less facilities for the extension of fire, but there more theoretical than practical as to their application. But I must add, from the intense fierceness of the conflagration, it was utterly impossible for any warehouses adjoining, stowed with goods, to resist combustion, although no openings existed there, and my firm impression is, the majority of them were set on fire, not from direct contact with fire or flame, but from the intense heat which caused the combustion of the materials stowed therein.

In reference to Hay's Wharf, the magistrate's decision was not given upon the principle of their division into compartments by party arches, supported by cast-iron girders and stanchions; but upon the same principle laid down by him in the case of Mark Brown's Wharf, also erected by us, in compliance with the 3rd clause of the 27th section of the Metropolitan Buildings Act; and which decision was arrived at after a very careful and ingenious defence made by Mr. Robert Hesketh, of the home circuit,* and which was subsequently confirmed by the decision of Mr. Arnold at the Westminster Police-court, *Re Elliott and Watson*, in which case Mr. Bodkin was retained, and for which decision, given in writing, I refer you to *Builder*, of April 2nd, 1859, p. 241. I am free to admit the horizontal arches erected by Mr. Humphrey, under the present circumstances, have significantly failed; but I cannot admit that the cast-iron girders and stanchions, when the wrought-iron tension rods became red-hot, have had the slightest effect in throwing down the party-walls, for the party-walls in every instance are now standing as a rebuke to that assertion.

I must also, from having been a close observer and an eye-witness of the spread of the fire, object to the supposition that the number of the windows in the several buildings was the cause, and I am quite prepared to submit the various elevations, showing the exceedingly small quantity of window surface in comparison with the superficies of the walls of the warehouses; but, as I before observed, the great mass of the fire, and the enormous mass of fire in the adjoining warehouses, to which everything succumbed, and which nothing could resist.

In reference to the wrought-iron doors and the mole pursued by securing the plates to the wrought-iron rails and stiles by means of rivets, practically I consider it one of the best modes that could be adopted for made doors; and I have since carefully examined several doors which have been exposed to the fiercest of the fire, and the rivets are as sound and as unimpaired as at the time, no displacement having taken place therein. Finally, in relation to pugged floors, or those quoted by Mr. Hesketh as having been effectually done by Alderman Humphrey, all the wood floors of the alderman's warehouses were constructed of fillets nailed to the joists, and stout slate slabs laid thereon, and the whole space between filled in with good concrete up to the top of the joists. These, no doubt, under common circumstances, would, in contrast with the ordinary floorings, resist for a much longer time the action of fire; but the result has proved that under the late extensive conflagration these also were useless; but at the same time there is no question the brick arches over the one pair-floor of the central building towards Compter-street offered such a temporary opposition to the flame as to check any further progress of the fire eastward, the materials in the warehouse at the corner of Hay's-lane and Compter-street being of a nature not so combustible as in the warehouses previously destroyed. To enter into any further details, or give opinion upon what is and what is not fire-proof, or to offer suggestions as to any prohibitory causes for future buildings, would be, at the present moment, and in this letter, out of place; but the Messrs. Scovell have already given us some instructions as to the rebuilding; and to some extent will, I hope, prevent a recurrence of such a calamitous fire.

WILLIAM SNOOK.

A PRETTY SPECIMEN OF DICTATION.

SIR,—The masons employed at the erection of the new county court at Salford recently left their work because their master purchased some landings for the staircase which were worked on both sides. The following resolution was sent to their employer the following day.

"Resolved,—That all the landings on Mr. Farrell's county court job that are faced on both sides be sunk a quarter of an inch, and that no more come on to the job worked."

That arrangement of the grievance being objected to, as being mischievous as well as useless, the unfortunate contractor was obliged to purchase peace by paying 8*l.* to

* See report in *Builder* May 22 1859, p. 35.

"The Manchester Operative Stonemasons' Friendly Society," who then kindly allowed the workmen to return to their labour, on a pledge being added that "no more come on to the job worked."

ONE ASHAMED OF HIS MATES.

THE CONVERSAZIONE AT THE INSTITUTE.

DEAR MR. EDITOR,—I am a member of the R. T. B. A.; and, being married, I naturally look forward with joyous anticipation to the forthcoming *conversazione*, to which I shall naturally take my wife. Unfortunately, this lady, who equally looks forward to it, has just raised the most sinister forebodings in my marital bosom, by remarking that, as I usually come home from Conduit-street with a racking headache, it may possibly happen that the bad ventilation, and consequent foul air, may be equally injurious to herself. Now, Mr. Editor, I apply to you to use your powerful voice, and warn the Council of the danger which lies lurking in wait for those most dear to them. Do try and persuade them to do the matter effectually, and at once, and in the most natural way; namely, to make a big hole in the ceiling; and not to waste money in palliatives and new-fangled inventions.—Believe me, yours truly (but not).

A. FOWL. HEIN, A.R.T.B.A.

The Dorker, Clapham.

ORGANIZATION FOR WORKING MEN.

SIR,—In consequence of receiving applications from working men, and thinking it probable some non-union organization is in existence (or, if not, that something of the kind is desirable), I venture, from your extensive acquaintance and known sympathy with the working classes, to assume that you can inform me whether or not this is the case.

If it be, perhaps you will kindly state, in your valuable and widely-circulated paper, where application should be made. If, however, nothing of the kind does exist, I beg to suggest that one of two courses be adopted, viz.:

1st. That a society be formed of non-union men, the leading idea of which should be the formation of a registry of the names of those willing and anxious to work.

On this might ultimately be grafted a house of call, benefit club, and similar kindred institutions. At the same time all interference about hours of labour, wages, and other sources of dispute should be most rigorously excluded.

Or, 2nd. The elimination (or in plain language, the striking out) of all rules, from those of the existing unions which interfere with that right, which such rules challenge, of the working man to dispose of his labour to his own advantage.

Allow me to add one word on behalf of the common labourers, who, if such a society as I have indicated were formed, might justly partake of the advantages resulting from it, instead of being, as I believe they now are, left in a great measure to themselves.

FRED. WM. RUSSELL, Curate of Holy Trinity, Kentish Town.

* The Working Men's Institute in Euston-road, with branch in York-road, Lambeth, probably affords means for the organization desired.

Books Received.

A House for the Suburbs; Socially and Architecturally Sketched. By THOMAS MORRIS, M.I.B.A. Second Edition. London: Simpkin, Marshall, & Co. 1861.

We had occasion last year to notice the first edition of Mr. Morris's volume, and in doing so remarked that he might improve on so good an idea. That the idea is a good one is so far corroborated by the issue, already, of a second edition; and that the author has received our hint in good part, and has improved on it, we are glad also to observe. The volume is a handsome one, and a credit to its publishers. It may lead many to think with a useful end.

VARIORUM.

The *New Quarterly Review* (Hardwicke) contains an interesting and pertinent article on "The Education of the Artist."—Rowney & Co. have published a little "Guide to the Art of Illuminating and Missal Painting," by W. & G. Audsley, architects. It contains a considerable amount of useful information, a number of illustrations in outline, and one as a title-page illuminated. In the next edition the Lamb of God may as well not be called Agnes Dei.—Under the title of "Thames Embankment: a few Reasons why a Low-level, self-made, 6½ mile Thames Thoroughfare should be preferred to a High-level tax-made 1½ or 1¼ mile Thames Thoroughfare: addressed to the Thames Embankment Commissioners," Mr. John Sewell, Assoc. Inst. C.E., the author has published his scheme for a "City

hames, and West-end Railway," on piles over sewer bank, with waterway over it to the wharfs and bed for barges, sewer on the south side, &c.; total estimated cost, 1,000,000. It is regarded as a special advantage of this scheme that, besides being self-supporting, its revenues would pay the cost of construction, and also yield a dividend. Into its relative merits as regards the many other schemes under consideration, we cannot here enter.—"Map of London; with Guide for the Stranger and Visitor: designed and engraved for the Society for the Diffusion of Useful Knowledge. London: Stanford, Charing-cross." This seems to do by way of improvement in maps of London, especially in regard to names of streets and places, which are frequently illegible, or wanting altogether.—"The *Sixpenny Magazine*. London: Ward & Lock, Fleet-street. Want of price-marks on books is too frequent; but the *Sixpenny Magazine*, price sixpence, is rather superfluous, though in the right direction: there is also a similitude of the actual coin of the realm to prevent mistake, but it looks much more like the new penny piece than the sixpence. Though the cover might have been a little more tasteful, however; and the engravings include much reduced in quantity and a little improved in quality; this is really a wonderful sixpenny worth. It actually rivals in quantity the shilling magazines, which were so lately themselves a nine days' wonder. The table of contents, too, is a varied and attractive one, containing many more articles than we have space to give any notion of, even in abstract. Nevertheless, a further increase, beyond the 128 pages already given, is threatened in October next, when the paper duty comes off!—"The Right to Publish Official Documents: Proceedings in the case of Popham v. Pickburn, in the Court of Eschequer, Westminster. London: Pickburn, printer, Roshman-street, 1861." This is a full report of an action for alleged libel contained in an official report of a medical officer of health, given, without note or comment, in the *Clerkenwell News*, and the proprietor of which was made the defendant in the action. Should the ruling of Mr. Baron Wilde in the case, that such a report is an unprivileged publication, be sustained, on hearing the rule nisi granted to set aside the verdict; a responsibility for the writings and sayings of public men, of a most serious nature, will be thrown upon the press. It will be the duty and the interest of the public to remove this at once.

Miscellanea.

ARCHITECTURAL ASSOCIATION DINNER.—We are requested to state that the annual dinner of the members of the Architectural Association will take place on Friday, the 12th instant, at the "Whittington Club," Arundel-street, Strand. A large attendance of members is hoped for.

MANCHESTER ARCHITECTURAL ASSOCIATION.—The usual meeting of this association was held at the rooms, George-street, on Wednesday evening, Mr. Alfred Darbyshire in the chair. Mr. O. J. Showell read the paper for the evening, on "Brickwork." After briefly alluding to the numerous evidences which we have of the very early introduction and general use of brickwork by the ancients, and a detailed description of the various kinds employed in the present day, with their several advantages and characteristics, the essayist called attention to the artistic beauty and effect which are secured by a judicious combination of bricks and ornamental tiles of various colours.

THE NEW COMET.—On Sunday night last, there suddenly, and, notwithstanding the delayed advent of the comet so much talked of some time ago, we may even say unexpectedly, appeared, in the northern heavens, and directly under the pole star, a comet of great magnitude as regards the nucleus. One of the greatest wonders, perhaps, connected with it is, how it reached its position on Sunday night without the lynx eyes of the astronomers having detected it on the way. However, it seems only to have then shown itself to any one; and, at the moment we first observed it on Sunday evening, in London, a correspondent of our own at Youghal, in Ireland, also saw it for the first time; so that, as no one observed it sooner, it must have been previously beclouded every night, we suppose, from the time it was capable of otherwise manifesting itself to the human eye. Astronomers no doubt are now busy tracing its path. They know little enough of comets, and will have to speak modestly.

MESSRS. THOMPSON'S ARCHITECTURAL PHOTOGRAPHS.—Messrs. Thompson (of Charing-cross), have issued eight more architectural photographs by Mr. F. Bedford, completing the delivery of their first year's series. These include the west porch of Higham Ferrers Church, Northamptonshire; the west front of Peterborough Cathedral; central portion of west front of Lincoln Cathedral; tomb of Bishop Redmayne, Ely Cathedral; the west doorway of Lincoln Cathedral; Ely Cathedral, the Galilee and portion of west front; and general view of Lincoln Cathedral from south-east. Some of these are very beautiful; particularly the porch of Higham Ferrers Church, and the Lincoln doorway. In one or two of them there is a want of uprightness in the lines, which is to be regretted. Mr. Bedford is, nevertheless, a master in his art; and this series, being moreover remarkably cheap, deserves to have a wide sale.

DESIGNS FOR THE FOREIGN OFFICE.—In the Commons last week, Lord J. Manners asked the First Commissioner of Works when he would submit the Gothic and Italian designs for the new Foreign-Office to the inspection of members, and whether he would name a day on which the decision of the House on the question of style should be taken? In reply, Mr. Cowper said that the designs by Mr. Scott, were now in the members' tea-room; and, as Lord J. Manners wished to have some Gothic plans, he had endeavoured to select those which he thought would be most likely to meet his lordship's views. The Gothic plans of last year were not within his reach, because they formed a portion of the exhibition of the Royal Academy. The vote would be taken in due course in the miscellaneous estimates, and notice would be given. Lord Elcho said that there were at present two designs in the tea-room, a Gothic and a Palatial. There were, however, intermediate designs mentioned by Lord J. Manners; and he wished to know whether there was any objection to their being exhibited. He also wished to know whether the Society of Early Gothic Architecture would allow their two designs to be exhibited.

RESTORATION OF A MEDIEVAL TOWER AT DARNICK.—An old Border tower, or fortalice of the Middle Ages, at Darnick, has been restored to a habitable state as a dwelling. The tower of Darnick has been amongst the best-preserved of the "peel houses" in the south of Scotland, while the contemporary towers of Colmslie, Hillslop, Langshaw, and Torwoodlee, have fallen into picturesque ruins; and while of Buckholm, Blindlee, Langies, Gala, and others, not a vestige remains, the old red and grey turrets of Darnick tower, nestling amid orchard trees, with slated roof and battlements entire, looking down over the village below, has long been a marked object in this part of the border. It belongs to a family named Heiton; and the author of "The Castles of Edinburgh," Mr. John Heiton, of Edinburgh, is the present proprietor, who has restored it. The interior, as described by the *Border Advertiser*, contains four large square apartments, one above the other, some of which have been refloored, and the walls plastered. In two of the rooms there are Mediaeval sculptures. The original doors and locks are still in use, the former studded strongly with great iron nails, and the latter of vast size.

TRANMERE WATERWORKS.—The foundation-stone has been laid of the water-tower and reservoir for the waterworks at Tranmere, in Cheshire. The site of the reservoir is the highest elevation in the township. The reservoir is 70 feet square, and, when puddled and cemented round, will have 21 feet depth of water, or 640,000 gallons, about equal to four days' supply for the present population. Odd names are connected with the localities of the works. The reservoir is constructed on "The Old Lad's Croft," while the well is sunk in a triangular plot of land called "Vexation," at the head of "The Happy Valley." The well is 127 feet deep, and yields over 18,000 gallons an hour; equal to 45 gallons per day for each inhabitant of Tranmere. From the well the water will be carried up a new road called Fountain-street, up York-of-Egg-lane to the reservoir. The water-tower will be in the Italian style of architecture. The engine-house and chimney—which will also have an appropriate architectural character—are in progress, and the whole of the works will be accomplished before winter. The contractors for laying the mains and pipes are Messrs. Crump, of Derby; for the well, Mr. John Hogarth, of Rock Ferry; and for the reservoir, engine, boiler-house, and chimney, Mr. James Routledge, of Tranmere. The engine and boilers are provided by Melling & Son, of Rainhill Ironworks. Mr. R. Rawlinson, C.E., is the engineer who planned the works.

RAILWAY RETURNS.—The traffic returns of railways in the United Kingdom for the week ending June 15 amounted to 544,680; and, for the corresponding week of last year, to 529,880; showing an increase of 16,800. The gross receipts of the eight railways having their termini in the metropolis amounted to 243,276; and, for the corresponding week of 1860, to 244,611; showing an increase of 3,635. The receipts on the other lines in the United Kingdom amounted to 298,404; and, for the corresponding week of last year, to 285,239; showing an increase of 13,165.

FIREPROOF BUILDINGS.—It is instructive to know that poor Braidwood to the last protested against the use of cast-iron in the construction of our great river-side warehouses. In the paper he read at the Institution of Civil Engineers in 1849, "On Fireproof Buildings," he denounced the use of this untrustworthy material in the most decided manner; and pointed out that some great calamity must inevitably befall the men of the Fire Brigade, sooner or later, in their attempts to extinguish the vast conflagrations which were likely to take place in these extensive buildings. His own destruction has been the first testimony to the correctness of his views. The fire raging in one of these warehouses can only be compared to that of a blast furnace; and, in consequence, the cast-iron pillars speedily become red-hot; the water from the hose falling upon these pillars suddenly contracts and snaps them like so much glass; and, of course, the floors fall in at once. It is not necessary to give our testimony to the bravery of the men of the Fire Brigade; nevertheless, it is a well-known fact that they will not venture inside these buildings to play upon the fire; knowing that by so doing they are, like Samson, sure to bring the place about their heads without a possibility of their escape. Moreover, there is another danger to those outside these warehouses. The massive girders of cast-iron supporting the flooring of course expand with the heat; and no walls, however strongly built, can possibly withstand their lateral thrust; and down they come, to the destruction of those near at hand. We have no doubt whatever that this was the cause of the falling of the wall which killed poor Braidwood.—*London Review*.

TELEGRAPHIC PROGRESS: SUBMARINE CABLES. The report of the joint committee appointed by the Board of Trade to inquire into the best form of covering for submarine telegraph cables has just been issued. Up to the present time 11,364 miles have been laid, but only about 3,000 are actually working. The lines not working include the Atlantic, 2,200 miles; the Red Sea and India, 3,499 miles; the Sardinia, Malta, and Corfu, 700 miles; and the Singapore and Batavia, 550 miles. The committee give a succinct history of these as well as of all the others, and state their conclusions. The failure of the Atlantic is attributed to "the cable having been faulty, owing to the absence of experimental data; to the manufacture having been conducted without proper supervision, and to the cable not having been handled after manufacture with sufficient care;" and they add that "practical men ought to have known that the cable was defective, and to have been aware of the locality of the defects before it was laid." The Red Sea and India failure is considered to be attributable to the cable having been designed "without regard to the condition of the climate or the character of the bottom of the sea over which it had to be laid; and to the insufficiency of the agreement with the contractor for securing effectual supervision during manufacture, and control of the manner of laying." Looking at these circumstances, and similar ones in connection with other lines, the committee point out that the failures in every case are assignable to defined causes which might have been guarded against. They next detail the various methods hitherto employed for the construction and laying of submarine cables; and state the result of experiments in demonstrating the superiority of caoutchouc to gutta-percha for the insulating covering. They likewise express their opinion as to the best method of external protection, and the plans for laying and maintenance; and recommend the construction of a vessel specially for the purpose; which, they believe, when not employed in laying cables, would be found extremely useful for the ordinary purposes of commerce. In conclusion, they repeat their belief that the exercise of due care might have prevented all the unsatisfactory results that have thus far attended this branch of enterprise; and that, if proper regard be henceforth bestowed upon the question, the results will prove as successful as they have hitherto been disastrous.

GAS.—At the annual general meeting of the shareholders of the Kelson Gas Company, a dividend of 10 per cent. on the paid-up capital of the company was declared. The price was reduced from 7s. 6d. to 6s. 8d. per 1,000 cubic feet. That "the price of gas in this town is now lower than in any town in the district," however, is nothing, as yet, to boast of.

A FANNER.—A correspondent writes:—"I have recently inspected an ingenious piece of mechanism in the shape of a ventilator, intended as a present for the Governor-General of India, by the designer and inventor (James Bruce, Esq., late 33rd Regiment). It consists of a large gilt eagle, having the natural wings of this bird attached to it. It is suspended from the ceiling like a chandelier; and, being wound up by machinery like an ordinary clock, the wings are kept fanning for twenty-four hours. The air in the room thus becomes quite cool and pleasant.

ROYAL ITALIAN OPERA-HOUSE.—A brilliant season here is drawing to a close; and they who would hear Verdi's new opera, *Un Ballo in Maschera* (wherein Madame Penco and Signor Mario are most excellent), and see the setting of *Grisi* and the rising of *Patti*, must make haste. There are several compositions in *Un Ballo* of great originality and beauty, and the *mise en scène* is charming. Madlle. Patti, who is an immense gain, essays, on (this) Thursday night, *La Traviata*. The volunteer ball, which, under the management of Mr. Gye, was last year so successful, is announced for Friday, the 12th.

SANITARY APPLIANCES COMMITTEE: THE INTERNATIONAL EXHIBITION. Her Majesty's Commissioners for the International Exhibition of 1862 have requested the following gentlemen to act on a committee for sanitary appliances in connection with Class X. (civil engineering, architectural machines, and building contrivances): The Earl of Shaftesbury, Viscount Ebrington, the Right Hon. Lord Bishop of Bath and Wells, the Right Hon. the Lord Mayor, Sir Morton Peto, Bart., M.P., Mr. John F. Campbell, Mr. E. Chadwick, C.B., Mr. W. Fairbairn, LL.D., Captain D. Galton, R.E., Mr. G. Godwin, F.R.S., Mr. Philip Holland, Mr. Owen Jones, Dr. Letheby, Mr. J. Simon, F.R.S., Mr. R. Rawlinson, C.E., Mr. A. Strutt, Dr. Sutherland, M.D., and Mr. T. Twining, jun.

THE LABOURING CLASSES.—The Society for improving the Condition of the Labouring Classes has held its seventeenth annual meeting at Willis's Rooms, King-street, St. James's. The Earl of Shaftesbury presided. The report, read by the Rev. J. B. Owen, stated that the buildings of the society were generally occupied by a quiet and orderly tenantry, and that the rules established had met with the approval of the inmates. There had not been any new erections or purchases of bases or sites of additional plots during the past year; the object of the society not being so much to multiply buildings of the same average character of domiciliary reform as to set up models in various parts of the metropolis, with a view to the stimulation of private or social enterprise in the same direction. An abstract of the cash account, from December, 1859, to December, 1860, showed the receipts of the society amounted to 6,935*l.* 5*s.* 9*d.*, and the payments (including the repayment of a loan of 850*l.*) to 6,798*l.* 0*s.* 2*d.*, leaving a balance in hand of 137*l.* 5*s.* 7*d.* By an estimated value of the property belonging to the society, there appeared to be an excess of assets over liabilities, of 20,312*l.* 1*s.* 5*d.*

ROYAL HORTICULTURAL SOCIETY.—The bands formed by the Metropolitan Police (of which we first informed the public) played for the first time in public on the 29th ult., in the gardens of the Horticultural Society, South Kensington, and performed remarkably well. The gardens are falling rapidly into shape, every week making a striking difference. On the 10th instant a grand rose show is to be held, which promises to be very attractive. On this occasion admission for the gardeners of Fellows to view the arrangements on the morning of the show, before 8 o'clock, may also be had by a written application to Mr. Eyles. A number of the statues and busts of generals and other eminent men connected with the career of the late Duke of Wellington, which have been prepared for the Wellington College, and have been lent for the purpose, will be exhibited. These are formed by the electrolytic process instead of casting. On the 20th, the first arch of the nave of the Great Exhibition building is to be raised by H.R.H. the Prince Consort, with some ceremonial; and a *déjeuner* is to be given in the large conservatory by Messrs. Kelk & Lucas, the contractors, to a large number of gentlemen interested in the Exhibition. Great activity prevails in the society.

"ROME AT EASTER."—Our contemporary, the *Athenaeum*, has admitted a letter from the author of a book about Rome, complaining that the writer of a communication printed in the *Builder* of April last, has "plundered" him "of whole pages." He continues,—"The name of the highwayman is known: he had craped over his face, and was clumsily disguised as an architectural student now in Italy." What he means by this we do not exactly understand. The communication was precisely and literally what was stated,—part of the diary of an architectural student, the son of an architect well known to many of our readers. It was not intended for publication, and came to us direct from Italy. What the writer of it may have to say to the complaint, we do not know. It must, at any rate, be greatly exaggerated, since the whole communication occupies little more than two of our columns!

THE TURNER PICTURES.—In the House of Lords, last week, Lord St. Leonards asked the President of the Council whether any steps had been taken to provide a separate gallery in connection with the National Gallery for the Turner pictures. His lordship objected to their being allowed to remain at the South Kensington Gallery, on account of the use of gas there. He had ascertained, he said, that a gallery could now be erected in direct communication with the present building in Trafalgar-square, and hoped a public grant would not be objected to. Earl Granville, in reply, defended the present position of the pictures, and thought their safety sufficiently secure from the mode of lighting by gas at the Kensington Gallery. He thought it not advisable to remove the pictures. Lord Overstone also urged the erection of a gallery, in Trafalgar-square; and Lord Montagu, as a trustee, expressed dissatisfaction with the present position of the pictures. The Earl of Ellesmere, from his own experience, deprecated the idea that gas was either so dangerous or so deleterious as was represented.

AN ARCHEOLOGICAL EXCURSION FROM BIRMINGHAM.—The first local excursion of the present season was to Stratford-on-Avon. The party, upwards of 100 in number, proceeded to the birthplace, where Mr. S. Timmins described the history and changes made in the house. The visitors next proceeded to the theatre, in which the newly-found portrait of the poet was exhibited, and a coloured cast of the bust placed near it by Mr. W. O. Hunt, so that the two might be readily compared. Mr. S. Timmins briefly sketched the history of the former portraits of Shakespeare, and expressed his opinion that the bust in the church was the most authentic record of the poet's features. It was erected by his own friends in his own town, soon after his death. It was believed by many of the chief sculptors to be modelled from a posthumous cast. It was found on close examination to be very correctly executed in the portions which a cast would give, but carelessly elsewhere; and, for that and other reasons, might be taken as the best record of the poet which had come down to us. Mr. Sebastian Evans, M.A., then proceeded to explain why he had come to the conclusion that the picture was painted before the bust, and not from it, as some had ventured to suggest. The large number of half-tints which none but a very great artist could have introduced unless painting from life; the fine painting of the eyes; the delicate manipulation of the mouth, and many other minute touches, had convinced him that the portrait was not copied from the bust, but from the ever-living poet. A short discussion followed, in which Mr. C. H. Bracebridge expressed the thanks of the Birthplace Committee to Mr. Hunt for his gift. Professor Chamberlain, Mr. Jabet, and Mr. Dawson also took part in the discussion. The church was next visited, and its characteristics described by Professor Chamberlain. Mr. S. Timmins then briefly described the Clopton Chapel. He referred to the apparent re-marriage of Mrs. Shakespeare, as shown by the entry of her death in the register, and to several other matters relating to the monuments in the church. The dinner took place at the Corn Exchange, Mr. C. H. Bracebridge in the chair. Mr. George Dawson, M.A., delivered an address on Shakespeare. After dinner, the visitors dispersed; some to Shotton, some to the Avon and its boats, and some to the churchyard on the Avon-bank, to stroll under its elms. The excursion proved to be the best the association has yet enjoyed.

TENDERS

For completion of twelve houses, Kensington. Mr. Sim, architect:—
Scott £1,621 15 0
Fish 1,559 0 0
Elloft (one house omitted) 1,557 0 0

For house and premises, Hornsey-road, for Mr. John Broad. Mr. Francis Cross, architect:—
Manby & Rogers £988 0 0
Baker 865 0 0
Slomp 839 0 0
Sharlington & Cole 787 0 0
Rankin 760 0 0
Fowler 711 0 0
Ashton 678 0 0
Macfarlane (accepted) 696 0 0

For a warehouse at the corner of Cannon-street and Bow-lane, City. Mr. N. S. Joseph, architect. Quantities by Mr. W. F. Meakin:—
Mansfield & Sons £2,595 0 0
Lawrence & Sons 2,470 0 0
Conder 2,389 0 0
Hill, Keddel, & Robinson 2,285 0 0
King 2,256 0 0
Ashby & Horner 2,250 0 0
Sands 2,167 0 0
Rivett 1,173 0 0
Newman & Mann 2,157 0 0
Browne & Robinson 2,155 0 0

For the erection of a coach-house, stable, &c., at Park-house, Woodford, Essex. Mr. J. H. Rowley, architect:—
Davey £270 0 0
Cartwright 250 0 0
Cartwright 240 0 0
Salter 233 0 0
Salmon 224 0 0

For building new waiting-room, and general repairs, to Farringdon Dispensary, Bartlett's-buildings. Mr. Featon, architect:—
Wagstaffe £458 0 0
Pritchard 49 0 0
Sands 248 0 0
Lester 377 0 0
Malcolm, Brothers 324 0 0

For additions and alterations to Finchley Chapel. Mr. Searle, architect:—
Brass £518 0 0
Pleowman 500 0 0
Sands 460 0 0
Howlett & Brown 372 0 0

For alterations to the "Bull Inn," Market-place, Norwich. Mr. Barry, architect:—
Woodingham & Spinks (accepted) £400 0 0

For New Church, Crouch End, Hornsey. Mr. A. W. Blomfield, architect. Quantities supplied by Messrs. Hunt & Stewart and Mr. J. A. Bunker:—
Hill & Son £5,834 0 0
Child, Son, & Martin 4,737 0 0
Bird 5,721 0 0
Holland & Hannen 5,594 0 0
Myers 5,605 0 0
Turner & Sons 5,529 0 0
Carter 4,847 0 0

For cottage villa, at Forest Hill, for Mr. W. T. G. G. Mr. Wm. Nunn, architect:—
Turner £1,300 0 0
Wooten 1,287 0 0
Dearsley 1,283 0 0
Jones 1,275 0 0
Nolley 1,250 0 0
Day (accepted) 1,190 0 0

For repairs, No. 45, Russell-square. Mr. Wm. Nunn, architect:—
Wooten £439 0 0
Day 337 0 0
Jones 302 0 0
Will 299 0 0
Dearsley 295 0 0
Newman & Mann (accepted) 298 0 0

For the first portion of the repairs to Hale's free grammar school, Hereford. Patron, Lady Palmerston. Mr. W. Wilds, architect:—
Rayment £347 0 0
Collins 296 0 0
Norris 282 0 0

For Birmingham cemetery. Mr. R. Clarke, architect Nottingham. Quantities taken by Mr. Cox, Birmingham:—
Showell £3,110 0 0
Grove 2,998 0 0
Smith 2,300 0 0
Chambers & Hilton 2,500 0 0
Well & Sons 7,016 0 0
Godfrey 7,300 0 0
Nelson & Co. 7,675 0 0
Hardwicke & Sons 7,455 0 0
Jones 6,779 0 0
Wright (accepted) 5,975 0 0

For new dining-hall, Clewer House, Windsor. Mr. Sim, architect:—
Snowball £430 0 0
Holls 409 0 0

For completion of eight houses, Kensington. Mr. Sim, architect:—
Healdy £3,625 0 0
Fish 2,628 0 0
Cowland 2,599 0 0

For the making up of road, with paving curb and channel, Warwick gardens, Kensington:—
Cowland £701 0 6
Turner 638 5 8

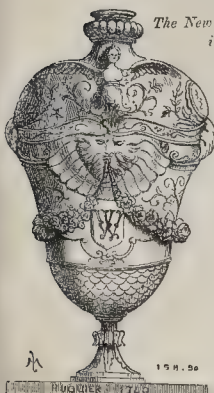
The committee for the erection of St. Philip's Parsonage House, Maidstone, met last week to receive tenders for the erection of a new parsonage. There were several tenders, but the tender of Mr. Chambers, of Maidstone, and Mr. Wylar, of Rochester, were alike, each giving the committee accepted the tender of Mr. Wylar.

A SUBSCRIBER.

The Builder.

VOL. XIX.—No. 962.

The New Victoria Theatre
in Berlin.



It recently gave an external view and a plan of this house.* We return to it, but to consider more especially its internal arrangement; and have, consequently, chosen a view of the interior of the summer theatre, and a complete longitudinal section of the whole building.†

It will be observed that the summer theatre has but two tiers of boxes above the pit, and that the architect has thereby sought to give it as open an appearance as possible, and also to admit of the utmost amount of light, and then to give a certain tent-like and uncommon lightness to the whole by the use of thin, gilded pillars, which finally support a roof partly retaining this same character, inasmuch as it represents, to a certain degree, a rich but elegant cloth stretched over the auditory. It is divided into compartments, each containing a painted medallion. There is a general idea of aspiration to height, and this is gained especially by the introduction of only two tiers. The whole colouring is subdued, but clear; and the effect is satisfactory.

The interior of the winter theatre is of quite a different nature. The necessity of supplying more places for the spectators caused, of course, the designer to arrange the tiers of boxes closer together; but he has certainly obviated that compressed and heavy appearance so common in theatres of this country, especially in Her Majesty's, and which the architect of Covent Garden so admirably avoided, for we can hardly conceive a better proportioned auditory in this respect than that of Covent Garden. Thus we see that in the winter auditory, which is very little higher than the summer, the architect has managed to introduce four tiers above the pit without crowding them together, or making it heavy to the eye. The principal colour of the decorations is white, with gilded ornamentation on dark red. The effect is warm and pleasant. Immediately in front of this house, on the other side of the corridors, stands the grand concert saloon,—a very worthy addition to the establishment; and, besides this, there are several large rooms for the court, the restaurant, &c. Over the ceiling of the winter theatre is placed the scene-painter's room,—an arrangement certainly inferior to that happy idea at Covent Garden, where scene-painting is really carried on with ease; but here we must stop to consider the construction of the roof, which, on this account, is somewhat peculiar. It was necessary to have a clear room, whose sides should be at least 50 feet long, in order that the large cloths might be painted with comparative ease. To get this clear space, anything like hanging supports from the roof was out of the question; hence the introduction of straight iron lattice beams, the under parts of which form the outline of the ceiling. The storehouse, or magazine, for the drop-cloths is in a separate building at the side of the stage: this is a model of neatness in arrangement, and out of it the cloths can be removed at the shortest notice and with great facility. The cloths

are rolled and placed away on projecting trays—a great contrast to the arrangement in some of our theatres, where it is a day's work to get them out when wanted.

We will now proceed to consider shortly the stage machinery, which is in this house most curious,—a positively gigantesque work, that can scarcely be appreciated except by a master carpenter of the stage, but which, with all the difficulties to be overcome, is of a simplicity which is quite striking. Under the stage there is a mezzanine floor and two cellars, all clear, and unencumbered with anything like stage properties. As to the mezzanine, it might form a paradise for an old scene-shifter. Instead of seeing here a forest of posts and ropes, you have a comparatively clear space. It is 9 feet high, so that any one can walk about without danger to his hat. The wing ladders come through the stage, and run on an iron tramway on the floor of the mezzanine, and not, as in Covent Garden, on a beam about 3 feet below the stage, which beam renders this floor more impassable still in that house; so much so indeed, that one can only pass up the mezzanine floor with back bent double,—an arrangement not calculated to aid the carpenters in that quickness of motion which is so necessary should aught go wrong below. The wings are worked from a horizontal cylinder in the middle of the mezzanine, with the aid of counter weights; and, consequently, require no scene-shifters on the stage to push them forward or backward, and hence two men do the work of twelve. The drops are also worked from below, and require no men in the “flies;” in fact, they can be worked from the same central cylinders as the wings. In a large London theatre fifty men are required to work the stage: a fifth part of the number would work the Victoria, Berlin. The flies are clear, with very few ropes: contrast this again with any stage in London: the whole six lines that hold the drops work on one wheel at the top of the roof. From this wheel descends the counter-weight: there are four lines of flies, all fixed with their floor joists in the wall, on one side, and on the other held up by a beam hanging from the roof. The drops go straight up, and require no catching up in the middle, and consequent rolling on battens. In the walls at the side of the stage, and parallel with the wings, are a series of small shafts with lifts, so that men can go from the bottom to the top of the house without setting foot on the stage. The stage is flat, without any acclivity. This arrangement, which has excited much controversy in Germany, has not been thought of yet in this country. We incline to the belief that the flat stage is superior, and in this we are backed with innumerable authorities; amongst them that learned engineer-machinist, Her Mühlendorfer, of Mannheim, and all the young machinists of Germany. For the winter theatre it is capable of being used in its entire length of eight wings, or about 80 feet deep. The summer stage can only be used four wings deep, or about 38 feet, but this is abundant for all the scenic effects required therein. On either side of the stage there are corridors entered by doors from the stage, and leading out of these are the dressing-rooms. It is plainly necessary that in a well-arranged stage the dressing-rooms should be as near it as possible, and certainly never more than one floor above it. The passages should be guarded firmly against all draughts that could in any way endanger the health of the singers or dancers; hence also the great benefit of having corridors at the side of the stage, so that there may be no draught on the stage itself. The artists also, after finishing their duties, enter through it to their rooms, which helps to keep the wings clear, and avoids a crowd on the stage. The tailors' rooms should also be near the dressing-rooms, in order to avoid all unnecessary trouble of transporting the dresses any distance. Let there be, too, always plenty of lifts to obviate running up-stairs.

Nothing can be worse than the placing of dress ing-rooms below in the cellars: the danger the artists are thereby exposed to is dreadful. After the heat of dancing we have known most serious illnesses arise from such mistakes of construction. In the top of the stage roof are a series of trucks running on tramways across the stage, and between each drop, for the purpose of fairy and other flying effects. For each wing there are three wing ladders, all going through and running on a tram in the floor of the mezzanine. Besides, there is at each wing a tram in the mezzanine with its accompanying truck, on which may be placed rocks, &c. This is of peculiar make, inasmuch as it is fitted with a series of holes, so that a rock of any size may be fitted into it by spikes. This is called a *freifahrtswagen*, in German, and is totally unknown on English stages. Here it is common to fix them on the stage with a bar, an arrangement unworthy of the nineteenth century. All the grave-traps go through to the lowest cellar; thus a castle of any size may be sent up if necessary, for they are 35 feet broad, of an excellent and simple construction, with counterweights. This we have, however, long considered might be better worked with hydraulic pressure, although as yet nowhere introduced. In fact, we see no reason why the whole work now done by counterweights should not be better and more easily effected by such mechanical force. In conclusion, let us say that should any English theatrical director have the intention of reconstructing his stage, it is our earnest advice to him that he should send his master carpenter to Berlin to see the Victoria stage, and we are sure that he will not only save money in the construction of his stage from the smaller amount of wood and rope required, but that afterwards he will require only half the ordinary number of men to work it, and he will possess a piece of mechanism worth looking at. Frenchmen may talk, as they usually do, but there is nothing at present in Paris that can stand comparison with the Berlin theatre in reference to simplicity and excellence of stage machinery. We may also state to those interested, that they should by all means visit Mr. Mühlendorfer, at the theatre at Mannheim, as well as Mr. Schütz, at Munich, machinists of great reputation.

REFERENCES TO PLAN OF FIRST FLOOR.

- A. Stairs to the various tiers.
- BB. Entrance to boxes.
- CC. Corridors.
- DD. Proscenium boxes.
- E. Royal box.
- F. Passage for promenade.
- G. First tier.
- H. Balcony.
- I. The king's rotunda.
- K. “Estrade” (private boudoir, two steps higher than rotunda).
- L. Closets.
- M. Room for reading rehearsals.
- NN. Ward robes. Dressing-rooms.
- O. Dressing-rooms staircase.
- PP. King's private chambers.
- Q. Conservatory.
- RR. Rooms for royal princes.
- SS. Entrances to ditto.
- U. Grand lobby.
- V. Concert saloon.
- W. Side rooms.
- X. Corridor.
- Y. Various rooms.
- Z. Kitchens.
- 1. Stairs to amphitheatre.
- 2. Yards to give light.

THE PRESENT AND PAST BOUNDARY OF THE RIVER THAMES AT LONDON.*

IN venturing to trace the progress of a work like that now under consideration, it is no easy task to determine the chronological steps in the series, or to show the numerous gradations by which these embankments may have passed from their rude, feeble, and imperfect beginning, to the mature and substantial condition in which we now enjoy them. That a vast number of hands were employed in their erection, during a great many years, and at an enormous outlay for labour, is an indisputable fact; but there is no evidence to show where these works were begun, in what manner they were carried on, or what part of the long-continued work received the ultimate pile of earth as a finisher.

The following table is made up from information

* See pp. 444-5, *ante*.

† See pp. 480-1.

* See p. 465, *ante*.

recorded by Sir William Dagdale, and other antiquaries; also from local histories of places near the river: it shows the dates of breaches, and of commissions appointed to survey and repair the same:

Dates of Breaches, of Commissions to Survey, and of Repairs.			
	North Side.	South Side.	
23 Edward I.	107	107	At Lambeth and Greenwich.
35 Edward I.	129	129	Stewney and parts adjacent.
36 Edward I.	129	129	London, Bladon and Vauxhall.
37 Edward I.	129	129	Greenwich and London Bridge.
42 Edward I.	134	134	Greenwich and London Bridge.
43 Edward I.	134	134	Greenwich and London Bridge.
44 Edward I.	134	134	Greenwich and London Bridge.
45 Edward I.	134	134	Greenwich and London Bridge.
46 Edward I.	134	134	Greenwich and London Bridge.
47 Edward I.	134	134	Greenwich and London Bridge.
48 Edward I.	134	134	Greenwich and London Bridge.
49 Edward I.	134	134	Greenwich and London Bridge.
50 Edward I.	134	134	Greenwich and London Bridge.
51 Edward I.	134	134	Greenwich and London Bridge.
52 Edward I.	134	134	Greenwich and London Bridge.
53 Edward I.	134	134	Greenwich and London Bridge.
54 Edward I.	134	134	Greenwich and London Bridge.
55 Edward I.	134	134	Greenwich and London Bridge.
56 Edward I.	134	134	Greenwich and London Bridge.
57 Edward I.	134	134	Greenwich and London Bridge.
58 Edward I.	134	134	Greenwich and London Bridge.
59 Edward I.	134	134	Greenwich and London Bridge.
60 Edward I.	134	134	Greenwich and London Bridge.
61 Edward I.	134	134	Greenwich and London Bridge.
62 Edward I.	134	134	Greenwich and London Bridge.
63 Edward I.	134	134	Greenwich and London Bridge.
64 Edward I.	134	134	Greenwich and London Bridge.
65 Edward I.	134	134	Greenwich and London Bridge.
66 Edward I.	134	134	Greenwich and London Bridge.
67 Edward I.	134	134	Greenwich and London Bridge.
68 Edward I.	134	134	Greenwich and London Bridge.
69 Edward I.	134	134	Greenwich and London Bridge.
70 Edward I.	134	134	Greenwich and London Bridge.
71 Edward I.	134	134	Greenwich and London Bridge.
72 Edward I.	134	134	Greenwich and London Bridge.
73 Edward I.	134	134	Greenwich and London Bridge.
74 Edward I.	134	134	Greenwich and London Bridge.
75 Edward I.	134	134	Greenwich and London Bridge.
76 Edward I.	134	134	Greenwich and London Bridge.
77 Edward I.	134	134	Greenwich and London Bridge.
78 Edward I.	134	134	Greenwich and London Bridge.
79 Edward I.	134	134	Greenwich and London Bridge.
80 Edward I.	134	134	Greenwich and London Bridge.
81 Edward I.	134	134	Greenwich and London Bridge.
82 Edward I.	134	134	Greenwich and London Bridge.
83 Edward I.	134	134	Greenwich and London Bridge.
84 Edward I.	134	134	Greenwich and London Bridge.
85 Edward I.	134	134	Greenwich and London Bridge.
86 Edward I.	134	134	Greenwich and London Bridge.
87 Edward I.	134	134	Greenwich and London Bridge.
88 Edward I.	134	134	Greenwich and London Bridge.
89 Edward I.	134	134	Greenwich and London Bridge.
90 Edward I.	134	134	Greenwich and London Bridge.
91 Edward I.	134	134	Greenwich and London Bridge.
92 Edward I.	134	134	Greenwich and London Bridge.
93 Edward I.	134	134	Greenwich and London Bridge.
94 Edward I.	134	134	Greenwich and London Bridge.
95 Edward I.	134	134	Greenwich and London Bridge.
96 Edward I.	134	134	Greenwich and London Bridge.
97 Edward I.	134	134	Greenwich and London Bridge.
98 Edward I.	134	134	Greenwich and London Bridge.
99 Edward I.	134	134	Greenwich and London Bridge.
100 Edward I.	134	134	Greenwich and London Bridge.

By these dates, which are well authenticated, we learn that the period of forming these embankments is considerably more remote than the generality of observers would imagine. The earliest notice that I have hitherto been able to find relating to these embankments is a commission dated 23rd of Edward I., 1295, which appointed eminent persons to examine and repair the banks between Lambeth and Greenwich; and more particularly a certain breach then newly made by the violence of the tides. The said commissioners were empowered "to impress labourers therein, in respect of the then great and urgent necessity, as might serve for the performance of that work." The general tenor of all these commissions is to a similar purport; they have reference to examining and repairing only; in no instance do they lead us to infer that the banks were then recently erected. All places throughout the entire distance along the southern shore from Woolwich to Wandsworth, and on the northern shore from Chelsea to Blackwall, are mentioned to be surveyed or repaired in one or other of these commissions; and the wording is invariably as if the embankments were at the time considered to be of some antiquity, or of long-established utility for the protection of the marshes near the river.

If the history of London be searched, or indeed that of the entire country, previously to the year 1295, which is the earliest date where mention is made of the Thames being embanked, we shall find that during a period of 229 years after the conquest of William I. the sovereigns of the British nation were principally engaged in warfare, for the purpose of securing their newly-acquired kingdom from the incursions of the Danes, Saxons, and other invaders. Their time was also taken up with crusading, building fortifications or sacred structures, and quelling the insurrections of the mutinous barons. Thus occupied, it is very unlikely they would undertake so great a work as that of embanking the river. During the greater part of the long period of five or six centuries which elapsed between the time when the Romans quitted this country and the Norman conquest, the inhabitants were almost constantly annoyed with sanguinary battles between the Danes and Anglo-Saxons, either of whom were sure to burn or otherwise destroy everything within their power: hence we may be sure no important improvements could be executed during such commotions. The country was also divided into a number of little kingdoms, each of which required too much attention in order to protect it from the depredations of neighbouring chiefs, for any extensive improvements to be made in the physical condition of the rivers. All such works are generally the result of a long-continued peace, which

tends to produce a high state of civilization and refinement, and therefore could only have been accomplished within the last three or four centuries, or at some period of equal refinement in antiquity. Yet we know that the banks of the Thames have not been constructed in any period to which our records extend. Their existence is apparently antecedent to all our records, consequently, they can only be ascribed to the Romans, who began an era of refinement in this country that continued nearly 500 years, and was terminated by the Saxons, and which refinement did not return until the fifteenth or sixteenth century.* The laborious work of embanking the river was the natural operation of that magnificent spirit of Roman civilization which intersected the surface of the empire with so many ramparts raised for roads; but as these were generally formed only of earth, they have, in most cases, disappeared through neglect, and are almost wholly obliterated in those countries where agriculture and commerce have been long and thoroughly established. No such neglect is perceptible in the marshes which have been once gained from the foundations of a river. All such alluvial depositions generally produce the finest grass land, for which reason graziers are soon tempted to settle on them and to establish habitations for the breeding of cattle, which fatten well thereon: consequently the banks are sure to be kept in good repair, to prevent the destruction of their property.

All these low marshy districts, and especially that extensive portion on the southern shore known as St. George's Fields, afford a striking proof that persevering industry is capable of conquering disadvantages of both climate and situation. Many, very many years of toil and labour must have passed, attended by disastrous failures, while earth and water were obstinately contending for the possession of the marshes on the Surrey side of the river, before man could plant his dwelling, and say to the rolling tide, in the words of Job, "Hitherto shalt thou come, but no further; and here shall thy proud waves be stayed;" yet the labours of our ancestors have rendered this, formerly worse than useless territory, one of the richest and most densely-populated spots in the kingdom.

When the Romans settled at London, their natural desire for improvement would, in the first instance, direct them towards the immense space of unhealthy marshes immediately opposite the rising ground of their city. In all probability these marshes were the first to undergo a great alteration by this improving people. To give force to the argument in favour of these works being executed by the Romans, it may be desirable to mention an instance of works somewhat analogous that were progressing about the same time as the Thames embankment, and during the government of the Romans in Britain, that is, in the fourth century when Attila, king of the Huns, ravaged the north part of Italy. Many of the inhabitants abandoned their country and retired into the islands of the Adriatic Sea, now called the Gulf of Venice. These islands being in shallow water, and near each other, means were used to join them by driving rows of piles and filling in with rubble, upon which they built houses, leaving spaces or channels between the piles, to form canals, and thus the superb city of Venice had its beginning. The mode of joining these islands by piling, must have been something like the method adopted to form the Roman road leading to Camberwell, across the marshes, part of which was discovered in digging the Grand Surrey Canal, in the year 1809, as heretofore mentioned.

All that I have heretofore stated has reference only to what was done with the river and its boundaries, during some unknown period previously to the reign of the first Edward; from that time we have incidental notices that embankments existed, because occasionally reparations were ordered. I now propose to offer a few remarks on the present state of the river, and the great public utility which might be gained by an alteration.

At an early period of our mercantile pursuits, when the metropolis of Britain was not a tenth part of its present size; when the population, not only of London, but of all England, was by comparison very limited, and with scarcely any foreign trade, we may easily imagine that in such a state of society the wharfrage of the river Thames was quite sufficient for the traffic of the inhabitants.

* A series of papers on the Thames will be found in an earlier volume of the *Builder*, wherein this point is treated of at greater length. At the present moment the subject has fresh interest.—Ed.

But with the enormous increase of buildings in London, abounding, in every part, with a manufacturing and mercantile population, it is not unreasonable or inconsistent to suppose that the river Thames, which is the great public highway of the metropolis, might be wonderfully improved and amended to suit the requirements of the present times; yet I believe it is no more strange than true, that if we except the several docks on the northern shore, together with a few local embankments, such as at Somerset House, the Adelphi, the Parliament Houses, &c., the river and its boundaries have undergone no regular, uniform alteration or improvement for the accommodation of landing goods or loading vessels during at least 1,000 years; or, what is more probable, since the time when the Romans quitted this country. As far back as the year 1666 we find the first general plan for embanking the river submitted to the corporation of the City, and to the Government, by Sir Christopher Wren, immediately after the fire of London. If any portion of such plan were executed, few traces of it are now left; probably owing to numerous encroachments made from time to time by private individuals, which were either tolerated or overlooked by the proper authorities.

The public libraries of London and Westminster abound with voluminous reports of committees of the House of Commons, during the last sixty years, on "The Improvement of the Port of London;" many ingenious projects have been suggested, and strongly recommended by the principal engineers, and many other public-spirited individuals, who have devoted months and years in making surveys, maturing plans, and drawing up reports upon this very important subject, wherein the extension of commercial enterprise, and thereby the prosperity of the mercantile world, is so deeply concerned. That the river and its banks are capable of being made infinitely better, and more useful for navigating, loading, and unloading all kinds of vessels, seems to be generally admitted; but, practically, the whole affair appears to be almost at rest, or very little thought of.

Width of the Thames at high water.

At Nine Elms	680 feet
" Vauxhall Bridge	702 "
" Penitentiary	690 "
" Millbank to Bishop's Walk	1,050 "
" Board of Control	1,200 "
" Buckingham-terrace	1,480 "
" Somerset House	1,450 "
" Temple	1,240 "
" Blackfriars Bridge	995 "
" Queenshithe	700 "
" Southwark Bridge	720 "
" London Bridge	946 "

The irregular breadth of the river, between Deptford and Vauxhall, as shown in the preceding table, causes an unequal velocity of the current; consequently, where the river is narrow, the current will be rapid, and forcible enough to carry the turbid matter in suspension, to where the stream is wide and shallow: in this manner vast quantities of mud are deposited near the shore, where there is little water. At many parts, vast areas, amounting even to acres, of the bed of the river, are without water during several hours every day; so that no vessels, not even the smallest boats, can get to the wharfs until the tide has risen high enough to admit them.

The most casual observer, on viewing the Thames at low water, either from Westminster or Waterloo bridges, must be struck with the immense shoals of gravel and mud, which are allowed to interfere with the navigation of the river, and thereby to impede the daily progress of the merchant. Instead of the barges and other vessels being enabled to go to any of the wharfs, up or down the river, at all times of the tide, to take in goods or to land them, they are obliged to wait until the tide serves their purpose; and then, very frequently, before they can accomplish their business, the vessel is aground, by which they lose a tide, and there they are compelled to remain till the next high water. Another circumstance occurs almost daily, which is, that vessels accidentally get aground on some of the shallows, perhaps in the middle of the river; and if this happens during the recession of the tide, they may be considered terraqueous prisoners for at least four or five hours.

It is an axiom in all industrial and commercial affairs, that time and money are almost equivalent; therefore the detention of a cargo is a positive loss, not only to the merchant or owner of the goods, but to the proprietor of the vessel, to the retail dealer; to the consumer, and, in short, either directly or indirectly, all who have any interest in the matter, are certain losers by the delay. There is also a very considerable increase in expense attendant upon lighterage, entirely owing to the

delay occasioned by impediments on the river, such as not being able to navigate barges at all times of the tide; and, further, if the river were improved, small vessels, technically called "Billy-boats," that carry about 100 tons, would bring their cargoes up the river, and deliver them on the wharfs at once, by which means they would save the expense of shifting the goods into barges, and the cost of lighterage would be altogether avoided. It is also certain, that the oftener goods are removed the greater will be their cost, and the more likely they are to be injured. For example: large coals may be crumbled into small by throwing them out of the collier, and thereby deteriorated in value by lighterage.

If the river is capable of great improvement, the natural question may be asked, "Why is it not commenced?" If such enormous works on the boundaries of the Thames were undertaken and completed on both sides, from Wandsworth to the sea, during ruder times, surely, in this civilized age, a little more might be done; and little it certainly would be, compared with the embankments of a former age; and that little is generally acknowledged to be almost indispensable. The concluding words of the reports upon the subject in all the "Blue Books" is, in substance, to the same effect,—the business is adjourned *sine die*; no day being named for its re-consideration. That the property on the banks of the river would be far more valuable by the alterations, is pretty certain. There may be some few exceptions; but it is impossible, in a great work like that now under consideration, to benefit the mass of the people, without a certain amount of injury to some individuals, for which compensation must, of course, be assessed by a jury. No doubt, much of the apathy and procrastination which exist in this matter may be attributed to certain influential parties, who may be timid, and afraid that a change may interfere with their business, or shake their influence. Others adhere firmly to prejudice in favour of long-established practice, and thereby determine to go on as heretofore, and oppose all efforts tending to bring about an alteration.

Had similar apathy and opposition been allowed to overrule the improvements in transport of passengers and goods by land, we should never have been able to go from London to Edinburgh between the rising and the setting of the sun. The railways, at a cost of about 300,000,000*l.*, have ploughed through the kingdom in all directions like magic. Individuals of rank and station, as well as corporate bodies, have, in numerous instances, opposed their passing through their estates; but a jury of the country has, as if magically, settled the matter in dispute, and on goes the locomotive, *pro bono publico*, perfectly regardless of the individual opinion of either peer or peasant.

If only a fraction of the same spirit of enterprise could be brought into operation for the improvement of the river Thames, within three or four years we should hear no more complaints about impediments to the free navigation of the river at all times. Such objections and inconveniences would be on record as matters of history only; and future ages would wonder how the merchants and citizens of London, in the nineteenth century, could have tolerated the obstructions of the river so long, while they had the power to remove them. To suppose that there would be any difficulty in raising the money for the expenses is altogether out of the question. Whenever money is wanted in this country for any legitimate object,—for a work of great public utility, it is raised almost as fast as it can be called for. Mr. Walker, the engineer, who was consulted in this matter before the Committee of the House of Commons in 1840, stated, that the cost of embanking the north side of the river, from Vauxhall Bridge to London Bridge, would be 310,000*l.*, or about 20*l.* per foot, running measure, exclusive of compensation for private interests on the present banks. But, whatever the cost may be, it will only be for labour, as the money will not have been sent out of the country. In the same manner the railways, which are said to have cost 300,000,000*l.*, may, in one sense, be considered to have cost nothing; because, in a national view, we still have possession of the money: it has merely passed out of one hand into another; so that, collectively, we are equally rich; and all of us have the full enjoyment of the railways into the bargain.

Where a great work, of simple, manual, and bodily labour is required, such as merely digging the ground and carrying it from one place to another close by, this might be performed, in great part, upon a different and more economical

plan than is usual in similar cases. There is always a vast number of healthy, able-bodied labourers, either out of employ or whose services are misapplied. This is bad political or parochial economy; it is an error of judgment in those who have the management of public affairs, to allow the powers of these men to be wasted so long as there is any work of importance which ought to be in progress to benefit the community. For whether they are employed or not, they must have food, raiment, and lodging; however humble it may be, it is worth something, and unless a market be provided for them, to dispose of their labour to advantage, in return for their scanty fare, the intrinsic value of their sustenance is as completely lost to the world as if it had been cast into the ocean. While the number of individuals thus unemployed, or unprofitably employed, remains comparatively small, they are supported by the parish, by begging, or by some means less creditable to themselves; and we do not feel the loss, in fact, we are "*used to it*," and think lightly of the burthen. But suppose half the population of the kingdom were to become paupers for want of proper employment, the consequences would then appear fearfully alarming, but the loss to the nation is the same in proportion to the number. I will only mention one or two common cases of unprofitable employment. Those persons who are in the habit of perambulating the streets of this great town, especially those at the west end of it, may have observed during the summer, a few years back, four or six healthy, powerful men dragging a truck with a little water in it, to lay the dust. A horse and cart, with one man, would have done double the quantity of watering in half the time. The same remarks apply to sweeping the streets. You may often see a dozen scavengers cleaning the streets, greatly in the way of the traffic; whereas with one of the sweeping machines, a man and horse would do the same amount of sweeping, and taking away the mud in a much shorter time, and with far less inconvenience to the public.

Numerous other means of economizing human labour might be mentioned, by which a superabundant number of able-bodied men might be obtained to perform the laborious part of great public works, such as the improvement of the river Thames.

In conclusion, I will offer one or two reflections which naturally arise out of my subject. There is, perhaps, no country in the civilized world where commerce is more thoroughly appreciated than in the British Isles; and there is scarcely a populous territory in either hemisphere which is not more or less commercially associated with the British merchant. The importance of commerce forcibly reminds us of the obligations we owe to all our fellow creatures, and produces a system of mutual dependence amongst us, which in return is the chief source of ultimate independence. Commerce is said to be the offspring of peace; and it is also said that the surest way to remain at peace is to be always prepared for war. This may be good and true in one sense, but commerce has higher claims: it induces nations to be peaceful towards each other; as in private business, individuals are disposed to overlook petty annoyances rather than give offence to a good customer; so with nations, if mutually indebted to each other, and bound together by commercial interest, they will be more likely to establish permanent peace and good will between them. We all well know, by experience, that peace, resulting from victory, takes millions from our coffers; peace and plenty, induced by commerce are, on the contrary, sources of national wealth. Let us, therefore, "not be weary in well doing," but proceed to mend our ways on the banks of "*Old Father Thames*," if the trade of the City of London, and the mercantile interest depend in any degree upon the conveniences to be met with in the river.

C. H. SMITH.

ARCHITECTURAL EXAMINATIONS AND THE INSTITUTE OF BRITISH ARCHITECTS.

We are now enabled to give a fuller report of the discussion which took place at the meeting of the Institute on July 1; Mr. Penrose in the chair.

The Chairman read the notice convening the meeting; and said that the members, having read the scheme therein referred to, must feel that it involved a question of great importance to them; because, as architects they ought to have the privileges which other scientific bodies possessed. A committee had been appointed, and had taken some time to get the matter in the shape in which it now stood before the meeting; and he thought that the time had not been ill-spent. Mr. Ash-

pitel, he believed, was prepared to address them on the subject.

Mr. Ashpitel said that he should make very few observations at the present stage of the matter, as it might be necessary for him to refer hereafter to matters of detail which might possibly be objected to. The committee consisted of gentlemen entitled to their greatest respect. It had met ten or a dozen times. Every opinion in art or practical architecture had been fully represented. There had been amongst them the freest expression of opinion, and the utmost kindness, without the slightest jangling. The committee thought they should divide the mode of examination; so that, under one portion, any man who really and fairly called himself an architect, ought to pass. When they got beyond that line, they had to deal with men of all shades of talent and taste; and the committee thought that those men, whatever their aspirations might be, ought to have a fair opportunity of showing their abilities to the world. The battle of styles ought to be kept out of the question; and every existing or future style should have an opportunity of developing itself. The committee had particularly endeavoured to avoid a course of examination in which the examiners should come forward to show their own talent, and to raise an opinion that the cleverest man among them was he who plucked the greatest number of candidates. To encourage that idea would be (to use the language of the bar), to make the examiners *cross-examiners*. Nothing would be more easy than to pluck candidates; but it was essential that the profession should be assured of the perfect fairness of the examination. It must be a technical examination; and there should not be the slightest suspicion of favoritism. Their secretary had most ingeniously devised a measure by which the most entire fairness must be inevitable, because the examiners would not know the examined, and the examined would not know the examiners; so that no man who might happen to be plucked could go away with any complaint of unfairness, or pretend that, if he had had a friend at court, he would have passed. The Institute had affirmed, by a distinct resolution, that there should be an examination; and, by another resolution, that a curriculum should be prepared; and it was his duty, *ex officio*, to move that the report be received, subject to correction by the meeting. He would only suggest that members who had any objections to make should, in the first place, address themselves to the general principles of the scheme, and leave all matters of detail, and of wording, to be afterwards considered.

The Chairman concurred in Mr. Ashpitel's view that it was most desirable to deal first with general principles, and afterwards with details.

The motion having been seconded,

Mr. Seddon inquired if the scheme was to be carried into immediate effect, or to be left for further consideration by other bodies in the profession, who were, perhaps, more interested in it than the Institute. The report had evidently been carefully considered; but the subject was of such great importance that he thought further time should be given for its consideration.

The Chairman reminded Mr. Seddon that on the 14th of January last a number of replies to the circular of the Institute (addressed to provincial societies) had been read. The profession at large had known all that was going on: it was open to them from the very first; various suggestions had since been received; and the scheme now proposed had been sent to each society, with a request for its opinion thereon.

Mr. Ashpitel had heard no whisper of any opposition to the plan proposed; but, if there should be any, he thought it should have a fair hearing; and, if sufficient time for objections had not been allowed (though he thought there had), he could not object to allowing further time.

Mr. Charles Barry concurred with Mr. Seddon in deprecating any hasty decision. He thought that an examination which would distinguish the architect from the empiric was a proposition which no one would dissent from. Any scheme issued under the sanction of the Institute should be accepted in its entirety, or not at all; and the only question was, whether the particular examination proposed, and the proposed manner of carrying it out, would be endorsed by other societies. If it should be rejected, and fail a dead letter, which was possible, although he hoped not probable, the Institute would be placed in a very undignified position.

Mr. T. R. Smith said that the proposition of the Institute had been sent to the Architectural Association; and, on the broad question that there should be an examination, as having an educa-

tional tendency, the Association expressed its unanimous opinion that an examination was desirable. The document now under discussion had felt some delicacy about, as being partly of a private nature. At their meeting on Friday last they had some conversation upon it; but it was unanimously thought that they had not sufficient time or sufficient acquaintance with the subject to express a decided opinion upon it. The only idea expressed was, a hope that care should be taken in any examination to give facilities to those who had been educated, not in academies, but on the scaffolding, at the bench, or in the office.

Mr. Papworth thought the question should be adjourned to some given day, especially to enable the four principal societies which had corresponded with them on the subject, to send in their answers to the scheme proposed.

Mr. J. Edmiston was willing that the report should be received and approved, but thought that no immediate action need be taken upon it, and that the members should not separate without giving expression to their opinions on the subject. Mr. Ashpitel (in order to save discussion) said that he would simply move, "that the report be received."

The Chairman put this motion to the vote, and it was carried unanimously.

On the question that the report received be taken into consideration, and, as an amendment, that the question be postponed until the commencement of the next session,—

Mr. Robert Kerr suggested that it should be remitted to the committee to ascertain the opinions of the other societies, and to devise a scheme for carrying the plan of the Institute into operation; the whole to be laid before the Institute at the commencement of the next session. Mr. Kerr explained at some length the views which had guided the committee in the preparation of their curriculum; and said that, with regard to the list of books proposed for study, he considered it exceedingly valuable as the preliminary step to the examination. The young student has now gained, through the labours of this committee — by this list of books — an important step to elementary education in architecture. The books marked in the list with a † were purely elementary works, chiefly comprised in the valuable series published by Mr. Weale, and were scarcely more than a dozen in number; and, upon the whole, he considered that the value of the document issued by the council could scarcely be overrated in an educational point of view. Still he thought it would be better to postpone any decision on this important question until the next session; and, in the mean time, to instruct the council to devise a scheme for carrying out the excellent project which they had submitted to the meeting.

A conversation took place as to the time of the proposed adjournment; and a member having proposed that it should be adjourned to the first ordinary meeting of the next session,—

Mr. Ashpitel said he had no objection to that; because, although visitors might be present and make observations, they could not vote upon the subject.

Mr. Kerr thought the matter could only be discussed at a special meeting of members.

Mr. Seddon said it would be hard to invite non-members to give their opinions, and not allow them to vote.

Mr. Papworth said that in the first instance they had applied to the four principal architectural societies. They received five replies; and the fifth was from the Liverpool Architectural Association. It was a remarkable thing that the four societies unanimously adopted the idea of an examination, but agreed in throwing on the Institute the onus of carrying it out in detail. And, if the Institute was to be responsible for carrying out the scheme, he did not see why the members of societies should be present or vote upon the question. The written opinion of local societies would always be received by the Institute with more respect and deference than they could properly accord to the *videlicet* remarks of half a dozen speakers.

The Chairman suggested an adjournment of the subject to a special rather than an ordinary meeting, to be held as early as possible next session, and to which the secretary should send special invitations to gentlemen who might be likely to elucidate the subject.

After some conversation,

Mr. Lewis, hon. sec., read the bye-law, to the effect that no question on the regulation or management of the Institute could be discussed at an ordinary meeting.

Mr. C. Fowler hoped that the question would

not be discussed at an ordinary meeting. No doubt the public at large were interested in the question, but the Institute were the most interested.

Mr. G. E. Street thought, when the subject was again discussed, it would be desirable to have gentlemen present who had some practical knowledge on the subject of examinations generally.

The Chairman said that such gentlemen might be specially invited by the hon. secretaries.

Mr. R. Kerr said it was a matter for serious and almost painful consideration, on the part of the committee and the hon. secretaries, to devise the details by which this project could be effectually carried out; and the Institute should be prepared with practical answers to the practical questions which would certainly be put when the question was next under discussion.

Mr. T. R. Smith remarked that it would be better to adjourn the subject until November next, as none of the architectural societies would hold their meetings during the next two or three months.

Mr. Kerr did not think it likely that the Institute would receive any proposed modifications from local societies.

After further discussion, the motion was withdrawn in favour of the amendment.

Mr. Kerr was surprised that he had not heard an objection to the *principle* of the proposed measure; and, if any such objection was entertained, he hoped it would be expressed.

Mr. Charles Barry thought there would be a difficulty in dealing with existing professors of architecture of long standing. Mr. Kerr had stated that the objects of the examination were *educational*; but, the term *educational* could hardly apply to the class he wished to refer to, who would hardly ask for education at the hands of the Institute. If, therefore, the scheme was *educational*, he must exclude all architects of any standing. No provision was made for any honorary diploma; and therefore he did not see what difference there was between those who wished for *education* and those who only asked for *distinction*. For himself, he did not see the way out of the difficulty; and he thought this one of the rocks upon which the scheme was likely to split. He thought it was essential to consider whether there should not be an honorary diploma; either by vote, acclamation, or judgment of an architect's works.

Mr. Ashpitel suggested that any observations similar to those of Mr. Barry would have far better effect if addressed in writing to the committee, so that they might be fully considered before the renewed discussion of the subject.

Mr. Papworth called attention to the fact which the title of the paper showed, — viz., that what was proposed was "Voluntary Architectural Examination;" and, if Mr. Charles Barry wished for a certificate of proficiency, and voluntarily came forward to seek it, it would be a great delight to the examiners to grant it.

Mr. Charles Barry agreed that the question turned upon the word "voluntary;" and the question was whether A or B, who had been many years in practice, would take the trouble to get themselves up to pass such an examination as that proposed by the Institute. For himself, he certainly should do no such thing; and, in the remarks which he had made, he was quite aware that he had laid himself open to the observations of Mr. Papworth. This was one of the greatest difficulties of the question. It was said that established architects should come forward to confer honour on the examination; but he did not wish to confer honour on the examination. Still the examination might be a good thing (as he had said before) to separate the architect from the empiric.

Mr. Ashpitel again impressed upon the meeting that the aim of the committee had been to bring the subject forward gradually; beginning with a low standard; and hereafter to raise that standard higher; which they might possibly do either by law or by that public opinion which was stronger than law; but, if done at once, it would be most unjust to the young men who were unprepared to meet it at present. The committee intended to follow the example of the Law Society, the Pharmaceutical Society, and similar bodies; until they made it a *diploma* which would be worth having, and of which a man should be proud. The error of the civil service and military examinations was, that they began with too high a standard, and included questions which seemed to be concerted to disconcert the candidate; — but, still, these examinations had raised the standard in those departments.

Mr. Seddon wished to know what the committee were driving at? Did they want a diploma?

Mr. Ashpitel explained that he trusted the stamp and *imprimatur* of the Institute would act, in the view of the world, not exactly as a *diploma*, but that it would be something like the privilege which enabled a man to put M.D., or F.R.S., after his name.

Mr. Seddon believed the whole scheme to be impracticable.

Mr. Ashpitel said they had been told it was impossible, and absurd, to get up a curriculum; but the committee had done so in the short space of two months. It was not their object to prevent a man from building a pigsty without passing an examination; but to give a better man an honourable distinction, which he should be proud to add to his name.

Mr. G. Street regretted that the word "*diploma*" had been introduced, because he believed such a thing had never been contemplated. The word "*voluntary*" had also been dwelt upon, but it never had been in the minds of the committee to make this a *compulsory* examination.

Mr. Papworth said that the paper under discussion had no reference either to a certificate or a diploma; but, by a singular circumstance, at the last annual meeting, a resolution had been passed, by which every member of the Institute could obtain its diploma on payment of 5s.

Mr. Lewis, hon. sec., read the resolution referred to by Mr. Papworth, which was merely a certificate of *fellowship with the Institute*.

Mr. Kerr.—The question of a diploma was always a stumbling-block, and ought to be got rid of.

Mr. Ashpitel thought that, although he himself might have stumbled over the word "*diploma*," his friend Mr. Kerr had equally stumbled over the word "*education*." The object of the scheme of the committee was not to *educate* people, but to try whether they had been educated.

Mr. T. R. Smith considered that the proposed examination was entirely voluntary, and merely a test that any candidate had been educated to a certain extent; and if they went beyond that they would drift into an approach to a diploma.

Mr. C. Fowler objected to the use of the word "*diploma*," which had led to much difficulty in the question. He concurred in the propriety of a gradual change in this system, which appeared to him to be as important as the change in the constitution of a country. He thought the scheme of the Institute peculiarly calculated to afford opportunities for the progress of young men.

Mr. Ashpitel said that, having withdrawn his own motion, and there being none at present before the meeting, he begged to move, "That the further consideration of the scheme submitted be deferred until some Monday in November; and that the committee be instructed to endeavour to obtain the opinions of other architectural bodies on the subject."

Mr. Street seconded the motion, which was then put to the vote and carried *nem. con.*

Votes of thanks were passed, and the meeting adjourned.

THE LATE MR. GRAINGER, OF NEWCASTLE.

MR. RICHARD GRAINGER, to whom Newcastle-on-Tyne owes its present architectural aspect, died on the 11th instant. Through his energy and skill the range of streets comprehending Grey, Clayton, Market, Grainger, Nelson, Hood, and Shakespeare streets, with the theatre, Central Exchange, the new markets (among the finest covered markets in England), the Branch Bank of England, Messrs. Lambton's Bank, the Arcade, and innumerable public buildings were erected. Mr. Grainger was self-made. His father was a porter on the quayside. The father died shortly after the son was born. His mother followed the employment of laundress to maintain her children, and Mr. Grainger received what education he got in the St. Andrew's School. He served his time as a house-carpenter. Mr. Grainger was of a generous disposition. Some years ago the magnitude of his transactions temporarily embarrassed his affairs; but the progress of trade improved his property after; and in recent years he reaped the more substantial results of his energy and intelligence. He has been described as the *architect* of the various buildings he erected; but this is not correct. He was assisted in many of his undertakings by the architects of the town, and by none more than Mr. John Dobson, from whose designs Mr. Grainger erected the New Market, Royal Arcade, and several other buildings. Like all truly great men, he never disavowed his humble origin, but allowed his conduct through life to be the true index of his innate worth. A

writer, many years ago, in summing up a description of the various improvements made by Mr. Grainger, says:—

"The moral requisites to such achievements as Mr. Grainger's are no less remarkable than the intellectual. It is clear that he could not have effected what he has without having first inspired his neighbours with a strong confidence in his integrity. Gentlemen who have had to receive periodical payments from him declare him to be the most regular payer they ever had to do with. His worksmen regard him as something like the sun for his punctuality and the unremitting character of his operations."

Much of his composure is owing to natural temperament; but there must also be some strong principle of self control restraining the impetuosity on the one hand, and the anxiety on the other, to which enterprising minds are liable. It is said that Grainger was never seen out of temper, nor does his quiet cheerfulness ever appear to give way. When we consider how often his plans have certainly been thwarted, what opposition and disparagement he has encountered for years from such of his townsmen as have wrongly imagined that his interests were incompatible with theirs, and that in the conduct of such vast pecuniary affairs, through seasons of commercial fluctuation, a thousand difficulties and perils must have arisen—when, too, we take into account the annoyances to which the master of two thousand workmen and the occasional servant of various public bodies must be subject day by day, it is clear that something far beyond common good nature has been the means of bringing him through without injury to his health or peace of mind."

A FEW SUGGESTIVE THOUGHTS TO ARCHITECTS.

Why should "Classic" architects continue to repeat and copy the ancient Greek sculpture? Would not the conventional treatment of the British flora be better for their capitals, and at the same time give a certain nineteenth century and original stamp to their work? Did not the Greeks work thus? Is not the talk of the "Ideal" in sculpture very indefinite? Did not the Ideal with even the old masters simply consist in giving expression to their figures.

Is not the true Ideal merely great and good expression? Does it not exist now as of old? How is the grotesque in sculpture to be managed in this the nineteenth century? What is our grotesque? What is the difference between Byzantine grotesque and our grotesque?

What was the meaning of a dragon biting its tail in the twelfth century? and what would be the meaning of the same in our age?

What constitutes grotesque in the nineteenth century?

How are the savage and the ridiculous to be treated now?

Why not give to modern "Classic" the same liberty of development as to modern Gothic?

THE NEW LIBRARY AT HARROW.

On the annual speech day at Harrow School (the 4th inst.), Lord Palmerston laid the foundation stone of the Vaughan Library, commemorative of the mastership of the Rev. Dr. Vaughan. There was a large assemblage of old Harrovians, and many of the parents and friends of the *Alumni* now pursuing their studies on that foundation.

The laying of the stone took place immediately at the conclusion of the speeches. The site selected is between the school chapel and the master's residence, hitherto occupied by a row of unsightly houses, which have been cleared away within the last week. The new building is to be similar in style to the school chapel—Gothic, of the thirteenth century, and commands a beautiful south-east prospect. Mr. Scott is the architect.

The Head Master afterwards gave a *véneiner* at his residence to nearly 200 persons of rank.

Lord Palmerston has since, in the Commons, thus alluded, in the discussion on the Foreign Office design, to his part in laying the stone of an edifice of a Gothic character. Referring to a remark by Mr. Layard, he said my hon. friend has had the kindness to give me credit for some common sense. He said I had lately shown my possession of that quality by going down to lay the first stone of a Gothic building. Well, I think that did show common sense. I am not fond of the Gothic; but having been applied to to lay the stone of a Gothic library (the plan of which had been approved by the proper authorities), which was in harmony with a Gothic chapel recently erected, close to which it was to be placed, and also in keeping with old John Lyons' school-house; I waived my objection to the Gothic style, in attending on that occasion. I now ask my hon. and noble friends to show the same good sense on this occasion. I ask them to waive their prejudices, and to agree to lay the first stone of an Italian building. I am quite sure, when they see that building rise, they will have the same feeling that I shall when I see this Gothic building rise—great pleasure in having contributed to its erection.

LIST OF WORKS RECOMMENDED TO CANDIDATES FOR ARCHITECTURAL EXAMINATION.

The following works are recommended by the Council of the Institute to gentlemen proposing to become candidates, as containing so much of the information that can be gained from books as is likely to be required in furnishing answers to the question-papers, except upon particular languages and styles that may be selected by candidates.

N.B.—The works marked * form portions of Weale's Rudimentary Treatises. The works that are preceded by the mark † may be selected as affording an abbreviated, but tolerably complete, course of English reading of an elementary character for students; it being presumed that in each case the reader will be able to discover what portion (if not the whole) of the volume is intended.

	Drawing and Design.	Mathematics and Physics.	Languages.	Professional Practice.	Materials and Construction.	History and Literature.
Addison, Treatise on Law of Contracts, and Rights and Liabilities ex Contractu. 8vo., 1856						
Amos and Ferard, Treatise on the Law of Fixtures. 8vo., 1847						
† Arnot, Elements of Physics. 8vo., 1825						
Baker, Land and Engineering Surveying. 1859						
Baker, Mensuration. 1859						
† Baker, Principles and Practice of Statics and Dynamics. 1871						
Barlow, Treatise on the Strength of Timber, Cast Iron, Malleable Iron, and other Materials; revised by Heaton and Willis. 8vo., 1851						
Bartholomew, Specifications for Practical Architecture, &c. 8vo., 1846						
Battisier, Histoire de l'Art Monumental. 8vo., Paris, 1839						
Bernard, History and Art of Warming and Ventilating Rooms and Buildings. 8vo., 1840						
Bradton, Analysis of Gothic Architecture. 4to., 1847						
Bruff, Engineering Field Work. 8vo., 1840						
† Burnell, Limes, Cements, Mortars, Concretes, Mastics, and Plastering. 1857						
Castle, Treatise on Land Surveying and Levelling. 8vo., 1845						
Chambers, Treatise on the Decorative Part of Civil Architecture; with Essay on Grecian Architecture by Papworth. Fol., 1836						
† Chevreul, De la Loi du Contraste simultané des Couleurs, &c. 8vo., Paris, 1839 (with plates, 4to., 1839); of this there are abridged translations by Martel, 8vo., 1954, and by Spanton, 8vo., 1850						
Chitty, Treatise on the Law of Contracts. 8vo., 1837						
Cicognara, Le Fabbriche e i Monumenti cospicui di Venezia. Fol., Venice, 1838						
Cressy, Encyclopedia of Civil Engineering. 8vo., 1856						
† Dobson, Art of Building. 1859						
† Dobson, Foundations and Concrete Works. 1859						
† Dobson, Masonry and Stone Cutting. 1859						
† Dobson, Student's Guide to Measuring and Valuing. 8vo., 1864						
† Donaldson, Hand-book of Specifications; with Glen, a Review of the Law of Contracts. 8vo., 1859						
Fairbairn, on the Application of Cast and Wrought Iron to Building Purposes. 8vo., 1854						
† Ferguson, Hand-book of Architecture. 8vo., 1859						
Field, Painter's Art, or a Grammar of Colouring. 1858						
† Fowkes, Rudimentary Chemistry. 1848						
Fowkes, Manual of Elementary Chemistry. 8vo., 1858						
Gallabard, Monuments Anciens et Modernes. 4to., Paris, 1842-53						
Gauthier, Les plus beaux Edifices de la Ville de Gènes. Fol., Paris, 1830						
Gibbons, Law of Contracts for Workmen and Services. 1857						
Gibbons, Law of Dilapidations and Nuisances. 8vo., 1840						
† Glossary of Terms used in Architecture. 8vo., Oxford, 1851						
Grandjean and Famin, Architecture Poésane. Fol., Paris, 1846						
† Grant, Encyclopedia of Architecture. 8vo., 1851						
† Herschel, on Light, Sound, &c. 4to., 1856, &c.						
Hutton, L'Architecture Polyehome. Fol., Paris, 1842						
Hodgkinson, Experimental Researches on Cast Iron. 8vo., 1846						
† Hooking, Architecture and Building Construction. 4to., 1854, &c.						
Hutton, a Course of Mathematics. 8vo., 1834; and 8vo., 1841-3						
Inman, Ventilation, Warming, and Transmission of Sound. 8vo., 1836						
Letarouilly, Edifices de Rome Modern. Fol., Paris, 1855						
Landon, on Gardening, &c. 8vo., 1850						
Lyll, Manual of Elementary Geometry. 8vo., 1855; and Supplement, 8vo., 1857						
Malton, Complete Treatise on Perspective. Fol., 1775						
Malton, Young Painter's Mosaicist, a Practical Treatise on Perspective. 4to., 1809						
Mauch, Neue Systematische Darstellung der Architectonischen Ordnungen. 4to., 1850						
Milizia, Vite, or, Lives of Celebrated Architects, Translated by Cressy. 8vo., 1856						
Nicholson, Principles and Practice of Architecture. 8vo., 1848						
Noble, Professional Practice of Architects, and that of Measuring Surveyors, and Reference to Builders. 8vo., 1848						
Normand, Parallel of the Orders of Architecture, edited by Pugin. Fol., 1839						
Palladio, Les Bâtimens et Dessins; edited by Scamozzi. Fol., Vicenza, 1788						
Pasley, a complete Course of Practical Geometry and Plan Drawing. 8vo., 1828						
Pasley, Limes, Calcareous Cements, Mortars, Stucco and Concrete, &c. 8vo., 1847						
Pausanias, as a text book for the Greek language						
Pliny, Historia Naturalis, books 34, 35, 36, as a text book for the Latin language						
† Portlock, Treatise on Geology. 1859						
† Pugin, True Principles of Pointed or Christian Architecture. 4to., 1841						
Redgrave, Elementary Manual of Colour. 18mo., 1853						
Reid, Young Surveyor's Preceptor: an Analysis of Architectural Mensuration, &c. 4to., 1848						
Repton, Landscape Gardening and Landscape Architecture. Edited by Loudon. 8vo., 1812						
Richardson, Observations on the Architecture of England during the Reigns of Elizabeth and James I. 4to., 1837						
Rickman, an Attempt to discriminate the Styles of English Architecture. 8vo., 1848						
Serradifisco, Le Antichità della Sicilia. Fol., Palermo, 1842						
Simms, on Mathematical and Drawing Instruments. 12mo., 1847						
Simms, The Principles and Practice of Levelling. 8vo., 18—						
Society of Dilettanti, Roman Antiquities. Fol., 1765, 1797, 1840						
Society of Dilettanti, Unedited Antiquities of Attica. Fol., 1833						
Stuart and Revett, Antiquities of Athens. Fol., 1762, 1787, 17, 4, 1816; and the Unedited Antiquities, by Kinnard and others. Fol., 1830						
Taylor and Cressy, Architectural Antiquities of Rome. Fol., 1826						
† Tomlinson, Mechanics. 1859						
† Tomlinson, Introduction to the Study of Natural Philosophy. 1859						
† Tomlinson, Warming and Ventilation. 1859						
† Treagold, Elementary Principles of Carpentry. Edited by Barlow. 4to., 1840						
Vitruvius, De Architectura						
Watson, Treatise on the Law of Arbitration and Awards. 8vo., 1815						
Wilkins, Prolusiones Architectonicæ. 4to., 1837						
Woodall, Practical Treatise on the Law of Landlord and Tenant. 8vo., 1839						
The Dictionaries, by Viollet le Duc, and by the Architectural Publication Society in progress						

PHYSIOLOGY AS A BRANCH OF EDUCATION.

In one of a series of lectures recently delivered in the Crystal Palace, Dr. Lankester directed attention to the great necessity which exists in these days of making physiology a branch of general education; and so clearly does he put this important question, that we are induced to glean a few notes for the consideration of some of our readers.

The lecturer, after impressing upon his audience the great necessity which there is for both rich and poor well understanding those laws which govern human life, observed that the laws

of physiology were not difficult of attainment. They might, not only satisfactorily, but easily, be introduced into schools. Children, at a very early age, could be made to understand the laws which regulated their lives, and so prevent many diseases which which were brought on through ignorance of or inattention to these laws. He reminded them of the Bible account, which said, "Dust thou art,"—"The Lord God formed man out of the dust of the ground,"—&c.; and explained that their bodies were actually composed of the same ingredients as the dust of the ground. There were fourteen elements in it and, unless the natures and properties of these

were well understood, it was quite impossible that they could comprehend the wants of their bodies.

He then drew attention to four of the several elements of which their bodies were composed; namely, oxygen, hydrogen, carbon, and nitrogen; which four principally entered into the composition of the body. By their aid man was enabled to perform the ordinary functions of life. Carbon, he explained, was the same as common charcoal: it was such an important element in the human body that, out of one of the weight of 154 lbs., 21 lbs. of charcoal could be found: of that element rather more than half a pound was consumed in the body of every man in every day of his life; just in the same manner as coal was burnt in a fire-place, or charcoal in a stove; and to a similar end, namely, the supply of heat. It was not difficult to understand the nature of charcoal; and how, in its union with the oxygen of the air, it became converted into carbonic gas; the result of which was heat. What took place in a lamp, or anything burning, was just what occurred in the human body. The warmth essential to life was maintained by a kind of oxidation of carbon. The result of the oxidation of carbon in the human body was precisely the same as that which took place out of it.

Without sufficient oxygen in the air, a lamp would go out: so the carbon in the body could not perform its heating functions without sufficient oxygen from the atmosphere breathed. A knowledge of even that much of chemistry might be the salvation of thousands of people who were now, by their malpractices, laying the foundation of fatal diseases: persons shut themselves up in close rooms; never opened their windows; blocked up their chimneys; had their curtains close drawn; and made every arrangement to prevent the proper supply of oxygen upon which their lives and health depended. The fire of life would go out as soon in man without oxygen, as would the light before the lecturer if an extinguisher were placed over it.

Dr. Lancaster then proceeded to explain the action of the muscles, and showed that every such action used up or exhausted a certain quantity of fibrine; and every action of a nerve used up a certain quantity of albumen, of which the nerves were formed. Hence, if a man lived, he must have a further supply, to replace that which was used. If they threw out of their bodies about 8 oz. of charcoal per day, as the result of the combustion going on within them; then there must be an equivalent quantity taken in to supply the loss and sustain the fire of life; or in order that the combustion may go on the next day as it had done previously. There was a large quantity of muscular and nervous matter consumed in the actions of moving, thinking, and feeling; for feeling itself exhausted the nervous matter. Had men no nerves they would have no feeling; but, as long as their actions continued, there must be a supply of the material which was thereby lost. The lecturer then proceeded to explain the necessity of various kinds of food for the proper nourishment of the body; showed the great need of improved knowledge of the qualities of food; and remarked, that the want of this knowledge was attended with fatal consequences to thousands who had arrived at mature years; but that to young children it was most disastrous: many children were brought to the brink of the grave through a want of the knowledge of the properties of food in those who had charge of them,—as by feeding a child, for example, exclusively on arrowroot or other forms of starch; a medical man, when called in to attend such a patient, would give it a little beef-tea or something of that kind.

It was owing to his knowledge of physiology, that Captain Cook was enabled to take his ship all round the world without losing a man: he knew the dependence of health upon diet, and carried out the principles of sanitary science as they are understood at the present day. It was through a knowledge of these laws that, in the British navy, they now never lost a man from scurvy. But, on the other hand, they found continually, on board the great hospital ship, the *Dreadnought*, cases of scurvy brought in, occurring amongst seamen belonging to the commercial vessels of all nations. Why, asked Dr. Lancaster, should the disease exist amongst one class of sailors, and not with others? Because there was not knowledge enough amongst those who had the management of our mercantile marine, to induce them to take means to prevent the disease. It must be remembered that he was advocating the study of physiology as a branch of general knowledge,—not merely for the more opulent classes of society, but for all,—for the sailor, soldier, housemaid, footman, all kinds

of people. He intentionally and specially mentioned nursemaids; because they were entrusted with the duty of taking care of children. The laws of physiology should be taught in schools; so that girls might be able to understand the principles upon which life and health depended. They would not call in a person ignorant of the construction of a watch to regulate its movements; but yet they entrusted a mechanism a thousand times more complicated and delicate to persons utterly ignorant of its nature and requirements.

Amongst other remarks upon the movement and uses of the muscles, the lecturer showed the necessity of walking, and other healthy exercises; and said he believed that the volunteer movement caused the young men who had taken part in it to feel in better health, by reason of their long marches; and they walked more upright and looked stronger and heartier: such exercise would give health and strength, and act beneficially upon every part of the body. He wished he could say as much for the improvements effected in the habits of females. They encumbered themselves with heavy and inconvenient dresses, which must be a terrible drag upon their muscular system. He did not think that their present style of clothing was at all adapted to promote physical health. The present style of dress limited the quantity of oxygen which went into the lungs, and thus limited the amount of combustion and change necessary to health, and caused a tendency to one of the most dreadful diseases of the present day: he believed that a large proportion of the cases of consumption which prevailed amongst females arose from their vicious system of dressing: this evil, however, was not so bad as it was. He called their attention to this as one case in which there was a necessity for the application of physiological principles. Let it be clearly understood that there should be perfect freedom of muscular action, which ought not to be interfered with by dress. But the error in this respect was not confined to one sex: he objected to the neck-ties of gentlemen as being yet far too stiff; and also disapproved of several of the head-dresses used by the army. The hats, he remarked, commonly worn by the male part of the community, had much more material in them than was required for the purposes of utility: they were made of heavy cloth, and of the most objectionable colour—black. The study of physiology had shown the relation of colour to the external atmosphere, and to health. Black radiated the heat, and absorbed moisture; so that it was the coldest wear in winter, and the hottest in summer: a light white hat was the best, but few dared wear such a one. There were many objectionable things besides those mentioned in men's dress, and in women's also. The mode in which boots were made was perfectly ridiculous. The toes were pinched up for the purpose of giving a neat appearance to the foot; and what was the use of high heels? How absurd to talk of such boots as are now in use as being the perfection of beauty! He referred, by way of contrast, to the foot of the Medicean Venus. High-heeled shoes were dangerous things; for few persons could walk far with them without unduly exercising some muscles, and throwing others out of action, producing a description of lameness. Women ought not to walk in that artificial way; but naturally, lightly, trippingly, and gracefully. Neither were the boots of men by any means perfect: they were heavy and inelegant in shape: they might be much improved by a knowledge of physiology; but it would be of no use for a shoemaker to do so in the present prejudiced state of the public mind, for the public would not support him. We would not be the intelligent people we ought to be until these principles were taught in schools,—until boys and girls knew what the laws of their lives were, as well as they did the multiplication-table, and common sums in arithmetic. It was because he felt the great advantage of such knowledge that he strongly commended it to the public as a branch of general education.

After drawing attention at some length to the nervous system, Dr. Lancaster concluded by remarking that it was life which made the world what it was. Life had converted that which was a wilderness into a paradise: it was life that gave them all they valued as human beings; and just as that life was, therefore, multiplied and intensified; and as intelligence was increased; would society be benefited by the knowledge of physiology. There was no class in the community,—from the boy and the girl who attended Ragged Schools to the sons and daughters of the queen,—who would not receive benefit from studying the laws which regulated their existence.

THE ISLANDS IN THE BRITISH SEAS.

(CONDITION OF ST. KILDA.)

THE area of Great Britain and the islands in the British seas is 90,038 square miles. The area of England is 50,922; of Scotland, 31,324; of the islands in the British seas, 394 square miles. The forms of the islands are irregular, and do not approach simple geometrical figures, if we except England, which was not inaptly compared by the ancients to a triangle. The area of Great Britain is equal to a square of 226 miles to the side; Scotland to a square of 177 miles to the side; Wales to a square of 86 miles to the side; the islands in the British seas to a square of 20 miles to the side.

The chief islands in the British seas are the Isle of Man, Anglesey, the Scilly Islands, the Isle of Wight, Guernsey, Jersey, Lewis, Skye, the Orkney and Shetland Isles, Islay, Bute, Mull, &c.;—in all, five hundred islands and rocks; but inhabitants have only been found on about one hundred and seventy-five.

Several of these islands, in the earliest periods of our written history, were peopled by Celts. Britain was their Holy Island: it was the seat of their schools and of their most sacred groves. The Isles Anglesey and Man—both known under the name of Mona to the Romans—were seats of the Druidic hierarchy and worship. Iona, a small island in the Hebrides, which contains between four and five hundred inhabitants, was the station of Columba, who founded an order of missionaries, and contributed to the spread of Christianity over Britain. Holy Island, the Lindisfarne of the first Saxon historian, was a great centre of Saxon learning and religion, reflected from Ireland. It was the counterpart of Heligoland and Rugen, the shrines of the continental Saxons and Germans.

The greater part of the islands, and of points on the coast terminating in *ey*, *ay*, *a* (island), *ness* (promontory), *holm*, as well as others, bear names which the Northmen gave them; and were taken possession of chiefly for the purposes of commerce; but more commonly as naval stations, from which they could harry and tax the coasts and inland country.

An island was a market, a warehouse, a castle, to these Northmen, who bred round the Danish peninsula, the recesses of the Baltic, and the fjords of Norway; practised their arts as feudal farmers, fishermen, and merchants; forged anchors; built ships that lived in the Atlantic; fought incessantly along the coasts of their own country, from the Elbe to the Naze, to Dronheim, Lofoden Islands, Cape North; and, in the eighth century, and the centuries following, sailed in fleets, at one time down the east and west coasts of Great Britain; at another either round France, Portugal, and Spain, into the Mediterranean; or to Iceland and the coasts of North America. Men of the Atlantic in their ships—sea-horses, their ocean skates, as they called their craft—braved the dangers of the rocks and the waves at sea; the arms of Celts, Gaels, and Saxons, on land; and succeeded in effecting permanent settlements in France and England. As the Jutes and Saxons settled on the south coast, so the Danes held, and have left the most permanent traces in, Suffolk, Norfolk, Lincolnshire, Yorkshire, Northumberland, and the Lowlands of Scotland. The Norwegians for some time made the Orkneys the great centre of their expeditions. Rollo, from whom William I. was the fifth in descent, was some time in the Orkneys before he conquered Normandy; and the Northmen from these islands extended their power over the Hebrides, Ireland, and the coast of France.

As the organization of the great nations on the mainland advanced, the relative power of the Northmen declined; and it was impossible that the inhabitants of the small islands round Britain could long resist the power of even the Gaelic population, which gradually recovered its ground, and diffused its language over the Hebrides and the Isle of Man. In Caithness, the Orkneys, and the Shetlands, the Norse language (as well as the men) held its ground, and has only lately given way to pure English, while the Gaelic is spoken in the Highlands.

Many of these islands form parts of counties or parishes: for instance, the Isle of Wight is a part of Hampshire; the Scilly Islands, of Cornwall; Anglesey is a Welsh county; the Isles of Arran, Bute, and Cumbrae, constitute Bute a county of Scotland. In passing northwards, the islands over the sea, like the lakes inland, are all parts of Scottish counties. Islay, Jura, Mull, Coll, Canna, Rum, and Muck, belong to Argyll; Skye, Rona, Roasay, Scalpa, Soa, and Eigg, to Inverness.

St. Kilda is in the parish of Harris, although

it is about seventy miles from the mainland of the Western Hebrides. It rises 1,500 feet above the waves. Rocks and inaccessible precipices surround it, except at one point on the north side, where there is a rocky bay; and another on the south-east side, where there is a landing-place, which leads up to the village of St. Kilda—a quarter of a mile from the sea—in the sloping base of a steep hill. This is the only inhabited place in St. Kilda, and three other islands of the group, which are the resorts of the sea-fowls that, with fish and small patches of land, furnish food and employment for the inhabitants.

The population consists of thirty-two families, in thirty-two houses, and of 110 persons; of whom forty-eight are males and sixty-two females. There are thirty-three Gillieses, twenty-three M'Donalds, twenty M'Quens, thirteen Fergusons, nine M'Crimons, two Morrisons, and one M'Cleod, who were all born on the island, except one woman, aged thirty-five—a M'Donald's wife, who was imported from Sutherland.

There are nineteen married couples on the island, two widowers, eight widows, five unmarried men, and five unmarried women, of the age of twenty and under forty-six. In the Registrar-General's report, the men are all called "farmers and bird-catchers," each "farmer" occupying about three acres of land: eight females are described as "weaveresses" in "wool." The mildness of the air covers the island with verdure; but the crops of bere (a coarse barley) and oats are often destroyed by terrific storms. The proprietor sends a yearly supply of meat to the island, without which the inhabitants would often be in want, notwithstanding the little crop, the sea-fowl eggs, and all other resources of the place. It is traditional that the population has been stationary for 200 years, sometimes falling below and sometimes rising above 100 souls; this, however, differs from the information given in the "Gazetteer of Scotland," which mentions that the number of adults was at one time reduced to four by smallpox; and cholera, in the first epidemic, was fatal in this remote region.

Thus these people, who enjoy the purest air of both the sea and the sky, perish with pestilence and disease. Children, in far too large a proportion, die of what is called the eight-day sickness. Nor is this to be wondered at; when we consider that the dwellings of these poor people, in Kilda, and in most of the western islands, are kept, through their ignorance, in a dirtier condition than the dens of wild beasts. There is a manse and a church, but no medical man; and there is no clergyman resident on the island.

CONVERSAZIONE, ROYAL INSTITUTE OF BRITISH ARCHITECTS.

ON Wednesday evening last the President, Mr. Tite, M.P., and the Council of the Royal Institute of British Architects, gave a *conversazione* at the house of the Institute, in Conduit-street. The spacious galleries below were, on this occasion, also thrown open; and together with the rooms above were literally filled with pictures, carvings, china, and other works of art, including a remarkable collection of illuminated MS. belonging to the President. There were also Mr. E. Falkner's siculo moreoque and other metal-work, and his interesting illustrations of life in Pompeii; Mr. Layard's manuscripts and frescoes; photographs of the works in the South Kensington Museum; drawings by Flaxman and A. W. Pugin; Owen Jones's original designs to illustrate Paradise and the Peri; Mr. Webb's collection of sculptured ivories; a head by Guido, and a Madonna and Child in marble, by Donatello; the Augsburg clock, and pieces of rare china, lent by Her Majesty; a series of Oriental arms contributed by the Secretary of State for India, and treasures of art drawn from the collection of the Marquis of D'Azeglio, Lord Lansdowne, Baron Rothschild, Sir John Hippisley; and Messrs. Morant, Addington, Beresford-Hope (including the famous ivory crosses and the brass lectern exhibited at Manchester), Bohn, Barker, Monro, Farrar, Franks, Manson, Holland, Frapp, Bell, W. Donaldson, Cooke, R.A., Henderson, Hansard, H. F. Hope, Street, Smirke, R.A., Cockerell, R.A., besides a roomful of drawings relating to the objects for which the Institute was founded.

In the collection of these, and preparations for the evening, several members of the Institute, especially Messrs. Papworth, C. C. Nelson, Norton, Bell, and Lewis, had devoted much time. In the arrangement they were chiefly assisted by Mr. Chaffers. About 500 persons were present, including, with those already named, and many ladies, Lord Wensleydale, Lord Hen-

ker, Dr. E. J. Gray, Sir F. Scott, Dr. Goodchild, Mr. Samuel Gregson, M.P., the Rev. R. Willis, Dr. Balfour, the Bishop of Lincoln, Archdeacon Hale, Mr. W. L. Donaldson, Mr. E. M. Barry, Sir Wm. S. Newton, Sir T. Wilson, Sir G. Everest, Sir Walter Stirling, Mr. Adam Black, M.P., the Rev. R. Burgess, Mr. John Webb, the Rev. Thomas Hugo, Mr. W. H. Carpenter, Captain D. Galton, Mr. Wm. Coningham, M.P., Mr. A. W. Franks, Mr. Beresford Hope, Sir Alexander Wood, Lord de Mauley, Colonel Sykes, M.P., Mr. S. Hart, R.A., Mr. Pickersgill, R.A., Mr. Joseph Bonomi, Mr. C. W. Cope, R.A., Mr. C. Robinson, Mr. J. H. Parker, Mr. James Holland, Mr. Samuel Addington, Mr. S. C. Hall, Mr. Ferrey, Mr. Kerr, Mr. Lucas, Mr. Cuthill, Dr. Spurgin, Mr. W. P. Griffith, Mr. Hakehill, Mr. Christian, Mr. W. Slater, Alderman Salomons, Mr. G. G. Scott, Mr. Truefit, Mr. S. Godwin, Mr. Lightly, Mr. Joseph Clarke, Mr. E. Roberts, Mr. O. Hansard, Mr. C. H. Smith, Mr. Fergusson, Mr. Wilks, the Rev. M. Walcott, Mr. Wyatt Papworth, Mr. Allason, Mr. H. Baker, Mr. C. Mayhew, &c., &c.

The collection will remain open (to members' orders) this Friday, the 12th. The council have reason to congratulate themselves on the success of their *conversazione*.

RAGGED SCHOOLS.

Now that these establishments have come much into use, it is to be regretted, and indeed it is rather strange, that it should be still necessary, to say a word for their encouragement and their further extension. Such, however, is the case; for persons of high position and influence have of late given expression to an opinion that the number of the Ragged Schools are of no great advantage to the classes who are intended to be benefited by their means. This opinion, if allowed to pass uncontradicted, might damage a movement which depends for its success entirely on the voluntary contributions of numbers anxious to assist those classes who are badly situated; for a large portion of the contributors to the Ragged Schools have not the opportunity of obtaining practical knowledge of the extent of misery, ignorance, and vice, which exists amongst the great population of the metropolis, but are guided in a measure by the reports which are given to them by those who are supposed to have gained information by personally inspecting and carefully studying the manner in which the Ragged Schools act in poor neighbourhoods; it is therefore most important that no wrong impressions should be made.

We well remember the establishment of the first Ragged Schools in London, and the predictions which were made that they would produce "a power of evil"—that they would become places for the assemblage of young thieves, and nurseries of vice and wickedness; this, however, has not been found to be the case, for as the system has extended, we find that juvenile crime has rapidly abated. It would be wrong to attribute this beneficial change entirely to the schools; for, doubtless, the sentencing of youthful offenders to reformatories, and the plan by which they can be kept for such a time in these institutions as shall enable them to receive lessons in morality and habits of industry, have been a means of rooting out a great deal of wickedness. Careful observation, however, shows that the Ragged Schools also have already had, and still are exercising, a most beneficial influence.

During the last few years we have looked at many of these schools in various districts of the metropolis, and we learn from the masters, mistresses, clergymen, and even from the police, that the early fears respecting them have been groundless, and, in fact, that they have been productive of the reverse of evil; nor is this to be wondered at, when we consider the manner in which crime is chiefly led to amongst the children of the poor. Let us glance, for instance, at one of those neighbourhoods which have been so frequently, and with pain, referred to in the *Builder*,—at houses which contain eight or nine rooms, let to eight, nine, or more families. Swarms of children vegetate in these places; the atmosphere is polluted and dangerous. The parents are glad to get their little boys and girls into the streets, and they, for their own parts, are nothing loath to be out into the court, instead of remaining in the stifling rooms. In these places, on little bits of neglected land, in ruined buildings, and on spots out of the general view, small boys and girls, some of them scarcely beyond the age of infancy, assemble in the daytime,

practised young thieves prowl about, gambling, or in other ways amusing themselves, until their ill-gained money is all lost, or the time arrives for proceeding to business. The swearing and ill-language are terrible to hear. Some of the youngest of these children have already had bad training in this respect, even in their miserable homes; others have not had so ill an example set to them; but, under such conditions as are here referred to, education of the most evil kind is commenced. The young are left for hours, and even for days, without care or superintendence; infant thieves train others into habits of thieving,—filch small articles from their parents first of all, and then from others. And in these localities there are larger boys, who become leaders of bands of pilferers, and who can readily dispose of matters to dishonest rag-dealers, unscrupulous pawnbrokers, and the abominable keepers of the "dolly shops," or "leaving shops." In most instances the parents are well aware of the bad consequences of these arrangements, and would gladly keep their children from mischief; but their clothes are old, and by years of inattention, and in consequence of the want of convenience in the dwellings, they have fallen into such states of dirt and neglect, that, even if they could manage to pay 8d. or 4d. a week at the National Schools, the children would be denied admission to such establishments.* It is in localities of this description that the Ragged Schools have been generally opened; and to these places boys and girls have willingly flocked: here, under the eye of earnest men and women, instead of amid the pollution to which we have referred, they are taught the principles of religious and social obligations; and, instead of having their mind vacant, it is kept employed, and ideas of mischief are driven away: at any rate, for so many hours of the day.

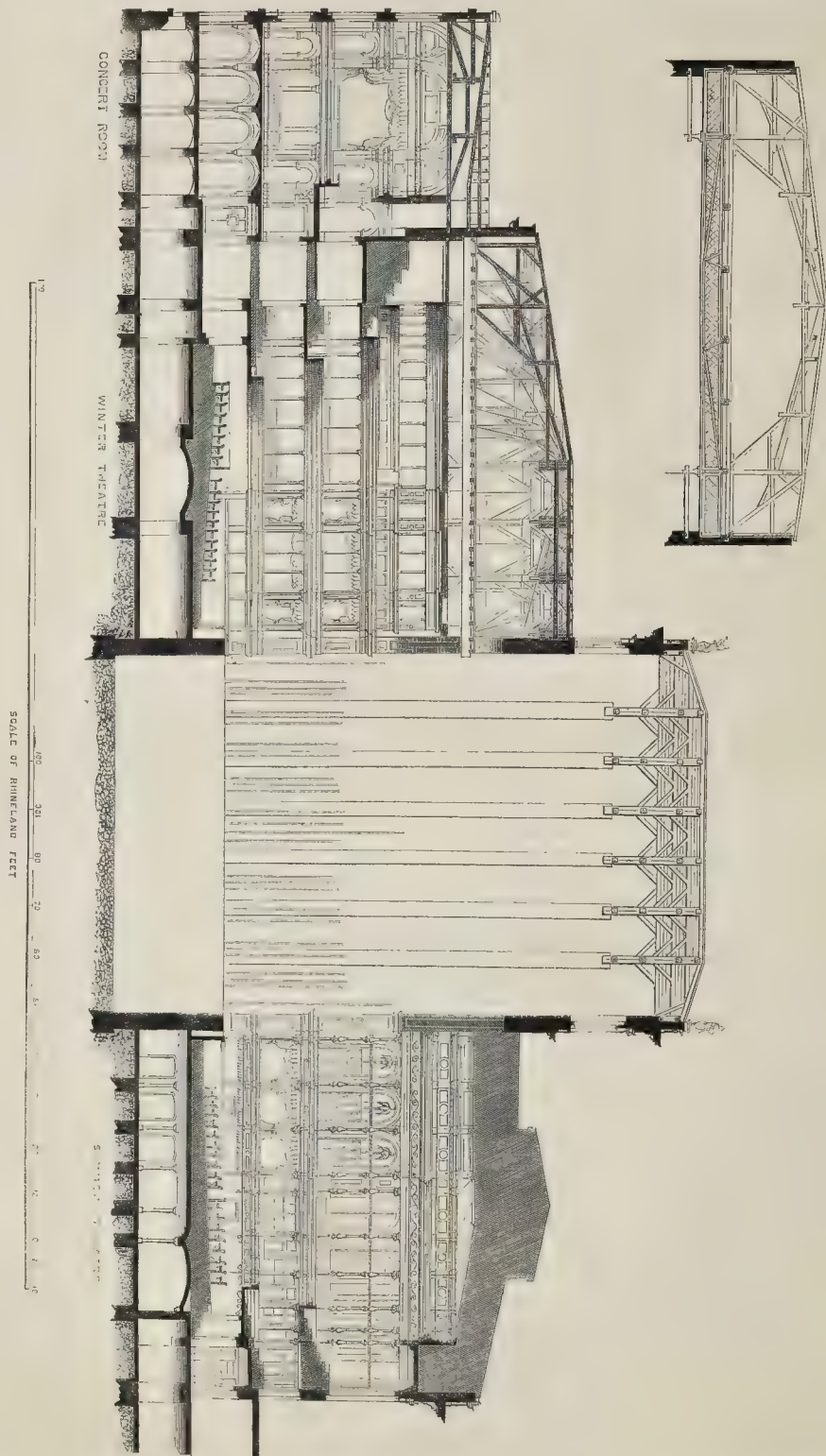
In carefully watching the progress of some of these schools from the time of their commencement until the present moment, it is to be observed that the masters and mistresses are singularly well adapted for the purpose of carrying out their important work; they cheerfully contend against difficulties, and patiently do the best with the rough material which it falls to their lot to improve. The change which soon takes place in the appearance of the children is remarkable; and, if the clothes are old, they are kept much cleaner; the hair is smoothed, and the skin well washed. As is the case with the National Schools, so is it with the Ragged, that it is, unfortunately, difficult to secure that extent of regular attendance which would ensure a fair amount of skill in reading, writing, and arithmetic; and this, we fear, will not speedily be altered, for the introduction of steam machinery into various branches of labour has caused, and is still causing, an increased demand for the work of youthful hands. Notwithstanding, even as regards the amount of general education given at the Ragged Schools, and the improvement in the habits of the scholars, both male and female, these are very satisfactory; and the parents themselves, in many cases, have been improved by the example of their children: moreover, deserving girls and youths are, in some instances, sent to industrial schools and reformatories; and exertions are made to get lads, who would have no chance upon the land, fitted for sea. So far as the means go, others are provided with decent clothing and recommended to situations. There are banks for small savings, and clothing and sick clubs. Young scholars, in illness, are not left neglected: the influence of the managers is used, in time of need, with the authorities of hospitals and public institutions: in fact, the Ragged Schools form a social bridge, affording a way out to a part of our population which otherwise would have been left in much worse darkness, ignorance, and danger than it is at present.

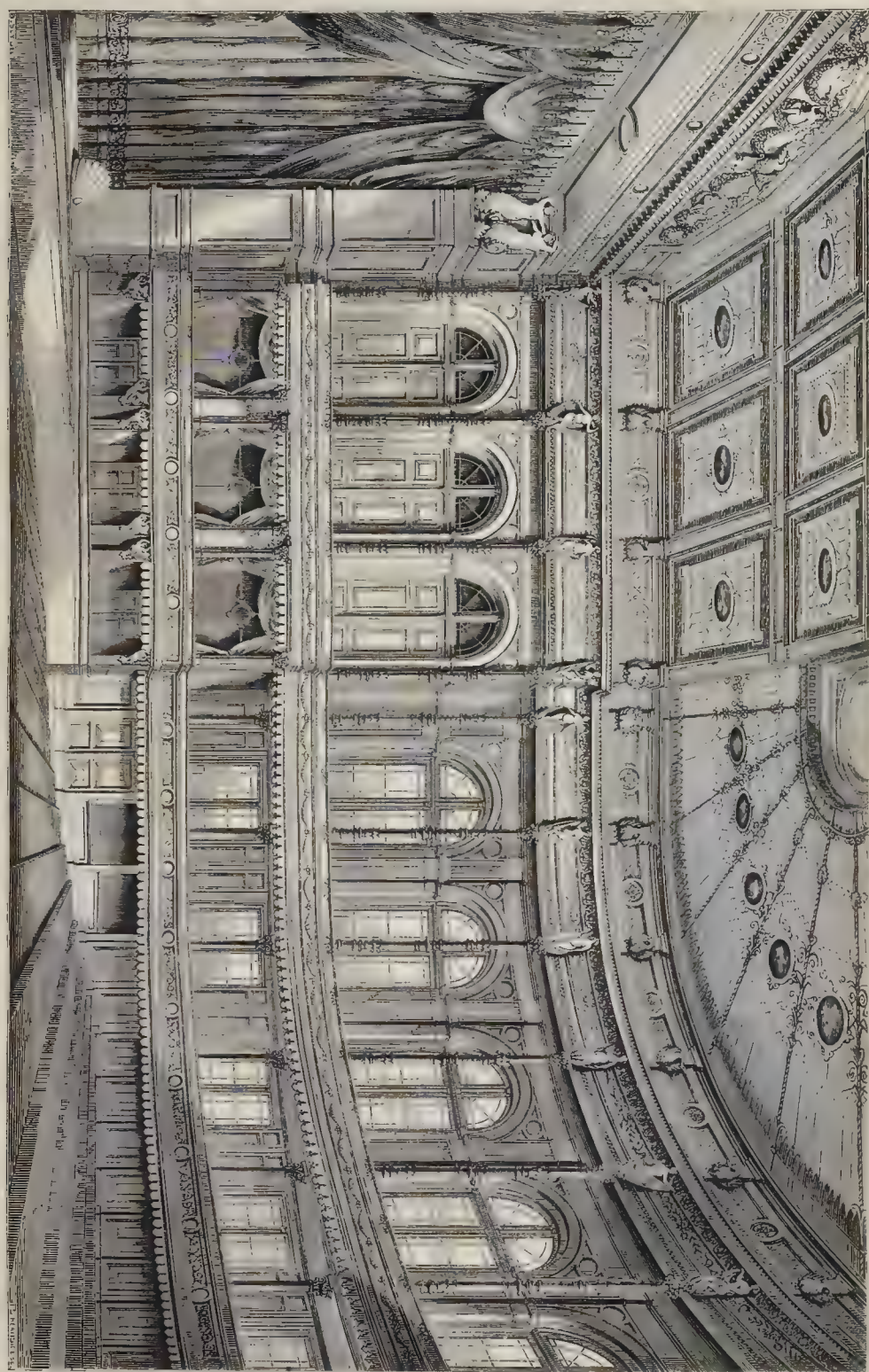
Believing that these schools are one of the powerful means which Providence, in these our days, has given to us to advance the civilisation and happiness of the multitude, it is with regret that, in recent reports, we find the system ill spoken of. There is plenty of scope for both National and Ragged Schools, and to advocate one system it is not necessary to decry the other.

* From careful inquiry made respecting the incomes of the parents of those who attend the Ragged Schools, we find that the weekly sums received by many heads of families are very small and uncertain. Dock labourers, when fully employed, earn not more than from 12s. to 15s. a week; and there are thousands of persons having families who are worse off, and for such persons to devote a shilling a week for schooling is almost an impossibility.

VICTORIA THEATRE, BERLIN.—Longitudinal Section on Line A B on Plan.*

[* See p. 479, ante.





VICTORIA THEATRE, BERLIN.—Interior of the Theatre Theatre.—HERR TIRZ, ARCHITECT.*

* See p. 471, ante.

ALDERSHOT CAMP.

It is now several years since the great military encampment at Aldershot was pitched. We remember the impressions caused by our first visits to this dreary and desolate spot—our surprise, mingled with some stronger feeling, at the extraordinary mismanagement, and either the want of true knowledge, or else a strange defiance of all sanitary laws. From time to time we have referred to these matters,—to the imperfect attempts at drainage, the folly of fixing the site of a camp for between 20,000 and 30,000 men, together with the various followers of such an army, on a spot, without having first ascertained the nature of the water supply and other necessities. Then, the huts and other arrangements were of a wrong description—erected without plan—and neither convenient for a short time of service, nor durable if required for more permanent use. We do not wonder, therefore, that the subject has been again brought under the notice of the Committee of Supplies, when a vote for 7,000*l.*, part of 40,000*l.*, was asked for stabling of a more permanent character than that at the present time existing in the Aldershot camp. During the discussion, in which Mr. B. Osborne and other gentlemen, both civil and military, took part, the House was reminded that this was intended, at the breaking out of the Crimean war, as a camp for the periodical summer exercise of certain bodies of troops, at a cost, for the purchase of land, of 100,000*l.* For this purpose, the Government purchased 7,000 acres of land at 20*l.* an acre, or about 150,000*l.*; but then the land was found to be a swamp, and no supply of wholesome water could be had. As our readers may remember, the wells were dug, and had to be filled in again. As we mentioned at the time, when the men were almost starving for water, thousands of gallons of excellent quality were running to waste from the high lands in the neighbourhood of Caesar's Camp. After a tissue of unnecessary and useless experiments, the services of Mr. Simpson, the civil engineer, were called for; and that gentleman succeeded in obtaining a water supply for the camp at a cost of 26,586*l.* Then, in 1854-5, there were expended 175,000*l.* for temporary huts: these proved neither air nor water tight; in consequence, 14,000*l.* were expended in covering them with felt; but that did not answer; so they had to be tarred, at another great expense: in fact, the cost of those huts up to this time amounts to the enormous sum of 496,000*l.*, half a million sterling; and yet these huts are in a state of rottenness and decay. Then came an estimate for the erection of a permanent barrack for 6,000: the estimates of 1856 showed a sum of 250,000*l.* for this purpose. But instead of selecting a site in some central portion of the land, a position was selected at the extreme verge, and then it was necessary to buy two additional acres of land for the erection of an hospital: the Government for this was obliged to pay 1,000*l.* an acre, for land which, in the first instance, could have been bought for 20*l.* an acre. The barracks here constructed are defective in their arrangements. Respecting these, Mr. Osborne remarks that "They are most defective and most expensive; and during the month of May they were nearly burnt down, owing to their bad internal arrangements. The cooking apparatus had been placed under the soldiers' rooms, and lifts had been made for the purpose of sending up the men's dinners; but they were never used, as it was found out that the cook-houses were of no use but to roast the men in their rooms, summer and winter." Iron cooking-stoves had been purchased for 20,000 men; but they turned out to be of no use, and were condemned and sold for "old iron." Then Captain Grant, who had established an effective cooking apparatus for 50,000 men, was superseded by a Mr. Warmer, who was styled the "Inspector of Military Cooking;" and his apparatus was tried, and it had been said that the machinery in use was more calculated for Westminster Palace Hotel than for military cooking.

Then the barrack grates—3,000 of them were purchased at 3*l.* 10*s.* each. These, however, proved so useless, that it was necessary to condemn them and dispose of them as old iron. The cost of taking down and replacing the new grates raised the price of them to 7*l.* 10*s.* for each grate. There are other matters which might be mentioned: it is however, we think, sufficient to show that this camp has already—instead of the 100,000*l.* at first proposed—cost the country one million and a half of money.

Colonel North, after making some remarks on the stoves, deprecated the employment of military engineers in the erection of buildings. They then

became, he said, very inferior members of a very honourable profession. Mr. Monsell and Sir Joseph Paxton both remarked that the barracks were the cheapest which had been erected. The latter gentleman, however, declared that they should have been built in a more central situation.

Considering the enormous charges which have mounted up in connection with this camp, it is clear that those engaged in its arrangement have been "penny wise and pound foolish;" and it would have been found to be a saving of many thousands of pounds if skilful professional advice had been called in, and a fair amount of cost incurred in the first instance. On this point Mr. H. Lewis was of opinion that as they had been obliged to call in the services of Mr. Simpson, an eminent civil engineer, it was really a question whether, upon all such occasions, and when sanitary considerations are involved, the Government ought to depend upon the services of the Royal Engineers; or whether they ought not to devolve the fulfilment of the work on a mixed commission of civil and military engineers.

Captain Jervis remarked that while the cheapest lunatic asylum in the country—that at Hampshire—was constructed at a cost of 150*l.* per patient, the barracks at Aldershot were raised at a cost of about 60*l.* per head, and there are 19,000 men in huts which are unfit for human habitation; and which, as a matter of course, will be shortly removed. The subject is one most unpleasant to reflect upon. Another honourable member supported the vote because the camp at Aldershot had grown to such an extent that they did not know where it would stop. If this be the case, the sooner the matter is taken into proper consideration the better. We wish to see wholesome barracks provided, at any reasonable amount of cost, for the British soldier, both at home and abroad, but not that enormous sums should be wasted on experiments which can only end in inconvenience and disappointment.

SURVEYORSHIP, ST. GEORGE'S, HANOVER SQUARE.

About three months ago, the assessorship to the parish of St. George's, Hanover-square, and the surveyorship to the governors and directors of the poor, having become vacant by the death of the late surveyor, the following gentlemen were named candidates, and polled as follows for the assessorship:—

Mr. Sydney Howell, Gloucester-street ..	23
Mr. Charles Lee, Golden-square	19
Mr. John Turner, Wilton-street	17
Mr. Harris	1

On the 3rd inst. the second appointment was made. The votes were:—

Mr. Sydney Howell	6
Mr. John Turner	6
Mr. Harris	4
Mr. W. R. Gritten	1

GUILDFORD COUNTY HALLS AND ASSIZE COURTS COMPETITION.

THIS competition was decided on Thursday last, by a poll of the shareholders: at the close of which there appeared for "Non Sine Labore," 518; "Onward and Upward," 426; "Utility," 7; "Hope," 2. The first was declared selected, and was found to be by Mr. T. Goodchild, of Guildford, architect. The works are to be proceeded with forthwith.

Sir,—You will be surprised, after hearing that the committee appointed by the shareholders had selected the design bearing the motto "Hope," to learn that another plan has been adopted.

It may not be uninteresting to your readers to know the treatment which non-resident competitors, in this, and we fear in many other competitions, are subjected to.

As you are aware, a public competition was advertised in the *Builder*. As usual, several architects responded to the call, and at a meeting of the shareholders a committee of taste was appointed to examine the various plans, and report which was most suitable for the purposes required. This they did, and reported at the next meeting of the shareholders that their choice had fallen on the one bearing the motto "Hope," as the one most in accordance with the instructions issued, and more likely to be executed for the money (3,000*l.*) than any of the others. After this report had been received, three other designs were brought forward, and a poll of the shareholders demanded for each, thus ignoring entirely the work of the committee. You will at once see the advantage gained by the local architects, who were probably known personally to the greater part of the shareholders; and although the sealed envelopes containing the names of the competitors had not been opened, a personal canvass was at once commenced by one or more of the local competitors. It became from that time a party contest, and a county paper says great excitement prevailed in the town on the polling day, as so evenly were they balanced, that it was uncertain whether "Non sine Labore" (the successful plan) or "Upwards and Onwards" would gain the victory. Nearly all the votes were given to the canvassing parties. The instructions to architects contained a clause to this effect:—

"Should no builder be found who will execute the work for the sum specified, no commission will be paid unless a contractor can be found by the architect satisfactory to the committee who will do so."

It remains now to be seen how far good faith will be kept with the competitors in this respect; and we believe it is doubtful whether the design which obtained the majority of votes can be carried out for anything like the sum specified. The competition has not hitherto been carried out in that spirit of fairness which we had every reason to expect it would have been; and doubtless, this difficulty, which will assuredly present itself, will be passed over as of no consequence whatever. "Hope."

P.S. The following we believe to be a correct list of the mottoes and authors of the four plans referred to above:—"Hope," Messrs. Hooker & Wheeler, Brewhley, Kent; "Non sine Labore," Mr. T. Goodchild, Guildford; "Upward and Onward," Mr. Peake, Guildford; "Utility," Mr. Pocock, London.

THE FOREIGN OFFICE DESIGNS.

In the Commons, on the 8th inst., before the House went into committee of supply, a long and amusing discussion took place on the question (if it can still be called a question) of the style of the design for the new Foreign Office; involving, of course, a re-consideration of the respective merits of the Gothic, and Italian styles of architecture.

Lord Eichen moved—

"That in the opinion of this House it is not desirable that the new Foreign Office should be erected according to the Palladian design now exhibited in a committee-room of the House."

His lordship commented with some severity upon what he called the Palmerstonian style of architecture, and urged that Mr. Scott's design, or rather Lord Palmerston's, was altogether unsuited to the country, the climate, and the purpose to which it was to be devoted; and that a pure Gothic (not the abuse of Gothic, as in the case of the new Houses of Parliament) was that of which the country would approve. Mr. Scott, he thought, had fallen into error in allowing himself to act as the mere draughtsman of the noble lord at the head of the Government, who was, in truth, the practical designer in this case. The Crown Life Assurance Office, in Bridge-street, Blackfriars, from the design of the late Mr. Benjamin Woodward, was, in his opinion, a favourable specimen of what might be done in the way of Gothic street architecture. He called upon Lord Palmerston to give up his Italian notions of art, which were at a deplorable discount, and consent to build the new public offices for the rising and not for the setting generation.

Mr. Buxton seconded the motion. He predicted that the style chosen would be execrated by the public.

Mr. Cowper defended the department of which he is the head, and denied that Classic architecture was at a discount. People, he said, were very apt to call their own opinion the public opinion; but he undertook to say that 20 to 1 preferred an Italian building to a Gothic. Traverse the metropolis from north to south, and you will find nothing but Italian buildings; and a Government building, such as the Foreign Office, as the culminating point of the whole, ought to harmonize with the rest. Illustrious architects and other competent persons had told him that Mr. Scott's Palladian design did him the greatest credit, and it was unfair to Mr. Scott to give any one else the credit of his design.

Mr. Layard said it appeared strange to him that in this nineteenth century this country should have made such little progress in the style of architecture. The architects seemed to desire to follow all the styles which had gone before, rather than to design anything approaching what was new. Let them take that house as an instance. It swarmed with the most hideous forms, and might be called "the Gorilla style." If they took the Classic style, they would find it surrounded by colonnades which wholly excluded the light of the sun. As regarded light, he believed that no style was better adapted for its admission than the Gothic. Mr. Layard then referred to the new public buildings at Hamburg, and the Townhall at Cremona—Gothic buildings—as being among the finest buildings of modern times. He objected to the Palladian style because it was mean in design, monotonous, and unsuitable to the streets of London, and because it could not be carried out as it ought to be. Towers were inadmissible, and ornamentation was not allowed. He hoped that the style of the terraces in the Regent's-park and the neighbourhood would not be brought into this district. Anybody who now saw the streets of Paris would experience the force of his objections. They were built upon one plan; and from these buildings strangers might discover that the Government of France was a despotism. The other plans in the Tea-room deserved great attention because in them were considerable beauties. He would recommend that the design of Mr. Scott

should be referred to a committee of gentlemen, members of that house, who understood the matter, and who would be able to point out improvements. Mr. Scott, he understood, was willing to do this. If some alterations were made in the Gothic plan, he believed it would meet with the approbation of the House and of the country. That which was most required was colour; and the different quarries of the country would afford abundant materials from which a really fine and beautiful building could be erected, one which would satisfy the House and the country.

Mr. Tito ridiculed the notion of introducing colour into Gothic buildings. It was about the most monstrous proposition he had ever heard in connection with Gothic architecture; and he challenged the hon. member to point out any Gothic building of repute in which one particle of colour was to be found. The introduction of terra-cotta into structures of the Gothic character would be a great misfortune and mistake. The entire of the terra-cotta work in Milan was devoted to the Palladian style of architecture. He considered his friend Mr. Scott was quite as much distinguished in Italian designs as in Gothic: indeed, any well-informed architect ought to succeed as well in one style of architecture as in another. In his opinion, Sir Charles Barry had accomplished in the building of that house all that the most gifted architect could do; regard being had to the style in which he had to work. In the year 1858, a deputation of the most eminent architects, including Mr. Squire, Mr. Cockerell, and many others, saw the noble lord at the head of the Government, and expressed to him their obligations for his determination against the carrying out of the Gothic plan for the new Foreign Office. Sir Charles Barry himself said that the plan ought not to be adopted. Of the 218 designs sent in, only 15 were in the Gothic style; and all the first prizes were awarded to Italian architecture. Having quoted the opinion of Mr. Ruskin in favour of the Italian style of architecture, the hon. member expressed a hope that the matter would be left in the hands of the executive Government. If that were done, he felt satisfied that the new Foreign Office would be no disgrace to England; but, on the contrary, they would have a fine building, adapted to the purposes for which it was intended. The Gothic style of architecture was the right thing, in the right place; but that place was not the House of Commons, or the Foreign Office.

Lord John Manners complained that when Lord Palmerston returned to office he had arbitrarily ignored the designs approved and selected by the former Government, and that he had compelled Mr. Gilbert Scott, a master of Gothic architecture, to design a building in the Palladian style. Mr. Osborne expressed his opinion that of all tribunals in matters of taste the House of Commons was the very worst. Gentlemen talked about different styles, about the horizontal and the perpendicular,—when the country was looking to the question what would the building cost? It happened that in 1855 Mr. Pennethorne, the architect and surveyor of the Board of Works, was called upon to submit a plan for the new Foreign Office; and what was the estimate for his plan? It was 60,000*l.* for the building and 30,000*l.* for the purchase of the site. The House of Commons of that day was so singularly sparing of the public money that when they were called upon for this vote, they refused to grant it, and voted 10,000*l.* for patching up the old buildings. What was the estimate of the money they were called upon to provide for this building? It was 200,000*l.* But did the House believe it would be built for that, whatever style was adopted? He did not think the question had been properly treated by the House. When the competition for the design was thrown open it was thrown open to all the world, and a large premium was offered for the best design. The first premium was awarded to Messrs. Coe & Hofland, and the second on the list were Messrs. Banks & Barry; but in consequence of Mr. Scott, who had, it was true, a European celebrity as a Gothic architect, being second in the competition, he was, by some curious hocus pocus, put forward between the two gentlemen who obtained the first premiums and the noble lord (Lord J. Manners), who was a devotee in the Gothic school. If the House were to treat this subject properly some one would move an amendment, and say "A plague on both your Houses."

Lord Palmerston, in a humorous speech, explained the nature of the negotiations which had taken place between himself and Mr. Scott, and which resulted in the Palladian design as con-

demned by Lord Elcho. That design was, in his (Lord Palmerston's) opinion, the most desirable, regard being had to the secular purposes to which it was to be applied, and to the surrounding buildings. The town halls and other fine buildings lately erected in Liverpool and other large towns in the provinces proved that the public taste was in favour of Classic architecture. He hoped the House would not, by agreeing to the motion, delay the execution of the works, which were urgently required for the public service.

On a division the motion was rejected by 188 to 95.

The House then went into committee of supply, and resumed the consideration of the civil service estimates.

A vote of 30,000*l.* on account of the new Foreign-office led to a revival of the discussion, in the course of which Mr. Osborne and other members commented upon the indefinite nature of the expenditure on public buildings generally, and expressed their disapprobation of the costly and unsatisfactory nature of such works.

Mr. Cowper stated that the 200,000*l.* which it was proposed to spend on the Foreign-office would not include either the Colonial Office or the establishment for the Secretary of State for India. No official residence for the Foreign Minister was contemplated.

Lord Palmerston, in course of his additional remarks, said that, as to the elevation, it might be assumed that that was now decided upon. It was not as ornamented as the elevations of the other plans; but, although it might not be very magnificent or splendid, it would be handsome enough for the purposes. The expense would depend, of course, upon the amount of space to be occupied by buildings, and the elevation. They would save nothing by postponing the vote from year to year; and the sooner they began the work, the sooner it would be finished, and the expense and inconvenience of the present arrangement would be got rid of.

The vote was ultimately agreed to.

ELECTRO-TELEGRAPHIC PROGRESS.

SOME time ago it was announced that M. Bonelli, an engineer at Milan, had invented a new mode of transmitting messages by telegraph infinitely superior to anything hitherto known. He has taken a patent out for it in this country; and so persuaded are opulent parties in Manchester of its success, that as a company they have already laid down wires on the canal as far as Runcorn, and are continuing them across the river to Liverpool; and in a few weeks the works will be in operation. The message is to be presented printed, and at a charge of sixpence!—The Telegraph to the Channel Islands has again been suddenly stopped by the breaking of the wire.—The International Telegraph Company of London have obtained permission from the French Government to establish an electric communication between Dieppe and Newhaven, and the cable has been laid after a temporary misadventure. The International Company intends to transmit despatches by the Dieppe line to any part of Great Britain or Ireland for 3*l.*, in place of 7*l.* 50*s.* c., the charge made for sending messages by way of Boulogne and Calais.—Messages can now be sent from London through Russia to China, the route being to Kasan, thence *via* Kiachta to Peking, either by post or by estafette from Kasan to Kiachta, and thence to Peking. The charges are as follow:—A message of twenty words to Kasan, 1*l.* 2*s.*; Kasan to Kiachta, twenty-three days' post, and to Peking, fourteen days', 8*s.* If sent by estafette the time saved will be eight days, but the expense increased by 26*l.*

BIRMINGHAM CEMETERY.

THE new cemetery, which will cost in all about 30,000*l.*, has been progressing for the last twelve months, and is now approaching towards completion. The area is at present 60 acres, although 105 have been purchased. The chapel will shortly be erected. Having obtained the site, the committee invited architects and landscape gardeners to send in designs, plans, sections, and estimates, for the erection of chapels, lodges, and offices, and the fencing, laying out, and planting of the cemetery. Premiums of 50*l.*, 30*l.*, and 20*l.* were offered for the best, second, and third best architectural designs, and of 30*l.*, 20*l.*, and 10*l.* for designs for laying out the grounds. For the latter ten designs were received; and the three selected by the committee were those of Mr. Ashwell, of Coventry, estimated cost

3,010*l.*; Mr. G. Stokes, London, estimated cost 3,133*l.*; and Mr. Davidson, London, estimated cost 2,500*l.* A design was then prepared by the borough surveyor, in conjunction with Mr. Ashwell; and the offer of the latter to superintend the laying out, planting, and forming the grounds, for a commission of five per cent. upon the total outlay, was accepted. The requisite number of workmen were then engaged; but it was deemed advisable that the laying out, draining, and formation of the walks and drives, with the exception of those immediately adjacent to the buildings, should be done by contract; and the tender of Messrs. W. and T. Sidwell, of Birmingham, for the performance of the work for 1,250*l.*, was accepted by the committee. The draining of the land, laying out, and planting, are now nearly completed. The ground has been laid out into squares as far as practicable, and the cemetery will be entered from Moor-lane, by avenues on either side, 24 feet wide, leading to the two chapels about to be erected. The whole ground is intersected with walks from 8 feet to 10 wide, the united length of which is 31 miles, and planted with hollies, scarlet thorn, weeping ash, &c. For the chapels and other buildings to be erected twenty designs were received; and the three selected as possessing the greatest merit were those of Mr. Clarke, of Nottingham, to whom was awarded the first prize of 50*l.*; Mr. Warden, who received 30*l.* for the second best; and Mr. Holmes, who received 20*l.* for the third. After an examination of the design, and conferring with Mr. Stevens, of Derby, the committee decided upon adopting the design of Mr. Clarke; and that gentleman was empowered to superintend the erection of the works. Tenders were then solicited for the buildings: the competitors met at the office of the borough surveyor: Mr. H. J. Cox was by consent selected to take out quantities; and a contract was entered into with Mr. Wright, of Nottingham, for the erection of the buildings, at a cost of 5,820*l.*; his tender being the lowest of eleven presented. The structure, as at present arranged, will consist of two chapels, one termed the Episcopal Chapel and the other the Dissenters', each capable of accommodating 200 persons, with vestry, one reception, and two waiting rooms, the latter to admit of further extension.

The cost of these chapels, which are to be built of Hampstead stone with Bath stone dressings, is not to exceed 2,000*l.* each.

SHIP ARMOUR PLATE MANUFACTORY.

MESSRS. J. BROWN & CO., of the Atlas Steel and Spring Works, Sheffield, have commenced the manufacture of rolled iron armour plates, in the execution of a commission from the Government. They have extended their manufactory by a tunnel under the Midland railway to a large piece of ground lying on its north side, between it and Saville-street. Here, within these two years, has sprung up a new portion of their works, occupying 10½ acres, of which seven acres are covered with buildings.

The new portion of the works (though about one-third of them yet remain to be completed) have consumed 12,000,000 ordinary bricks, and 2,000,000 fire bricks. This newly occupied ground contains already sixty-two furnaces, to the majority of which there is attached a steam engine boiler. Thus the heat of the furnace generates steam without any further expenditure of fuel, and the steam is conveyed in pipes, laid in trenches lined with fire-bricks, to the various engines it is to work. Four chimneys, 45 yards high, receive, through underground-flues made of fire-brick, the smoke of the various furnaces; but the smoke of each furnace is for the most part deprived of its carbon by passing through other furnaces on its way to the chimney.

The armour-plates, in what may be called their embryo state, consist of a number of slabs of bar iron, measuring about 30 inches by 12, and 1½ inch thick. Four of these, being laid upon one another and heated in a furnace, are rolled into a plate measuring about 4 feet square. The advantage of the process of rolling is, that it preserves the fibre of the metal. By using iron of different kinds of fibre, and putting together plates rolled both ways, so that the fibres shall cross each other, it is believed the greatest possible amount of resistance is obtained. The plates produced in the way described are brought together step by step till there are at last four plates measuring 10 feet by 4 feet 4 inches, and each 2½ inches thick. These four, welded and rolled together by one great final operation, make the massive armour plate of six tons, measuring 20 feet long, 4 feet 4 inches broad, 4½ inches thick, weighing 180 lbs. per square foot, and composed in each part of 132 thicknesses of

iron. All the difficulties of the undertaking, it is said, have been surmounted, and the plates can be supplied as fast as they are required.

STAINED GLASS.

Waltham.—Three memorial windows, designed by Mr. E. Jones, have been inserted in the east end of Harold's church of Waltham, the eight-hundred-and-first anniversary of the consecration of which was lately celebrated.

Hayton Church (Notts).—Another stained glass window, from the establishment of Mr. Wailes, of Newcastle, has been placed in the parish church at Hayton. There are no pictorial subjects introduced. The window is a memorial one.

Cheadle Church.—The parish church of Cheadle has been enriched by the erection of a new east window, of the same style of architecture with the rest of the church. This window has been filled with painted glass by Messrs. Edmundson & Son, of Manchester. Of the five lights into which the lower part of the window is divided the three central ones are occupied by one subject,—the Crucifixion. Of the two side lights, each contains two subjects,—the Nativity and the Baptism on the left, the Last Supper and the Resurrection on the right. In the tracery of the window two angels and the four evangelists occupy prominent positions.

Holbeck Church.—A stained glass single-light window has been put up by Messrs. Edmundson & Son, of Manchester, on the south side of the chancel of this church. It contains a figure of St. John, under Early Decorated canopy work, and is the gift of Mr. and Mrs. Marsh, who gave the east window. Subjects.—Christ blessing little Children, with the Resurrection on one side and the Ascension on the other.

Byker Church (Newcastle-upon-Tyne).—Mr. Wailes has offered to fill with stained glass one light of a window in the south of the chancel of this church, in memory of the Rev. R. Green, late master of the Hospital of St. Mary the Virgin, and for thirty years incumbent of All Saints' parish, out of which the ecclesiastical district of Byker was formed. The other light of the window will be filled with stained glass at the expense of the late rev. gentleman's family, in memory of their mother.

CHURCH-BUILDING NEWS.

Hornsey Rise.—The new church of St. Mary, Hornsey-rise, being now completed (excepting the tower and spire), was on Thursday, the 20th ult., consecrated by the Bishop of London. The new edifice is built with Kentish rag-stone and Bath stone. The arrangement is that of nave, north and south transepts, north and south aisles and chancel, with small chancel chapels; that on the north side being occupied by the organ, on the south side in the vestry. The length internally is 105 feet; greatest width at the transepts, 75 feet; and width of nave and side aisles, 58 feet: the altitude of the nave is 50 feet. The edifice has accommodation on the ground floor for 756 persons, but preparations have been made by the architect for galleries to be erected at the west end, and in one of the side chapels near the chancel, should enlarged sitting-room be ultimately required. The roofs are open-timbered throughout, with boarding and cornices stained and varnished. The main timbers spring from curved braces, resting upon stone vaulting shafts, with carved caps and corbels. The nave is separated from the aisles by a series of stone arches, supported on octagonal stone piers, with foliated capitals. The chancel-arch is moulded with ball-flower enrichments, and supported on clustered vaulting shafts, springing out of the played jambs, with carved caps and corbels. The transepts are separated from the chancel chapels by stone parlores or screens, the tracery heads being deeply cut and moulded, supported upon small circular clustered shafts, with moulded bases and carved foliated capitals. The lower part of the chancel is lined with stone. The seats are all open benches, stained and varnished. The church has been executed from the designs and under the direction of Mr. A. D. Gough, architect. Mr. G. C. Carter, builder, Hornsey-road, was the general contractor, who has carried out the various works, under the superintendence of the architect.

Wokingham.—The new Baptist chapel here has been opened. The new buildings consist of chapel, 41½ feet wide and 54½ feet long, exclusive of lobbies; a lecture-room, 32 feet by 20 feet; and a private vestry for the minister. The chapel is intended to seat 400 persons on the ground-floor, and 200 in a gallery over the entrance lobbies.

The design is prepared to admit of side galleries being added when required. The style of the building is Italian, freely treated in the general arrangements and combination of the materials of which it is erected; viz., red and white bricks and stone; the white bricks being mostly in bands and arches; stone being used to protect the projections of cornices, &c., and also as borders in the arches. All the windows have ornamental cast-iron sashes, glazed with ground glass. The interior of the building is simple. The floor of the chapel is made to incline from the entrance. The seats are low, with plain bench ends, and are without doors. The whole of the woodwork internally is stained and varnished. The chapel is heated by Mr. Haden's patent system, with which is comprised a general plan for the ventilation. The graveyard around has been re-arranged. The total cost of the building, including heating, architects' commission, &c., will be about 1,600*l*. The design was prepared by Messrs. Poulton & Woodman, of Reading, architects; and the works have been executed, under their superintendence, by Mr. John Wells, of the same town, whose tender was accepted in a limited competition with the neighbouring builders.

Oxford.—The work of restoring the Church of St. Mary the Virgin has been intrusted to Mr. Gardiner, builder, of this city. The contract, according to the local *Herald*, was offered to five builders recommended by the architect. Mr. Gardiner had been previously employed in the repairing of the tower and spire. The porch, well known as "Laud's Porch," will be protected from injury during the restoration. The architect employed is Mr. Scott, and Mr. Buckridge is clerk of the works. The members of convocation have voted 3,900*l*. to carry out the restorations, to which Oriol College (the patrons of the living) have added 1,000*l*., and the parish 850*l*. The total estimated cost was 5,400*l*.

Higham.—The new church at Higham has been consecrated. The edifice has been erected from the designs of Mr. Scott, at a cost of about 3,600*l*., of which 400*l*. are still due. It is dedicated by the title of St. Stephen the Protomartyr. The arrangement of the plan consists of a nave and north aisle, 50 feet long, the former 19 feet, the latter 10 feet in width, separated by an arcade of four bays; a chancel, 28 feet long by 16 feet 4 inches wide, with organ chamber and vestry added, as a kind of continuation of the aisle, alongside of the chancel. The south wall of the nave and the east end of the chancel are 2 feet 9 inches in thickness, and all the other walls are 2 feet 6 inches thick. There are a south porch and a circular tower at the west end of the church. In this case the architect has seized upon a local architectural peculiarity, Snailwell, Risby, and Little Saxham being in the immediate neighbourhood. Attached to the tower, in the angle between it and the church, is a staircase to the ringing-floor, which is also circular, and shows as such externally. The diameter of the tower at the ground level is 20 feet, the walls being 4 feet thick; and in its elevation it is divided into three stages; the lower (open to the church, and eventually to be groined in stone) serving as a baptistery. The intermediate stage is the ringing-floor, which is only distinguished outside by the narrow windows which light it. Above this story is a set-off, upon which, when the tower is finished, will stand the bases of a series of columns and arches surrounding the belfry-stage. The belfry windows will be single lights, four in number, and facing the cardinal points. A corbelled cornice and parapet complete the design of the tower itself, which is intended to be crowned with a low conical roof, having four lucarnes, and covered, like the rest of the church, with tiles. Among the principal features of the church must be named the east window, which is of three lights, set in a thick wall, and moulded and shafted, the shafts within being of Purbeck marble, and having carved foliated caps. In the head of the window are three circles, two of which are cusped with sexfoils, and one with a cinquefoil. The south windows, both of nave and chancel, are all of two lights, of the same character as the design of the east window. The west window of the aisle is also similar; but the other windows, being under lean-to roofs, are less important in size and appearance. The tracery of these windows is that designated by Professor Willis as *plate* tracery; and the style of architecture is of the transition period from the Early English to the Decorated. The seats are of open framing,—in the nave of red pine, and in the chancel of oak, a large proportion (163, including seats for children) being free and unappropriated. The total accommodation is about 231 sittings. The walls are, throughout,

of flint, with bandings and dressings of Ancaster stone. The walling and masonry were executed by Messrs. Holland, of Gazeley; and the wood porch-work, as also the carving generally, by Messrs. Rattee & Kett, of Cambridge. The pulpit and font were executed by Mr. Farmer, of London, and the reredos by Mr. Field, of London.

SEALING WAX: QUERIES.

WILL one of your correspondents tell me of what the vessel is composed in which manufacturers make their sealing-wax? for, surely, not every material would answer, inasmuch as there would be an endeavour to prevent as much as possible any waste from the ingredients adhering to the sides. This inquiry is made to ascertain in what sort of small vessel an amateur could dissolve any fancy-coloured wax, and even white; so that there should not be any cloud in the impression made by the seal.

It is generally recommended to hold the wax above the flame, and then turn the stick round and round on the envelope; but by this plan the wax soon becomes cold, and a thick clumsy-looking seal is made after all. Could the wax be dissolved in any spirit and then applied to the envelope; and after the seal has been pressed upon it to remove it as in making a common impression, and so leaving it to set firmer as the spirit evaporates? To seal in the ordinary way, with fancy-coloured wax, a hundred or so of envelopes upon a special occasion, would take up a great deal of time. How is the sealing of the letter-bags in the large post-offices managed? D. D.

SPONTANEOUS FIRES.

DURING the warmer part of the last wet season, you called attention to the unusual number of destructive fires originating in spontaneous combustion. Having had occasion at the same period to make some observations on spontaneous combustion, in the columns of a local newspaper, I at the same time suggested through your columns the desirableness of some of our numerous scientific bodies instituting an inquiry, with the view of discovering and making known all the conditions favourable to spontaneous combustion. The present is, perhaps, a favourable opportunity for again calling attention to this subject.

Masses of combustible material are most liable to take fire spontaneously under the following among other conditions:—

When the weather is warm, and especially at the same time moist.

When portions of the material are damp, or contain oil or grease, or other matters liable to decompose.

When portions of the material are damaged, or partially decomposed.

When portions of the material contain sulphur, phosphorus, saltpetre, or other substances capable of igniting at a low temperature.

Combustible materials when perfectly free from the above conditions may be safely stored in large masses; but, as this very rarely happens, such masses are seldom safe during warm or damp weather. A low species of combustion, without flame, is originated in such masses in the first place; which gradually raises the temperature of the interior until ordinary combustion is induced. As a considerable period is required to raise the temperature to the igniting point, some simple means of revealing the temperature of the interior of the mass becomes an important desideratum. I beg to enclose a sketch of a simple and inexpensive apparatus, which I believe would be found to answer this end; and which, if adopted, would probably prevent many destructive fires in originating from this and other causes, by giving timely notice of their presence.

The apparatus consists of a common strong bottle, of any convenient size or shape, having a piece of common gas-piping firmly inverted into the neck of the bottle, and a common glass-tube attached to the end of the gas-pipe. If the bottle be partially filled with water, this apparatus would become a rude thermometer; and (being placed in the combustible material) the risings of the liquid in the glass-tube would roughly indicate the temperature of the mass at the point where the bottle was placed. The bore of the glass-tube must be sufficiently wide to prevent the ordinary changes of temperature from raising the liquid in the glass-tube above the point marked cool. As the apparatus would not be required to measure small variations of temperature, the tube could be left open, and a little oil poured upon the water in the glass-tube to prevent evaporation.

The public are at liberty to use the apparatus if they think proper; and I have little doubt that many destructive fires might be prevented were insurance companies to insist on a few of them being placed in all masses of combustible material; especially during the warmer months of summer. Any intelligent gasfitter would be quite competent to fit up the apparatus wherever it was required.

W. PATERSON.

WORKMEN'S ORGANIZATION.

SIR,—As you have given some prominence to a letter respecting workmen's organization, will you allow a mechanic to say a few words on the same subject? Your correspondent proposes the formation of a society which should not be allowed to interfere in any way concerning the hours or wages of labour. I think, however, that it would be hardly possible to form a society, consisting of any one trade, which should not at times discuss the terms of employment in that trade; and, even if it were, would it be just to deny to workmen that right of combination which is allowed to, and used by, the employers?

I think we want, not a society which shall take no cognizance whatever of trade disputes, but one that shall not be so ready to begin them, and that shall carry them on as reasonably as possible, if they should be unavoidable. One great step towards the improvement of society houses would be gained, if they were separated from the public-houses at which their meetings are usually held; and perhaps strikes might be less frequent if a rule were made never to enter into one, unless a decided majority—say two-thirds,—of the whole trades, voted in favour of it; the votes to be taken by ballot.

You mentioned the workmen's Institute in the Buxton-road, as likely to meet your correspondent's views, but I am afraid that no institution with which the employers have any connection is likely just now to be very popular amongst us.

If any new societies were formed, I would propose that their business should be carried on at coffee-houses until the members could afford to hire premises of their own. As your correspondent says, they might be at present simply houses of call to inquire for work, and afterwards benefit societies. I should say let them begin with a very low subscription, so that as many as possible might join them, and then it would be a question for the members as to what improvement might be made in the shape of benefit societies, and, perhaps, reading-rooms, libraries, &c. If successful, they might also form a basis for co-operative building societies on the plan which has, I believe, been found to answer well in other trades in the manufacturing districts in the north of England. A fund might also be raised to assist those who wished to do so to emigrate. One penny a week from every building workman in London would take several hundreds out in the course of the year.

I merely wish to make these few suggestions for others to think about, and improve upon: if you should think them worth publishing, I should like to hear the opinions of other workmen on the same subject.

A BUILDING WORKMAN.

THE ARRANGEMENT OF STREET TELEGRAPHS.

PERMIT me to ask your practical readers whether we are so far behind our continental neighbours in the method of erecting street telegraphs, that it is necessary to disfigure the streets of London with a clumsy cable and tie-roads, in order to stretch two wires from house to house, when, in the Parisian capital, eight or ten wires are suspended at an enormous span, and without any unsightly apparatus?

It is an old saying that "they do these things better in France;" but it seems to me that we may here take another "Hint from Paris" by showing more regard to the picturesque aspect of our streets.

To artists and photographers these wires are already a source of perplexity; but, looking to the future, when every street, and almost every house will have its telegraph, shall we not have to look at the sky through the meshes of a vast iron network?

If it be easier to suspend a series of wires than two or three, then let us by all means have some limitation to the number of houses to which they are to be fixed, that they may cross the streets in a body, as over the *Tailleries*,—not one here, one there, according to each man's genius or caprice.

LEGION.

WAREHOUSE BUILDING.

PERMIT me to suggest, in addition to Mr. Hesketh's observations in the *Builder* of last week, that, between every two stacks of important warehouses hereafter to be erected, a thoroughly fire-proof construction should be built, some 15 feet or more in width: this I would build between party-walls, and arch over or groin the intermediate space to support paved floors, and suffer it to be used only as a warehouse of incombustible materials. The upper part might be formed into a large tank, constantly charged with water. Mains should be laid from this to each floor of the adjoining warehouses, with hose attached ready for immediate use; and I think that certain mains might be made self-acting by being plugged in convenient positions with some readily fusible material, or by some other ingenious contrivance.

Experience has shown that, where fires occur on a large scale, neither cast nor wrought iron constructions answer their intended purpose. If we want thoroughly fire-proof warehouses we must not admit in their construction either combustible or expensible materials, but we must build massively in brick, and resort to groins or vaults for bridging over our spaces; and although this mode of building might not be admissible for the whole of large stacks of warehouses, it could be usefully applied in part, and in the way I have indicated; and oppose a bar to the devouring element which it would be impossible to pass.

CHARLES HENMAN.

I VENTURE to suggest, for the consideration of practical men, that the first and most important point in the construction of a warehouse is the complete isolation of every floor in it, which I believe might be effected in the following manner,—namely, by placing the staircases outside of the building instead of within it, and either in the principal front, or elsewhere, as circumstances might determine.* This plan of removing the staircase from the interior would increase the space for storage, and also do away with projections or breaks upon a floor, which are sometimes a hindrance in the piling of goods: the space thus gained would be nearly equivalent to that taken up on the site in front of the warehouse. Suppose a pile of warehouses to have a frontage of 40 feet by 60 feet in height; and, in the centre of each front of a series of such piles, a loophole, on each side of which there would be a wall projecting so far beyond it as to enclose a well-way 7 feet by 7 feet—the wall opposite each loophole having an opening in it the same size as the loophole, for the purpose of giving light and also equalizing the temperature of the air inside and out the well-way. Between these projecting well-ways—which may be called piers—the stairs might be placed, communicating with a landing or gallery upon the level of each floor: these galleries might be carried across the well-ways close to the side of the loophole, leaving a space of four or five feet for the passing of goods upwards to the different floors.

The construction of staircases and galleries outside of a warehouse would have the further advantage of affording facilities for extinguishing fires when breaking out in a particular floor, by giving the readiest access to taps attached to pipes communicating with tanks overhead, and also with a three-inch pipe hung under the joists of every floor. These pipes would have sills in their whole length (that of the room they were in), the aggregate sectional of which should be equal to that of the three-inch pipe, which should be of wrought-iron. In case of fire, the water, when turned on, would be dispersed amongst the goods on each side: there might also be a hose just outside the door, coiled up, and ready to be used at a moment's notice.

H. LIDDELL.

FOUL WEED IN CISTERNS.

IF "Paterfamilias" will put a temporary tightly-fitted deal division across his slate cistern in such a way that the water shall come into one compartment, and the pipe from the cistern to his water-closet shall be in the other; and if he will bend down the ball (as he will find he can manage) so that the water in the first part shall flow over the division into the second, and the ball shut off the supply before the two come on a level, he will discover that the W.C. half gets foul, and the company's half keeps clean. And if he will watch the surface of the water while some one draws up the handle of the closet, he will see bubbles of air arise such as his reasoning may lead him to believe always arise through the service pipe from the

* Although often before suggested, the repetition of the advice may be useful.—Ed.

closet pan whenever the place is used. As vegetation cannot live without organic matter, he may perceive the origin of the loushome weed in the cistern (I know it well, and have cleaned it out many a time before I found the cause and a remedy); and he may even think it probable that the use of such water for drinking purposes accounts, partially at least, for the spread of influenza, sore throat, &c., through a family (it is horrible to think of the use of sink and closet at the same time, but it is the fact in thousands of houses as now built); and perhaps, too, for some of the low states of health so characteristic of the present time.

If "Paterfamilias" and his friends be sensible men, and believe their own eyes, and do not like such gasogene for their children, they will have the divisions made permanent, by slate cemented in a slate cistern, or by deal covered with lead in a leaden one (the weed will grow in either alike if connected with a closet, but not else), and taking care that it be kept down an inch or two from the top of the cistern, and a little higher than the top of the waste-pipe, which must be in the closet half. The service to the sink for household use must, of course, be connected with the clean half, in which I promise no weed will grow. There may be also a small waste-pipe for cleaning out. A cover over an out-door cistern will greatly check its growth in the other. Who does not know the slimy look of the cisterns over closets seen from railway viaducts?

I can promise, also, that the expense of the alteration—and even, if necessary, of an extra small cistern,—will be saved in one year in the doctor's bill. I would dwell little on the usual pleasant communication between the closet, cistern, and the boiler of the kitchen range. I have two cisterns in my own house, so altered at a trifling cost. The ball-cocks work perfectly well in shutting off the water just below the edge of the division. The water drawn from the separated compartment is as bright as spring water.

You, sir, who have done so much for the sanitary condition of the poor, will know too well what I mean by alluding to the one water-butt, and the one place of convenience in a crowded court, and will not lightly smile at the suggestion of the consequences when an epidemic comes.

J. J. C.

GREEN SLATE CISTERNS.

I AM only anxious to assist your correspondent and such of your readers as are in a similar predicament, and I have no doubt they are very numerous with a very humble opinion.

I think he is mistaken in attributing the impurity of his cistern to the nature of the material. It is composed, although green slate being slightly more porous than the blue-black may be a degree more likely to increase the evil. In his case I believe it to be mainly attributable to the nature itself, in connection with the combined action of the sun's rays and the atmosphere upon it. It too frequently happens that cisterns are placed close under a slated or leaded roof, or a cover of a single deal board; and we are all familiar with the effect of the sun in such cases at this time of the year. The temperature of the water within is raised considerably, varying with its depth, the upper stratum, of course, being the warmest, and the bottom the coolest. Now, as the water is drawn for use, the upper stratum, as it recedes, leaves a film of impurity on the sides, which almost imperceptibly increases, day by day, producing and encouraging the growth of vegetable matter. Then, when the daily supply from the main enters, it does so, probably, in a dribbling stream; and, being specifically heavier than the stale warm water within, falls directly to the bottom, and there remains; causing as little disturbance to the latter as possible, but gently raising the same upper stratum to the top. This process continuing, vegetation will establish itself, and become more or less prolific, according to circumstances. The only available remedy for the evil in old cisterns that suggests itself is to cover the top and sides with some non-conducting material, and to keep the interior as nearly air-tight as possible.

In new houses the water should be stored in an underground tank.

WM. WILDS.

WHO IS "OWNER" UNDER METROPOLITAN BUILDING ACT.

MOURILLYAN and Another, Apprs, LABALMONDIERE, Resp.—Jan. 16.—Court of Queen's Bench. Metropolitan Building Act, 1855, secs. 3 and 78.—Dangerous Structure—"Owner"—Commissioners. By sect. 73 of the Metropolitan Building Act, 1855 (18 & 19 Vict., c. 124), if the owner or occupier of a dangerous structure fails to comply with the order of a justice for taking down, repairing, or otherwise securing the same, the commissioners may do what is necessary, and all expenses incurred by them shall be paid by the owner. By section 78, the term "owner" shall apply to every person in possession or receipt either of the whole or of any part of the rents or profits of any land or tenement, or in the occupation of such land or tenement other than as a tenant from year to year, or for any less term, or as a tenant at will. The applicants, being seized in fee of a building used as a chapel, leased it for twenty years to J. N., who was then in possession of it:—Held, that J. N. was the "owner" within the meaning of the Act, and therefore an order upon the applicants for expenses incurred by the commissioners, under sect. 73, was bad. Semble, an order can only be made upon the last statutable owner.

The case is fully reported in the *Jurist* of June 29, 1861. We need merely give the opinion of Chief Justice Cockburn:—I am of opinion that the order is wrong, and cannot be upheld, on the ground that the appellants were not owners of the chapel within the statute, and therefore are not liable for the expense. The whole matter turns upon sects 72 and 73 of stat. 18 & 19 Vict., c. 122. Sect. 72 provides, that when any building is in a dangerous state, and a certificate to that effect has been given by a surveyor, the Commissioners of Police of the metropolis shall cause the same to be shored up, or otherwise secured, and shall cause a notice in writing to be given "to the owner or occupier of such structure;" and by sect. 73, "if the owner or occupier to whom notice is given" fails to comply with the requisition thereof, the commissioners may make complaint before a Justice of the peace, who may "order the owner, and on his default the occupier, of any such structure" to comply with the requisition of the notice; and, in default of obedience to the order, the commissioners may do what is necessary; and all expenses incurred by them shall be paid by the owner. The question is, what is the meaning of the term "owner" in the 72nd and 73rd sections? It is plain that by them the owner is made primarily liable, as distinguished from the occupier. If there is an owner, it is only on his default that the occupier can be called upon to do what is necessary, and to pay the expenses incurred by the commissioners. In this case the appellants are lessors of a person of the name of Neill for twenty-one years, and Neill takes as lessee for twenty-one years. Therefore the ground upon which the appellants must rest—and I think it is well founded—is, that Neill is the owner of the chapel, and not the appellants; and that is founded on the interpretation clause (sect. 3), which provides that the term "owner" shall mean the person who is the owner, either of the whole or of any part of the rents or profits of any land or tenement, or in the occupation of such land or tenement other than as a tenant from year to year, or for any less term, or as a lessee for life. It is plain that Neill is the lessee of such tenement "other than as a tenant from year to year." Then he is, within the meaning of the statute, "owner." It is said that he is not, because he is not in possession. If that was established, it may be that he would not be within that part of the interpretation clause. But, from the facts stated in the case, it appears that, the appellants having made a lease to him, he took possession, and there is nothing to show that he is not in occupation now. The case only states that he was not actually found on the premises. But, looking to the character of the premises, that they were used on Sundays when divine service was celebrated, and on other days were shut up; there is nothing to show that the lessee was not in occupation; the term "occupier" being understood with reference to the nature of the subject matter. Therefore he is "owner" for sect. 3, with a greater interest than a tenant from year to year; and the order would be good if made against him, and I think it ought to have been made on him. It is not necessary to decide whether an order could be made on any other than the lessor in possession. By sect. 72, upon a notice being given that the structure is in a dangerous state, the owner is to do what is necessary. How does that apply to a person who has no right to go upon the premises, but that it is not necessary to decide that question. This order is made on persons not primarily liable; and, therefore, is bad.

COMPENSATION CASE.

ISLE OF WIGHT.

THE War Department, having decided to erect three forts on the coast, in the parish of Freshwater, at the western extremity of the Isle of Wight, caused notices, under the Act 23 & 24 Vict. cap. 112, to be served upon Mr. G. H. Ward, the owner of the property, to obtain the sites.

At Warren Lodge, 564 acres are required; at Headon Point, 14 acres; and at the Needles Point, 9 acres.

For the 564 acres at Warren Lodge, the sum of 3,500l. has been agreed to be paid, thus valued:—

564 acres of land, at 40l.	£2,256 0 0
Add 50 per cent. for severance and contingent building value.....	1,130 0 0
10 per cent. compulsory sale	834 0 0
Say, 3,500l.	£3,739 0 0

For the 9 acres required at the Needles Point no arrangement could be made; and a special jury was summoned for Friday, June 29, to meet at Yarmouth, when a verdict was given for 1,000l.—being 150l. for the 9 acres of land taken, and 850l. for severance and damage to the rest of the estate, by the intrusion of another owner. The War Department offered 155l. for the land, but objected to any allowance for damage.

For the claimant, Mr. Driver, Mr. Charles Lee, and Mr. P. J. Clark, all of London, gave evidence: Mr. John Clutton, Mr. D. Norton, Mr. H. A. Hunt, all of London, and Mr. Owen, of Portsmouth, on behalf of the War Department; but they were not called by Mr. Overend, who attended for the Solicitor-General. Mr. Horatio Lloyd appeared as counsel for the claimant.

The agreement has as yet been made for the land at Headon Point.

Books Received.

Church and Conventual Arrangement. Illustrated. By MACKENZIE E. C. WALCOTT, M.A., &c. London: Atchley & Co., Architectural and Engineering Publishers, Great Russell-street.

WITH the Rev. Mackenzie Walcott's excellent papers on Church and Conventual Arrangement, read at the Institute of Architects, the readers of the *Builder* are already familiar. These articles have been extended, commented on and authenticated by numerous notes and references; and illustrated by a series of engraved plans and plates of the arrangements of churches in different countries and at successive periods, and of the conventual plans adopted by the various orders, and by a copious glossary of the more difficult words which occur in Anglo-Saxon

and Medieval charters and chronicles. The text is made easily accessible for reference by means of a good index; and the whole work forms a complete and most useful and valuable compendium of information on the subject of church and conventual arrangement. The volume is appropriately inscribed to the President and Council of the Royal Institute of British Architects.

The First Ten of a Series of Original Plans issued by the Cottage Improvement Society. 21, Bedford-row, Gray's Inn, London. 1861.

ALL who are interested in cottage building may invest half-a-crown with advantage in the purchase of this pamphlet. Besides plans for ten cottages, with estimated cost, a description and illustrations of Mr. Taylor's patent walls are given,—walls of concrete, with a facing of brick. Sections are wanted to make the plans generally available. Mr. R. P. Pope is the honorary architect of the Society; Mr. Charles Whitehead, of Maidstone, the honorary secretary.

VARIORUM.

"GOVERNMENT, Conduct, and Example. Three Lectures, addressed to Young Men. By William Dawbarn. Hall, Virtue, & Co., Paternoster-row." The subjects of these three lectures are each quite separate and distinct from the others. The first gives young men a pretty clear idea of what government and law are, from the rule of the sovereign down to the administration of the petty magistrate; and is illustrated from Blackstone and his Commentaries. The second relates to conduct in private, in business, and in public life. The third adduces examples of character, drawn from the life and writings of Sidney Smith. The matter forms an instructive and entertaining enough little volume.

Miscellaneous.

INCREASING THE STRENGTH OF WROUGHT IRON AND STEEL.—Captain Blakely, R.A., of Holywood, county Down, Ireland, has patented an invention, which consists in bringing bars or hoops of steel or iron to a dull red heat, and in that state extending or pulling them out in the direction in which the increase of strength is required. He applies the pulling strain until they be cold, or nearly so. When cold, it is said they will be found to have increased in tensile strength. The extension may be effected in any ordinary way.

THE MONTGOMERY COUNTY SURVEYORSHIP.—Mr. Poundley has been appointed to this office at the recent sessions. A selection had been made from the candidates, the following gentlemen being considered the most eligible, namely,—Messrs. Poundley, Pickering, Parfitt, Edwards, Ritchie, and Slagg. Mr. Pickering and Mr. Parfitt were further selected by the chairman; who afterwards, however, proposed Mr. Poundley, as a resident in the county, and well acquainted with it. The appointment was unanimously agreed to.

PHOTOGRAPHY IN PARIS.—According to the recent Paris census, it appears there are rather more than 23,000 photographers in this city. Some of our contemporaries, in commenting on this, remark that one likeness-taker to every forty or fifty persons seems a large proportion, and shows that the people of Paris are particularly fond of seeing themselves reproduced upon canvas or paper. It does not follow, however, that the 23,000 photographers are all and always engaged in likeness-taking: far from it: photography is there followed as a branch of fine art; and for many beautiful photographs and stereographs, having nothing to do with the likenesses of the Parisians, we are indebted to the Paris photographers.

EXCURSION OF MASONS AND JOINERS.—The masons and joiners of Dundee, to the number of upwards of 150, have had an excursion trip to Edinburgh by special train. At Edinburgh they were received by a deputation of the Edinburgh masons. They were then conducted to the Masons' Hall, Lyon's Close, where addresses were delivered by Messrs. Colville and Herbert, two of the Edinburgh brethren, and suitable replies made by some of the excursionists. After this, they visited the different places of interest in the city, to all of which there was free admission. According to arrangement, in the Corn Exchange Hall, they were received by upwards of 800 masons and joiners belonging to Edinburgh and Leith, with their wives and sweethearts, and warmly welcomed. Arrangements had been made for their comfort and amusement.

ORNAMENTS FOR SNOVES.—A correspondent, "M." suggests that in lieu of the tasteless ornaments for grates in summer often used, a "chimney-board" should be constructed, having a sliding framework both before and behind. This is for the purpose of displaying pictures in oil or water-colours (the first preferable on account of durability, as well as displaying brighter effects). These are to be selected with a view to a suitable variety, consistent with the changes in the weather, so constantly occurring in England. Ventilation might be preserved by piercing the top of the chimney-board with several good-sized holes.

ACCIDENT.—A serious accident took place on Monday, opposite the Marble Arch. A house recently taken in by General Sir De Lacy Evans was undergoing repair; a scaffold, consisting of six stages, and 50 feet in height, having been erected in front of it. The old parapet had been removed, and a new and heavy cornice erected in its place. The materials consisted of brick, tiles, and cement. Whatever may have been the cause, shortly before eleven in the forenoon, the coping, without any preliminary warning, fell forward upon the scaffold, and carried all before it; the scaffold-poles snapping under the weight. A man named William Moore and his two sons were on it at the time, and were hurled down with its fragments. All the three sufferers are in a very precarious condition.

GAS.—The Swansea Gas Company have just reduced the price of gas from 5s. 10d. to 4s. per 1,000 cubic feet, compelled thereto by their Parliamentary Act.—The Workop Gas Company have declared a dividend of 8 per cent. upon the old, and 7 per cent. per share upon the new share capital of the company. The directors have, within the past four years, reduced the price of gas from 6s. 8d. to 5s. per 1,000 cubic feet. The capital of the company is 14,700l.—The Jeddburgh Gas Company recently declared a dividend of 7½ per cent. per annum; and the Jeddburgh Water Company a dividend of 10 per cent.—The Galashiels Gas Company have declared a dividend the same as last year, viz., 7½ per cent., which, it was stated, might have been more, had it not been for the expense of putting up a large new gasometer, and other works. They have also agreed to a reduction of the price of gas from 7s. 6d. to 6s. 5d. (1) per 1,000 feet.—The Kirkcaldy Cheap Gas Committee has reported that gas could be sold by a new company at 8s. 9d., provided there was a consumption of 15,000,000 cubic feet. They do not think that the present company could afford to sell below 4s. 6d. per 1,000 feet, seeing that they must have spent on their works something like 15,500l.—An improved apparatus for carburetting or naphthalizing gas has been invented by Mr. A. L. Leveque, of Paris. The working of the improved apparatus is based on the principle of keeping the carburetting or naphthalizing hydro-carbon liquid at a constant level in the apparatus.

NORWICH SCHOOL OF ART.—The annual distribution of prizes to the pupils at this institution took place at the school, the mayor presiding. The mayor, in taking the chair, said that as a man who could not play a single note of music derived, nevertheless, very sensible pleasure from musical sounds, so he who could not handle a pencil might yet have a most vivid impression of the beauty of forms, the splendour of colours, and the elegance of taste; and all could understand the value of an institution like this. In a material and utilitarian age, in which the steam-engine threatened to puff away all ideas of beauty, and science languished and was dumb in the presence of the *auri sacra fames*, these schools fostered and kept alive, or, to speak more correctly, enkindled in the mind of youth a love of art,—drew forth, as it were, the latent spark,—fanning it into a gentle flame, refining the mind and improving the morals by drawing them from sordid pursuits. Their influence on manufactures was, he believed, so beneficial, that our manufacturers might reasonably hope to rival, if not excel, the foreigners in gracefulness of design; and, no doubt, there were some among the pupils who had souls above patterns, and who might become the founders of a school of English Raffaels, Vandykes, and Claudes. The mayor then distributed the prizes. It was afterwards stated that the number of pupils in the central school during the last year had been upwards of 240, including twenty-eight schoolmasters and mistresses from the National and other charitable schools. The number of children, in the out-door schools, who were receiving instructions in drawing through the agency of the central school, during the past year, was 1,088.

PRESIDENT OF THE ROYAL SOCIETY.—We understand that the council intend to propose Col. Sabine to fill the office of president at the ensuing election.

THE GREAT EXHIBITION BUILDING.—A Bill is in preparation, promoted by Government, for exempting the building for the Exhibition of 1862 from the operations of the Metropolitan Building Act.

MR. W. COOKE'S VENTILATOR.—We have already mentioned the arrangement patented by Mr. Cooke, C.E.,—the application of a piece of wire gauze to the upper part of the window-frame, so that, when the sash is drawn down, the gauze forms a narrow wire blind at the top. To further a knowledge of this, Mr. Pepper has been lecturing very efficiently at the Manchester-square Rooms, treating of the science of ventilation generally.

FIREPROOF TIMBER.—Messrs. Jesse Rust & Co., of the Lambeth Glass Works, suggest the use of soluble silicate, or water-glass, for saturating wood in and about buildings required to be fireproof. This has been suggested before in the *Builder*; but, if we mistake not, it was not found to answer. Our present correspondents state, however, that they "find that the lightest and most inflammable wood will not blaze when saturated with the glass solution, the cost of which is very trifling." The lightest wood is the most porous and may be readily saturated; but it may probably be difficult to do so with woods of a less porous nature. In this case, however, the saturation might perhaps be effectible in a vacuum.

FALL IN OF A RAILWAY TUNNEL NEAR HADDON HALL.—An accident occurred on Tuesday evening before last, on a new line of railway which is being formed between the Rowsley terminus of the Manchester, Buxton, Matlock, and Midland Junction Railway, and the watering town of Buxton, by which five men and a horse were killed, and several others received serious injuries. A tunnel is being formed about 200 yards beyond the ancient Hall of Haddon, in Derbyshire; and between three and four o'clock on the Tuesday afternoon about seventeen men were at work in it, when the centres upon which the stone arch had been formed gave way, causing the massive stonework to fall down into the tunnel, and burying under it several of the workmen.

THE LABOUR QUESTION.—Two meetings of building-operators have been held with the view of passing resolutions in opposition to the system of paying by the hour. We have every reason, however, to believe that the system is working very well in those yards where it has been adopted, and that more men apply for work than can be employed. We have received a letter signed "Thomas Connelly, secretary, on behalf of the Masons' Committee," reiterating their offer to leave the question in dispute to a committee of arbitration, to be selected by the council of the Institute of Architects. The letter asserts that if the masters persevere, the best men will leave London. If they are wise they will stop where they are, and, with good wages, apply themselves to their own advancement in the social scale.

APPOINTMENT OF A HEALTH COMMITTEE FOR NEWCASTLE.—At a recent meeting of the Newcastle town council, Alderman Bell moved, "That a public health committee be appointed to inquire into any circumstances affecting the sanitary condition of the town, and report thereon to the council." Dr. Robinson seconded the motion, and said that on more than one occasion he had tried in vain to bring the council to consider this matter. Whilst asserting, then, that Newcastle was not worse, in a sanitary point of view, than Edinburgh, Glasgow, and other large towns, he begged to deny all participation in the publication which had emanated from the officers of this corporation in reply to the strictures of the *Builder*. It was a most injudicious reply, and not calculated to throw any honour upon the town. Mr. Hamond supported the motion. He knew of owners of vast quantities of cottage property who cared only for one thing—to get the rents,—and nothing for the well-being of their tenants; whilst, in justice to others, he must say that they used every exertion to make their tenants comfortable. He also condemned the reply of Messrs. Bryson and Davison to the *Builder*. Mr. Harding supported the motion, and Alderman Hodgson deprecated it, because it was like endorsing what the *Builder* had said of Newcastle, which he asserted was utterly false. On being put on the chair, the resolution was carried *nem. con.*; and the following gentlemen were appointed a committee to carry out the object in view:—Dr. Hearn, Mr. Oliver, Dr. Robinson, Messrs. Newton, H. L. Patkinson, Bradley, and I. L. Bell.

THAMES EMBANKMENT.—Sir: It was Mr. Alfred Ainger, architect, who first proposed the intercepting sewer within a terrace embankment of the Thames; which design was afterwards enlarged, pictorially, by Mr. John Martin—C.

THE WINNER OF THE QUEEN'S PRIZE (FOR SHOOTING) AT WIMBLEDON.—The South Middlesex Volunteers have furnished the winner of Her Majesty's prize, given through the National Rifle Association. Sergeant Jopling, the victor in question, is known to some of our readers as Mr. Joseph Jopling, of the New Water Colour Society. In the present exhibition of that society he has some very clever drawings.

INAUGURATION OF PAYMENT BY THE HOUR AND THE SATURDAY HALF-HOLIDAY.—On Saturday last Mr. William Higgs, of Lambeth, invited the whole of the workmen in his employ to his grounds at Stockwell, and provided them with refreshments. About 250 availed themselves of his kindness, and thoroughly enjoyed themselves with cricket, foot-ball, leapfrog, boating, &c. They left at dusk after drinking his health, with three cheers for the half-holiday.

FIREPROOF BUILDINGS.—A subscriber writes,—On reading the just observations of the late lamented Mr. Braidwood against the use of cast-iron in the construction of warehouses, what objection could there be in forming the staunches of plate-iron, strongly riveted together, and strengthened in parts by flanges formed of the same material? And the girders might be formed in a similar manner. These becoming red hot by a fire, water, coming in contact with them, would have no effect on the wrought-iron plates, and might prevent many a fatal accident.

THE INTELLECT AND VALUOR OF ENGLAND.—Under this title Mr. Thomas Jones Barker has painted a *conversazione*, introducing "Lord Dundonald offering his invention for the Destruction of Cronstadt;" "Sir William Armstrong explaining the Construction of his Cannon;" "Mr. Cobden proposing to Lord Palmerston and the Chancellor of the Exchequer to arrange a Treaty of Commerce with France;" and "Sir David Brewster showing his improvement of the Stereoscope." Besides the individuals named, it includes portraits more or less good of Disraeli, Faraday, Murellson, Dickens, and others. The composition is cleverly managed.

THE NAIL AND NEEDLE TRADE AT BROMSGROVE.—Dr. Greenhow, appointed by the Home Office to report on the state of mortality in England arising from diseases of the lungs, reports that of the adult male population of Bromsgrove 22.6 per cent. were employed, in 1851, in the manufacture of nails, and 7.4 per cent. in that of needles. Of the adult females 14.2 per cent. were engaged in nail-making, and 7.2 per cent. in needle-making. Young persons of both sexes are also largely employed. Dr. Greenhow thinks there is little doubt that the prevalence of pulmonary diseases here is chiefly attributable to circumstances connected with the staple occupation of the inhabitants. That the high rate of mortality from these diseases in Tardebigg is due to the employment of the inhabitants in needle-making he assumes from the fact that whilst, out of 109 deaths of men over twenty years of age from pulmonary diseases in Bromsgrove and Bell-broughton, only twenty-three were those of nail-makers; thirty-five out of seventy-four deaths of men of the same age from pulmonary diseases in Tardebigg were those of needle-makers.

TENDERS

For the erection and completion of two detached houses and stables, for the Bedford Freehold Building Company. Mr. John Usher, architect:—

Reynolds & Son	£3,276 0 6
Carvin	3,276 15 6
Day & Son	3,050 9 0
Conquest	2,998 0 0

For alterations and repairs at Holy Trinity Church, Little Queen-street. Mr. W. F. Meakin, architect. Quantities supplied by Messrs. Hovenden & Heath:—

Piper	£1,186 0 0
Davis	1,104 0 0
Westacott	1,055 0 0
Conder	1,015 0 0
Colls	988 0 0
Jones	948 0 0

For rebuilding premises in London-street, and dwelling-house in Castle-meadow, Norwich, the property of Mrs. Riches. Mr. Barry, architect:—

Bails & Brooks	£1,830 0 0
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For the completion of seven houses, at Hackney:—

Willis	£1,343 0 0
Toill	1,350 0 0
Toley (accepted)	1,187 0 0

[Other tenders were received, but, being for portions only of the work, will not be published.]

For additions and alterations at 110 and 111, Tottenham-court-road, for Mr. Allison. Mr. Thomas Burton, architect:—

Sargeant	£375 0 0
Stimpson	367 0 0
Downs	340 0 0
Ashby & Sons	340 0 0
Bostell	340 0 0
Brass & Sons	325 0 0

For preliminary earthworks and boundary-walls, enclosing the site of a house for Mr. G. Gibbs, St. Leonards. Mr. E. C. Robins, architect:—

Hughes	£267 17 0
Kenwood (accepted)	254 0 0

For a pair of villas, at Shooter's-hill. Mr. Padmore, architect:—

Rudkin	£1,850 0 0
Vaughan	1,540 0 0
Tongue	1,312 0 0

For building a police-station, with stables, &c., at Chesham, for the Bucks constabulary. Mr. Wilkinson architect:—

Corder	£1,344 0 0
Fas-nidge	1,487 0 0
Cooper	1,395 0 0
Harris (accepted)	1,392 0 0

Accepted for the erection of a villa residence, at Berton, for Mr. R. Kilburn. Mr. William Hill, architect:—

Hardwick bricklayer	£330 0 0
Pineau (carpenter and joiner)	350 14 0
Wilson (plumber and glazier)	90 0 0
Randles (plasterer)	79 10 0
Lawson (slater)	55 0 0
Nelson (painter)	16 15 0
Singleton & Tennant (carpenter)	27 0 0

For the erection of Suffolk Lodge, Isleworth, Middlesex, for Mr. Joseph Last. Mr. William Roe, architect:—

Eyles	£1,484 0 0
Burchett	1,526 0 0
Chamberlain (accepted)	1,488 0 0

For the alteration and enlargement of the Manchester School for the Deaf and Dumb; to gain increased dormitory space, and more efficient ventilation. Mr. James Redford, architect. With an allowance for old materials:—

Bowden, Edwards, & Foster	£1,209 0 0
Neill	1,140 0 0
Cochrane & Co.	1,115 0 0
Southern (accepted)	1,089 0 0

For the erection of a workhouse, for the Stepney Union, at Bromley, Middlesex. Mr. Henry Jarvis, architect:—

Hardiman & Sandon	£3,077 0 0
Myers	31,440 0 0
Downs	29,970 0 0
Emery	29,957 0 0
Watts	29,973 0 0
Wilkins & Bottom	29,430 0 0
Blackburn	29,860 0 0
Watts	29,220 0 0
Hacks & Son	29,471 0 0
Rowe	29,033 0 0
Stap	28,062 0 0
Hill & Robinson	28,345 0 0
Wood	28,009 0 0
Sawyer	27,963 0 0
Palmer	27,548 0 0
Willson	27,320 0 0
Hart	26,859 0 0

For works in additional floor to school, St. Paul's Church, Bethnal-green. Mr. Benjamin White, architect. Quantities supplied:—

	Without Party-walls.	With Party-walls.
Hill, Keddie, & Robinson	£379 0 0	
Wood, Brothers	367 0 0	
Rivett	366 0 0	
Wilson	348 10 0	
Dudley	342 10 0	

For taking down a house in Newgate-street, City, and erecting a hotel, for Mr. C. Moullet. Mr. John M. Bryson, architect:—

	Without Party-walls.	With Party-walls.
Myers	£3,997 0 0	£4,320 0 0
Coleman & Son	3,647 0 0	4,027 0 0
Cowland	3,775 0 0	3,972 0 0
Pritchard & Sheldon	3,320 0 0	3,709 0 0
Corder	3,200 0 0	3,530 0 0

For the erection of Free Methodist Church, Upper Grange-road, Bermondsey. Messrs. Porters & Markham, architects. Quantities supplied:—

	Total.	Less, omitting Stone Staircases.
Hemmings	£2,861 0 0	£260 0 0
Wilson	2,486 0 0	55 0 0
Messrs. Coleman	2,420 0 0	58 0 0
Marland & Son	2,400 0 0	60 0 0
Mace	2,399 0 0	60 0 0
Sharphington & Cole	2,397 0 0	52 0 0
Wilkins & Bottom	2,390 0 0	60 0 0
Tolley	2,387 0 0	70 0 0
Wills	2,337 0 0	60 0 0
Hill, Keddie, & Robinson	2,289 0 0	60 0 0
Hart	2,289 0 0	58 0 0
Sawyer	2,050 0 0	55 0 0
Wells	1,999 0 0	52 0 0
Warne	1,989 0 0	55 0 0

TO CORRESPONDENTS.

S. B. G.—W. J. G.—W. P. G.—R. W. O.—Inquirer (the new rates under that name were not sent to the Editor).—R. G.—R. J. Thomas.—O. P.—W. F.—O. F.—S. D.—A. B. C.—Master Painter (we cannot go into the question, but have little doubt the oil was bad).—J. W.—J. R.—J. B.—R.—N. S. G. (apply to Mr. Wells, Holborn).—A. J. B.—G. P. (communication does not meet our views for publication).—R. S.—E. E. M.

Advertisements cannot be received for the current week's issue, later than FIVE o'clock, p.m. on Thursday.

The Builder.

VOL. XIX.—No. 963.

Construction of Barracks and Hospitals.



It is stated, on the best authority, that, since the various measures recommended by the Royal Sanitary Commission have been in operation, the health of the army has improved so greatly that the mortality has fallen to about *one-half of what it was before*. Can a stronger reproach be found for those who, whether through ignorance or other cause, allowed such a state of things to exist as we long ago exposed? Or is it necessary to give any additional reason why a knowledge of sanitary principles and construction should be combined with the other branches of the education of those who build our hospitals and barracks, and of those who have

charge of them? The present system of management is defective in the extreme: a new era in this has to be inaugurated; and we shall rejoice if the General Report of the Commission appointed for improving the sanitary condition of barracks and hospitals, recently published, and to which we have already alluded, lead immediately to the change. We reassert that, valuable and long as the report is, it contains very little that has not substantially been stated in these pages; but we know very well that under the signatures of a Government commission a more general reception of it will be accorded. We should be ungrateful, however, and at the same time unjust to ourselves, if we overlooked the fact that our observations have had a very wide spread influence, and have led to great improvement in the planning of hospitals.

The Report before us gives a large amount of interesting information on the construction and economy of barracks and army hospitals. It shows clearly why so many men used to go into hospital, and why so few comparatively came out of hospital,—alive. By the instructions given to the commissioners, they were requested, amongst other matters, "to allot the existing accommodation in all barracks and hospitals, so far as it may be practicable so to do, in such manner that not less than 600 cubic feet be provided for every man in barracks and guard-rooms, while at least 3 feet shall intervene between every two beds in the former; and that in hospitals a cubic space of at least 1,200 cubic feet be allowed for each bed, and at least 4 feet between the sides of the beds, and 12 feet from foot to foot when practicable."

The Report of the Royal Commission on the sanitary state of the army had shown that the army was subject to an excess of mortality over and above that prevailing among males in civil life. The annual deaths among all arms of the service on home stations were shown to be 17.5 per 1,000 per annum, as against 9.2 per 1,000, which represents the annual deaths among males of the same ages taken over the town and country population of England and Wales; while an analysis of the diseases which had led to this high rate of mortality demonstrated that the excess of deaths was due almost entirely to zymotic diseases, such as fevers, cholera, diarrhoea, and to chest and tubercular diseases, such as consump-

tion, &c. Seven-ninths of the entire mortality among the infantry of the line were found to have arisen from these two classes of diseases; and for each class the mortality among the infantry was shown to be more than double what it is among males of the same ages in civil life. Here, indeed, were reasons more than sufficient for further inquiry.

The total number of barracks, to which the inquiry of the new commission referred, amounts to 243, and of hospitals to 167, distributed throughout the United Kingdom in the following proportions:—

	Barracks.	Hospitals.
England.....	117	76
Scotland.....	20	15
Ireland.....	106	76

Of these the commissioners have personally examined and reported for improvement, up to the present time, 162 barracks and 114 hospitals. They have examined the camps at Shorncliffe and Colchester, and have also made a partial inspection of the camp at Aldershot, but have not yet reported on them in detail.

With reference to the instruction we have quoted, that they should see that 600 cubic feet were set apart for every man in barracks, they found that at present it would be impossible to carry out literally this instruction. They had no idea, until they examined the barrack-rooms personally, of the amount of overcrowding, beyond the requirement of 600 cubic feet per man, which existed. Formerly, it was even very much greater than it is at present. They give a table, showing the number of men in the rooms of all barracks they have inspected, for every 50 feet of space, from under 250 to above 600 cubic feet. Some of the deductions from this are remarkable. We find, for example, that there are 1,335 men, equal to one regiment and a half, living and sleeping in rooms with less than 250 cubic feet per man; that there are 15,195 men with less than 350 cubic feet per man of sleeping space; that 34,882 men have less than 400 cubic feet each; that 65,271 men have less than 500 cubic feet per man; and that out of the whole force for which there is accommodation in these permanent barracks, namely, 76,813, there are only 4,656 men with sleeping-room exceeding 550 cubic feet each. There are 2,003 men whose allowance of space exceeds 600 cubic feet; but this excess occurs either in a few rooms in cavalry barracks, where the stable area below the men's rooms is unusually large, or where the ceiling follows the line of the roof; or it occurs in infantry barrack rooms, where, from defective construction or position, it has not been considered advisable to allow a smaller space per man.

"In order to estimate," say the commissioners, "what is likely to be the effect of this great overcrowding on health, we must consider that these 76,813 men occupy, in rotation, barrack-rooms presenting these diversities in cubic contents; while, at the same time, we must bear in mind the very imperfect ventilation, or total want of ventilation in these rooms, which we shall presently show; those affording the smallest amount of space per man being generally the worst ventilated. We must, moreover, take into account the presence of uric-acids, bedding and clothing more or less imbued with animal exhalations, adding their quota of impurities to the already foul atmosphere, in which about a third part of the soldiers' time is passed; and that, too, during sleep, when the system is more peculiarly liable to the influence of impure air. Any person at all conversant with the effect of such conditions on health and life can arrive at no other conclusion than that the polluted atmosphere of overcrowded unventilated barrack-rooms has been, in times past, a potent cause of disease and mortality in the British army."

As 600 cubic feet per man must now be considered as the space to be allotted in all permanent barracks in temperate climates, it need hardly be stated that at this rate there is a very considerable deficiency in barrack accommodation. Indeed, it would be necessary to add about a third part to the permanent barrack buildings of the United Kingdom to enable 600 cubic feet per man to be given.

In an earlier volume we gave accounts of the condition of some of the metropolitan barracks, the Wellington, the Portman-street, and others, which are fully borne out by the Report. The commissioners, in dealing with

this question of ventilation and sufficiency of cubic space, do not overlook the difficulties that surround it in respect of warming. A soldier, as well as any one else, dislikes to have twice the quantity of air blowing on him in a crowded room that he would have if the inmates of the room were reduced to one-half; and the remedy he usually adopts is that of closing all the ventilating openings within his reach.

"The only safe principle in dealing with the subject is to leave a large margin for these contingencies; and the question really is, not whether 600 cubic feet per man be too much, but whether 600 cubic feet per man be enough for all the purposes of ventilation, warming, and comfort. This is denied by very competent authorities, both here and abroad. Certain good authorities fix the minimum of space required for health in sleeping-rooms at from 1,400 to 1,600 cubic feet for each inmate; and that upon the principle that it is practically impossible to ventilate, with due economy of warmth, a smaller amount of space in a sleeping-room, occupied by a number of persons, sufficiently to keep the air in the requisite state of purity for recruiting the body exhausted by the fatigues of the preceding day. Sleep is a reparative process, requiring certain conditions to its fulfilment, one of the most important of which is pure, dry air; and not until the size of the room, and the means of ventilation applicable to it, admit of these indispensable conditions being realized, can the health of the inmates be considered safe."

They arrive at the opinion, that the air in barrack rooms can be kept sufficiently pure with about 600 cubic feet per man, provided the local position of the barrack be open and airy, the structure of the buildings simple, and admitting of free external and internal movement of the atmosphere; and provided the barrack-rooms, as well as all other internal parts of the buildings, are duly ventilated.

With this space they consider every man should have 1,200 cubic feet of fresh air supplied to him per hour. They recommend a ventilating shaft for each room.

In rooms on the top floor of a barrack, shafts with a sectional area of one inch to every 50 cubic feet of room space; for the floors next below the upper floor, a sectional area of one inch to 55 cubic feet of room space; and where the barrack consists of three floors, they have required for the lower floors a sectional area of one inch to 60 cubic feet of room space.

To admit the fresh air they recommend iron or perforated air bricks of different sectional areas, according to the number of men the room was intended to contain, placed close to the ceiling. "We have allowed one square inch for every 60 cubic feet of contents of the room as the area for each room; but we consider one square inch to every 120 cubic feet of contents of the room sufficient if warm air be admitted round the fire-grate."

In barrack-rooms of an ordinary size we have generally recommended two inlets, one on each of the opposite sides of the room, but not opposite each other, or in back-to-back rooms, both on the same side. In larger rooms we have increased the number of inlets.

In order to prevent draughts as far as practicable, as well as to limit the number of places in which the wall has to be cut away, we have covered these inlets by a wooden cornice several times their length, sloping upwards to the ceiling, at an angle of 45°. The upper side of the cornice is formed of perforated zinc, with holes of one-eighth to one-sixth of an inch in diameter. The front of the cornice opposite the inlet is of wood, to break still further the force of the current. The area of perforated zinc through which the air passes into the room is from six to eight times the area of the inlet from the outer air."

As we cannot go into details, we must content ourselves with saying that the sanitary improvements they have recommended for existing barracks may be arranged under the following heads:—

1. Diminution of overcrowding.
2. Improvements in ventilation, warming, and lighting.
3. Improvements in water supply, drainage, latrines, urinals, and cleansing.
4. Improvements in ablution and bath rooms.
5. Improvements in cook-houses; and
6. Improvements in washhouses.

When they come to speak of hospital construction, they adopt at once the Pavilion plan, and enforce the principle, as all-important, of having windows on both sides of each ward. Strong as the reasons are for allotting a certain amount of space in barrack-rooms, the necessity is greater as regards hospital wards; for whereas in barrack-rooms healthy men have to sleep in a comparatively confined space for eight hours out of the twenty-four, the remaining sixteen hours being spent on duty, or more or less in the open air; the inmates of hospitals are sick men in all stages of disease, confined to bed; and, at all events, very much confined to the same ward during the whole period of their stay in hospital. However crowded a barrack may be, it is occupied by healthy men for only a third part of the twenty-four hours; but, however crowded a hospital ward may be, it is occupied more or less by sick men according to the severity of their diseases during every hour both by day and night.

"A healthy soldier, even if he be half poisoned by the foul air of an overcrowded barrack-room at night, has the opportunity of throwing off its effects during the day; but the sick soldier in hospital has no such opportunity. On the contrary, the effect in his case is cumulative. If hospital wards are not in a good sanitary condition, the most favourable result which can be expected for the sick is tardy convalescence; but the history of military hospitals, especially during war, has shown that the foul air of overcrowded hospital wards exerts, perhaps, the most powerful of all influences on the efficiency and mortality of an army in the field."

Out of the entire number of 7,167 beds noted by them, only 264 have anything like a sufficient extent of space, and very few of these beds are in the ordinary wards. They are, with a few exceptions, placed in what are called the small wards, which usually contain one, or at most two, sick each. All the rest are more or less overcrowded; indeed, the overcrowding for half the whole number of beds is excessive.

Considering various elements in the question, and also the actual state of the atmosphere in wards presenting the highest amounts of cubic space per bed, they arrived at the opinion that the proposal of the Royal Commission on the sanitary state of the army, which has been recently made matter of regulation, that 1,200 cubic feet per bed should be given in all hospitals in temperate climates, and 1,500 cubic feet in warm climates, is sufficiently high unit of space at all ordinary times, provided always that the buildings be properly ventilated and warmed.

It is a matter of considerable importance, of course, how the space should be disposed of; whether the wards should be high, or long, or broad.

A large cubic space, if the wards be made very high, for example, may involve overcrowding of sick on the ward floor. Overcrowding in cubic space would be removed, and surface overcrowding substituted for it.

They propose to make the breadth of the ward the foundation of ward construction, because a certain breadth of ward is essential for the ordinary working of the hospital. There must be space along the centre for tables, or other conveniences, and also for improved fire-grates, which, under certain circumstances may be introduced with advantage in the centre of long wards; while, at the same time, the breadth of the ward should not exceed a certain number of feet, otherwise ventilation by opposite windows, which should always be resorted to when the weather and season admit of it, cannot be efficiently maintained.

"Keeping these principles in view, if we take the opposite beds at 6 feet 6 inches each in length (13 feet), we may allow 11 feet from foot to foot of the opposite beds, and the ward will be 24 feet broad. One of the dimensions of the 1,200 cubic feet allowed to each bed will thus be $\frac{2}{3}$ = 12 feet. If we allow 7 feet 3 inches for each bed in the length way of the ward, we shall have 12×7 feet 3 inches = 84 square feet as the superficial area for each bed, and 14 feet for the height of the ward.

The unit of cubic space per bed will thus be 12×7 feet 3 inches \times 14 = 1,218 cubic feet. It would, nevertheless, be advantageous to add a foot or two in width to the ward, in order to give more space for tables, &c.

Each bed is 3 feet wide, so that these dimensions would give a distance of 4 feet 3 inches from side to side of adjoining beds, if the beds were equally distributed along the wall.

The length of any ward can easily be obtained by as-

suming 24 feet as the width, and 14 feet as the height, and then, by multiplying half the number of beds required by 7 feet 3 inches, we obtain the length of the ward in feet. Thus, suppose a ward is required for 20 beds, then $\frac{20}{2} \times 7$ feet 3 inches = 72 feet 6 inches, the length required."

The beds should always be arranged foot to foot on opposite sides of the wards, with their heads to the walls. The number of beds to be placed in a ward should be divisible by four, in order to prevent loss of corner space.

The number of windows should be equal to half the number of beds.

A ward with twenty beds ought to have ten windows, five on each side.

"The distance between the end wall of the ward and the first window from each corner should be 4 feet 6 inches. The wall space between every two windows should be 9 feet wide, and the splay of the window into the room should be 5 feet 6 inches wide."

The windows should extend from within 2 feet 6 inches or 3 feet from the floor to within 1 foot of the ceiling. In a ward 14 feet high the window would be from 10 feet to 10 feet 6 inches high.

"The unit of space, namely, 1,200 cubic feet per bed, if rigidly adhered to, would necessarily put a limit to the size of wards, because the length would become too great for the height and breadth, and the ward would assume the appearance of a long passage or corridor. Even with twenty beds per ward, 14 feet is a minimum of height. If the number of beds were increased to twenty-four, twenty-eight, or thirty-two, additional height and greater width would have to be given, and consequently more space per bed."

Direct communication with the outer air on two opposite sides, by a double line of windows, is a fundamental principle in ward construction, without the embodiment of which, hospitals, so far as concerns recovery of the sick, will never fulfil their object perfectly.

Whenever a hospital is built this cardinal principle must never be lost sight of.

The pavilions should be always arranged in such a manner that the sunlight can fall freely on as large an extent of their surface as possible; and all the surfaces should be freely exposed to the movements of the outer atmosphere. These two requirements prohibit all closed courts, deep closed angles, high adjacent walls, or overshadowing higher ground near at hand, or trees, as being incompatible with healthy hospital construction. The requirement as to sunlight precludes the construction of wards with only a northern exposure, and renders it advisable, as far as practicable, to place the axis of the ward in or near the line of the meridian. We have already given several good block plans of general hospitals embodying these principles, more or less perfectly.

We cannot now afford more space to the Report, further than to note that the commissioners rightly pay a passing tribute to Miss Nightingale, to whose unceasing efforts for the improvement of barracks and hospitals so much is owing. We earnestly commend the consideration of the Report not merely to architects and those who are likely to be interested in the erection of new buildings, but to all who are concerned in the administration of existing hospitals throughout the kingdom, many of which are murderous dens,—a disgrace rather than an honour to the country.

ON OLD AND NEW STAINED GLASS.

At a recent meeting of the Northampton Architectural Society, the Rev. G. Ayliffe Poole, M.A., after describing the stained glass in Lovick Church, made some observations on stained glass generally, which may be usefully printed.

"New lamps for old," said Mr. Poole, was the cry that ran through the streets of Balaora; and the pedlar held up as he spoke his bran new wares, glittering in the morning sun. All the careful housewives of the unsuspicious city brought out their old lamps, dingy with the wear of years, and reeking with last night's vigil, and went back rejoicing.

I hope every schoolboy knows the story as well as I once did, and can sympathise with the distress of poor Aladdin when his mother claimed credit for her shrewd bargain. Alas! the magic is gone! The new lamp may burn as brightly as the old one, but it will shine only on the scanty furniture of his home! No more visions of rubies, and sapphires, and emeralds, orient pearls, and opal for the bereaved Aladdin!

The story has many parallels. I am just now concerned with one of them.

"New glass for old!" was long the cry of church restorers, not especially committed to any theoretic views of the magic of the past. "New glass for old!" and presently the old, half-opaque with original colour and enamel, and dingy and more dingy with the dust and decay of many generations, rattled upon the floors of our churches, and new was set in nice squares in its place. The old women were happy, and cried "How clean and nice!" The plumbers and glaziers, too, were happy, for they were well paid for the job. We must, however, do them justice. They were no conjurers; they were not magicians in disguise. They honestly thought the new better than the old. "What is the use of windows if you can't see through them?"

So Aladdin's mother, good old creature, simple and unsophisticated, was charmed with her bargain. But at last (it was, indeed, a long time first, but at last) regret for the old, however preposterous it might appear, revived. Aladdin returned, and great was his dismay. He inquired for the old glass: it was gone, irretrievably gone. He stormed, he raved, he tore his hair, but this by no means alleviated his misery. He rubbed and rubbed the new windows with all his might, but no magic could he get into them, no magic could he get out of them, no magic could he get through them. "What should he do? His device seemed ingenious, and cost him no little pains and labour. He set to work to imitate the old. But, alas! it was all in vain. The old women, indeed, were again charmed. Here were windows much gaye than the old, and nearly as transparent as the new. But Aladdin, who had tasted the conditions of a charmed life, still missed the magic and was disconsolate. In his despair he even tried to cajole the spirits of the old talisman by imitating its dim and sooty aspect. He smeared his new glass with lamp-black and oil. He copied, with Chinese exactness, the cracks and seams, and holes and bulges of a ruder make, and of time and accident. But no; the geni were not to be taken in; the magic was gone for ever. And, to add to his misfortune, the old women, and the young ones, too, for that matter (and this time they were right) refused all admiration of his gratuitous and pedantic archaisms.

I forget how Aladdin did at last success in recovering the magic lamp, and I will not take down the book lest I should be tempted to draw out the parallel to an absurd length. I will indicate, however, in what direction we ought to labour in the recovery of that magical effect which we at length recognize in what remains of the old stained glass, and which we too painfully miss in the new.

But first let us clearly understand what that magic is. It is not colour—either depth or brilliancy of colour—though it has been generally assumed that it is in colour that new glass falls most miserably short of the old. It is not transparency: on the contrary, old glass is rather translucent than transparent. It is not a brilliant play of light, as from a polished gem; quietness, not scintillation, is its character. But it is tone, or perhaps I may express it better by saying it is atmosphere. It is not so much that the new glass is different (although of course it is so) in colour, as that it transmits a differently coloured light, and affects the whole space through which that light is diffused differently. Whatever may be the colours, however few or many, however cold, or deep, or bright, they are toned down by a natural process, and throw a grey, equable twilight—not a dazzling, accurately-defined pattern of variously coloured rays around. And this tone or atmosphere is very different from tone or atmosphere in a picture, and so far more important that, whereas this alone cannot make a good picture, it will, though alone, make a good window, if each, picture and window, be judged by its use and aim. Windows are to admit light. All windows are for this primarily, though some windows are secondarily to be looked through; and modern painted windows seem intended to be looked at; which last is an immense mistake. But church windows, and all windows into which colour is admissible, are only to admit light. The great question, therefore, is, how do they fulfil this end?

What light do they admit, and how modified? Without at present saying why, I merely here state the fact that the old glass does so transmit light that it is toned down to a quiet grey, and that it casts a very pleasing hue through the whole space, and upon the whole building; and this is the magic for which we seek.

We cannot, if we would arrive at just conclusions, lay too much stress on the fact that a window, as compared with a picture, is not meant to be looked at;—that is to be judged by its influence, not by its own pretensions, even if they are just, to be considered itself as a picture. I might almost say, if you would form a fair estimate of the value of a window, turn your back upon it. A picture is meant to be looked at: a window is meant to throw light upon whatever we look at. Glass transmits light, in whatever condition, for the sake of other things; and, unless it imparts a pleasing hue to them, it is so far useless or mischievous: still more so, if it arrogates to itself the attention which ought to be given to those things for the sake of which it exists: worst of all, if it kills the eye, so that it can never turn away from the window to the picture or carving which it would admire with an unruffled nerve. Think this over well, and you will find the conviction growing upon you. Every thing that is pleasant to the eye is viewed by reflected, not by transmitted, light. No man in his senses ever looked at a window if he could help it. He sits with his back to the window, and looks at the picture which reflects its light. He even shuts out all the light which is not reflected from the very object he is studying, and he is best satisfied when even that object reflects no more light than is just sufficient for the accurate definition of its form and colour. Even reflected light, so soon as it becomes actually resplendent—dazzling—destroys instead of revealing form and colour,—wearies instead of refreshing the eye. For this reason no man ever looks at a looking-glass: he looks into it for the image which is reflected from its surface, and seems to be behind it; but if he is so placed that the light also is reflected back upon him,—that is, if he is standing directly between the light and the glass,—he looks in vain, or with so great pain that he must soon give up the attempt. How, then, can we be expected to look at a window, even if a picture is painted on it, unless the window is made so dim that it ceases to be a window except in name. If you want pictures as decorations, paint them on the walls upon which light falls, not on windows through which light is transmitted.

It is hardly a paradox to say that it is, however, in itself, all the more beautiful, because its beauty is of a very quiet and subdued kind, and because it glows rather for the sake of other things than for its own sake. Even as a picture an old window is sure to be better than a new one, however pretentious the new may be; better I mean in colour and general effect, though in drawing it may be very inferior. Though less transparent in the common sense, old glass is much more transparent in the artistic use of the word. You see through new glass: you see into old,—into its substance, into its depths. It is just so with a good picture: you seem to see into it, never through it; and this is its true transparency. What a miserable picture would that be through which you could see trees waving and birds flying; and, if you must needs view painted glass as a picture, how miserable is it if it is so transparent as this, as you know it almost always is in new windows; and, indeed, always is, except where they are daubed over with opaque enamel, which destroys both kinds of transparency at once. How different the old! Light lives and plays in the glass, as in the onyx and chrysochryse; and, as in these gems, it is so subdued that it may be gazed at and dwelt upon without pain. Our glass must learn to intercept the light, and dally with it, after the same fashion, or the talismanic effect is not there. To borrow the words of an author, who is, however, describing very different things, and things to which his words do not half so exactly apply,—“It must be redolent of sunshine, and permeated with light; it must have drunk in the virtue of the airs of heaven.”*

And as in the works of nature, which have thus fed on sunshine, and light, and the airs of heaven;

so also in old glass all colours harmonize, though they promise, according to the Newtonian theories or M. Chevreul's canons, to be more discordant. Yet we do our fathers more than justice when we attribute to them conscious science or skill in the harmonizing of colours. In decorative painting they neither had it, nor sought for it, nor cared for it; but they had it in perfection. An exact reproduction of any old window in modern glass (exact, I mean, so far as it could be in the recent material), would be as intolerable as any new one: the worst new cartoon, executed in glass equal to the old, would be in perfect harmony. Let it, indeed, be ever so bad in other respects, of which I am not speaking, in this an old window is always good,—it never outshines you. You never feel its presence obtrusively. Pictures and carvings are not killed by it. Your attention is not attracted, nor your eye pained, by bright patches of glaring colours; but there is just that hazy quiet light thrown around which best prepares the eye to appreciate form and colour in every thing else.

This, then, is the magic.

And now, whence does it proceed? Be it confessed, without shame, from the imperfection, technically speaking, of the manufacture of the glass itself. The texture of ancient glass is much coarser than that of modern glass; and it is to this defect, if defect it should be called, that its tone is due. It is, as compared with modern glass, what the imperfect are as compared with the perfect gems,—less transparent, less luminous, because less homogeneous: it is opal to a sapphire. But if the effect of the opal is wanted, and that of the sapphire would be injurious, the opal, *pro hac vice*, is the better of the two. If one is asked to explain how it is that this imperfection of texture comes to have so important results, the answer is ready. The light, which passes through modern glass almost unmitigated, is largely intercepted by the less transparent ancient glass, and is reflected and refracted, moreover, again and again, as it is making its way up with difficulty through the heterogeneous substance. Thus its light is softened, its hues are mingled, and it acquires tone and atmosphere. It does not transmit a glare of clearly distinguished reds, and yellows, and blues, but it sheds a “soft radiance and collateral light” of all hues and forms combined.

But at present the question is only thrown one stage farther back. We must inquire, then, if the tone is due to an imperfect texture, to what is that imperfect texture due?

The whole process of glass making, considered as an art of production, was of old far ruder than it is now. The same person who painted the glass had probably made it with his own hands, had collected the materials as he best might, and of various degrees of purity, or rather impurity; had fused them in a furnace often, perhaps such as might be conveyed from place to place, and altogether incapable of dealing perfectly with large masses very patient of heat. They could not make so good glass as we do, and therefore they could not make so bad windows as we do. But, if they only found it worth their while, our manufacturers could—though perhaps at a greater cost, and with more trouble—make glass as bad as the old, and then we might have windows as good as the old. It is the old question of demand and supply. We cannot get good glass, because there is no sufficient demand for it. If any fair proportion of the restorers and beautifiers of churches would join the cry, and would so study the matter as to cry with a reason, we should soon have plenty of glass of a lower texture but of infinitely higher tone.

If any one should object that this would be a retrograde step, I answer at once it would be no such thing. It would be exactly analogous with the use of very rough paper for certain effects in water-colour drawing: the analogy is as complete as possible where the effect depends on so different processes as the transmission and reflection of light. The rough paper reflects the light in all directions from its uneven surface, and so tends to tone and atmospherise effect: the imperfectly transparent glass refracts the light in all directions, and produces a like effect. The rough paper is, for special purposes, by far the better material, and the rougher it is the better it is. The paper-maker treats it as an advance, for he gets a higher price for it: the artist chooses it, though he pays more for it, because it gives a peculiar effect, and a greater value to a definite amount of labour: the public, half unwittingly, confess the greater perfection of the result; and yet I suppose there can be no doubt that it was the use, by some cunning

hand, of really coarse imperfect paper at first, perhaps when no better was at hand, which brought about all this change.

But if my own suggestion be disliked, let us examine some attempts which have been made to gain the same end.

First, and worst of all, there is the antiquating system, the imitation of dirt and decay: this is wholly and monstrously wrong. An old window does not owe its beauty to the holes in its substance or the dirt upon its surface. On the contrary, these destroy its transparency in that true sense of the word, which I have before explained: they destroy light altogether, instead of playing with it and modifying it. They make colour dirty instead of toning it. When you have converted a pre-Raphaelite picture into a Claude or a Turner with a blacking-brush, you may hope to give tone to a window by these attenuations.

Again, we have what is called by a cunningly-appropriated name “cathedral glass.” The fault of this is that it is as perfect and homogeneous in its texture as common glass. There is no play of light within its substance, therefore there is no magic in its tone. If it could be crushed so as to be half crumbled throughout its texture, like a piece of camphor upon which a weight has fallen, it would be very valuable. The colour is not bad, as a white glass to receive patterns and figures, but there is no atmosphere.

There is one direct attempt to copy an imperfection in old glass which so far is excellent: this is in the modern imitation of the old streaked ruby. If the texture of the white half of the glass were as well caught as the imperfect flashing of the ruby upon it, this would leave nothing to desire. All other attempts to catch the exact effect of old glass, by imitating its colour, are, as it seems to me, wholly nugatory. With the right texture, all our glass would be good enough in colour; and without the right texture no colour is of any avail.

The last attempt at gaining the tone of old glass that I shall mention is also the best. It is the making of glass with a rough surface. This is a step in the right direction, but it does not go far enough: it does not reach the interior substance of the glass. It is best known in the form of Powell's quarries, and in the corrugated glass sometimes used in windows which are not intended to be seen through. Of the value of such glass for the purpose of throwing a happy light upon works of art, I spoke in a paper read in 1857 to the Architectural Society of St. Alban's, and afterwards at Northampton to this Society; and I am tempted to repeat what I there said, because such glass is to be used, we hear, in the Exhibition of 1862,—not, of course, in any connection with my having spoken of it, but simply as a recognition of its value. I suggested “the value of glass as a source of colour when employed as a building material,” and added, “Glass is already sufficiently appreciated as the very substance of certain forms of building from economical and other purely practical considerations. I venture to prophesy that it will one day be valued as roofing for its colour both interior and exterior. Without the gilded domes and minarets of the East, or even the less ambitious tin roof of the far West, we have nothing sparkling, amid the mass of chimneys and parapets, and piles of slate and tile in our towns. Nor is it desirable that we should have too much; but here and there a large dome reflecting the tones and even the lustre of the sky, would be very picturesque; and for the interior, if it were made the only source of light, it would be very valuable under certain conditions. I must, however, make it quite clear what glass I mean,—not the ordinary transparent flat glass, such as was used in the Great Exhibition, and since at Manchester; but glass with a waved surface, transmitting the light broken but nearly undiminished;—so thick and corrugated, in fact, as to do away with the necessity of an awning. The result of this would be a mild, equable, almost shadowless, pearly lustre, such as might be desired for the exhibition of paintings and statuary, and for some few other purposes. There would be many mechanical advantages in such a dome, over any more ordinary building materials; and if there were an adequate purpose for it (for otherwise it would be mere affectation), I should much like to see one erected.”

The wish of four years ago seems likely to be realised. Would that the wish of to-day to see another principle introduced into the making of glass for painted windows were as near its fulfilment. Meanwhile, however, if any still adhere to their preference for the glaring transparent windows as now supplied by the acre by several well-established firms, and meet all I say with the

* Article on Food in the April number of the *Cornhill Magazine*. We will take the opportunity, as Mr. Poole lets it pass, to protest against the constant misuse, as in this case, of the word “redolent.” Redolent means, as every one knows when it is thought about, “I have a perfume,” “sweet of scent,” and yet clever, sensible writers are found taking of “woods redolent of song,” “gave us redolent of colour,” or, as in the present instance, of something that is “redolent of sunshine.” E.D.

common retort, "It is a matter of taste," I can but observe that to say, "It is a matter of taste, and therefore not a matter of rule and right," is just a contradiction in terms. Taste is a preference founded on just grounds; and a verdict of approval or disapproval in matters with which it is cognizant should be no more arbitrary, and is no more irresponsible, than the finding of a jury, or the sentence of a judge in matters of law. Midas preferred the singing of Marsyas to that of Apollo: when Apollo sent him away with asses' ears, it was as much as to say that those he came with were not much better.

For my own part, rather than accept any modern painted glass I have seen as a success, or even as a fair promise of future achievement, I would go back—and I say it in sober seriousness—to talc and horn shavings.

TOUCHING THE LOWEST.

It is to be regretted that in some quarters attempts are made to endeavour to prove that crime, which is so costly and disgraceful to this country, is not affected by the Ragged Schools, Reformatories, and other means which have been established by the active exertions and often sacrifices of individuals, or bodies of well-intentioned persons. It is most important to show that this is a fallacy, for otherwise discouragement might be given to well-meant and useful endeavours. Let us, therefore, arrange a few figures from a lecture recently delivered by Mr. T. Barwick Lloyd Baker, of Hardwick Court, near Gloucester.

In 1856 the number of commitments from any kind of prison was 113,736. In 1859 the commitments had declined to 107,172: this shows a decline in the number of commitments in four years of 6,564. This is a large decrease, but it will be said that it is to be attributed in a manner to the prosperous condition of trade, the increased demand for labour, and the improvement made in the prevention and detection of crime by the more general establishment of the county police. It is, however, a matter well worthy of consideration, that in the years above mentioned, the saving of six thousand five hundred and odd is almost entirely amongst boys under sixteen years of age.

The number of commitments under 16 years of age was reduced in the above-named four years, from 10,634 to 6,704 boys, and from 2,108 to 1,185 girls. These figures show a reduction of the committal of criminals under 16, as follows:—

Commitment of boys under 16 years of age, reduced in four years.....	3,930
Commitment of girls under 16 years of age, ditto.....	928

Total..... 4,857

In 1859, the total number of commitments was 107,172
Under 16 years of age, boys and girls 12,748

Over 16 years of age 94,430
Reduction in the commitments of 12,742, under 16 years of age 4,857
Reduction in the commitments of 94,430, above 16 years of age 1,797

We learn with satisfaction from the above figures, that the agencies at work are acting in a most satisfactory manner in the suppression of juvenile crime. In considering this most important question, all the means at work should be properly appreciated; and those working in one way ought not to show a disposition to undervalue the efforts of others.

Undoubtedly, great success has attended the new practice of sending young criminals for a lengthened period to reformatories; for by this means, those who are but just commencing a course of crime are taken from bad associations, and, under a wisely managed discipline, and moral and industrious teaching, they have a good opportunity of becoming useful portions of society; and in connection with the disposal of hardened young criminals in this way, the advantage is also great, for it is only those who have watched the conditions of the thousands of boys who are left in a great measure to roam in the streets of the metropolis, and of other towns, who can appreciate the extent of the mischief which may be done by the teaching of boys who have gone through one or more courses of imprisonment. We have known instances of one boy leading a dozen or more to commit small thefts—encouraging them to rob their parents or others of trifling articles—and introducing them when but little more than children into scenes of wickedness and depravity. The police and city missionaries could give hundreds of instances of such cases, which have brought ruin upon boys and disgrace and trouble upon families. To gather boys of this description from the streets, and keep

them from harm, will have the effect of preventing a vast amount of crime.

In connection with the reformatories for criminal boys, it seems to us most important that care should be taken to prevent the mischief which has arisen in the majority of the workhouses, for while industry is insisted upon and a useful education given, the physical stamina should be kept up by a proper supply of wholesome food. We know of few more discouraging sights in the London streets than the parade of the pauper children of some districts: taking them in the mass, their lips and cheeks are colourless, the flesh is soft and pulpy, the eyes and general expression of the countenances are dull, heavy, and unintellectual. Some parishes have made a change in the right direction, and have found the alteration profitable.

It has been found, by a course of long experience, that the discipline of neither the workhouses nor the prisons has been satisfactory: the latter has been found quite useless in suppressing crime. It is therefore evident that a totally different management must be adopted in the reformatories. There should be a system of encouragement rather than punishment. Some boys might feel a predilection for joining the army, others the royal and mercantile marine, and others may show talent and ability for other pursuits. It will be found that in such establishments a large proportion have fallen in the first instance from the circumstances in which they were placed by the bad social arrangements that unfortunately exist. Effort should be made to raise these and others in self-respect, and a great step for the reformatories will be gained when the managers and teachers are enabled to point to the general respectability and prosperity of those who have been taken from certain destruction, and taught in those institutions the means of gaining an honest living.

Many thousands in London may be seen following the Lord Mayor's procession—a large army composed chiefly of youths from about sixteen to twenty—who rush like a torrent along the streets, in sheer recklessness, sweeping all respectability before it. So much alike are this body of roughs, that it requires close observation to discover any difference in countenance, manner, or dress. In this distinct and dangerous phase of the metropolis would be found few who were in the habit of earning their own food by a proper course. Few of this band have fallen into their position from one superiority; but, in nine cases out of ten, they have been reared in neglect, ignorance, and vice, and have never had a chance of doing good.

It is to prevent the growth of such a class as this that every effort should be directed. The Ragged Schools—particularly if exertions are made to find employment for deserving boys and girls—will, in spite of opinions which have been given to the contrary, be an important means. So will the shelters and refuge for destitute boys and girls. There is a great work to be done, and all these movements are tending to a good end.

There seems to be some difference as to the exact number of our criminal population. Mr. Thompson gives the actual number of thieves throughout England and Wales as 100,994; Mr. Colquhoun has fixed the number of those partially or wholly living by crime at 115,000; Mr. Redgrave states that the numbers are not more than 3,121 thieves in the metropolitan district, and 40,030 in England and Wales. We should have all doubt on this point cleared up, for it is only by knowing the extent of the evil to be battled with that we shall be able exactly to appreciate the value of the exertions which are being made, the necessity for raising fresh forces, and know at what points to direct the chief force of the attack.

THE PARTHENON, PROPOSED, IN PARIS.

In one of our recent articles on matters in the French metropolis, we intimated our disbelief of a report of an intention to clear away the hill of Montmartre, and expressed the hope that a passion for making things even and straight, which comprises what is one of the deductions to be made from the general merit of the improvements in Paris, would not extend to the deprivation of what affords one of the finest features of the capital. If a statement which has since appeared in *Le Siècle* be correct, and if a project which is mentioned be likely to be carried into effect, we need, on the matter first in question, have no further apprehension, and there need be none in Paris for the integrity of the foundation of the existing church, prospect-towers, and house, or of other buildings which may be raised. The

asserted project is no less than one of a reconstruction of the Parthenon of Athens,—that is, if we understand rightly, as the original was built, or in what is called a restored state. The report specifies the use of marble, and claims for modern archaeology the knowledge needed for the observance of the most minute detail. It further alludes to a national subscription, and to a commission, including the names of the Prince Napoleon, the Duc de Luynes, and Messrs. Ingres, Hittorf, Beulé, Charles Blanc, Charles Lenormand, and the Comte de Laborde; and says that the architect would be chosen from a competition.

If the report be correct, we cannot but think the intention is not consistent with the position of the French in art. Let the study of Greek architecture be carried to the full extent: there is much yet to be discovered in and learned from it; to none do we owe more in that branch of study than to Frenchmen, some of whose names are above mentioned. When the monument, so called, on the Calton Hill, at Edinburgh, was commenced, the attempt was excusable: we do not doubt the ability of our neighbours to bring such an undertaking to an issue; but nearly everything that is most valuable can be done on paper, as some of our countrymen have shown; and the difference that remains to the score of building, is not worth the cost, and the diversion of funds from objects—the in which the French have no need to depart from the production of real art. We should, perhaps, not have attached so much importance to this report, were it not countenanced by the reproduction of a Pompeian house by the Prince Napoleon, and the construction of a Roman galley by the Emperor, however the former of these works may comprise much beautiful decoration, whilst the latter may help to solve several interesting questions. A noble work of architecture on the hill of Montmartre, might add, like the Parthenon to Athens, a crowning glory to what is now almost as grand a city; but we do not see that this addition need be a copy of any ancient building; and for the credit of French art, we hope it may not. The architects, Mr. Hittorf not the least, ought to disclaim connection with the project. If there be any truth in the theory that competitions have for their aim the bringing forth of new talent, the notion of such a mode of selection of the architect of a "reconstruction" of the Parthenon, has absurdity on the face of it.

THE LABOUR QUESTION.

WERE we to be guided solely by the reports in the interests of the masters, we should say that the hour system has been fully established and settled, and that the masters having already all the workmen on the hour system they require, this system is no longer a building trades question. The assurances on the part of the workmen, however, that the question is not decided, and that the masters have not got the workmen they require, have been so far corroborated in the House of Commons by the admission of the Government, that, to support the masters under contract at the Chelsea new barracks, or at least to advance the works, they have been under the necessity of setting sappers and miners to work from want of masons; and it is rumoured that a similar step will have to be taken on other works, and even at the Exhibition building.

A statement of the questions in dispute has been put forth on behalf of the men by eight gentlemen of Lincoln's Inn and the Temple, among whose signatures are those of Mr. Thomas Hughes, Mr. Godfrey Lushington, and Mr. N. B. Litchfield (the editor, we believe, of *The Working Men's College Magazine*). This statement, which has appeared in the daily papers, is said to be given on behalf of the men only because the men had difficulty in obtaining the ear of the public through the daily press. We have not ourselves observed that this difficulty existed. The statement we need not now give *ad longam*; but we may quote the following passage:—

"It is felt that, under the hour system, when the master will treat individually with each man, and will be checked by no recognized standard, he will be able, at his discretion, to prolong the hours indefinitely; and that, so far from each man being free to work as many or as few hours as he pleases, all will be obliged to work the long hours."

In support of this view they appeal to the results already exhibited by the hour system where it has been introduced. More than one of the masters who are enforcing the hour system have plainly told the men that they will not employ men who will only work nine hours. In many cases the men are systematically working twelve hours, and even more, per diem.

Of course, we assume here that the number of hours of labour, like the rate of wages, will be admitted to be a matter to be settled by the master and men, and not by the master alone.

That the change will produce actual money-loss to the men and money-gain to the masters by the abolition of overtime. Overtime is a custom which has been denied, indeed, on behalf of the masters, but is positively asserted by the masons and bricklayers whom we have examined."

The question of "overtime" is certainly a very important one to the men; but, as the unions desire to abolish overtime altogether, is it not a very allowable way of aiding the movement to that end, for the masters, whether they intend it or not, to offer less temptation to the men to work overtime by reducing the payment for it? To combine for the purpose of putting an end to overtime, as the men have done, and at the same time to complain that the privilege of overtime is being abolished, seems somewhat inconsistent, does it not? It tends to cast doubts on the sincerity of those who pretend that they desire its abolition.

A letter in reply to the statement has been published, signed "Cubitt & Co., Gray's-inn-lane; Hollands & Hannen, Duke-street, Bloomsbury; George Myers, Lambeth; George Mansfield & Sons, Gray's-inn-lane; George Smith, Piccadilly; Waller & Son, Lyal-street, Belgrave-square; John Kelk, South-street, Grosvenor-square; Lucas Brothers, Lambeth." From this we take the following:—

"Although it is now stated that the present movement on behalf of the men is not for what is termed the 'nine hours' system,' the change resulted entirely from the refusal of that system. Payment by the hour is intended solely to remove this cause of strife for the future, and there is no wish, nor has it ever been intended, to deprive the carpenters of their customary allowance for sharpening tools, or of any other trade, of privileges which have hitherto enjoyed. The assertion that masters wish the men to work longer than ten hours per day, except in cases of emergency, we emphatically deny. So contrary, indeed, is the fact, that we are frequently requested by the men to allow them to make overtime at the usual rate of wages,—a request that is often on that account acceded to.

It would be manifestly unjust to submit to arbitration a question practically settled to the satisfaction of the great majority of the men employed in the building trades, and only now kept alive by the agitation of a few members of the Trades Unions.

In justice to the men in our employment, we indignantly deny the statement that they are inferior workmen, or that they are working under protest. They have been selected for their skill and experience, and the majority of them have been with us for many years, and we are certainly at a loss to conceive by what reasoning the few men now on strike can venture to impugn the abilities of many thousands of their fellow-workmen.

In conclusion, we beg to deny in the most explicit manner any covert intention,—a charge which has been industriously circulated, and we cannot too distinctly assert that our only object in the change was one of conciliation."

The masters have been forced into the proposed payment-by-the-hour system, as a counter move to the continually recurring agitations as to the length of a day; and as the adoption of it would put an end to these agitations, we are disposed to think it would prove advantageous to the men themselves. The masters have been harassed and injured for years by the unsuccessful tactics of the union leaders; and it is to be wondered at that they have been driven into union also, for the purpose of protecting themselves against such perpetually recurring harassments and ruin? As for the equitable or inequitable nature of the hour system, that is another question altogether, which must be treated on its own merits. The question into which the leaders of the men have plunged both men and masters is one of victory or defeat—not of equity or inequity at all. When an army is attacked, it is not the equity of their next step that they consider, but its probability of success, as a counterstep to that of their antagonists.

The gentlemen who have so kindly taken up the case of the men may be perfectly right in their opinion of the disadvantages to the men of the hour system; yet, even if they are correct, we cannot fairly blame the masters under the circumstances. Much can be said on both sides of so difficult a question. As the masters, however, may not be quite "masters of the situation" even yet, had they not better accept the proposed arbitration? In doing so, we feel convinced that the arbitrators would fairly consider the whole matter from first to last, and protect both masters and men from future disagreements or misunderstandings, as far as it was possible for their decision on the points in dispute to do so.

We have alluded to the *Working Men's College Magazine*. The sole object of this publication, we may here remark, is said to be, to help working men to reach a standard of intelligence which will prevent their being made the victims either of ignorant agitators or of their own unwisdom. The editor urges the cause of the men against their masters, but has the following remarks on the strike of last year, and on the short-time movement generally:—

"The shortening of hours is one of the most legitimate objects at which the workmen can aim. Sooner or later

they are entitled to it. The strike of last year was a perfectly justifiable, though unwise, attempt to secure this boon. A strike is one of those things in which success or failure is really a test of rightness or wrongness; for, if it succeed, it proves that the value at which the workmen estimated their labour is its true value. A strike is nothing more than a method, barbarous and clumsy indeed, but still effective, of testing the accuracy of the existing scale of labour-remuneration. If the masters had had to give in, it would have proved that the public was willing or able to pay for building in the increased ratio of ten to nine. The result showed that the men were wrong. They were wrong in not perceiving that their labour is already remunerated at a rate equal to the average value of all other kinds of manual labour, and that any attempt artificially to raise its price above this natural scale must fail; or, if temporarily successful, would soon produce a return to the natural scale. So long as the vast mass of the community is content with a certain standard of physical comfort and general social advantages, it is no use for a section of workers to try to make themselves a select guild, enjoying exceptional privileges. Suppose, for instance, the building trades had their present wages for an eight-hour day. The necessary result would be an influx of new labourers, which would soon bring wages down to their present level. A lad of eighteen, looking out for a trade, would see masons going from work at four o'clock on fine summer afternoons, and would say, 'That's the trade for me. Much better than being shut out ten hours on a bus, or fourteen hours in a shop,' and, in a year or two, the competition of new hands would replace the old scale. But if emigration or any other cause should raise the value of the labour, and the increased value should make itself felt to any extent, the workmen would then not only be right, but reasonable, in saying at once to the masters, 'The value of our labour has risen: raise our wages.' And the masters would then be able to do it, because the public would have to pay an increased price for its buildings."

Birkenhead.—About forty-nine or fifty of the operative joiners at Birkenhead are at present out on strike, three or four of the employers having refused to grant the request of the trade, that the men in future shall leave work at one o'clock on the Saturday afternoon instead of at four as heretofore. A fortnight's notice was first served upon the masters by the men, who stated that they were determined to be placed upon the same footing as the other operatives employed in the building trades; namely, to commence work on the Monday morning at seven, and to leave off at one on Saturday. A demand for an increase of a shilling a week to their wages was also made, but the claim was not persisted in. The majority of the masters at once conceded the disputed point, and consequently the men in their employ continued at work; but, in three or four establishments, where the employers refused to comply with the terms proposed, a strike has taken place. It is said that the shops in which the "turn-out" took place are now supplied with nearly their full complement of men, who have come to Birkenhead from other places.

Greenock.—The masons here have struck for an advance of a farthing per hour. The masters have not granted the demand, and about 200 men have turned out. The present wages are 5d. per hour.

Inverness.—The masons employed by Mr. Meakin, constructing the new railway bridge over the Ness, have had their wages raised from 22s. per week to 26s. They now demand 28s. 6d., or an advance of 2s. 6d. in their weekly pay. This demand has been resisted; and the consequence is that the progress of the bridge has been stopped, and at rather a critical time; because, if the arches are not thrown over before the winter season, they must be delayed till next spring, at which period the whole line should be ready for opening. The subject of the strike has come under the consideration of the railway directors, who are preparing to support the contractor.

OPENING THE BRITISH MUSEUM TO THE PUBLIC BY GASLIGHT.

To the great masses of our working population this Institution, on which millions have been expended, and which is kept up by a large national expenditure, is at present far too little available as a place of recreation and instruction. On the few holidays which we occur at Christmas, Easter, and Whitauide, we see crowds of working men and their families gladly availing themselves of these rare opportunities, and no doubt some good is effected by those visits; but, in these days of advanced intelligence, the British Museum should be devoted, during seasonable hours, to the uses of the many thousands of young men and others who are using earnest endeavours for their advancement and improvement. To many of these the opening of this collection in the evenings, up till say ten o'clock, would be a very great advantage: besides this, to the public generally, it would afford an opportunity of viewing the rare treasures and curiosities which have been gathered here at so much labour and cost. For these and other important reasons therefore we regret that the trustees have resolved that they would not

be justified in allowing the collections of the Museum to be opened at any hour which would require gaslight.

Upon first considering the resolution which has been come to by the trustees, most persons will experience astonishment and some alarm at the late Mr. Braidwood's account of the inflammable nature of a building which has been erected by so large an outlay in our own days. By that gentleman's report, this museum,—which contains priceless treasures of the world's art, objects which, if destroyed, could never be replaced; the rare manuscripts, the chronicles of history, and the stores of old and new world learning, the real value of which cannot be estimated by any standard of price; the records of the famed cities of antiquity, whose glories have for centuries been laid in the dust; the relics of dynasties which have passed away; and examples of the arts of many ages, which are so useful to the historian and artist; the collections of objects of natural history; the store of prints, drawings, &c.,—is, if it would be exposed to danger from gaslighting, at any time liable even at present to risk from neglect, accident, or a spirit of mischief. These are uncomfortable reflections, and cause persons to inquire how it has occurred that a building intended for such purposes has not been so constructed as to be perfectly safe from the danger of fire. At the present time there are steam works and fires below for the purpose of heating and ventilating the new reading-room, print-room, &c.: there are also fire-stoves in the manuscript and other departments, and in the private rooms of the officers. We mention this for the purpose of suggesting that if the shadow of risk exists to the burning of the contents of the Museum, no time should be lost in making those alterations which will prevent gaslight, or any other kind of light, from doing damage. The floorings, such as that of the King's Library, the bookcases, staircases (if any such exist), rafters, or other inflammable parts of the structure, should without delay be removed, and others of a more safe description substituted.

While acknowledging the great experience of Mr. Braidwood in connection with fires, we cannot admit that any great extra amount of danger would result from the lighting of the British Museum with gas, provided that this is carefully and properly managed; and in fact, unless the electric light should become available by means of the experiments which are constantly being carried on by men of science in various parts of the world,—without the use of gas, the British Museum will not become a means of enlightenment to the artisans and numerous other classes of the metropolis who cannot spare the working hours for the purpose of pursuing those studies which would advance them in skill and intelligence.

At the Kensington Museum, gas lighting is used with safety and good effect.

It will be impossible to oppose for much longer the strong voice of public opinion on this subject: the intelligence of the people is rapidly improving; and means must be taken to render such establishments as the British Museum accessible at hours convenient to the industrious classes of London.

THE BATTLE OF THE BOOKS IN THE CITY OF LONDON.

On Thursday in last week, persons wandering in that direction, saw the Guildhall barricaded as if an attack were expected from some hostile army. The enemy against which this provision was made was an idea that, in the heart of the capital of England,—the centre of the world's civilization,—it was desirable to set an example to other places of large population, and provide a library which would be free for the use of the poorer classes of that community. This most important question has been for long agitated; and on this occasion, as on others, we regret that, in a public meeting, the citizens have set themselves against the introduction of the means of distributing knowledge amongst those of the present and the coming generation of citizens most in need of it.

For the tax of one penny in the pound upon rental (and it is said that it could be managed for much less), a library could be established in the City, which would be of great advantage to a large number of the population.

Those who oppose the introduction remark that the number of dwellers in the City is gradually declining; that persons do not go there to read books, but to make money. It is, however, a fact that, to many who live within those bounds, the ready access to books would be most useful.

Within the City liberty, as our readers know, there are to be found instances of the greatest

neglect as regards social arrangements. In some hundreds of houses there is not a book to be found; and in other cases, where the book famine is not quite so bad, the want of good books is evident. In one house which is inhabited by sixty people there were found twenty-three books, and most of them of a character which rendered them worse than useless. Many still stronger instances might be mentioned. Knowing this, we cannot fail to note that it is the duty of the city of London to set an example to other places; and if this be not attended to, the two or three millions of dwellers in the metropolis will surely ask the question—Is the city of London rightly represented by a section of the population less in numbers than Islington, St. Pancras, or Marylebone, and whose love of money is such that rather than give so many farthings for intellectual enlightenment they would sooner part with as many drops of their blood? It is not fit that intellectual darkies such as these should hold so special and prominent a position in the capital of the country. Doubtless, however, even they would have been ready enough to reprobate such conduct as their own in others had not this important question affected themselves, and had such ignorance and greed been manifested in a similar way in some outlandish little town or village.

Persons who are opposed to the movement in the City refer to libraries which at present exist, but which are but little used in the City: no doubt these might be turned to better advantage; but the contents of these libraries are not suitable to the multitude. In Sion College is a theological library; Dr. Williams's Library, in Red Cross-street, is somewhat similar; and although a disposition is shown to popularize the contents of the Guildhall library, it is not a place accessible to the working classes. It would be well worth while to consider if these almost dead libraries could be restored to vigour, aided by the introduction of gas lighting and the addition of some of the books of the present day.

That free libraries are appreciated by the multitude is shown by the circumstance that in Great Smith-street, Westminster, last year, the issues were, in the reference department, 18,153, and in the lending department, 33,418; total, 51,571. In this library there are 4,400 volumes.

From the Manchester Free Library and its branches 1,250 volumes were issued in 1860; and to the free news-rooms in that city there are 3,000 visitors daily. During the last twelve months 436,509 volumes were issued from the Liverpool free library; being an average weekly circulation of 12,390 books.

In Oxford, where there are similar libraries for the particular use of students, during the past year 127,000 persons have attended the free library and news-room; and, during the same year, the Salford free library issued 141,721 books; and there were 110,969 personal visits. In all towns where this movement has been fairly tried, the result has been most satisfactory.

Considering all this, and such like evidence, it was an extraordinary sight to see the fierceness with which the idea of establishing a free library in the City was opposed; and the chief objection was the question of cost. But, at the utmost, the Act provides that the amount of this rate shall not exceed 1d. in the pound of rental in any one year. In this case, however, all that was proposed to be asked was one farthing in the pound on the consolidated rate—which farthing in the pound is estimated to produce 1,250*l.* a-year: on this view of the matter, every ratepayer may count the cost for himself, which will be 5*d.* a-year from the 20*l.* householder; 1*s.* from the 50*l.* householder; and so on.

In an able speech, Mr. Charles Reed advocated the establishment of a free library in the City. That gentleman said, a hundred years ago it was a blot on the City that it should have no library suitable to a large number of the population; and the same disgrace (only intensified a hundredfold) still exists. He found that in Italy, Austria, and France, there were libraries for the humble classes in all large cities; in Copenhagen there were 460 volumes for every 100 of the population; in Florence there were 317; and in Paris 163 to each 100. It was said that so much had it become the fashion for city men to reside in the suburbs, there were none left who would require the use of a library. The last census return, however, showed that 112,000 people sleep within the City; and if that number were multiplied by four, for those who came into the City during the day, we might reckon the whole at upwards of half a million.

Mr. Dakin and others endeavoured to speak in favour of the movement; but such was the con-

fusion and uproar that they could scarcely be heard. "No tax! no tax!" resounded through the hall; reminding one of the accounts of Jack Cade's days. In vain was an effort made to show that the investment of a little money in this way might probably be of advantage. By a considerable majority the admission of free books was repudiated in the Guildhall of the city of London. It seemed to us as if Gog and Magog looked upon the scene with supreme contempt; while the countenance of the Duke of Wellington turned westward; the effigy of Father Thames raised his hand reprovingly; and worthy Alderman Beckford seemed to cry out "Shame!"

ROYAL ENGINEER DEPARTMENT.

SEVERAL promotions have recently been made in this department of the public service, principally to carry out the new fortifications under the Defence Commission.

Mr. R. Sands, deputy surveyor, Dublin, has been removed to the War Office, Pall-mall, on promotion as surveyor.

Mr. John Owens, many years stationed at Dover, succeeds Mr. Sands as the deputy surveyor in Ireland.

Prior to the late deputy surveyor leaving the Irish capital, the Royal Engineer Civil Staff presented him with an address, accompanied by a *souvenir*, as a token of their esteem and appreciation of his courtesy and kindness during the twelve years he held the senior civil professional appointment in that country.

EXPLORATIONS AT LINHOPE, NORTHUMBERLAND.

THE Berwickshire Naturalists' Club had a field-day at Linhope, on Thursday, the 27th ult. The party assembled to breakfast at Powburn; and thence, after the meeting was constituted, set out for Linhope, which is situate amidst the Cheviot Hills. The road lay up the rocky valley of the Breanish, and traversed a district highly interesting and picturesque;—the Roman road, called the Devil's Causeway; Crawley tower, one of the most perfect of the pele towers; a Celtic camp on Brandon Hill; the ruined church at Brandon; the decayed town of Ingram, where the foundations of numbers of ruined houses can be traced along the road and in the fields, and where the base of the market cross still stands on the green to attest the fact that it was once a market town, imparting special charms. The steep hill sides are covered with a green vegetation, amidst which masses of porphyry rocks, that have rolled down from the summits, appear of a violet tinge; the whole forming the freshest contrast. The river sides are marked by two river terraces in the valley; distinctly indicating that the Breanish once flowed at an elevation from 10 to 20 feet above its present level. On arriving at Linhope the party proceeded to Greaves Bsh, to inspect the particular object of their journey—the remains of an ancient British town. Excavations were in progress at the instance of the club, which it is expected will throw a great deal of light upon the mode of life of the Ottadini, the tribe by whom the town was inhabited. Their usual mode of constructing a town or village was by the formation of a circular or oval rampier, about 10 feet in thickness, within which earthwork were their huts, which appear to have been circular. How far this town will differ from others of the same period the excavations will show; but they are not sufficiently advanced to warrant any minute description at present. It is supposed that in the days of the Ottadini this valley had a larger population than it now possesses.

READING SCHOOL OF ART.

THE Reading School of Art held its first annual meeting in the Council Chamber, on Friday evening, July 5; Mr. James Boorne (mayor), presiding. The report showed that "the amount received in donations is 110*l.*, including 20*l.* from Mr. R. Benyon, 10*l.* 10*s.* from the president (Mr. Higford Burr), 10*l.* 10*s.* from Sir F. Goldsmid, and several smaller sums from other gentlemen, the receipt of which the committee gratefully acknowledge. The sum thus contributed has been expended in furnishing and fitting up the rooms, and in the purchase of suitable examples, casts, &c., for the use of the pupils. The number of pupils attending the school has been sixty-eight. The fruit of the first year is highly honourable, and affords at the same time satisfactory testimony to the ability and diligence with which the master (Mr. Havell) has discharged his duties.

Dr. Wells proposed a vote of thanks to the mayor, and took the opportunity of saying there was still lingering about the English people the opinion that drawing was a very nice accomplishment for those who had great taste to cultivate it; a nice thing if they were going out on a journey to be able to make sketches to bring home to refresh their memories of days gone by which they had spent very pleasantly, but no part of the essential education of youth. There seemed to be no opinion in the public mind that the art of drawing was at all necessary as an elementary education; but it appeared to him that of all studies which young people could devote themselves to, there was hardly any so well calculated to bring out the qualities of the mind as learning drawing. If they watched the style of education of the present day, they must all feel that it was very much a system of cramming. If they went into any school they would find that teachers were engaged pumping a quantity of knowledge into their scholars that was perfectly astonishing, both as to variety and extent; but as pitchers received water without incorporating it into their substance, so it was with the scholars: the amount of learning which they received did not permeate their minds or form a part of them; and, when they went out into the world to meet with its difficulties, the education which they had received flowed out faster than it was pumped in; whereas, a knowledge of art corrected this by the cultivation of the powers of observation, and enhancing the perceptive faculties.

SUFFOLK INSTITUTE OF ARCHEOLOGY.

THE President (the Hon. and Rev. Lord A. Hervey) and a party of the members of the Suffolk Institute of Archaeology, Statistics, and Natural History, at their quarterly general meeting, visited several interesting spots connected with the history of our island. The church of Great Saxham was their rendezvous, where a paper was read by Mr. Tymms, the Hon. Secretary, describing the various particulars of interest in the building.

At Denham Castle, to which the meeting next proceeded, the survey of certain grassy mounds and embankments, surrounded by a broad ditch, the greater part of which is dry, was made extremely interesting by the information which Mr. Harrod, the secretary of the Norfolk Archaeological Institute, gave respecting the plan upon which they and many other of the ancient castles in this part of England have been constructed. These strongholds, it appears, were originally the forts of the aboriginal Britons, and consisted of a central circular keep, formed by a high earthwork and moat, adjacent to which was an inclosure of an irregular horse-shoe form, also made by an embankment and ditch, in which the occupants of the fort were accustomed to collect and preserve their cattle when threatened by an enemy—a plan still adopted, as was stated by a member of the Society, by the natives of some parts of India.

At Denham Hall, luncheon was provided by Mr. Fred. Hall. Kirtling Tower, an Elizabethan gateway, flanked by four turrets, and forming the entrance to a more modern mansion, was next visited. Here the Princess and future Queen, Elizabeth, was concealed during the reign of her sister. A paper was read by the Rev. W. I. Chavasse, the Incumbent, in which was set forth the past connection of Kirtling with the North family, and the glories of the house when Queen Elizabeth, in one of her progresses, was entertained there with royal magnificence. A second refectory was here set out by order of Col. North, the present owner of the estate. Kirtling church was inspected. Mr. Chavasse read here a remainder of his paper. The church and castle at Lydgate concluded the list of objects set down in the day's programme.

THE WEST CHURCH, GREENOCK.

ONE of the first Free churches erected after the disruption of the Church of Scotland, in 1843, was the Free West Church in Greenock, which, like too many of the early Free churches, was designed with very little regard to anything but economy. The people of Scotland, however, have at last got rid of the notion that art is inconsistent with orthodox Presbyterianism; and the Free West congregation, influenced as much by the ugliness as by the discomfort of their present place of worship, have now determined to erect another, more in accordance with both respects with the more enlightened views which now prevail.

The new building, which is in course of erection, from designs by Mr. Honeyman, of Glasgow, occu-

pies an elevated site at the corner of Ardgowan and Kelly-streets. Its length inside is 84 feet besides a semicircular apse, and the width is 42 feet. The sides are carried on stone piers and arches, which, however, are concealed; and the doors of the pews, which open to the side corridors, show internally as a continuous panelled lining. The pews in the area are divided by a central passage. There is an end gallery opposite the pulpit, and narrow side galleries carried on brackets springing from carved stone corbels. Accommodation is provided for 960; and the cost of the church, with hall, waiting-rooms, &c., will be 4,500*l.*, exclusive of the tower. It is intended, in the meantime, only to carry the tower up a few feet above the eaves of the church. The height of the spire, when completed, will be 220 feet. The contractor for the mason's work is Mr. Thomas Watson, Glasgow; and for the joiner's work, &c., Mr. D. Anderson, Greenock.

IRELAND.

Portadown.—The church is to be enlarged, by widening the nave so as to be the full width of the transepts, and the galleries increased so as to give an addition of 100 sittings. The whole is to be newly seated, with open benches, having carved finials.

A Presbyterian Church has been erected lately, as well as one for the Methodist body.

The Ulster Railway Company are about to erect a new station, at a cost of 13,000*l.* Mr. James McCracken is the contractor. Generally this town is rapidly improving in size, appearance, and accommodation, the stimulus to which it owes to the railway system.

Sir Robert Bateson, bart., of Castrues, has granted the Cross Roads Presbyterian congregation an eligible site for a manse, with a few acres in addition.

The Ulster Banking Company are erecting a new branch bank in Strabane. Mr. Matthew McClelland is the contractor.

The Earl of Lucan has granted a site for a nunnery in Castlebar, but refuses to give one for a Presbyterian church.

Belfast.—Seldom has there been seen greater activity in the building trade than at present. New houses are being built on all sides of the town: what was green fields some time since is rapidly being converted into streets of houses. Every article in the building trade, except slates, is now moderate in price; and tenants greatly prefer new clean houses to old ones with decaying timber and other *disagréments* which need not be mentioned. The new houses are therefore tenanted as soon as built, and frequently taken before they are ready for occupation, thereby giving encouragement for building. The tendency to crowd as many houses as possible on a given portion of ground is, perhaps, stronger in Belfast than in any other town; and, unfortunately, the Town Council is powerless to prevent it.

The Water Commissioners have at length undertaken a work which should have many years ago occupied their attention, *viz.*, to ascertain by boring the possibility of obtaining an additional supply of water, without the additional cost of Acts of Parliament, or the purchase of water rights.

The *Derry Standard* says that the new Probate Office, erected in Bishop-street under the Board of Works, is "really a gross outrage upon all architectural propriety; attracting the ridicule of ordinary spectators."

The Harbour Commissioners of Derry have entered into an agreement with the Bridge Commissioners to carry out the line of quays from the end of Fish-lane to the end of the present bridge. It is intended to build a new Roman Catholic cathedral at Monaghan, near the Dublin-road, for the diocese of Clogher. The architect is Mr. J. J. McCarthy. The style is Gothic, of the fourteenth century. It is to consist of nave, aisles, transept, choir with apsidal terminations, an eastern chapel and sacristy, and a chapter-house on the north side. There are to be a tower and spire on the west flank of the southern transept, rising to a height of 210 feet. The entire length is 177 feet: nave and aisles are 72 feet wide: the width at transepts is 110 feet.

Mr. John Owden, of Seapark, has had erected at his expense a drinking-fountain, at the head of Castle-place, Belfast.

A new Protestant hall and Sabbath School Institute has been publicly opened at Waterford, by the Lord Bishop of Cashel. The building is situate exactly opposite the new Court-house, and overlooking the People's Park. The cost was about 3,000*l.*, including furnishing. The style is Italian,

executed in red brick, with granite dressings, with two towers in front, through which the ventilation of the building is effected. It is 60 feet long, 40 feet wide, and 30 feet high, with two wings in which are committee-rooms. The architect is Mr. A. Denny.

BERLIN STOVES.

A CORRESPONDENT, fresh from a residence in Berlin, writes, "I wish you would do one piece of good more,—make known the Berlin stoves. They are made at Dresden, different from 'German stoves,' commonly so called, and far superior; the former being fed in the room, and having ventilation, the latter fed from outside, consequently producing an atmosphere *stuffy* and unhealthy. These stoves are an immense saving in fuel; and then one does not get one's face burnt while one's toes and back are freezing, and the farthest corner of the room is as warm as that nearest the stove. They can be made slightly, and take up little room; obviate the necessity of ugly protruberances at the tops of the houses in the shape of chimney-pots of all sizes and shapes; and, last, not least, I feel convinced would decrease the disease of consumption, by preventing perpetual colds and coughs. They should be set by Germans, or they will not answer, but there are colonies of Germans in England."

Improvement is greatly needed in our mode of heating; and it is to be hoped that means will be taken to obtain a complete illustration of the stoves of various countries in the approaching international exhibition, so that the subject may be advantageously considered.

USE OF COLOUR ON MEDIEVAL BUILDINGS.

COMMENTING on Mr. Tite's denial that colour was used on buildings of any distinction which deserved the name of Gothic architecture, Mr. W. H. James Weale writes thus to the *Times* from Bruges:—

"I assume it to be a fact generally admitted that, in specimens of civil and domestic architecture of the Pointed style, Belgium is unequalled by any country in the world. The Hôtels de Ville of Bruges, Brussels, Louvain, Ghent, Audenarde, and Damme, the Halls at Ypres, &c., surpass in grandeur and elegance all other edifices of their class. Now, in all these colour was not only introduced, but very largely employed, both externally and internally."

The Hôtel de Ville of Bruges was commenced in 1377, and completed in the early part of the fifteenth century. In the account rendered by the treasurer of the municipality for the year ended September 2nd, 1404, a sum of 48*l.* is entered as having been paid to Jacques Averecht for painting and gilding the corbels, canopies, and backs of the niches which adorn the whole of the facade of the Hôtel de Ville. The colours employed were ochre, vermilion, azure, and gold and silver leaf. In 1419, one of the five turrets which crown that edifice being completed, Peter de Deckere, an artist of considerable merit, was paid 86*l.* for gilding the whole of the spire, and for painting on each of its eight sides shields with armorial bearings. The crown and the knobs which adorn the turret were gilt by him, and the weathercocks emblazoned with the Lion of Flanders. In 1421 we find a payment of 120*l.* for similar work done to the central turret. The niches of the facade were gradually filled with statues: as soon as these were set up they were painted.

In short, the whole of the exterior of the Hôtel de Ville was painted and gilt, with the exception of the small portion of the wall adorned by sculpture, which served as a background; and, being left of its natural colour, heightened the effect of the decorated portions.

The paintings of Van Eyck, Memlin, Stuerhout, &c., prove the employment both of coloured marbles and metal, not in ecclesiastical, but also in civil and domestic buildings of the Pointed style. These are rarely met with now, because they are hidden from view by paint and whitewash."

FIRE INSURANCE.

THE ELECTRIC TELEGRAPH IN CASE OF FIRE.

THE Fire Insurance Companies have issued particulars of the increased scale of terms they have deemed it necessary to adopt since their losses at the wharfs at London-bridge. In many cases the new charges are more than three times as high as those hitherto in use; the rate for each of the docks, for instance, having been raised from 3*s.* 6*d.* to 10*s.*, for waterside warehouses (specific insurances) from 3*s.* to 10*s.*, and for general floating policies from 10*s.* 6*d.* to 35*s.* per cent. These terms, however, are subject to reductions ranging from 30 to 50 per cent. in the event of certain requirements being complied with for the improvement of risks. It is to be hoped that this may lead to the employment of better modes of construction. Probably if buildings could not be insured at all, we should not persevere in erecting buildings expressly constructed to burn, and the country as a whole would be greatly the richer.

On inquiry made a few days ago at the fire-engine station in the City, we found, although the need has been shown to be so evident, that there

have not yet been any arrangements made, in the event of outbreak of fire, to rouse the firemen by means of the telegraph. In the majority of cases (owing in part to the ill construction of buildings), the damage is almost complete before the fire-engines can be got effectually to work; and scarcely a day passes in which there may not be seen in the metropolis premises completely gutted and destroyed, the party-walls seeming to be the only means of preventing the spread of the fire to a greater extent.

It was more than twenty minutes before the news of the recent great fire reached Watling-street, and it would be longer before some of the other stations would be reached; whereas, by a proper method of telegraphic communication, the information of the breaking out of this fire might have been spread to every engine station in the metropolis in two or three minutes; but, then, when the engines have arrived, it may be that the turncock is out of attendance, or the main-pipes at some point may be so stopped, that the engines are for some time useless in consequence of the want of water.

When we see the daily spread of the electric telegraph, and its application to fifty novel purposes of far less importance than this, it seems strange that this method of communication has not been brought into full use by the police, the fire brigade, and the different parties connected with the water supply. In connection with the last of these it should not only apply to the turncocks, but also to those in charge of the great reservoirs which supply the several districts.

On consulting the parties engaged in these important duties, who, by years of attendance, have become accustomed to the routine of them, you might be told that such new arrangements are impossible. When, however, we look with unprejudiced eyes, and notice how science has, by wise but at the same time matter-of-fact plans, been made to carry out things far more difficult than this; we cannot doubt that, without any very great trouble, this could be usefully effected. Without taking into account other matters, it is beyond a doubt that the supply of the electric telegraph to the metropolitan police would add much to the efficiency of that body.

Not long since, when seeking for some information at the West India Docks, it was surprising to see the ramifications of numerous offices which are in use. There are inland departments, departments of revenue, of excise, and other matters, which we do not recollect; but, being directed to the right place to obtain what was wanted, we were referred to another office of this great establishment which was at some distance away. On reaching this a gentleman, without any particular preface, expressed his regret that he could not that day do the matter required. On mentioning that we had not had the pleasure of seeing him before, and that perhaps he was not informed of the business, he soon showed that he was as clearly acquainted with the object of inquiry as those in the office which had been previously visited. The telegraph had been at work; and, from this trifling instance, it may partly be seen how vast must be its value in places of such large business, where transactions which are not only important to commerce, but also to the revenue of the country, are carried on. The ships lying in those immense basins might, at very little trouble or expense, be put in constant communication with the officers of the ships, owners, and merchants in the City. In connection with the police and the fire brigades, this system could be readily brought into use. It will have, however, to be managed by persons who will look at the matter broadly.

Great as has been the good rendered by the London Fire Brigade, it is, notwithstanding, in several respects in an unsatisfactory condition. The men, the engines, &c., are provided by the insurance companies for the preservation of their own insured property. We cannot say that when the occasion offers they decline to be useful to others; but the fact is that nightly a large part of the people, particularly in the poorer districts, have no claim for help in case of fire except on the parish; and in many parishes the arrangements for this purpose are as unsuitable as the ancient watch-heads and police who were in use before Sir Robert Peel's day would be now. In some instances changes have been made; but, generally, it is a "sight" to see a parish engine brought out. The aged paupers drag it along at the rate of two or three miles an hour, amid the cheers and contemptuous expressions of the "small boys," and the laughter of the lookers-on.

Soon steam power will in a great measure,

and perhaps entirely, supersede hand labour in connection with the working of the fire-engines. The number of fires, their often alarming extent, and vast cost, show that our means are at present inadequate to what is required. It was the opinion of the late Mr. Braidwood, often expressed, that a better system of general arrangement throughout the metropolis is required. It would be a great annual saving to the insurance companies to expend money in this way; and it would be worth while for the parish authorities to consider if it might not be an advantage to place the whole of the fire-engine force under a somewhat similar system of superintendence as that of the metropolitan police. At present we can scarcely look into a newspaper without reading accounts of the entire burning of premises, by the time the engines arrive at the particular point, buildings are in a hopeless state; hundreds of cases might be given; but so very much the same are the accounts, that the following will suffice. On the 15th ult., a range of premises known as the Steam Saw-mills, situate in Church-row, Limehouse, were discovered to be on fire, between four and five o'clock in the morning; the building in which the fire commenced was upwards of 100 feet long by about 50 feet wide; filled with machinery, boiler, steam-engines, &c. An immediate alarm having been given, information of the disaster was despatched to the various London Fire Brigade stations. By the time they arrived, the firemen found that the entire building was enveloped in one body of flame; and, shortly after the engines were called into operation, the roof fell with a tremendous crash. In this instance a good supply of water seems to have been had; which, together with the great exertions of the firemen, checked the further progress of the fire; but it was not extinguished until the premises were destroyed, and the adjoining house a good deal damaged.

This was doubtless an inflammable building; but a multitude of a similar description are to be found in the metropolis; and London fires often show the same results, and prove, in the first instance, the need of buildings of a safer description. We will not remark further at present on this part of the subject, but urge the necessity, as we are just now circumstanced, of the use of the telegraph,—particularly adapted to the purposes of the firemen; the general introduction and increase of the force of the engines; and some of those other changes to which we have referred.

LIBERAL BRICKMAKERS. INTELLIGENCE RETROGRADING.

A CORRESPONDENT from Manchester writes,—In a recent number of the *Builder* you published "a pretty case of dictation," wherein the journey-men masons of Manchester were shown to have interfered most arbitrarily with their employer in the conduct of his business; but, bad as they may have been, their "dictation" is far exceeded by the master brickmakers of the neighbourhood, who, one and all, utterly refuse to supply bricks to any one who may in any way countenance the use of "machine-made bricks." It appears that a company has been formed to make bricks with machinery at a place called Strangeways, in the immediate neighbourhood of the new Assize Courts at Manchester, and very excellent bricks they make. But "woe" to those who attempt to use them: if a poor journeyman, no bricks will be allowed to be sent to any job where he may obtain employment; if a master, his supply to any and all his jobs is stopped immediately; and even an architect, who proposed to introduce the new bricks in a mansion he was about to build for a gentleman, was told he had better think twice before he did so, for the consequence would be that all his other jobs would be brought to a stand-still, for no bricks would be allowed to be sent to any place where he was engaged.

Thus far our correspondent, whose statement seemed to us scarcely credible. We have, however, received copies of printed correspondence on the subject, which fully confirm it, with this addition however, that the master brickmakers say they are forced to the course they have taken by their workmen. One who signs himself "A Master Brickmaker who glories in Free Trade," thus writes,—

"The real facts are, that the operative brickmakers are the chief movers of the opposition to the use of machine-made bricks. They wait upon us and say, 'If you supply hand-made bricks to jobs where machine bricks are used, you must abide the consequences.' Knowing these men, we prefer doing as they wish rather than accept the alternative, which would, at the present time especially, be most destructive to our interests. The operatives are a numerous body of men, closely combined together, possessing both a determined will and funds to carry out

their implied threat. I can say with truth that not one of us would willingly consent to a collision with them until all other means had failed."

This is certainly a pretty state of things; and, if permitted and carried out fully, would return us to barbarism; taking away every aid afforded by science and invention, and leaving us naked savages to till the earth with the bough of a tree.

STRAINS FROM THE EDINBURGH SHORE.

OUR recent observations on Edinburgh, the beautiful and dirty, continue to have attention, and will, it may be hoped, aid in inducing a healthful public opinion on the subject, before which evils would disappear. The *North Briton* is working on the same tack, and has printed, amongst other things, with the right end in view, a poem, headed,—

"THE DEMON OF THE COMMON SHORE."

BY THE LATE ALLAN EDGAR POE.

(Through a certain medium.)

It commences thus:—

"Once, upon a midnight dreary, I gave myself a query—
A query I had often given unto myself before:
Whether Edinburgh city, which some datteries 'pretty,'
And some exalt as witty, and such flatteries by the score—
Whether this unclean capital, unclean from days of yore,
Will be so for evermore?"

The night I well remember: it was not in November,
Nor was it in December, when nights are wild and hoar:
'Twas the middle of July, when thermometers are high,
And the heat oppressive—like renders garments quite a bore—
Renders everything save bitter beer and iced champagne
a bore—

Men drink and nothing more.

I was sitting at my window, hot as a new-fallen cinder,
And I threw the window up: I perspired at every pore.
When on the draughtily swell there floated in a smell.
Ah! I knew the odour well, I had met it oft before;
But its power this night exceeded any night before:

It grew stronger more and more.

Said I, 'Leith, you dirty water, I know well what you're arter,
You're about your deadly slaughter, your little game of yore:
You're breeding up young Cholera, and Typhus who will follow her,
Two demons that beat hollier swords and daggers
steeped in gore,
Beat the carnage of all battle-fields that e'er were dyed
with gore,

By many thousands more."

A demon appears to him—a demon

"Born of the slimy ferment of some foul and fetid shore,
Breeding death for evermore,"

and discourses to him on the subject till he falls numb and deadened on the floor, and the end arrives:—

"When I woke the morn was brightness: I felt a nasty tightness
Across my chest and larynx, and a cough that plagued me sore.
Quoth my landlady, 'It's fiver comed from that stinking river:
I wonder if I ever told you that, two years before,
One of my lodgers died of it. I got my fever o'er,
And left her evermore.'"

THE NEW LAW COURTS AND THE BUILDING ACT.

IN the Bill before Parliament for acquiring a site for the new Law Courts, there is a clause exempting all buildings to be erected under the Act from the operation of the first part of the Metropolitan Building Act.

The policy of this is questionable. Surely the protection against fire is as important in such buildings and the ranges of chambers, which, it is understood, are to be built surrounding them, as in ordinary dwelling-houses.

One can understand the reason of exempting railway stations, and similar constructions for peculiar purposes, from the restrictions of the Act; although it might be prudent to give the district-surveyor some limited right of supervision even in such cases; but that the Law Courts and adjacent buildings and chambers, with their flues, roofs, and other parts, should be exempted, does not appear either necessary or desirable.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting of the members has been summoned for Monday evening next, "To reconsider the subject of the Thames embankment with the view of obtaining a proper recognition of the artistic element in the scheme by the public and by the Government;" and "To make such regulations concerning the certificate of membership about to be issued as may seem expedient," pursuant to a requisition signed by Messrs. Edmeston, Seddon, Asbittel, J. W. Pap-

worth, C. Barry, Kerr, Salvin, jun., and Gray, Fellows. Further,—*"To consider whether it be desirable to take notice of the manner in which the design for the Exhibition building of 1862 has been obtained,"* pursuant to a requisition signed by Messrs. Burges, Kerr, Hayward, St. Aubyn, Truefitt, Seddon, Bury, and Stride, Fellows.

METROPOLITAN BOARD OF WORKS.

At the usual meeting of the Metropolitan Board of Works last week,

Mr. Alderman Lawrence, pursuant to notice, moved that the superintending architect be directed to make out plans and an estimate of the probable cost of widening Great Turnstile, Holborn, to make it suitable for carriage traffic.

The motion was seconded and carried.

The District Surveyor of Hammersmith.

A report was read from the Building Act and General Purposes Committee on letters received from Mr. G. E. Gordon, relative to the mode in which the business of the district surveyor of Hammersmith was conducted. The committee stated that it had been proved before them that Mr. Garland, the district surveyor, had been acting by deputy, without the leave of the Board, and that his deputy also acted on his own private account.

Mr. L. Taylor moved that Mr. Garland should, under these circumstances, be suspended for three months.

The motion was seconded, and, after a short discussion, carried with only one dissentient voice. The district surveyor for Fulham was appointed to perform the duties of the office *pro tem*.

THE HORTICULTURAL GARDENS, SOUTH KENSINGTON.

THE Conservatory, of glass and iron, which has been erected by Mr. Kelk, from the designs of Capt. Fowke, for the Royal Horticultural Society, at the northern extremity of the gardens, is 263 feet long and 95 feet 9 inches wide, exclusive of a projection of 7 feet 6 inches on the north side of it. The extreme height of it is 75 feet 6 inches. The height from the floor to the top of the iron columns is 39 feet; from the floor to the gallery 22 feet 6 inches. The span of the arched roof is 45 feet. The columns are 15 feet apart. The amount of the contract for the Conservatory was about 14,500*l.*, and the whole cost (adding 1,000*l.* for the engine-house and 200*l.* for the chimney), may be called 16,000*l.*

The accompanying view of the interior shows more particularly the north side of the building, where there is an arcade, with flights of stairs leading to the gallery and to the top of the upper arcades in the garden, on either side of the conservatory. The view here is charming. The arcade in the conservatory,—an effective feature, very cleverly treated,—is formed with terra cotta columns, 8 feet 6 inches high, including cap and base, and ornamented brick arches. The terra cotta is supplied by Mr. Blanchard: the ornamental work executed in it was designed and modelled by Mr. Godfrey Sykes.

The floor of the conservatory is unformed, but will probably be laid with ornamental tiles.

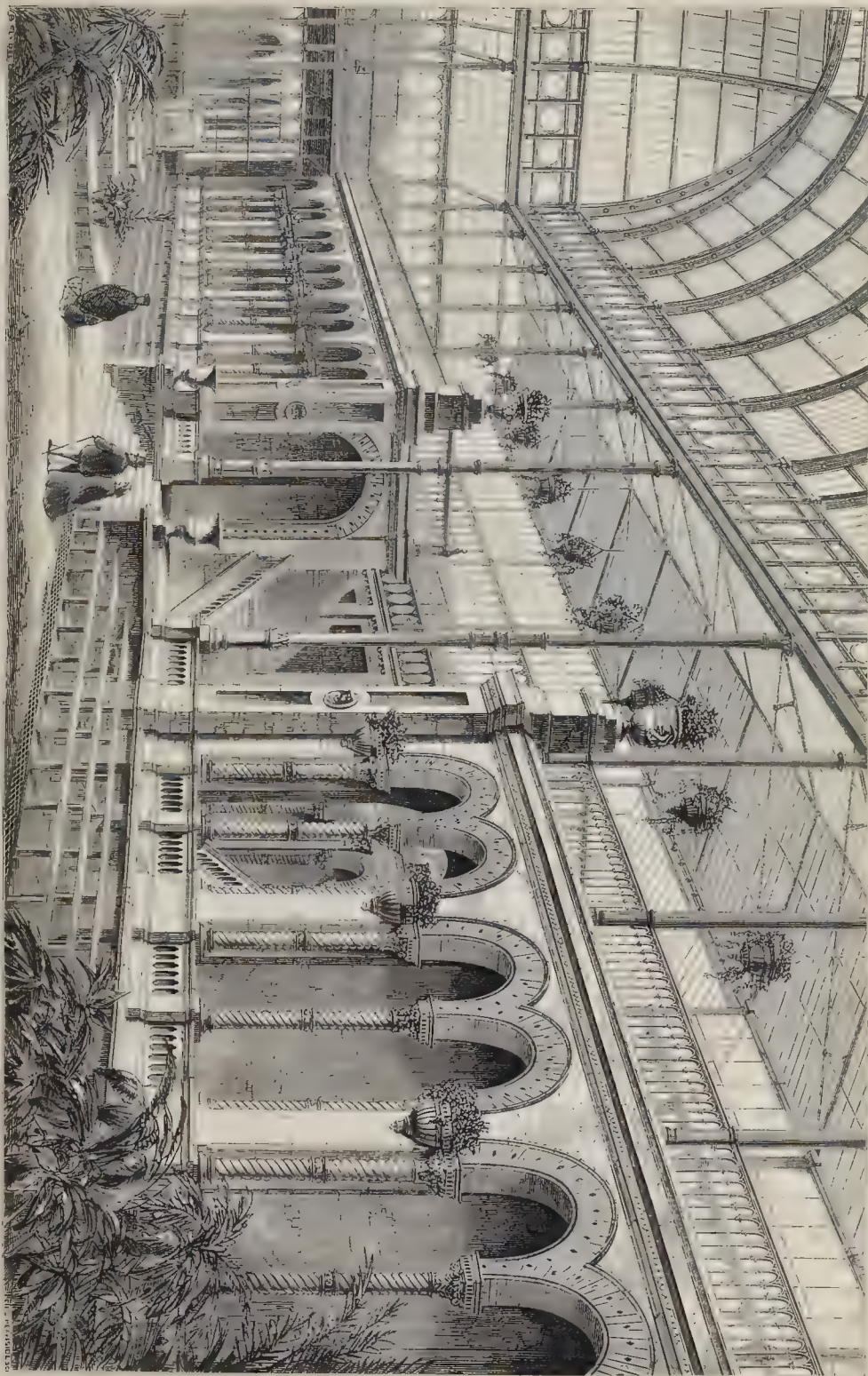
The foundations for the memorial of the Great Exhibition of 1851, which will stand at the head of the lake, immediately in front of the centre of the conservatory, have been put in. The statue of the Queen, to surmount the memorial, is ready for reproduction in metal, and the other figures are being rapidly proceeded with.

It is not difficult to foresee that these gardens will be the centre of a remarkable neighbourhood.

Speaking of the approaching Exhibition of 1862, H.R.H. the Prince Consort said, at the Horticultural Society's inaugural *file*,—"This garden will then open an additional source of enjoyment to the thousands who may be expected to crowd the new Crystal Palace of Industry. Nay, we may hope that it will, at no distant day, form the inner court of a vast quadrangle of public buildings, rendered easily accessible by the broad roads which will surround them,—buildings where science and art may find space for development, with that air and light which are elsewhere well-nigh banished from this overgrown metropolis."

We may look to see arise here a new University, to connect, for all time, the name of the Prince Consort with the progress of the arts and sciences in this country.

* As a datum it may be mentioned that the cost of the terra cotta columns in the lower arcade in the gardens, including cap and base, is about 2*l.* each. These columns are formed in three heights, and are varied in design by recombining a certain number of pieces.



INTERIOR OF THE CONSERVATORY; HORTICULTURAL GARDENS, SOUTH KENSINGTON.—CAPTAIN FOWKE, ARCHITECT.

ARTISTS AND KENSINGTON GARDENS.

THE following is a copy of the artists' memorial presented to the Prime Minister, in reference to the horse ride in Kensington Gardens:—

The undersigned artists desire to express their regret at the renewed introduction of a horse ride into Kensington Gardens. It is now proved beyond a question that no turf ride can ever exist within the precincts of the gardens, the grassy avenues and beautiful green sward being rapidly converted by the horses into a muddy track, or hard dusty road, as the season may be. Thus one of the chief and most admired beauties of these beautiful gardens is seriously impaired.

If addit ous accommodation is required for equestrians, let it be provided for them in another locality; but let the gardens be preserved, as by the gracious permission of the Crown they have hitherto been, as gardens for the use of pedestrians only, but open to all who come on foot upon equal terms.

SIGNED:—

W. Mulready, R.A.	E. W. Cooke, A.R.A.
Thos. Creswick, R.A.	A. Cooper, R.A.
C. W. Cope, R.A.	Baron Marchetti, A.R.A.
W. Wilberington, R.A.	T. O. Barlow.
H. W. Fickersgill, R.A.	J. E. Thomas
P. McDowell, R.A.	S. Westmacott.
W. Calder Marshall, R.A.	J. Radford.
Richard Redgrave, R.A.	J. W. Oakes.
E. Westmacott, R.A.	T. Brooks.
W. P. Frith, R.A.	T. Dillon.
A. Elmore, R.A.	E. B. O'Neill.
J. M. Ward, R.A.	C. G. Lewis.
Augustus Egg, A.A.	W. H. Lusley.
G. Richmond, A.R.A.	J. Bell.
Young Mitchell	W. Holman Hunt.
G. Jones, R.A.	E. B. Stephens.
C. Leslie, R.A.	E. Hannan.
John Philip, R.A.	C. Vacher.
T. Webster, R.A.	T. Landseer.
Sydney Smirke, R.A.	W. Duffield.
J. H. Foley, R.A.	A. Buckley.
F. Goodall, A.R.A.	G. Smith.
J. C. Horsley, A.R.A.	W. S. Bates.
H. O'Neill, A.R.A.	H. S. Wells.
T. Ford, A.R.A.	F. B. Rowell.
R. Ansell, A.R.A.	

CHURCH-BUILDING NEWS.

Colchester.—The church of St. Mary-at-the Walls has been renovated and decorated. The interior has been coloured and painted throughout; the outside of the pews being grained and varnished, and numbered with figures in gold. The walls have been cleaned, painted, and blocked out, so as to resemble stone. In addition to the oriel window, most of the other windows have been more or less enriched by memorials and other designs in stained glass. The further east window in the south aisle has been adorned by a medallion, containing the armorial bearings of the present Mayor of Colchester, with inscription in old English characters. This window, which is the work of Messrs. O'Connor, of London, is not yet complete; it being intended to have it finished in the same style as the "Rebow window," immediately opposite, which is now in the hands of Mr. Warrington, and is being executed at the expense of J. Gurdon-Rebow, esq., High Steward of the borough. The windows immediately adjoining the above contain medallions having figures of angels bearing shields, with mottoes stained, and surrounded with borders representing the lily of the valley, flower and leaf. They are the work of Messrs. Jewell & Sons, of Whitefriars. The next window in the south aisle contains the arms and crest of the late Captain Rooke. The window, it is understood, was executed for Captain Rooke by Warrington, at a cost of about 40l.; and was presented to the churchwardens some time previous to Captain Rooke's death; but it was thought advisable not to place it in the church until the present restorations and improvements, which were at that time in contemplation, had been carried out. The window in the north aisle, immediately opposite to the above, displays the arms of the late Bishop Compton: for a century and a half it formed the central ornament of the east window, but was removed to make room for the present window by Warrington. It is surmounted by a cross in ruby and orange, which was formerly in the east window of Holy Trinity Church. The four other side windows are at present plain, but have been frosted over. The west window has been improved by placing in the tracery over the organ some stained glass by Messrs. Jewell & Sons. All the windows which are finished (except the east) have, where requisite, been filled up with ground glass, and are edged externally with stained glass of an amethyst colour, with an inner margin of alternate ruby and green. The three oval windows at the east end have been filled in with emblems of the Holy Trinity, which were formerly in the church of the Holy Trinity, in this town. The paint has been carefully removed from the pulpit, which has exposed some inland work. The pillars have been grained marble, and the bases like red granite. The iron railings round the Rebow monument have been painted blue and gilt, and numerous

other improvements and embellishments of a minor character have been made.

Hartford.—The following tenders have been received for restoring the exterior and interior of the church here, with increased accommodation:—

Allpress, Broughton.....	£914	0	0
Saint, St. Ives.....	764	0	0
Markham, Godmanchester.....	743	4	0
Richardson, Huntingdon.....	721	3	0
Wrighton, Godmanchester.....	710	19	0
Machin, Peterborough.....	671	6	0

Mr. R. Hutchinson, of Huntingdon, is the architect employed.

Worcester.—After a delay of two or three months the works at the cathedral, according to the local *Herald*, are again put in motion; the tender of Messrs. Bennett, of Birmingham, the contractors who have executed the restoration of the eastern end and south transept, having been accepted. The new works will embrace the north transepts and intermediate aisles, also the vestries, &c., on the south side. Messrs. Bennett's tenders, it is said, were much higher than others sent in; but they were selected in consequence of their greater acquaintance with ecclesiastical work, and also for the workmanship in their late contract on the same edifice.

Hanbury (Worcestershire).—Hanbury Church has just undergone an alteration. The cost of the work will be defrayed by the patron, Mr. Vernon, of Hanbury Hall, and the rector, the Hon. and Rev. H. Douglas. Mr. Street, of London, was the architect; Mr. Yates, of Shiffall, the builder; and Mr. Earp, the carver. The chancel has been completely rebuilt, and a chapel erected at the east end of the south aisle, to be called the Vernon Chapel, into which the family monuments that formerly filled up the old chancel are removed; while, on the north side of the chancel, a new chamber has been erected, as a continuation of the north aisle, for the reception of the organ; and beyond it, eastward, is a new sacristy. The chancel east window, a triple lancet, is to be filled with stained glass, and there will be a small memorial window in the south wall of the chancel. An alabaster reredos is in course of preparation. A piscina and sedilia, with trefoil heads and polished marble shafts, are inserted in the south wall, and a credence table in the north, all ornamented. The ceiling is of oak, panelled, in the coved shape, and that portion which is over the sanctuary will be painted. Maw's tiles, with squares of white marble and magnesian limestone, incised with the *fleur-de-lis* and other patterns, form the flooring of the chancel, which is also to be fitted up with oak stalls and subseal, and dwarf screens dividing it from the nave, chapel, and organ chamber. From the chancel the new Vernon chapel is divided by two pointed arches. This chapel is built over the family vault. The chapel is divided into two equal parts by two pointed arches, enriched with the dog-tooth ornament, and supported on circular piers, whose capitals present carved foliage. Mr. Street's design throughout, it should be remarked, is in the Early English style, very freely treated. The introduction of marble for shafts, or portions of shafts, is a prominent feature in the new work of this church.

Manningford Abbots (Wiltshire).—The chancel of the church here is being rebuilt, from the designs of Mr. S. B. Gabriel, of Bristol, architect, with new roofs of stained deal, oak stalls and table, new triplet east window, priest's door, and side windows of Bath freestone, and paved with Minton's encaustic tiles. An interesting piscina (called Norman), with shaft, and triangular hood-mould over, has been discovered, and replaced in south wall. The designs include the rebuilding of the nave, which will be carried out at the completion of the chancel.

Beechingstoke (Wiltshire).—The church here, which has been under repair for some months, was reopened, by the Bishop of Salisbury, on the 27th ult. The restoration comprises, interiorly, new roofs of red deal, stained and varnished; open benches of pitch pine; new pulpit, and font of Caen stone; with Devonshire marble shafts, oak table, and stalls in channel. The aisles and chancel are paved with black and red tiles, in patterns. Exteriorly, new doors and geometric tracery are introduced in the heads of the windows, with a double bell-turret on the west gable; the whole of Combe Down freestone. The original designs for restoration included the chancel; but the funds would not allow of it for the present. The works have been carried out under the superintendence of Mr. S. B. Gabriel, of Bristol, architect.

Wellington.—The new Independent chapel here has been opened. It was erected from designs by

Mr. Samuel Pollard, of Taunton, architect, and under his superintendence. It is in the Pointed style of architecture. The outside parts are of flint, and the dressings of Bath stone: it has five buttresses on each side and two in front: the apex of the gable terminates with caps and finial. The interior of the chapel will accommodate 540 people, 400 in the open benches on the ground-floor, and 140 in the organ and school gallery. The entrance is by double-arched doorways, opening into the vestibule, which measures 22 feet by 10 feet, with two separate entrances issuing from it into the chapel and two with staircases into the gallery. The size of the chapel inside is 68 feet by 37½ feet, exclusive of the apse behind the pulpit. The central height is 40 feet, the side being 20 feet. The building is lighted with three million arch-headed traceried windows on each side, a treble front window, an oriel window over the pulpit, and three ornamental windows in the apse; and at night by three star gaslights, placed at intervals on either side of the building. Attached to the chapel are a school-room, prayer-room, minister's vestry, and several class-rooms. The whole of the buildings are heated with hot-water pipes, and ventilation has been attended to. The seats of the chapel are without doors, and made of stained oak. The backs recline at an angle of 15 or 20 degrees. The cost has been 1,956l., of which 1,400l. have been received in cash, 400l. promised, and the remaining 100l. the trustees have resolved to pay off themselves.

STAINED GLASS.

St. Philip's, Kensington.—A stained glass window is being executed by the firm of Heaton & Butler, of Hampstead-road, for St. Philip's Church, Earl's-court, Kensington. The principal subject in the window, which was chosen in a competition with others, is the "Adoration of the Magi," above which are the "Crucifixion," and the "Ascension." In the outside lights are introduced the "Baptism," the "Dispute in the Temple," the "Marriage at Cana," and the "Last Supper." Between these are the half-length figures of the twelve Apostles. In the tracery lights are emblems of the Holy Trinity, &c. An engraving of this window, by Mr. Thos. Bolton, from a photograph on wood, appeared in the *Illustrated News* of the World of 8th June last.

Pebmarsh Church, Halstead.—A new Decorated three-light east window is being inserted in the parish church of Pebmarsh, near Halstead. Mr. H. W. Hayward, of Colchester, is the architect, and the mason Mr. Keogh, of Sudbury.

St. Michael's, Aberystwith.—A stained-glass memorial window has just been completed by Messrs. Heaton and Butler, of London, for the east end of St. Michael's Church, Aberystwith, in memory of Miss Martha Pritchard. The "Last Supper" is introduced in the four lower compartments. Above, the subjects are, the "Agony," "Crucifixion," "Christ appearing to Mary," and the "Ascension." In the tracery are angels holding scrolls.

Leeds Parish Church.—A stained-glass window, the workmanship of Messrs. M. & A. O'Connor, of London, has been placed in the ante-chapel of the Leeds parish church, in memory of Henry Hall, of Bank Lodge, J.P., of Grace his wife, and of Robert, M.P., their only son, whose statue was presented to the Town Council in the Victoria Hall. The centre light contains the figure of our Lord, surrounded by His disciples, healing the blind man;—in the side lights, Nicodemus, coming to our Lord at night, and our Lord with the Woman of Samaria. The canopies are composed of floriated foliage of the passion-flower and the drooping lily. In the two quatrefoils of the tracery are groups of the two angels seated at the tomb, and the three Marys approaching it.

Miscellaneous.—Some stained-glass windows have just been completed by Mr. James Ballantine, at Edinburgh. These are two twin lancet-windows for the chancel of Tremereichon Church, North Wales, in memory of the late Mrs. W. H. Owen, wife of the vicar of the parish, and sister of the celebrated poetess Felicia Hemans, many of whose lyrics she set to music. Mrs. Owen was eminent for her philanthropy. Hence she is represented in the four compartments of the windows, as—1, Feeding the Hungry; 2, Clothing the Naked; 3, Giving Drink to the Thirsty; and, 4, Visiting the Sick; and in the base are antique harps overhung with weeping willows. The panels are surrounded with borderings, and the subjects surmounted with architectural enrichments.—Another window is for St. John's Chapel, Wear-dale, in memory of the late Mr. Edward Emerson, of West Hotts. In the centre is a representation

of our Saviour's Agony in the Garden. The border is divided into panels, with alternate ruby and blue grounds, on which the cross and the emblems and monograms of our Lord, together with representations of the Ily, with texts appropriate to the subject, are introduced. In the base is the Emerson shield.

SCHOOL-BUILDING NEWS.

Burston.—A new District School has been opened at Burston, by the Bishop of Winchester. The schools were built by Messrs. King & Leigh, of Burston. They contain accommodation for between 80 and 90 children, with a school-master's residence and play-ground for the children. The architecture is Gothic. It is situated on the road to Smallfield, nearly opposite Rede Hall, and in the centre of the parish.

Draycot-le-Moors.—On the 21st ult. the new National School erected in the village of Draycot was publicly opened. The plans were prepared by Mr. H. Ward, of Hanley, architect, and submitted to the Privy Council. Their lordships made the grant of 271*l.* for the erection of the present school buildings; with a class-room, separate lavatories, and play-grounds, and a teacher's residence; occupying in all half an acre of the glebe. Accommodation is provided for 85 scholars, and the new building is situated opposite the old school-house, which has been converted into a cottage residence. The builders were Messrs. Collis & Hudson, of Longton, and their contract was for 630*l.*

Edgbaston (Birmingham).—The new schools in connection with the Francis-street Congregational Chapel, Edgbaston, have been opened. The buildings are Early Decorated, and chiefly of red brick. The principal entrance is by an elongated porch or corridor, which also gives access to the infants' school and one of the class-rooms, the class-rooms being planned so as to be used by the children of either sex without the necessity of intermingling with the other. The principal school-room has been arranged to serve the double purpose of school and lecture-room, and will seat 300 persons. The buildings comprise a school-room, 48 feet in length by 34 feet in width; an infants' school, 20 feet by 16 feet; and two class-rooms, 14 feet by 14 feet. The school-room will accommodate 250 children in classes; the infants' school, seventy; and a class-room, twenty each; making a total accommodation of 360. The work was executed by Mr. W. Bennett, of the Lozels, under contract for 750*l.* The design was furnished by Mr. Yeoville Thomason, of Birmingham, architect.

Newcastle-upon-Tyne.—The St. Mary's Schools for boys have been formally opened. The school and school-master's house together form a plain building, partaking of the Gothic style of Architecture, but so far modified as to harmonise with the church and almshouses adjoining; and have been erected from drawings prepared by Mr. Robert Wallace, property surveyor to the corporation, and his assistant, Mr. William Pearson. The accommodation is intended for 250 boys; the principal school-room being 56 feet by 30 feet, with a large and a small class-room. The large class-room is 28 feet by 20 feet, and the small class-room 16 feet by 10 feet; the height of the rooms 33 feet; the clear height of inside walls 14 feet. At the western entrance is a porch, surmounted by a bell-tower and spire 50 feet high. All the main timbers of the roof are exposed to view, and are wrought and stained. The principal rafters are formed so as to form Gothic arches, and spring from stone corbels built into the walls, 11 feet from the floor line. The whole of the joiner's work is stained and varnished. The school and class-rooms are warmed with open heated air fire-places; and ventilation has been seen to throughout the building. The inside walls are covered with a warm tint in imitation of stone; and the roof, containing the common rafters, a light blue tint. A piece of ground at the south front of the building, containing about 4,000 square yards, is intended as a play-ground for gymnastic exercises. The building has been erected at a cost of about 1,500*l.*, including fittings. Mr. John Welton is the contractor for the whole of the works.

PROVINCIAL NEWS.

Warwick.—The erection of a new public hall, capable of seating from five to six hundred persons, has commenced in Brook-street. This step is said to have been taken in consequence of a misunderstanding with the Corn Exchange Committee as to the rate of charge for the letting of the Exchange to those who have the direction of the Corn Exchange services.

Worcester.—At the recent sessions of the

county, plans, according to notice, were laid before the court by Mr. Curtler, for enlarging the Lunatic Asylum; and he applied for a grant of 7,000*l.* for carrying such plans into execution. Mr. Curtler said the new building was required for the accommodation of 100 additional female patients, and also for a new recreation hall. The building was first of all constructed to accommodate 200; but now the accommodation was quite insufficient to the requirements. After some further discussion, the motion was agreed to.

Hyde.—The first stone of the new building for the Mechanics' Institution here has been laid. The architect of the building is Mr. William Walker, of Manchester, and the builders are Messrs. Robinson & Son, of Hyde. The contract amounts to 2,567*l.*, and the building is expected to be completed about Christmas.

Stockport.—The new Market House is approaching completion. The erection, which is now covered in with glazed lights, is formed of nine bays. The building will be painted in an ornamental style, and supplied with gas. The whole surface of the building is to be laid with Staffordshire red and blue terra metallic tiles, 10 inches by 5, and 2 inches thick. The draining is now completed by the insertion of glazed earthenware pipes of various bores, furnished with Lowe's patent stretch-traps, discharging into a brick drain 3 feet by 21 inches, with earthenware inverted block, at Mealhouse Brow; thence into a rapid fall, making its way into the Brook to the river.

Bradford.—The new building for the accommodation of the County Court, which, during the past eighteen months, has been gradually rising in Manor-row, is now approaching completion; and shortly the business of the court will be transacted there. The building, according to the local *Observer*, has a frontage of about 70 feet. It is built of stone, and is in the Italian style of architecture. The principal front is two stories in height, of a plain character. The lower story is rusticated, and has six semi-circular arch-headed openings, with large keystones carved into masks. In arranging the plan the architect has had some little difficulties to contend with, owing to the irregular form of the ground. On the ground-floor there is a public office, 31 feet 6 inches by 28 feet, with a fireproof strong room, 13 feet 8 inches by 10 feet 5 inches. The offices for the high bailiff and his staff of clerks are in the rear; being 20 feet by 14 feet, and 13 feet by 13 feet respectively. The court on the first floor is about 52 feet long, 32 feet wide, and 24 feet high. It is lighted by five large windows. Five smaller windows on each side of the court, in the upper part of the attic above the cornice, will give additional light to the room, and will also serve for ventilation. The court will be warmed by means of two large warm-air stoves. Adjoining the court there is a waiting-room for the public, 24 feet by 14 feet; the judge's private room, with water-closet and lavatory attached; and jury and consultation room, with retiring-room, water-closet, &c. The works have been carried out by Messrs. Wilson, of Bradford, from the designs and under the direction of Mr. Charles Reeves, county court surveyor. Mr. John Collett has acted under him as clerk of the works. The cost of the building has been about 3,500*l.*, exclusive of fittings and furniture.

Banff.—The foundation-stone has been laid of Chalmers's Hospital, a building which has been in contemplation for the past ten, if not thirty years, and which, says the local *Journal*, is destined, when completed, to be of signal benefit to all the parishes in the county. The laying of the stone was conducted with Masonic and other ceremonial. In the outset the trustees, having advertised for plans for an hospital, adopted the one furnished by Mr. Wm. L. Moffat, of Edinburgh. Estimates were obtained, and the following contractors undertook the various sections:—Mason work, D. Scott, Montrose; carpenter work, C. Brand, Montrose; slater work, J. Lindsay, Montrose; plaster work, D. Hogg & Company, Montrose; plumber work, W. Duthie, Banff. The hospital will be adapted to accommodate fifty patients, with the requisite buildings for officials and attendants; and the total cost, with extras, will be about 6,300*l.* Though the plans of Mr. Moffat were adopted, Mr. James Matthews, of Aberdeen, is to be the architect for the building.

DEMOLITION AT THE TUILERIES.—The demolition of that part of the palace of the Tuileries in which the private apartments of the Emperor and the Empress were situate, has commenced. It was out of repair. The expense of the operations is estimated at 40,000,000 francs.—1,600,000*l.*

LONDON STREETS.

STR.—The extension of Great Marlborough-street to Dean-street, every driver of an omnibus or other carriage can appreciate, as every second year, when Oxford-street is newly paved, every carriage is obliged to go down Dean-street 100 yards, then turn into Litchfield-street, which perhaps may be 60 yards long; then turn into Great Chapel-street for 20 yards; from thence into Hollen-street, which I believe is less than 100 yards long (and very narrow), and every house in it requires rebuilding; then turn into Portland-street, which is about 100 yards long; then turn into Poland-street for about 50 yards, and then into Great Marlborough-street. Now, here are seven turnings in the space of (I should say at a guess) less than a quarter of a mile. This inconvenience to traffic is not only for a few days, but probably for three weeks, besides the risk of carriages meeting. There are but three houses in Poland-street, facing Great Marlborough-street, that would be required to be sacrificed to make an opening into Noel-street, which is about 100 yards long; every house except two or three requires rebuilding; and as two are on one side and one on the other, it would not be necessary to pull the three down.

This monster city every year requires that some ventilation should be added. Last summer and the present have been particularly cool; the next may be as hot as the one when the cholera broke out in that crowded sink of misery close by, St. Ann's-court. I forget the number of deaths there, but they were prodigious. Our poor require as much care as children, as to health; they have no time to think of that: the only thing they can think of is where the rent is 6*d.* a week less.

A. B. C.

CHAMBERS AND LODGINGS.

NOTWITHSTANDING the tone of your correspondent "H. B.," I must confess to have read his letter with some pleasure; and, in spite of the manner with which he ascribes to himself an exhaustive knowledge of the subject in question, and tells me I do not know what I am talking about, or am throwing out hints for others to work out,—in spite of this, I see that there are certain points in his letter which form, as it were, neutral grounds of opinion, where we may both meet and agree. Still, however, he has made some fatal mistakes; and these I shall hope to convince him of; for, though I do not presume to have sunk so deeply into the "bye-ways" of life as your correspondent, yet my knowledge of some of its high-ways has been extensive; and I have lived long enough in both lodgings and chambers to be able to speak of them from my own experience.

The question whether it is or is not better for a man to choose for himself one of Eve's sisters is quite beside this question; and, if we keep to the point, we shall narrow the compass of the matter at issue, and render it more capable of being well treated, than by rushing off into diatribes upon the joys and pleasures of married life. The question is this:—*A certain portion of our population have, from choice or compulsion, to lead bachelor existences,—how best to accommodate them?*

My answer to them is plain,—*"Arrange for them rooms in suites or flats, of sizes varying according to the varying incomes of the tenants, much on the principle that houses are built in Paris, or Edinburgh, or even in our own Victoria-street, Westminster; and by this means you will combine all the comfort and privacy of a private house with the convenient freedom and irresponsibility of a bachelor residence."*

Chambers are not required only for men of studious or retiring habits, who wish to bury themselves from the world as in the seclusion of the cloister: they are wanted simply as places of residence for the ordinary every-day men we meet; and if they are to satisfy that want, which is so greatly on the increase, they must be adapted to moderate means.

Then again, with regard to chambers, we want all the light we can get. In this dreary, smoky atmosphere of London, the value of a few gleams of sunshine falling in the pleasant summer time upon a bachelor's breakfast table,—of the cheering influence of a little light during the dark days of November,—are beyond all estimation. With the great Goethe, I say—"let in more light."

Again, with regard to "Char," I this instant give her notice to quit, and that for good. "Char" is evidently not in favour with "H. B.," but he mildly suggest that, because the service at present is bad, therefore a man had better wait upon him-

self. I reply to him, "make it better," and I will show him that there is not the least difficulty about this. To every, say, six sets of chambers, there should be a resident housekeeper, with at least one servant, the duties of this woman being to cook breakfasts, dinners, or suppers, for the "men," as they may be required; to have kitchen fire and hot water always at their service; to attend to their wants as in private families; to keep their rooms clean and tidy; and to mend their linen on its return from their wash. This woman may also be required to purchase comestibles for the inmates; but, as far as my experience has gone, I find that men prefer to buy for themselves. That there is not the least difficulty in obtaining thoroughly honest and capable women to fill this post I am convinced; and I speak from the experience of years as to the successful working of a system which might easily be extended, until "Char" had passed into the class of the "extinct animals." The idea of establishing, in connection with the chambers, a retail store, is simply absurd. Instead of becoming a club-commissariat, with free trade tariff, it would quickly attain the proportions of a most oppressive monopoly, and must either be a burden to the inmates, or, from the fact of its disuse, would become a dead letter. Anything that at all tends to the "Club Chambers" principle, to the idea of anything "communitarian," is a decided step in the wrong direction. What we want are simple modifications of private houses; and, unless chambers are arranged so as to give perfect independence and privacy, they must turn out failures. With regard to the cultivation of flowers and hanging gardens, as much of them as you like; for I think that one of the most cheering evidences of the advance of true taste, and a love of the beautiful, is to be found in the fact of the great number of windows in this prosaic London where a few bright flowers may be seen; and it is a point well worthy the notice of architects, how much even the most commonplace and ordinary buildings are improved by them. ARCHITECT.

HINTS ON HOUSES.

THAT the arrangements of houses are often defective, and are capable of great improvement, will be generally allowed by those who have reflected on the subject. Builders have long been aware of the advantage, in detached and semi-detached houses, of having entrances at the side of the house. The rooms on the ground-floor are thus saved from the loss otherwise required for the hall, or passage entrance. It is surprising that builders have not also sought to remedy the loss of room required by staircases, in a similar manner.

I observed some weeks ago a letter in your paper, suggesting that in small houses much room would be gained by placing staircases at the back of the house. Whether the place for the stairs should be the back or side, the object is the same, and the question is only one of detail. I think the side would be best; and it would not interfere with the look-out from the windows at the back.

The entrance and stairs should form one plan; being comprised in a sort of tower (for want of a better illustration), which might be circular, semi-circular, square, oblong, &c., according to taste; and doors should lead from it to passages connected with the rooms. Many advantages, besides saving of room, might result from this arrangement. If the stairs were of stone or iron, they would form, from their isolated position, a safe mode of exit in case of fire.

With strong doors, this would be an additional protection against thieves at night. The stairs might be either in the well-shaft, i.e., open in the centre, or in the spiral, or cork-screw form, of which we have examples at the Crystal Palace. The latter would take up the least room; but it might be dangerous for young children; and whatever form of staircase is used, of course it must be sufficiently open and extensive, to allow of large articles of furniture being carried up and down.

Supposing the well-form to be selected, I would propose to fill up the centre by placing in it the tanks that supply the house with water; and the heated air from the hall-lamp should be made available to protect the tanks from frost in winter. We know what domestic nuisances arose out of tanks and pipes being attacked by the frost last winter.

Besides, tanks should be so placed that they may be readily got at, and any leakage from them easily detected. At present they are hemmed in with walls, and do infinite mischief before the leak can be discovered. By filling up the centre of the

well-staircase in this manner, accidents would be prevented to children from their favourite practice of riding or sliding down the banisters. It is not every household that can furnish a successful imitation of Blondin.

I should be glad to see prizes or medals offered by the promoters of the Exhibition of 1862, for models of the best constructed and most convenient houses for the middle class, fitted with all modern improvements; and it should appear what the cost of construction would be.

Before concluding, I would notice the great advantage obtained by using the white or Suffolk brick, instead of "compo." The latter is, in my opinion, a deplorable invention. Painting it is enormously expensive, and must be renewed every now and then. Colouring is cheaper, but very unsatisfactory. I do not know what your readers may think of it, but I have resolved to have nothing to do, in future, with a compo house. P.

"THE WORKMEN'S INSTITUTE."

SIR,—I am one of your numerous readers who would be very glad to do anything that would raise the social condition both of mechanics and of those who in a humbler position have to toil for their daily bread. In one of your late numbers a correspondent asks a question, and you refer him to the Workmen's Institute. The following week I was grieved to find this suggestion replied to by a building workman to the effect, that he was afraid no Institution with which employers have any connection is likely just now to be very popular amongst the working men. I intend that workmen have hearts to bear gratitude to their employers who try to secure their welfare, and your correspondent is at fault when he implies that distrust is to be anticipated. Clearly the employer should be the friend of the employed: each must work in harmony to lead to the success of both. The Workmen's Institute was formed by a few gentlemen as a means to benefit those of all occupations who would avail themselves of it, either as reading-rooms or by attending lectures and evening classes. It has established a benefit club, about which Mr. Tidd Pratt said "that he is not aware of the existence of any club for the working classes equal to it in the kingdom." The trustees are the highest of the mercantile community, under whose guarantee every member of the club will realize the relief for which he subscribes, whether in sickness, superannuation, endowments for children, or the security of a sum of money at the death of a member or of his wife. The members are fast increasing, and I feel assured the club is destined to become of great importance. Working men do not look on with apathy at the willingness of masters to render them assistance, but rejoice to see them united for such a purpose. There is much to do: the dwellings of mechanics and labourers in this great metropolis are mostly bad, ill-ventilated, highly rented, and imperfectly supplied with water,—a family frequently occupying but one room, which is used for eating, sleeping, washing, &c.; necessitating the indiscriminate mixing of the sexes, and its consequent bad results. The sons are by custom sent to work at an early age, and receive but a scanty education: evening instruction and zealous teachers are, therefore, much required. Believe me that, in making provision for such wants, employers secure the esteem of the employed, if accomplished with the aid of an association or by individual exertion. A BUILDER.

THE POVERTY OF LABOUR.

SIR,—It is a fact that the masses are ignorant of the science of political economy; and I fearlessly assert that it is as necessary to the working man as are the chart and compass to guide the mariner. Working men who are acquainted with political economy do not follow blind teachings; knowing that to shorten the hours of labour and raise the rate of wages at the same time, when there is surplus labour in the market, is the dream of a visionary or a disingenuous cry to entail suffering and privation on their fellows. The object of political economy, says Mr. McCulloch, "is to point out the means by which the industry of man may be rendered most productive of those necessities, comforts, and enjoyments which constitute wealth; to ascertain the circumstances most favourable for its accumulation, the proportion in which it is divided among the different classes of the community, and the mode in which it may be most advantageously consumed." In order to ascertain what are the laws that influence wages, it must be first considered what wages are. The whole wealth or produce of the earth is divided into three portions: one falls to the share of the proprietors of the soil; another to the owners of the capital or tools, including food, which sets labour in motion, and is, in fact, nothing but the stored-up results of labour; and the last falls to the share of the labourer, and is the remuneration for his toil. We will not meddle with the proprietors of the soil at present. The two last portions fall to the employer and employed, and the proportion in which they are to be allotted is a constant source of struggle between these two parties; the one,—the capitalist,—endeavouring

to get his labour as cheap, and the other to sell it as dear as possible; wages being influenced by the law of supply and demand; that is, when capital is abundant and labour is scarce, wages must be high; when capital is scarce and labour abundant, wages must be low. One of your correspondents recommends religion, temperance, and economy; but these virtues would fail unless the masses rightly understood the population question. This involves the most prominent, if not the entire, cause of poverty. Mr. Mill states, that the only possible mode of raising wages, and benefiting the poor, is by inducing them to exercise a greater control over their reproductive powers. Mr. John Wade ("History of the Middle and Working Classes") states,—"A population that follows, and not precedes, the augmentation of national wealth, is the great secret of popular amelioration: without this the advantages of increasing opulence, civilization, and commerce, can never be participated in by the working classes. Social improvements in every shape may advance over the land, but will never touch the low and stagnant pool in which they are immersed." The same author adds,—"The rich are only indirectly but the poor are directly interested in the doctrine of population: the former are the buyers of labour: they profit by the diminution of its price, caused by the competition for employment: by exercising a control over their numbers, the industrious have a complete control over the wages of labour: fluctuations in the amount of capital cannot affect them: whether society be stationary or retrograde in wealth, they can always preserve their condition unimpaired, by proportioning the supply of the commodity in which they deal to the demand. On the other hand, without the exercise of this conservative power over their numbers, no enlargement of national resources can permanently improve their circumstances: every addition to the means of employment and subsistence would only call into existence a corresponding number of claimants to participate therein; and the share of each would not be augmented. Society would be more numerous, but more happy. Even the best schemes for their relief and more employment, devised by the wisest and most philanthropic individuals, must prove illusive, unless seconded by their own co-operative agency. Therefore all remedies are transient, all projects for improving the condition of the working classes vain, unless accompanied by the exercise of that prudential virtue in individuals, and that policy in the State, which shall induce both to concur in limiting the number of the people to the means for their employment and support." I am fully aware of the justice existing on the question of population; but, knowing that the subject only requires the serious consideration of those who desire to benefit their fellow-men, and that the *Builder* is the advocate of progress, I venture to submit this letter to the consideration of your numerous readers. JOHN BRIEN, Operative House Painter.

COMPENSATION CASES.

THE LONDON, CHATHAM, AND DOVER RAILWAY COMPANY.

MR. HENRY PROCTOR, an inspector of the V division, residing at Clapham, was summoned before Mr. Burcham (Southwark Police Court), by the London, Chatham, and Dover Railway Company, to show cause why he refused to accept a certain sum offered to him by the latter as compensation for giving up a house and premises for the construction of the above railway.

Mr. Lloyd, from the office of Messrs. Freshfield & Newman, the solicitors to the railway company, attended to support the summons; and Mr. Bickley for Mr. Proctor.

Mr. Lloyd said that Mr. Proctor's house was required for the construction of the railway, and the required orders had been served on him, according to their Act of Parliament. The company's surveyors had seen the property, and ascertained that the defendant, Mr. Proctor, was a yearly tenant, at 20l. rental. The company accordingly offered him 25l. compensation, which he refused to accept, and hence the present summons for his worship's decision.

Mr. Bickley said that his client objected to the company's offer, as it was not sufficient to compensate Mr. Proctor for his removal. He had lived for some time in the house at the yearly rental of 20l., which was worth 25l. a year, and he could not get another house suitable for him in the neighbourhood of his business under 30l. a year. He therefore considered that he was entitled to 35l. 17s. as compensation for removing, fixtures, &c., consequent upon that.

Mr. Garner, valuer of Clapham, said he had inquired into the claim at the request of Mr. Proctor, and he considered he was entitled to the sum of 35l. 17s.

On behalf of the railway company, Mr. Hammond, surveyor and house agent, of the City, was called. He had examined Mr. Proctor's premises, and made a calculation as to the compensation he was entitled to, which he considered to be 25l.

Mr. Burcham asked him how he came to that conclusion.

Mr. Hammond replied that he allowed 5l. improved value of premises, 5l. for removal, 2l. 10s. for depreciation of furniture, 5l. 5s. for fixtures, making with other items 22l. 10s., and he allowed that sum to be increased to 25l., as the company wished to be liberal.

Mr. Burcham observed that the chief point of the matter in dispute was the rent. The defendant had estimated the value of the rental to be 25l., although he only paid 20l., and there was no contradiction to that. Mr. Proctor had given evidence that he now had to pay 30l. a year for a house not so convenient for him as the other. He considered that he was entitled to more than the railway company had offered, therefore he adjudged the latter to pay him 30l.

Mr. Bickley asked for costs in this case, as the railway company had put his client to considerable trouble and expense in defending his claim.

Mr. Burcham considered that in such a case the company ought to pay costs. He should therefore order them to pay a guinea and a half in addition to the 30l.

THE MYDDLETON STATUE AND DRINKING-FOUNTAIN.

—It has been resolved to close the subscription-lists on the first of October next. The subscriptions already promised, including the guarantees, are under 600l. This includes two subscriptions of 50l. each from the New River Board and the Goldsmiths' Company. Very little, therefore, has been contributed as yet by Islington itself.

PATENTS CONNECTED WITH BUILDING.*

APPARATUS FOR COLLECTING THE EXCRETA OF TOWNS AND VILLAGES, AND FOR FACILITATING THE DRAINAGE OF HOUSES. *J. W. Rogers, Roberts-town, Kidare.* Dated 11th October, 1860.—A strong air-tight pipe of suitable capacity is placed in the sewer, and is made to communicate at one end with a large close air-tight chamber, so constructed as to admit of a vacuum being formed therein when required. This air-tight main sewer pipe is subdivided by means of valves or other analogous contrivances of convenient length; and it communicates, by means of branch pipes, with the water-closets of all the houses in the district or street through which the main sewer pipe passes. Each of these branch or house pipes is also provided at some convenient place with an air-tight valve, to which access may be obtained with facility when required; and, by closing the valves of the respective branch pipes, all communication with the main sewer pipe may be temporarily suspended. The main sewer pipe, being also provided at suitable places and distances apart with air-tight valves of any convenient or suitable construction, the main sewer pipe may be capable of being divided, as above mentioned, into several air-tight sections or compartments of convenient size simply by closing two of the air-tight valves. Air-tight stand pipes, or other analogous contrivances, are adapted to each section of the main sewer pipe for the purpose of communicating with the interior of the sewer pipe; so that, by means of a portable air-pump, the air from any particular section of the sewer pipe may be exhausted when required.

MACHINE FOR CUTTING OUT BRICKS AND DRAINAGE PIPES. *C. Stevens, Welbeck-street, London.* A communication. Dated 15th October, 1860.—The object of the present invention is a machine for cutting, boring, and drilling calcareous stones to be used for building and other purposes. The machine is composed of a cogged driving wheel, which, gearing with other cogged work, causes four drills to revolve. There are two pulleys over which a ribbon saw passes; the pulleys being put in motion by the gear work. The saw cuts out the bricks and pipes of any required size or shape, the drills perforating them with holes of any required diameter. The stone is placed on a carriage or slide which brings it within the action of the saw, which is kept at a proper tension by means of an adjusting screw. The machine is made to work in a receptacle filled with water; which, being kept in a state of agitation by the rotation of the machine, washes the stone dust, and renders it perfectly white. This white product, on being subjected when dry to the action of oil or coal-tar at a high temperature, becomes more adherent and less liable to be acted on by frost. The bricks can be grooved by means of the saw to facilitate the adherence of the mortar.

Books Received.

The Busy Hives Around Us: a Variety of Trips and Visits to the Mine, the Workshop, and the Factory. London: Hogg & Sons.

A PLEASANT and instructive volume this is, in the style so popular of late years, in which amusement and grave information are combined in a readable form. There is—A Walk through a London Warehouse; India Mills, Hexton Norris, and the Cotton Lords; My Lords of Coal; a Descent into the Arley Mine; a Superfine Article in the Woollen Line; Her Majesty's Printers; the Falcon Glass Works; Railway Colonies and Locomotives; the Spitalfields Weavers; and the Cheap Press. The style is rather discursive (as, indeed, it should be); otherwise we would have selected a few of the many interesting facts noted as it runs on.

An Unpopular View of our Times. By PATRICK ALLAN FRASER. Edinburgh: Macphail. London: Simpkin, Marshall, & Co. 1861. We have here a thoughtful and suggestive work, described by the author as "the result of a free inquiry into the existing sources of demoralization, and the causes that have rendered inefficient the schemes of social reformers, lay and clerical." Doubtless there is much room for amendment in things as they are, even in the latter half of the nineteenth century; but this author, we think, takes rather an extreme view of our defects, which he examines through a strong magnifying glass, while he only sees our more commendable features as if through the wrong end of the telescope. In his tendency to dissect, spread out, and exaggerate

* From the Engineer's lists.

all that is objectionable in the social system, Mr. Fraser occasionally broaches subjects with which he has not a sufficient acquaintance; and reasons falsely, of course, on his own defective premises. Thus, in respect to drainage, he seems to imagine that small drains have hitherto been the erroneous rule, and large ones to be the grand desideratum; whereas, every one at all acquainted with the subject very well knows that large sewers are the old rule, and small the exception. He talks of the "sluggish flow" of the sewage in small drains, as if the flow were faster in the large; whereas the contrary, if anything, must be the case; and considers the small more likely to lodge their contents in a stagnant state than large ones; which is also precisely the contrary of the fact; comparatively small streamlets of sewage in large drains or sewers being much more likely to do so than in small. Of course there is a limit to diminution of the size of drains as there is to the increase of large ones; but the author is here clearly astray in his reasoning, as he is in not a few other instances.

Nevertheless, a work such as this, full of original thought, in which the faults of our social system are exposed without mercy, cannot, though the rule is to take as adverse a view of everything as possible, but tend to good, even though the faults of the system be exaggerated.

Miscellaneous.

IRON COLD ROLLED.—Experiments made at Pittsburg, Pa., on the strength of iron compressed by cold rolling, are said to show that the operation imparts to this metal a strength of about 110,000 lbs. per square inch, when before it bore but 24,000 lbs.

STATUE OF THE PRINCE OF WALES.—Measures have been adopted, says the *Edinburgh Post*, to extend the original design of placing a marble bust of the Prince of Wales in the Hall of the High School, as a memorial of his Royal Highness's visit. It is now proposed that a statue should take the place of a bust. Mr. Steell has succeeded in producing a faithful likeness of his Royal Highness.

VICTOR HUGO ON THE ROCKS AT GUERNSEY. A Paris journal, the *Actualité*, says that a fine portrait of Victor Hugo, the poet, having been made during his sojourn in Brussels, in 1851, the sight of it suggested to M. Drouet, a young sculptor, to propose the idea of sculpturing on one of the rocks around the island of Guernsey, the head of the author of "*La Légende des Siècles*," which was written in Guernsey. M. Drouet, who is a young artist, is known for being the author of a gigantic statue of M. Gericaud, a French painter, born 1791, and who died in 1824.

BUILDINGS STRUCK BY LIGHTNING.—There has been a wholesome, though occasionally destructive, abundance of lightning this summer; and buildings and even people have been struck in various quarters of the country. The effects on human life, however, have been less fatal than might have been expected. Nevertheless a good many people have been injured, and some killed; and in one week recently the lightning fell in different parts of France, and particularly in the eastern departments, not less than thirty-three times, on every occasion either killing some one or inflicting serious personal injury. During a recent thunderstorm, the spire of King's Sutton Church was struck by lightning. The electric force carried away some of the crockets of the spire. Attracted by the stove, it flew up the centre aisle; and, taking the course of the piping, made its exit by one of the clerestory windows; carrying away the iron bar, but without doing any further damage. "It will hardly be believed," says the *Banbury Guardian*, "that the inhabitants, notwithstanding several warnings, still allow the spire to remain without the protection of a lightning conductor; and it is hoped that this additional warning will induce them to consult their own safety, as well as the preservation of their beautiful structure, by the immediate adoption of a means of security so simple and inexpensive."—A few days ago a violent storm passed over the village of Lowdham, Balcote, Carlton, &c., in Nottinghamshire, and the electricity struck the parish church of Balcote, entirely demolishing it and rendering it a shapeless mass of ruins.—During a storm which visited Glasgow, Nelson's Monument, in the Green, was struck by lightning. A large stone fell from the top; striking against the base and dashing against the railing, which is broken. The top of the monument is rent and shattered, and a watchman has been stationed to keep passengers out of harm's way. A similar catastrophe befell this monument upwards of forty years ago.

INAUGURATION OF A STATUE AT LEEDS.—The memory of the late Mr. Robert Hall, M.P. for Leeds, and Recorder of Doncaster, has been honoured by the erection of a statue in the Victoria Hall of the Leeds Town Hall. The statue has been presented to the Mayor and Town Council on behalf of the subscribers. It is colossal in size, is of white Carrara marble, and has been executed by Messrs. Dennis Lee & Welsh, of Leeds, sculptors. The deceased is represented in his official costume as Recorder of Doncaster, his right hand stretched out in the act of speaking, while his left holds a roll of paper. At his feet one of the principal objects and acts of his life is represented in the Reformatory Bill, laid upon a volume of the statutes. The pedestal is of Aberdeen granite, and is inscribed, "Robert Hall, Esq., M.P., 1857."

PREMIUMS OF INSTITUTION OF CIVIL ENGINEERS.—The council of the Institution of Civil Engineers have awarded the following premiums for papers read during the session 1860-61:—1. A Telford medal and a council premium of books to W. H. Preece, for paper "On the Maintenance and Durability of Submarine Cables in Shallow Waters." 2. A Telford medal, and the Manby premium, in books, to G. P. Bidder, jun., for his paper "On the National Defences." 3. A Telford medal, to F. Fox, for his paper "On the Results of Trials of Varieties of Iron Permanent Way." 4. A council premium of books to F. Braithwaite, for his paper "On the Rise and Fall of the River Wandle; its Springs, Tributaries, and Pollution." 5. A council premium of books to G. Hurwood, for his paper "On the River Orwell and the Port of Ipswich." 6. A council premium of books to W. Hall, Assoc., for his paper "On the Floating Railway at the Forth and Tay Ferries."

MEDALS OF THE SOCIETY FOR THE ENCOURAGEMENT OF FINE ARTS.—At the sixth and last *conversazione* of the season, the honorary secretary, Mr. Otway, having read the report of the council for the past year, the following prizes were awarded:—Historical painting.—To Mr. M. Stone, a silver medal, for his picture of "Claudio and Hero," in the Royal Academy. Landscape.—To Mr. M. Callum, a silver medal, for his picture of "Spring—Burnham Wood," also in the Royal Academy. Genre.—To Mr. Calderon, a silver medal for his picture of "La Demande en Mariage," in the Royal Academy. Water-colour painting.—A medal to Mr. Samuel S. Read, for a painting of a church at Antwerp (Old Water-colour Society); and to Mr. E. H. Warren, for his "Rest in the Cool and Shady Wood" (New Water-colour Society). To Mr. George Halse was awarded the Society's medal for sculpture, for his bronze group, called "The Tarpeian Rock," now exhibiting in the Royal Academy. The architectural prize was awarded to Mr. A. W. Blomfield, for his design for a mission-house now in course of erection at Bedfordbury (Covent Garden), in the Architectural Exhibition.

THE SOUTH LONDON MUSEUM CONVERSATIONS. At the Kensington Museum, on the 11th inst., a *conversazione* was held in aid of the funds for the formation of the contemplated museum for South London, of which we lately gave some account. The Vernon Gallery, the Sheepshanks and Turner collections of paintings, the library, and the whole of the Fine Arts collection were thrown open for inspection. A fine collection of gems, diamonds, ancient and modern plate, armour, gold and silversmiths' work of high art, many of which were at the late *conversazione* at Ironmongers' Hall, were also exhibited by some of the City companies, the aldermen of the city of London, several distinguished collectors, and the leading jewellers and gold and silver smiths of the metropolis. Shortly after nine o'clock the company proceeded to the theatre attached to the museum, where Earl Granville presided. The building was filled to overflowing with an influential audience. The Rev. Mr. Hussey commenced the proceedings by moving the following resolution:—"That the formation of suburban museums among the homes of the people is a measure highly calculated to promote the advancement of human knowledge and the increase of the national wealth." This resolution was unanimously agreed to; as also one to the effect,—"That the proposed South London Museum is worthy the encouragement and support of the friends of social progress within the district and elsewhere." Earl Granville, in the course of his remarks, said it was to be expected that the new museum would take rank among the most useful and important of those in the metropolis. The company afterwards returned to the rooms, and their inspection of the collection was enlivened by music, including that of the band of the South London Vocal and Instrumental Union.

CEMENTS.—A correspondent of the *Engineer* says,—"Having seen the notice of a new cement, formed of a composition of oxy-sulphur of lime and iron pyrites deprived of their sulphuric acid, I beg to say that I have seen this refuse of sulphuric acid mixed with common lime and sand, ground up together, that has stood exposed to the action of escaped acid from a chemical works more than twenty years, and is as hard and durable as the day it was set. I have used it in the repair of chimneys for a number of years, and find it the best cement for resisting decay."

WESTMINSTER BRIDGE.—A Parliamentary return just issued shows the amount expended on Westminster Bridge since the 6th day of August, 1860, to have been 49,460l. 6s. 6d., and on the approaches, 1,624l. 0s. 7d. The estimated expenditure for completion of the bridge is 68,789l. The estimated expenditure for completion of purchase of property for the approaches and execution of works is 136,185l. To complete the bridge it will be necessary to apply to Parliament for the sum of 60,692l.; and 2,500l. for the approaches. The money arising from the sale of the stone of the old bridge, and from the sale of the plant now in use, will, it is estimated, produce about 23,000l. The engineer reports that, with favourable weather, the bridge may be completed in March next year.

A SUGGESTION AS TO CHIMNEYS.—Like your correspondent, L. J. L., I am an ardent admirer of the old-fashioned spacious chimney recess, and trust it may again be generally adopted, as all the latest improvements for warming the fresh air as it enters, taking currents of warm air to upper rooms, &c., might be combined with it. The objections to the old chimney have arisen from the diminished fires of modern times not being adapted to the capacious flues unless some arrangement for carrying up the smoke without permitting draughts be provided. Instead of the division in the flue suggested by your correspondent, I will propose the contraction of the chimney-throat recommended by Dr. Neil Arnott; and, if a small detached open fire-brick stove be placed in the recess, more heat and better ventilation would be secured, and the comfort of the room be greatly increased.—A. J. B.

A NEW CEMENT.—M. Kuhlmann, whose application of silicate of potash to house painting has occasionally been alluded to in our columns, has just sent a communication to the Academy of Sciences on a means of deriving profit from the refuse of raw soda, which is a great nuisance in the soda manufacture. He mixes together equal parts of the refuse of the soda and of that of the sulphuric acid manufactories, and thus obtains sulphate of lime, that is, plaster of Paris. The manipulation of the two mixtures is rendered perfect by grinding the mass under a vertical millstone; and, when it has become sufficiently homogeneous, it may be moulded into architectural ornaments, which in course of time become as hard as brick. The compound, it is said, acquires in a moist atmosphere more hardness than in a dry one, and at length becomes extremely sonorous; its colour is like that of common earthenware. It will, after a certain time, resist the effect of frost; especially when, while fresh, its porosity has been diminished by compression; or when, somewhat later, it has been watered with a solution of silicate of potash.

WILLIAM DARGAN.—The name of an Irishman, of whom his country may well be proud, cannot be more appropriately introduced than in connection with the locality of Bray. Although the works of William Dargan may be seen in almost every part of Ireland, it is here that he has, of late years, concentrated his energies, now removed almost entirely from the active pursuits in which he was engaged for upwards of thirty years. Under his guiding eye, and by the judicious investment of his abundant capital, a small and comparatively obscure village has been rapidly converted into a charming marine outskirt of Dublin. Although Mr. Dargan's operations only commenced in 1856, Bray already abounds with well-built villas and terraces, and possesses a population which promises to increase as rapidly as that which flowed into Kingstown after the completion of Mr. Dargan's first great work in Ireland—the Dublin and Kingstown Railway. Mr. Dargan, now in his sixtieth year, is in the enjoyment of vigorous health; and we are sure that all fame, unite in the earnest hope that he may, with his clear head and warm heart, for many years to come, co-operate in advancing the material development, as well as the intellectual improvement, of this country.—*Sir Cusack Roney's "Month in Ireland."*

THE PARISH OF ST. JAMES, CLERKENWELL.—A site for a new church and schools has been obtained in Allen-street, Clerkenwell, from the Governors of the Charterhouse, at a reduced price. Upon this site it is proposed to erect a church, to be called "St. Paul's, Clerkenwell," containing 1,200 sittings, 500 of which will be free, and the remainder let at a graduated scale. The plan also proposes the erection of schools for boys and girls, to accommodate 480 children. On Monday, July 8th, the foundation stone of the schools was laid by the most Hon. the Marchioness of Northampton.

CONSECRATION OF THE GREAT NORTHERN LONDON CEMETERY.—The Great Northern London Cemetery and the chapel in connection with it have been consecrated by the Bishop of Rochester. The cemetery is picturesquely situated, in the vicinity of the Colney Hatch and Southgate station of the Great Northern Railway. A short line has been formed from Colney Hatch Station to the ground, where the Cemetery Company has erected a private station. The cemetery altogether covers 142 acres, eighty-seven of which are consecrated. The chapel is in the Early English style, and is seated for 150 persons.

GAS.—The Romsey Gas Company have reduced the price of their gas from 7s. 6d. to 6s. 8d. per 1,000 cubic feet.—The Devizes Gas-light Company have declared a dividend, as usual, of 8 per cent.—At the Wick and Pulteney Town Gas Company's annual meeting, when a dividend of 5 per cent. per annum was declared, a memorial from a number of gas consumers was read, praying for a reduction of price from 12s. 6d. now paid, but the meeting came to the decision that they could not reduce the price till the profit increased. Thus it is that money-making men allow their greed of gain to stand in the light of their own best and surest interests.

ADORNMENT OF THE PARK AT BATH.—The work of adorning the park with statuary and vases is completed. The figure of the "Goddess of Sculpture" has been erected on a pedestal on the lawn. This figure, which is in Bath stone, was carved, according to the *Bath Chronicle*, some twenty-five years since, by Mr. John Osborne, a Bath man and self-taught artist (who was also the sculptor of Jupiter's head, which forms a feature in the upper dell), but up to a very recent period it lay neglected at Box. The figure, with the pedestal, stands 15 feet high. For this figure and various vases the public are chiefly indebted to Mr. Alderman Bush, of the Circus. Mr. Wilson, architect, has given drawings for the pedestals, and personal supervision to their erection; and the masonry and carving have been completed by Mr. H. Treasure. The pedestals are carved in Bath stone.

THE PLATE-GLASS TRADE.—A memorial has been presented by the plate-glass manufacturers to Lord John Russell, submitting that, as negotiations are pending for a treaty of commerce between Great Britain and Belgium, they have the strongest claim for the admission of their produce into the markets of Belgium free of any import duties. They urge various onerous reasons for their request. The memorial is signed by the following plate-glass manufacturers, representing the whole of the plate-glass companies of Great Britain:—E. Sullivan, lessee of the British Plate-Glass Company's Works; R. W. Swinburne & Co., Newcastle-upon-Tyne and South Shields; R. Hodgson, chairman of the Thames Plate-Glass Company; E. Coston, chairman of the London and Manchester Glass Company; W. Pettigean, director of the Union Plate-Glass Company, St. Helens; B. Wood, director of the Birmingham Plate-Glass Company.

THE SOUTH METROPOLITAN SEWER.—About 200 of the principal foremen, clerks, and others, in the employ of Mr. Webster, the contractor for the South Metropolitan Outfall Sewer, sat down to dinner at the Ship Hotel, Woolwich, on Wednesday evening, the 10th inst.; Mr. Wilson, foreman of navies, who occupied the vice-chair, subsequently presenting to Mr. Matthew Jennings, the head manager, a silver goblet, in the name of all the employers on the works, by whose subscriptions it had been purchased, as a token of their esteem. The goblet bore an appropriate inscription, and was valued at 31l. 10s. Mr. Sloman, the host, who officiated as chairman, afterwards presented to Mr. Jennings a silver salver, the gift of numerous tradesmen of Woolwich and the neighbourhood. Mr. Jennings, in replying, said that he had always endeavoured conscientiously to perform his duty to his worthy employer, but that he had never found it incompatible with the duty which he owed to those employed under him.

SOUTH KENSINGTON MUSEUM.—The visitors during the week ending 13th July number 13,023.

FALE OF A RAILWAY BRIDGE.—The railway bridge across the Fiddich, says the *Banffshire Journal*, has fallen. Very unfortunately a man and a girl happened to be below the bridge when it fell. Their death, of course, was instantaneous. The place is said to be a total wreck, as both the arches are completely down. The bridge was all but complete. It was to form the connecting link between the Keith and Duftown Railway, now approaching completion.

BUILDERS' EXCURSION.—On Saturday last the foremen and workmen in the employ of Messrs. Brown & Robinson, of Finsbury, had an excursion to New Malden and Coombe, Surrey. At the dinner, when nearly 150 sat down, the health of the members of the firm was drunk, and responded to by Mr. Robinson, who presided. He said that he experienced great pleasure in being invited to preside on such an occasion as the present. He believed that such gatherings were calculated to engender and increase a spirit of goodwill amongst masters and men, and also tended to further the interests of employer as well as employed. It would be impolitic in him to enter with any minuteness into the details of trade matters as they at present exist: he trusted, however, that all the disputes which are now engaging the attention of the mechanics of every department and branch would shortly be amicably settled; and, like the showers which on a summer's day come suddenly upon us, pass off and leave a clear blue sky and bright sunshine behind. He hoped, also, that should any further misunderstandings arise, they would be fairly argued in good old English fashion; and, if necessary, manfully fought; yet with that spirit of good feeling which betokens desire for justice.

BRADFORD.—The foundation-stone of a new church, for the townships of Bradford and Beswick, has been laid. The church is to contain 1,000 sittings; half of which will be free. It is also proposed to erect a parsonage and schools. The total expenditure will be 4,500l. The sum of 3,000l. has been already subscribed, including 500l. from the working classes. The late Lady Houghton gave 1,000l. towards the endowment, the interest on which has increased it to 1,250l. at the present time. The church, which will be called Christ Church, has been designed by Messrs. Hayley & Son, architects, in the Early Geometric style. The plan includes a nave, chancel, transepts, vestry, and organ chamber; also a tower and spire. There will be a chief west entrance; and doors will likewise be placed in the tower on the south side, and in the transepts, so as to afford speedy egress from the building. The material to be used in the erection will be grey brick, relieved with red, and stone dressings. The interior dimensions will be 25 feet from the floor to the wall plate; the length being 120 feet, and the width 45 feet. The roof will be of open timber work, and the seats of stained deal. The chancel will have a circular apsidal termination, and be lighted by three triple-lighted traceried windows. A large five-light traceried window will be placed in the west end, and one large traceried window in each transept. The nave will be lighted north and south by two two-light windows, having simple tracery in the head. The contractor is Mr. Grayson, of Bradford.

WELLINGTON COLLEGE CHAPEL.—The Prince Consort, on the 12th instant, laid the foundation stone of the new chapel about to be erected in connection with the institution. His royal highness visited the various school-rooms and dormitories; and, having partaken of lunch, left the college. The proposed chapel is to be built in the Pointed style of the fourteenth century, from a design by Mr. Scott, R.A.; the materials of which it is to be constructed being red bricks of two shades, dressed with stone to accord with the college. The body of the chapel will be 67 feet long by 26 feet wide, and the *abidal sacramentum* 24 feet long by 22 feet wide; the walls being 30 feet, and the ridge of the roof being 50 feet high. There will be five windows on each side of the body, and five high lights to the *abidal sacramentum*. It will be approached from the college by a covered passage leading to the western porch, over which will be a large rose window. There will be a lofty bell-tower or spire, 100 feet high, with a lead or zinc roof. It is also proposed to erect a library in the Italian style, 50 feet long by 28 feet wide, to correspond with the college, from a design by Mr. Shaw, which will project 50 feet in front of the college, so as to break the long straight line of building. The estimated cost of the chapel, which will hold upwards of 300 persons, is 5,600l.; and of the library, 2,800l.

THE HOUSES OF PARLIAMENT.—It cost 5,709*l.* to light the Houses and approaches in the year ending the 31st of March last. The expenditure upon the building and furnishing, lighting, and ventilating of the Houses since the commencement of last year has been 35,769*l.*; this is in addition to the current expense of maintenance and repairs, lighting, and ventilating, and it does not include the cost of decoration with fresco paintings and statuary.

MUSIC IN 1862.—A proposition is being circulated by several gentlemen connected with music, for building an International Concert-room at Kensington, for the display of music during the forthcoming Exhibition of 1862. An application to that end, we are informed, has been made to Her Majesty's Commissioners for the vacant site at the back of the conservatory of the Royal Horticultural Society's Gardens; and plans of the proposed International Concert-room have also been submitted; but that part of the undertaking remains in abeyance until the movement is more thoroughly matured.

THEATRE ROYAL, HAYMARKET.—The new comedy, "My Lord and My Lady; or, It might have been Worse," written by Mr. Planche, proves a very great success. Although founded on a piece by M. Alexandre Dumas, it is not to be viewed as an adaptation, and displays in the construction and writing the careful finish and the elegance for which Mr. Planche is remarkable. Without any violent or startling effects, it holds the attention of the audience through five acts without the slightest flagging, working out a phase of life in 1770, naturally and unaffectedly. Mr. Buckstone has a part that suits both himself and the audience, and Mrs. Charles Mathews has never been seen to so much advantage as in this play. Mr. C. Mathews, Mr. Hows, Mrs. Wilkins, and Mrs. E. Fitzwilliam have also parts in it. The room scenes arranged for it are, as is usual here, very good.

MANCHESTER ASSIZE COURTS.—At the recent local session, the Assize Court Committee reported that the works were progressing. One story of the main building was already complete so far as the masonry and brickwork were concerned, and the main story was in course of erection. The judges' lodgings were still further advanced. Whilst the masonry and brickwork were thus progressing on the site, the contractor was busily engaged in preparing the joiners' work on his own premises. Beyond an alteration in the central feature of the building, no important changes had been made in the original design. The committee had paid to Mr. Bramall, the contractor, 17,000*l.*, and applied for an order in his favour for a further instalment of 5,000*l.* Loans had been contracted to the extent of 30,700*l.*; and as the committee considered that chief rents, interest, and other current expenses, should not be defrayed out of borrowed capital, they proposed to apply at the October sessions for a rate of a halfpenny in the pound. The report was adopted.

STABLE SMELLS.—A correspondent of the *Times* suggests a few simple means of counteracting the unpleasant ammoniacal smell in stables. "If those who have stable manure will take 4 oz. of sulphuric acid and two gallons of water, and mix them in a garden watering-can, with the rose on, then sprinkle the contents over the manure every evening (supposing it to be a cartload), it will counteract the unpleasant smell. Its action is this:—The ammonia as it arises from the manure is fixed by the acid. As the acid in its concentrated state is very powerful, it requires much care; also when in its diluted state care must be taken that none of it is split on the user's clothes. It is also requisite to rinse the can out immediately with water. I would also observe that as many stables are very offensive and most unwholesome from the ammonia, which is continually arising, if in such stable a leaden trough, something like what ladies grow mignonette in, in their chamber windows, were fixed over the stable doors in an aperture, leaving a small space open above the box into the stable yard, and this box were two-thirds full of a mixture of 2lbs. of strong sulphuric acid and three quarts of water, the stable would be comparatively sweet. Ammonia has a great affinity for sulphuric acid, thus forming sulphate of ammonia, which is one of the very best manures we have. I would also say that if tallow-chandlers would put four ounces of chloride of lime into two quarts of water, stir it about for a minute, then let it stand half an hour before they put the rough fat into the copper, and put the clear liquid of the above in, it would take all the unpleasant smell away so much complained of at this season of the year, and would do no injury to the tallow."

THE ARCHITECTURAL ASSOCIATION.—The annual dinner of the Architectural Association was held at the Whittington Club, Arundel-street, Strand, on Friday evening, the 12th instant, when several speeches were made, and the evening was spent pleasantly.

THE CORNICE ACCIDENT NEAR THE MARBLE ARCH.—An inquest was held on Saturday in St. George's Hospital, by Mr. Bedford, on the body of William Moore, aged 48, who was killed, as already mentioned, by the falling of a newly-erected cornice, at No. 6, Great Cumberland-street. Evidence was given showing that the heavy rain had caused the cornice to fall out upon the scaffold-boards, that the cornice was not sufficiently balanced to hold its place without cement, and that the scaffold was perfectly well formed, but was broken down by the weight of the cornice when it fell, in addition to the weight of various heavy materials placed upon the scaffold-boards. Verdict, accidental death; the jury stating that in their opinion the accident had arisen through the work being done in the wet weather. They also recommended that all builders, when engaged in repairing the exterior of houses with area railings, should well board over the spikes.

THE GOVERNMENT BUILDINGS AT OTTAWA, CANADA.—The Government buildings at the new capital of the Canadas, of which we some time since gave an account, are still progressing. The roofing of the outer portion of the Departmental Buildings is at present in progress, and the roofing of the main portions of both blocks was about to be commenced by the last accounts. The great dimensions of the Parliament Buildings account for this structure not being in as forward a state; but the *Ottawa Citizen* states that the main front and other portions will shortly be ready to receive the roofing. The rumoured stoppage of the works on the Parliament Buildings, therefore, was a mistake. A visit to the Government Buildings was lately made by Prince Alfred, attended by the Lord Lieutenant. The party were conducted by the architects of the Parliament Buildings, Messrs. Fuller & Jones, to view the Parliamentary block of buildings, and the model of the library of these buildings; and Messrs. Stent & Laver, the architects of the Departmental Buildings, explained the ground plans of these buildings.

TENDERS

For erecting beer-stores, storekeepers' residence, stables, &c., at Farnborough, Surrey, for Messrs. Simonds. Mr. William Brown, architect. Quantities supplied:—
Woodroffe.....£444 0 0
Foote (accepted).....578 0 0

For building a house for Mr. C. Selby, at Ighiteham, near Seven Oaks, Kent. Mr. C. W. Epp, architect. Quantities supplied:—

	Allow for Old Materials.
C. Fish.....	£1,400 £150
A. M. Greig.....	1,860 150
Godbold.....	1,104 125

For building six houses at Brompton, for Mr. Joseph Hardy. Mr. G. A. Burn, architect. Quantities supplied:—

R. Watts & Son.....	£8,593 0 0
S. B. Smith.....	8,356 0 0
Hill & Robinson.....	8,144 0 0
A. M. Greig.....	7,969 10 0
Downs.....	7,955 0 0
Stimpson.....	7,846 0 0
Adamson.....	7,795 0 0
C. Fish.....	7,800 0 0
J. & C. W. Todd.....	7,348 0 0

For proposed Presbyterian church and school-rooms at Crewe. Mr. Corson, architect:—

	Bell-turret.
H. Warburton.....	£1,600 0 0
J. Buckley.....	1,589 194
R. Boughey.....	1,448 93

For wrought-iron calson at entrance of new dock at Portsmouth. Mr. C. W. E. Pineo, engineer. Quantities supplied by Messrs. Livesey & Rake, surveyors:—

Westwood & Co.....	£3,300 0 0
Lawrence.....	2,282 0 0
Grant & Co.....	2,300 0 0
H. Griswell.....	2,168 0 0
Lewis & Stockwell.....	1,850 0 0
Finch & Heath.....	1,750 0 0
Dunn & Co. (accepted).....	1,700 0 0

For engine-house, &c., in new dock, at Portsmouth. Mr. C. W. E. Pineo, engineer. Quantities supplied by Messrs. Livesey & Rake, surveyors:—

Dillon & Co.....	£888 0 0
W. R. & C. Light (accepted).....	819 0 0
Aylen.....	813 0 0

For a new church at Whitton, Twickenham. Mr. Pownall, architect. Quantities supplied by Messrs. Poland & Dobson:—

Nicholson.....	£2,595 0 0
Pearman.....	2,550 0 0
Wheeler.....	2,460 0 0
Myers.....	2,283 0 0
Hiscock.....	2,194 0 0
Jackson & Shaw.....	2,170 0 0
Jacklin (accepted).....	2,149 0 0

For the restoration of Salehurst Church, Sussex:—
Ellis.....£1,187 0 0
Tompson.....1,150 0 0
Piper.....929 11 6

For a new main sewer at Twickenham:—
Pope.....£230 0 0
Jacklin.....282 0 0
Marlow (accepted).....280 0 0

For building three houses in Wilderness-row. Mr. C. F. Malby, architect. Quantities supplied by Mr. Jas. Tolley:—

Elston.....	£2,326 0 0
Princoff.....	2,220 0 0
Henshaw.....	2,160 0 0
Ennor.....	1,993 0 0

For Church of England Fire Insurance Offices, King-street, Cheshire:—

Dove, Brothers.....	£5,165 0 0
Keyes & Head.....	5,100 0 0
Palmer & Fotheringham.....	4,987 0 0
Axford & Co.....	4,867 0 0
Myers.....	4,823 0 0
Hill & Co.....	4,630 0 0

For two new wings at the Royal Berkshire Hospital, Reading. Mr. Joseph Morris, architect:—

Nichols & Son.....	£4,055 16 0
Barnicot.....	4,498 0 0
Woodroffe.....	4,309 0 0
Wheeler & Sons.....	4,270 0 0
W. Strong.....	4,246 0 0
Silver & Son.....	4,223 0 0
Mathews.....	4,055 0 0
Barnes.....	4,045 0 0
Watson.....	4,750 0 0
Ellis.....	4,653 0 0
Sharpening & Co.....	4,555 0 0
Chinnock, Brothers.....	3,999 17 9

For repairs and alterations to No. 9, Wimpole-street, for Mr. Hayward. Mr. Eales, architect:—

Hale.....	£1,215 0 0
L'Anson.....	1,204 0 0
Airey & Bellingham.....	1,108 0 0
Phillips.....	1,183 0 0
Clemence.....	1,181 0 0
Batterbury.....	1,177 0 0
Mathews.....	1,150 0 0
E. Brown.....	1,121 0 0
Rudkin.....	1,050 0 0

For Northampton Town-hall. Mr. E. Godwin, architect. Quantities by Mr. Clark, Bristol:—

Casford.....	£19,918 0 0
Bryant.....	19,965 0 0
Dunkley.....	12,499 11 6
Smith, Brothers.....	12,475 0 0
Watkins (accepted).....	11,980 0 0

For finishing a public-house and five cottages, at Nottingham, for the Bankruptcy Court. Mr. F. Sanderson, surveyor:—

Blair & Dexter.....	£541 0 0
Levin.....	455 0 0
May.....	440 0 0
Charnet.....	418 10 0
Slim & Brown.....	405 0 0
Butler (accepted).....	403 12 0
Butler (accepted).....	403 0 0

For small detached house on Bracondale, Norwich, for Mr. George Hunt. Mr. T. D. Barry, architect:—
Ollett & Brooks (accepted).....£500 0 0

For alterations and additions to King's College Chapel:—

Kelk.....	£6,810 0 0
Holland.....	6,790 0 0
Lucas.....	6,750 0 0
Mansfield.....	6,721 0 0
Myers.....	6,678 0 0
Jackson & Shaw.....	6,953 0 0

For two detached villas on the Keithfield Estate, Surrey. Mr. Richard Grover, architect:—
Luxford.....£3,400 0 0

For lodge and farm-buildings, for Mr. W. Palmer. Mr. Richd. Grover, architect. Quantities supplied by Messrs. Poland & Dobson:—

Luxford.....	£1,950 0 0
Foster.....	1,750 0 0
Weare.....	1,554 0 0
Paul.....	1,535 0 0

For two pairs of semi-detached villas at Forest-hill, for Mr. Thomas Ward. Mr. Richd. Grover, architect:—
Howell.....£4,400 0 0

For alterations and additions to No. 61, Gracechurch-street, for Alderman Abbiss. Messrs. Allen, Snook, & Stock, architects:—

	No. 1. Alterations and Additions.	No. 2. New Sashes, Comps and Dressings, &c., to Upper Floor.	Total.
Perry.....	£1,830	£161	£2,010
Brown & Robinson.....	1,819	174	1,993
Mearns.....	1,675	153	1,828
Newman & Mann.....	1,613	145	1,758
Asbury & Horner.....	1,450	210	1,670
Rider.....	1,430	180	1,620

TO CORRESPONDENTS.

Subscriber (event long articles on the metropolitan main drainage have appeared in the *Builder*).—M. J. C. It is often important that the views of readers likely to be called as evidence should be preserved.—F. J. & Co.—H. R.—M. & G.—R. C.—J. M. (how long has the tomb been erected? J. B.—A. F. (the cultural) requirement of a dynastion is not contented policy, and would not be obstructed by M. C. M.—G. R.—H. R.—J. B.—J. B.—J. B.—Q.—R. G.—H. G. (next week).—J. W. D. J. T.—J. J. D. T. M. Ireland (Blackwood Ave Maria Lane).—H. R.—C. A. Son.—Young Land Surveyor (look in any elementary work on astronomy).

The Builder.

VOL. XIX.—No. 964.

Mr. Ferrey's "Recollections of Welby Pugin."

ROPOSITIONS now on foot to endow a Travelling Fund for Architectural Students, as a memorial of the late Augustus N. Welby Pugin, and in recognition of his services in the promotion of true principles of Mediæval architecture, appear to have led Mr. Ferrey to the completion of a task deferred from time to time, under the impression that a more competent person might undertake it; and he has brought together some interesting notices of this wayward man of genius.* He has not been able to add much that was not known before; but, with the aid of some of Pugin's



letters and published documents, gives an interesting view of his career and character. Anxious, also, that the memoir should be "faithful, as well as acceptable to the members of Pugin's family, and feeling that he could not describe Pugin's character from a Roman Catholic point of view, the author has, at the request of Pugin's widow, admitted an appendix written by a friend of the family."

It is much to be regretted that he did so. This appendix occupies 160 pages out of 460, with controversial, and in parts, most objectionable matter, which has no reference to Pugin as an artist, and winds up with an attempt to throw a slur, by implication, on the late Sir Charles Barry, which none would have repudiated more earnestly than Pugin himself. First asking "Where is Pugin's grave?" Mr. Purcell, the writer of the appendix, says:—

"How shall I answer the question? Do you not know, gentle reader, how often real merit goes to the grave unrewarded, while the borrower of other men's gifts shines in false colours, and meekly assumes honours that were not his due? Pugin's tomb is in no place of public honour. No reward fell to his lot, living or dead. No troop of friends followed him to the grave to do homage to his memory, and to bear testimony to all the world that a great man had passed away from the earth. There was no solemn gathering of the brotherhood of genius, filling in grief the nave of Westminster Abbey. Against him in death the glorious temple which he loved so well in life was closed. To England's greatest architect the Gothic abbey afforded no honoured grave."

Besides the injustice of the comparison, the untruth of the assertions that no reward fell to Pugin's lot, living or dead, and that no troop of friends followed him to the grave (his habits and disposition limited the circle), the absurdity of complaining that his feelings were not outraged by burying him in a Protestant minister must be obvious.

We pass, however, to a more agreeable part of the book, Mr. Ferrey's Recollections, and avail ourselves of it for some traits and particulars to supplement, and in some cases repeat, the notices we gave at the time of his death.† The elder Pugin was born in France, in the year 1762: his birthplace is unknown, but he was

descended from a family of distinction. He witnessed many of the fearful scenes in the French Revolution, and managed to escape to England, where, through an advertisement, he became draughtsman in the office of Mr. Nash, the architect.

Mr. Nash, "feeling the want of practical works upon Gothic architecture (for although beautiful pictorial illustrations of our cathedrals were in course of publication by Britton, no book yet existed in which the details were so drawn as to enable the practical architect to make working drawings from them), suggested to Pugin that by applying himself to this particular purpose he would do the profession a great service and secure a profitable occupation." Thence followed his various works. He sought pupils and readily obtained them, Mr. Nash and other architects being glad to recommend his office as the best school for obtaining a knowledge of Gothic architecture and other elementary branches of art. Accompanied by his pupils he visited different towns for the purpose of sketching and measuring such details of Mediæval buildings as appeared to him desirable; but the expense of travelling led him to select those specimens which were most easy of access; and to this cause may be attributed the want of classification observable in the work, an error he carefully corrected in his later publications. But though the examples chosen by him might not be the best, they were so carefully drawn and practically studied as to be of material use to persons engaged in building, and no other publication had ever given details in so desirable a form. In carrying on his works he was assisted by Mr. Britton, and by Mr. Willson, of Lincoln. The first volume, entitled, "Specimens of Gothic Architecture," was published in 1821. The second volume soon followed. Then came his work on "Normandy," the "Examples of Gothic Architecture," and others. It is sufficient to say that they are all useful in their degree; more especially the "Examples," as the selection there given is chiefly from secular buildings. Pugin, by these works, rendered great service to architects.

Mr. Ferrey gives some anecdotes of Nash, and denies the statement made in Mr. Britton's "Autobiography," that Nash had to contend with difficulties and struggles in early life, and was scene-painter to a company of itinerant players in Wales. He states that Nash had patrons in Wales, and acquired property there; and being fond of theatrical representations built a private theatre, in which Mathews, Pugin, and other friends acted for their own amusement, sometimes inviting the surrounding gentry to witness their performances. He asserts that Mr. Nash was born in London, and that his parents being possessed of some private fortune were able to place their son with Sir Robert Taylor, the leading architect of that day.

Augustus Welby Northmore Pugin was born on the 1st of March, 1812, in Store-street, Bedford-square, where his father then resided. He became a day boy at Christ's Hospital, Newgate-street, better known as the Blue Coat School, when the Rev. Dr. Trollope was head master of the school, and in all branches of education showed remarkable aptitude. After completing the ordinary course of education at Christ's Hospital, he did not proceed to either of the Universities, but shortly afterwards entered his father's office. He had an almost intuitive talent for drawing, and, as soon as he could handle a pencil, commenced sketching.

It was in the year 1827 that the scheme for establishing a public cemetery beyond the suburbs of London, in the place of the parish churchyards, was first agitated. One of the chief promoters of this project was the late Sir Isambard, then Mr. Brunel. This gentleman united with his friend and fellow-countryman Pugin in preparing plans for laying out the ground, and in designing the several mortuary chapels and gateways for the

cemetery; and it was mainly through their joint instrumentality that a company was formed.

It was in the preparation of the preliminary drawings for this cemetery that Welby began to make himself useful; "though it may be added," says Mr. Ferrey, "that it would have been well if the original plan by Brunel and Pugin had been carried into effect, as it was far more consistent with the ideas of Christian sepulture than the heterogeneous collection of monuments crowded together at Kensal Green."

Welby Pugin's first employment, independently of his father, seems to have been given to him by the celebrated goldsmiths, Messrs. Rundell & Bridge. One of their firm, while engaged in an examination of some ancient designs for plate in the Print Room of the British Museum, chanced to notice that Pugin was employed in copying the prints of Albert Durer and Israel Silvester. Struck by his skill in drawing, the goldsmith accosted him, and soon found that he possessed just the genius his firm was seeking. His complete knowledge of Mediæval art fitted him admirably for designing plate in the old manner. His services were immediately secured, and much beautiful plate was executed by them from Pugin's designs. This introduction very soon led to other commissions of a still more important character, especially to designing all the furniture for Windsor Castle, through Messrs. Morel & Seddon.

Of his connection with the stage, his biographer says:—

"During his engagement on the works in connection with Windsor Castle, he formed an acquaintance with a person of inferior position, who, amongst other occupations, was employed at night in a subordinate station in the management of the stage scenery at Covent Garden Theatre. This man's description of the scenery, property, and machinery of the stage, filled Pugin's youthful imagination with a longing to see the concealed mechanism used for stage effects.* It must be borne in mind that, although intrusted with the important business just mentioned, he was yet but a boy of fifteen years, or little more, and never till this time had entered a theatre, or witnessed any dramatic representations,—the strictness of his mother's principles and domestic regulations being a bar to his attendance at any theatrical performances."

Pugin's first admission behind the stage seems to have filled him with wonder; but he soon saw defective design adopted in scene-painting, and determined to attempt an improvement in the scenic department. Becoming introduced to Messrs. Grieve, the well-known scene-painters, he obtained, through them, some knowledge of the art of distemper-painting on canvas, and the peculiar colours used; and thus he became enabled to paint scenery, designed by himself, in the Mediæval style.

The sea soon took the place of the stage, and he fell into a mode of life which was a source of great pain and anguish to his parents and friends, more especially to his father, who on meeting a friend, exclaimed with much grief, "God bless my soul, it was but this morning I met my boy Auguste in the disguise of a common sailor, carrying on his shoulder a tub of water which he had took from the pompe of St. Dunstan."

Welby was now, nevertheless, acquiring celebrity in various ways connected with art, in consequence of his well-known intimate acquaintance with Gothic architecture. His power of rapid delineation was likewise appreciated. Many leading architects placed their rough sketches in his hands in order to have the detail drawings accurately prepared. Soon, too, he opened an establishment for the production of art-works, but it failed, and he fell into financial difficulties. These, however, were surmounted, and he married his first wife, Miss Garnet, a grand-niece of Dayes the artist, after a very short courtship, in 1831. Unhappily she died in her first confinement, but her infant daughter survived.

The death of Pugin's mother, his secession from the Established Church, and his second marriage

* In a diary which Pugin now began to keep is the following entry:—"June 26, 1827. Designed furniture for Windsor Castle. While at Mr. Morel's, I became acquainted with a person called George Dayes, son of the celebrated artist of that name, and it was through him that I first imbibed the taste for stage machinery and scenic representations, to which I afterwards applied myself so closely."

* "Recollections of A. N. Welby Pugin, and his Father, Augustus Pugin; with Notices of their Works." By Benjamin Ferrey, Architect, F.R.I.B.A. With an Appendix by E. Sheridan Purcell, esq. London: Edward Stanford, 1861.

† See Vol. X., p. 695, &c., &c.

followed, but we cannot pursue the thread. Let us look to some of the letters which he wrote soon after the latter event, to his friend Osmond, of Salisbury. Writing from *Wells*, he says,—

"If you want to be delighted, if you want to be astonished, if you want to be half mad, as I at present am, for God's sake come over to Wells. The most magnificent things for detail that can be seen, splendid remains of every style, and every description of Gothic architecture. You have no conception of the magnificence of the cathedral, &c. One day would suffice. I am well acquainted with everything here, and have got introductions to all the most secret corners; and I declare I would not leave you till you had seen every interesting object in the place. Pray come, I entreat of you. I leave here either at the end of the week—that is the beginning of next, about Tuesday or Wednesday. * * I would not think of wishing you so much to come down were I not certain you would be delighted. No artists indeed! The figures of the west front are magnificent—splendid specimens of sculpture. Tell that to Mr. Lucas, and tell him that the antique fades away before the ancient Gothic for ever!"

He then went to Taunton and Bristol, and writes,—

"While at Bristol I paid particular attention to the cathedral, where I find only heavy, deserving most particular attention. This cathedral has been generally overlooked as undeserving of notice, but the fact is that there are parts about it equal to anything in the country. The groining of the aisles, the carving in parts of the stalls, the vestry, the tombs in the aisles round the choir, the great west window, the Norman entrance to the Chapter House from the cloisters, all are most interesting, and to real Gothic men, like you and me, it affords a great treat. The east window is so truly beautiful that I have just marked out the tracery of it for you; the original glass is still in it, and the effect is wonderfully rich and varied."

With Tintern Abbey he was disappointed, and thought the only thing there worthy of admiration was the west window.

At *Lichfield* he was disgusted.

"On proceeding to the cathedral, which from its distant appearance promised great things, what was my horror and astonishment on perceiving the west front to have been restored with brown cement, cracked in every direction, with heads worked with the trowel, devoid of all expression or feeling, crockets as bad, and a mixture of all styles. My surprise, however, ceased on the verges informing me that the whole church was improved and beautified about thirty years ago by the late Mr. Wyatt. Yes, this monster of architectural depravity—this pest of cathedral architecture—has been here, need I say more? I would myself up to the pitch to bear the sight of the havoc he had committed. Of course, here his old trick of throwing the laity Chapel into the choir by pulling down the altar-screen; then he has *pressed* the choir and vaulted up the arches of the choir, making the aisles nothing but dark passages. The man, I am sorry to say, who executes the repairs of the building was a pupil of the wretch himself, and has imbibed all the vicious propensities of his accursed tutor, without one spark of even practical ability to atone for his misdeeds."

Strong language; but that was his style.

His business had now become very large, but his eccentricities were not abandoned, and his slovenliness in dress was remarkable. He was in the habit of wearing a sailor's jacket, loose pilot trousers, jack-boots, and a wideawake hat. In such a costume, landing on one occasion from the Calais boat, he entered, as was his custom, a first-class railway carriage, and was accosted with a "Halloa, my man, you have mistaken, I think, your carriage." "By Jove," was his reply, "I think you are right; I thought I was in the company of gentlemen." This repartee at once called forth an apology, and the remainder of the journey was agreeably passed in examining his portfolio filled with sketches just taken in Normandy.

The immediate fruit of Pugin's secession from the English Church was shown in the work entitled "Contrasts; or, a Parallel between the Architecture of the Fifteenth and Nineteenth Centuries, by A. Welby Pugin," published at St. Marie's Grange, near Salisbury, 1836. Unfair, not to say false, and ungenerous as much of this work was, it had a good effect. It led people to think, and induced care. "His desire to put everything connected with Protestantism in a bad light, led him to select objects for contrast, which, being erected under totally different circumstances, ought not to have been placed in comparison with buildings raised during the palmiest period of Medieval times."

In that work, as elsewhere, he laboured hard to prove that no work of high art can be produced by any one not within the pale of the Roman Catholic Church. Of his sectarian dogmatism we have no pleasure in speaking.

From one amongst several letters written by

him to Lord Shrewsbury, while he was travelling on the Continent, the following is amusing:—

"I am certain that your lordship never could have seen those places, for they contain the most magnificent things in the world. [Old logic.] I have seen three of the finest Gothic altars in Christendom, and one of silver about 12 feet long. As for the stained glass, there is nothing so good on our side of the Alps; and the sacristies are full of Gothic shrines, reliquaries, chalices, &c. I am in a perfect rapture of the kind in this country, and I find more than in any other part of the world. Florence is enchanting. The glass at Santa Croce is perfectly beautiful, and the frescoes of Angelica di Fiesoli enchanting. Rome is certainly a miserable place, quite disgusting and depressing; but Italy is yet the richest country for true Christian art, and I do not despair of St. Peter's being re-built in a better style. I saw two prelates at Rome in immediate attendance on the Pope, who quite agreed with me. What absurdities people have talked and written about the Pointed style not being adapted for Italy! Why, it is full of it."

The success of "Contrasts" induced Pugin, very soon afterwards, in 1841, to prepare his work entitled "True Principles of Gothic Architecture." This volume was published by Mr. Weale, the architectural bookseller, and had a most useful effect. The manner in which it was executed is shown by an incident:—

"After an absence of some weeks Pugin unexpectedly called at his publisher's, who observed that his dress, which usually was untidy, appeared more strange than ever. He was enveloped in a huge gas coat, large enough for a man twice his size. On this strange exhibition Mr. Weale, his publisher, remarked:

"Why, you appear to have made a mistake, and have got a coat belonging to somebody else."

"Oh," observed Pugin, "it is of no consequence—I caught up the first garment that came in my way, getting into harbour after a stiff gale off Calais; but here are the plates for my book:—at the same time I have got a heap of copper-plates from under the sample folds of his coat. 'They are all ready for proving.'"

"But how and where did you finish the etchings?"

"Oh," said Pugin, "I finished them in the boat."

"Impossible," replied Mr. Weale.

"Not a bit of it," retorted Pugin; "the motion of the sea makes no difference to me; and, truly, many of the outlines illustrating the 'Apology' were etched by him under the apparently impossible circumstances."

Upon quitting Salisbury in 1841, Pugin came to London, and took up his residence at Cheyne-walk, Chelsea. Here he resided some time, but he had previously purchased ground at the West Cliff, Ramsgate, and built there a house upon a much larger scale than the one he sold near Salisbury. He also built there a church, as is well known at his own expense. His second wife, to whom he had been married ten years, was attacked by a severe illness, and died in August, 1844. At this time he may be said to have reached the height of his professional career. He appears to have led a life of almost monastic regularity.

"His constant practice [says our author] was to be in his private chapel at six o'clock; and as sure as the church bell tolled the Angelus, so sure might he be heard the withdrawal of the four heavy external bolts which fastened the door of the chapel. Here it was his custom to say a few private prayers, and make an offering of his forthcoming work to God."

After this he worked in his library until half-past seven, at which time the bell tolled for morning prayers, when he always said his usual devotion, and then worked till one o'clock, when, if he had not finished his work, he was followed by breakfast, which seldom lasted more than seven minutes. At eight o'clock on feast days he always heard Mass in the adjoining church. He then worked until one o'clock, when, punctual to a moment, he dined. His fare was of the simplest description, neither taking wine nor malt liquor. This meal lasted but a quarter of an hour.

After dinner he generally inspected his buildings, and visited his only pupil and afterwards son-in-law, Mr. John H. Powell.

In the afternoon he resumed his work, which was often enlivened by the visits of a few of his confidential friends and admirers.

He was generally occupied with his post letters until nine o'clock, after which Pugin amused himself preparing designs for his own buildings, until ten, when Compine was sung in his own private chapel.

The last hour of this busy day was devoted to the study of historical and theological works; Collier, Lingard, Dugdale, Stow, and Du Cange being amongst his most favourite authors."

With reference to Pugin's connection with the new Houses of Parliament, Mr. Ferrey seems to attribute more to him than was the case when he says:—

"The designing of the internal fittings, furniture, decoration, encaustic floors, &c., were officially confided to him, and to his unremitting energy and attention in the formation and selection of carvers, glass-stainers, metal-workers, &c. &c., may be attributed the great excellence and beauty here attained, as well as the masterly skill shown by him in their conception."

While the work was going on, and similar statements were being made, Pugin wrote to this journal denying in the most positive and generous terms that he did anything more than carry out the sketches of Sir Charles Barry.

"In 1851," says Mr. Ferrey, "Pugin was appointed one of the Commissioners of Fine Arts in connection with the Great Exhibition." This, however, is not quite correct. He was not one of the commissioners; but, if we recollect rightly, was one of a committee appointed to purchase works out of the Exhibition for the public collections. The fearful malady which fell upon him, the conveyance of him to Badlam, and the part we took on the occasion, are briefly and not very precisely alluded to. We received at that time few thanks from his friends (the expression might be placed less negatively), but had, nevertheless, reason to be satisfied with the result. He died at his own residence, the Grange, Ramsgate, on the 14th of September, 1852, and was buried on the 21st of the same month, as Mr. Ferrey repeats from our pages, in the church he had founded; Sir C. Barry, Mr. Herbert, Mr. T. Bury, Mr. Hardman, Mr. Crace, Mr. Myers, Mr. Scott Murray, Mr. Daniel, Mr. Knill the father of Mrs. Pugin, and some other friends taking part in the ceremony, amidst an immense crowd of strangers.

We have only to add that the volume is dedicated to Mr. A. J. Beresford Hope, who has "encouraged, both by precept and example, the noble cause of 'True Principles' of Art, which Pugin so earnestly and ably advocated."

THE GEORGE STREET "MODEL."

"Better go to a 'Model,' was the advising of Will Shakley to Simon Flustrum, the latter of whom had that evening arrived in London by way of the Caledonian-road."

"What!" said Flustrum, "what! And this from my friend Shakley! What! do you think I have turned wholly to thieving since we were last together in the country, and so am only worthy now of being lodged in such a big and strong house as I saw this afternoon just before my getting into London,—the 'Model Prison,' as they told me it was?"

"Oh, Flustrum! Flustrum!" rejoined Will, with an evident sore feeling, "I had no such meaning, but meant one of those places called 'models' which have been built up by the gentry for us poor folk, and in which you single men, strangers, on arriving in town, may have better and cheaper lodgings than are to be commonly had in private houses."

"Your hand, Will, for that explanation," was the pleased reply of Simon. "And where are any of these models to be found?"

"One close by,—just close by," said Will, "and where I put up myself for a while just before I got married. This street—we are in now is called 'George-street.' This street—we are in now is called 'George-street.' At its top is St. Giles's church; and a little way from the church is George-street, and in that street is the 'model,' and a pretty good one too, it is, as I know from experience. But come, I will show you the way to it; and let us go at once, for it generally falls very well, and by any delay a chance might be lost in finding an opening."

This short statement, then, will suffice to indicate one of the many ways by which these single men's Model Lodging-houses get filled from time to time; and that they are usually so well filled the return recently made at the annual meeting of the society whereof this one of George-street is connected is proof; the number of inmates then given being ninety-nine, which is within a very few in number of all the beds there obtainable.

How I, myself, the writer of this George-street "model," and, therefore, to learn so much about the place, it is not necessary here to tell enough to let it be known that the statements now to be made will be strictly faithful, in consequence of this intimacy with the place; or such as they only truly can see who make use of their own eyes, though taking care the while that no blinding "glamour" creates any falsification of the mental vision. Will the reader, then, gentle or ungente, come along for a short time in my company on this special undertaking?

The street,—George-street,—itself has no very inviting appearance on the whole; it being narrow and the houses, looking along the left side, as one enters from Broad-street, St. Giles's, or of but a so-called; while, on the right hand, is a pretty conspicuous range of side-wall belonging to a Ragged School; then comes the sturdy-like "Model;" next the back parts of a French Protestant church, and the Rev. Mr. Brock's chapel, both whose admin-

sion portals are in Bloomsbury-street; while above the rears of these two buildings is the blank side of one of the large business houses which have their shops and front windows in New Oxford-street.

The situation, then, of our "model" is pretty favourable as a working man's lodging; so much of the bustling, if not of the brilliant, being seen and carried on in the surrounding neighbourhood; Dudley-street, on the south, exhibiting, among its abundant Irishry, a *galore* of all sorts of old shoes, old garments, and almost everything else old, even to the single old halfpenny ballad of former times; while northward is the superb Oxford-street; and, still more direct north, the long, spacious, and constantly thronged Tottenham Court-road,—the sideways with their pedestrianism, and the centre with its hurry of 'bus and cab.

Nestling, therefore, in perfect quietness in the George-street mentioned, where never the wheel of a 'bus is seen to run, and rarely that of a cab (for sometimes, indeed, a cab-brought lodger will come to this George-street, with travelling-trunk, travelling-hat, &c.);—nestling here, some hundred men, aged, middle-aged, and down to mere youthfulness, take their nightly slumbers, and, if they so please, their daily meals—breakfast, dinner, tea, and supper;—a large and strange gathering to be found within the roofings of one building; and it is neither hospital nor barracks, but where each and all enjoy the utmost freedom; and more, perhaps, in some particulars, than could be conceded in the private house.

As is the hotel or inn to the higher classes, so these model lodging-houses may be considered as the hotel of the humble classes, with the difference that the single and the married in the one case are not accommodated as is done in the other—the married poor not being yet favoured with an opportunity of getting into a ready-furnished room or rooms, as the single poor of the male sex can do, and secure a clean bed, and, in a few cases, the single poor woman can likewise do.

However, it is quite time to get indoors and learn all about the place itself, for really its outside look is not very suggestive of enjoyment, with its wide, tall, plain, dull frontage; and all so stern-like as well, and quiet, too; and so in this last particular—so believing or disappointing the first notion likely to be formed—that of its being some kind of factory; but then the huge factory pile commonly sends forth the din of some sort of wheel or other, and here there is nothing of this heard, but an unnoted quietness even considered as a private dwelling.

All is solid here;—the single stone step which lifts you from the street into its open door-way, bringing you to a stone-paved hall or lobby; then comes an inner door, with stone still beneath your feet; and on your left an upsliding side window affords a furtive peep into a small cabouse-like spot, as a sailor might call it, where the big account-book of the superintendent has its constant resting on a table placed before the front window. Here is there, too, himself, the very chief of the establishment—a small, elderly, sober-looking man.

This our superintendent of the George-street Model has had a pretty long berth of it now; for, as it is said, upwards of twelve years, comfortable security for himself and wife; and fortunate it is for themselves that they have been drifted into such a smoothly-surfaced haven—a haven comprising as their "own" a common day-room, a bedroom, and a scullery; the little office already mentioned (and which can be agreeably warmed in winter with its snug stove) not being strictly private, for there it is the library of the house is shelved, and to this any of the inmates can have ingress when wanting to choose a book.

From books to the reading-room, sitting-room, or coffee-room, as it is or may be diversely called,—the general rendezvous for all home-stoppers and home-comers—the transition is natural; and here we find a goodly oblong space well lighted from the front with four deep windows, and which space is judiciously set off with four ranges of brown-faced and stout-framed tables, two on each of the longitudinal sides of the apartment; while across, at the bottom of the room, are two other tables, having their positions in the recesses which the out-jutting of the chimney formation caused; and all which tables are backed by an immovable range of seating; the front-thrown tables having, in addition, forms to run along before them; and thus so many more as these forms can afford seats for may be so accommodated.

An apartment like this is such as is but rarely placed at the service of the mechanic, labourer,

ill-paid clerk, or shop-assistant,—here to shelter and chat in leisure moments; here to lounge or read;—but of this reading more hereafter. So, reader, we shall now pass to another subject, if you please; and go together directly upstairs, and bedward; though not with the intent of slipping actually between the sheets.

Having ascended the first flight of steps, here, once more, we find a stone lobby; and to the right and left corridors; and moving into either of which corridors, we get from stone to a boarded floor. Avenues to the bed-closets are these corridors; the closets being ranged on each side of each corridor; those placed towards the front of the house obtaining their light from a half of each of the front windows, and the back closets only being befriended with such glimmerings of the day which may creep over from the high tops of those windows, and descend the four steep-sided wooden surroundings allotted to each closet, and in this way just enable the bed-goer to detect the dim presence of his bed. The bed is of flock; the covering, two sheets, two blankets, and a rug, while in winter a third blanket is allowed; the furniture of the place, a chair and a small box; the dimensions from side to side, about four feet and a half, and double that in depth. Each closet, besides, has its own separate door, its inmate holding the key of that door; and thus no one getting admission there but himself, with the exception of the bed-maker, and he has the use of a master-key, which acts alike on all the doors.

As to the distribution of these closets: the corridor, then, on the right possesses fourteen in all; being four more than is given to the left-hand corridor; this difference in the numbers in a house which is equally divided by its stairway being occasioned through the necessity of having a hand and face washing convenience on each floor; the twenty-six closet-occupiers of each entire floor being thus accommodated with their own spot for personal ablution; and which abstraction of space being effected on the left side of each stair-head, the corridors and sleeping closets on each such side had to be proportionally diminished. Twelve closets, then, being on the left side, and fourteen on the right,—as has just been stated—the joint number amounts to twenty-six; and as the house is a four-storied one, and every story and corridor having the like formation, 104 beds are available in all.

The like equality, too, is carried out in respect to each of the four places for personal ablution: each little space has its own four-roller towels, just as each has its four plugged basins, with plenty of water in command, as led upwards by pipes, and to be stop-cocked off when not in use. Here, also, in each of these toilet-rooms, is a fixed looking-glass, to shave by, and otherwise to prove of service when one would know that one's toilet is perfect; and even in this particular, strange-sounding to some as it may seem, there are very poor men who are often loth to get away from their self-adjustings before the tell-tale looking-glass.

Thus much, then, about the upstairs features of this "model;" and yet there is a little more to say before a finish can be made; for here at the angle parts of the fourth stair-head, and the same at the third and the second, there are square bits of retiring places equally as necessary as those for face-washing, and even more praiseworthy, comparing the accommodation so afforded with the deficiencies of the like character commonly experienced in houses let off to the poor. One of these valuable angueries is at the turn on each flight of stairs, with the exception of the first flight.

Another of these accommodations is at the lower part of the house, and where two would be little enough, could they be somewhat better placed than the one now provided; for, as it is, its situation is much too near the kitchen to be commended as a proof of pure taste; being besides extremely faulty from the paucity of daylight which gets there; while at night the gas from the jets in the kitchen, as reflected through one of the area windows, yields the only help in this way.

We make towards a curious looking apartment, to be just glimpsed at from under the opening part of a window which has its light from the yard we have left; and still a curious aspect indeed this new place has, even now that we are fairly in it, and all is exposed quite plain for inspection. And that *all* is cupboard—all cupboard; to the right and left and at bottom; all but where the window already mentioned has its position. There is nothing else but cupboard, cast the eye where you may, from the stone flooring to the ceiling; the whole making a uniform series of closely united safes, to the number of 105. Then each safe has its own distinct lock and key, while

each lodger is the possessor of one such key, every fresh inmate as he comes having the option of a safe and its key, as also of two other keys—one for his bedroom, and the other for the small clothes-box in his bedroom; but for each of which keys he will have to deposit a sixpence with the superintendent; and which moneys, in case of any or all of these keys being lost, are to become forfeit towards the purchase of others, not any two keys being alike for safe, or bedroom, or clothes-box;—a very useful precaution, and one which must have exercised a good deal of ingenuity on the part of the locksmith. The fronts or doors of these safes are formed of closely-crossing wire-work, with the view of admitting such fresh air as can find its way through the petty openings in this way left; but which air, as may be imagined, has but little pure freshness about it, situate as is the place so much below the level of the street, and with its only adjacent sky-ward opening in the rubbish and urinal yard, from which the safe-room borrows all the little daylight it can obtain; and that, as it must be allowed, is but little indeed. Then the lower tiers of these safes are placed much too near the floor—in short, quite close to it, so that the dust, which the shuffle of feet from all parties having business there must put in movement, cannot but obtain a ready passage through the open wirework and frontages of each.

The coal-cellar likewise, as in this case may be expected, has its station in the basement part of the house, its door being on the right of the passage, and directly opposite that of the safe-room. Still the contents of this cellar are never kept under lock and key, as is generally to be found where there are many lodgers, for here the coal is a sort of common property, to which any of the inmates may have recourse, with scuttle in hand, should the kitchen fire be thought to stand in need of a fresh dash of one or two of the black-diamond order of revivers, or the water in kettles is not seeming to get quite enough into the boiling state, the broth-pot be too tardy in its bubblings, or the closely packed saucepan of potatoes too long in softening at the core. No, there is no hindrance here in regard to a plentiful supply of fire; and though at the season of the year when this paper is written there is no feet- or finger-felt urgency for anything of the kind, still a good deal of cooking must be gone through; and therefore a decent share of coal heat is quite indispensable; while in the colder days it is still more so; and hence the certainty of having fire ingress to a quarter of so much warmth must be felt as being one of the most valuable advantages placed within the power of the "model lodger." Nor is it only in the kitchen that such an advantage is to be enjoyed; the reading-room being alike cheered, on the otherwise cheerless day, with its bright and abundant coal fire.

A store of coke, too, is equally available as the coal, and has its cellar beyond the safe-room, but in a wholly distinct compartment, one which branches off the lodgers' laundry; for here, notwithstanding a laundry may seem an altogether unusual accommodation to be placed at the service of men; this is done in this George-street house, and is well appreciated. The conveniences afforded in this way consist of two square wooden wash-tubs, having an unlimited supply of water running in pipes along the top back parts; and thus if the washerman resolutely bares his arms and bends his shoulders to the work, he need neither be without clean shirt, stockings, drawers, nor pocket-handkerchief for change or use on the Sunday, nor at any other time he may wish to make an improved appearance; there being nothing to hinder in so doing, even to the starching and ironing of his shirt fronts; as some small saucepan or other is easy to be had for the starch-mixing, and an "iron" quite as ready to heat, and do the "smoothing" with.

The inmate, too, of this "model," had at one time, as the talk of the place makes known, an opportunity of not only washing his linen, but of washing his person "all over," from head to toe; but nothing of this is attainable at present. Yet it did not pay; and, if you ask why, the answers received are nought but a series of suppositions; though, doubtless, the true supposition is not of difficult attainment; the cheap baths in Endell-street, just close by, being quite capable of winning away favour from this dismally-positing single bath of the "model," which could only be made use of at certain times, and perhaps by no more than some two or three bathers, and thus to the great waste of coal in getting the fire up and the necessary quantity of water heated.

Still, the purpose was undeniably good, and should have every due recognition; nor ought we to expect Lord Shaftesbury and his friends, along with Mr. Roberts, the contriver of this George-street building, could have foreseen the upgrowth of the fine red-fronted Endell-street pile, which, a few years subsequently to the finish of this, the first model lodging-house, was in another way to be a "model," wherein men and women might cleanse away their various skin impurities by hundreds in a day; and where, likewise, under the same roof, the poor wife, whose home is in the back room, the tediously-reached garret, or the damp cellar, may rub, scrub, rinse, and wring away the thickened foulnesses of their long-worn garments, and so feel the intense satisfaction of experiencing a thorough sweetness of body clothing.

But will the reader overlook this dalliance of the reflective order—one not easy to be broken from where there is an earnest feeling on a subject of the present character? If he or she do, whatever may be the particular description of reader to whom such request may seem to be made, a repayment will soon be experienced by opening out a few of the other secrets (for, to many, such statements must really come as secrets) of the habits of the humble artisan, the low-salaried clerk, actual labourers, small, very small annuitants, as perhaps worthily become so through their own past exertions and wise forbearances,—till all is told which remains to be told of the place wherein these and many other varieties of the "lower order" of the single man endeavours to find, and to a certain extent so finds, a home.

COMPETITION DESIGNS FOR THE HOUSES OF PARLIAMENT, SYDNEY.

The competitive designs for the New Houses of Parliament and Government buildings, proposed to be erected at the entrance to the Domain, in Macquarie-street, have been publicly exhibited.

The following gentlemen have been appointed commissioners to decide upon the award:—The Colonial Secretary, the Minister for Lands, the Minister for Works, the President of the Legislative Council, the Speaker of the Legislative Assembly, Sir William Macarthur, Mr. E. Deas Thomson, Sir Charles Nicholson, Captain Ward, and Mr. Whitton.

The number of designs received is twenty-one, including two separate designs accompanying one set of plans. Of these, eleven came from England, and the remaining nine from Sydney and the adjacent colonies. Only the names of three or four of the competitors appear to be known in Sydney; and it has been confidently stated that more than one of the designs which are most admired are colonial productions.

Considering the means that have been taken to invite extensive competition, the expectations of many persons with regard to both the number and the character of the plans have been disappointed. The principal reason offered for the fewness of the competitors is, that English and European architects were not disposed to compete where the successful competitor would not have the carrying out of the work. "The supposition that a large number of English colonial architects from competing; thinking, no doubt, that they would stand little chance of success. Some of these are now, we understand, regretting that they did tender; believing that they could have produced designs, if not of greater architectural merit, at all events better adapted to the situation and to the purpose than many of those exhibited.

We give a list of the mottoes attached to the designs, with notes on a few of them, condensed from the *Sydney Morning Herald* :—

"Palladio."—The stipulation as to the elevations being in simple outline is violated in this design, but only to the extent of colouring with sepia one of the perspective drawings. Without that aid it would be recognized as possessing very great merit. The design is Italian, and essentially palatial in its character. There is a bold, deep, rusticated basement, above which a row of Corinthian columns supports a massive entablature relieved by a rich balustrade. There are altogether seven courts, each of which is ornamented by a fountain.

"Hora e Sempre."—There are two designs under this motto, the one Classic and the other Gothic. The Classic design is extremely massive and imposing. Ranges of stately Corinthian columns, with massive entablature and pediment, approached by a broad flight of steps and crowned with a shapely octagonal tower, together with the harmony of the various members, constitute an

ideal of palatial magnificence. The Gothic design is also exceedingly handsome. It is indeed so beautiful a specimen of that style as entirely to propitiate the favour of those who are opposed to the application of the Gothic to such purposes.

"Dan York."—The architecture adopted in this design is a very close copy of the Louvre, in Paris: indeed, there are reasons for believing that the drawings have come from France. In the elevation, Corinthian columns alternate with windows with circular pediments; which, in combination with the artistic adjustment of the other parts, produces a very rich effect. Both of the Chambers are semicircular in shape.

"I bide."—The architect of this design has violated one of the conditions of the competition, which was, that none of the elevations should be coloured. A perspective drawing of the proposed building is very cleverly coloured. Great admiration is bestowed upon this picture, which is not to any great extent to be attributed to the painting, as an uncoloured view of the same perspective, hung up alongside, is almost equally attractive. The design is Gothic, in some of its parts resembling the Doge's Palace at Venice.

"Res non Verba."—This is a general resemblance in the design to the new Townhall at Leeds. Handsome Corinthian columns surround the building, with a pediment and spacious peristyle at the east and at the west elevations in the centre between which rises an enormous tower, of tasteful design. Midway between the tower and the pediment at either end are corresponding domes, beneath which are circular halls; that towards the eastern side of the building being the Parliament Hall, and that to the western side the Official Hall.

"Spea."—This design is in the Italian style, and arrests attention by its boldness and breadth of effect. The buildings are divided by four main arteries of communication, two running east and west, and two north and south; the various departments being connected by continuous colonnading.

"Fide et Virtute."—The style of this design is the Continental Gothic. There is a lofty dome and a clock-tower, and the projecting portions of the elevation are set off with overhanging and pinnacled turrets.

"Sic fortis Etruria crevit."—This design is in the Painted style, evidently well considered; but though tasteful, it cannot be called handsome.

"Pyrex."—This is a design in the Italian style. There is a lofty tower, consisting of six rows of columns.

"England and New South Wales."—These drawings are in the French Italian style. The absence of towers gives the elevation a heavy, flat appearance; and, as a further defect, there is a deficiency of colonnades.

"God's Providence is mine Inheritance."—This is a Gothic design, exhibiting long ranges of collegiate looking buildings, not altogether destitute of beauty, but completely killed by cruel maypole towers, the height of which is in painful contrast with the lowness of the buildings. There is nothing very striking in the plan, to redeem the above defect. The Assembly Chamber is to be about 100 feet by 60, and somewhat similar in form to the English House of Commons: the galleries, instead of projecting, range behind columns which assist to support the roof. The Council Chamber is of the same size, but has smaller accommodation for members.

"CH. C. H. S."—This is a Classic design of considerable vigour and beauty. In the centre is a handsome dome, to be of solid stone, with perforations for light, relieved at the base by equestrian statues. There is a great deal of finish in the design; but it has, nevertheless, an aspect of foreignness and singularity. The architect has, apparently, a great dislike of rectangular figures. The grand entrance is semicircular, and allows for a carriage-drive through it. The plans provide for the Parliamentary Offices, but make no provision whatever for the Government Offices.

"Follower of Wren."—This motto is appended to an adaptation of the architecture of St. Paul's Cathedral. The ensemble has much symmetrical beauty.

"Akropolis."—This is a design after the model of Buckingham Palace; but it is more like the pictures of ancient Grecian temples than any modern structures. The plan is extremely simple, and, in theory at least, appropriate. The Government departments are allotted to a range of buildings almost inclosing a quadrangle, in the centre of which as the supreme tribunal—the source of all executive power and authority—is a temple for the legislature. The quadrangle opens

on the east side, to afford a good view of the eastern façade of the centre building.

"Omega."—This is a Classic design, but the working out of the details is original, and a curious effect is produced. The towers are extremely plain, and add little beauty to the elevation. On the ground-plan there are, on the south side, three long parallel courts, separating portions of the building that are assigned either to a department or a sub-department, but built over by the upper story.

"Si je puis."—This is rather a pretentious Classic design, but the general effect is not pleasing. A number of columns are introduced merely for effect, and there is a palpable want of solidity and massiveness in the composition.

"Mars."—A very curious design, which may be called a Gothic extravaganza.

"Utility."—Gothic.

"Athena."—This is a Classic design. The drawings are rough and unfinished.

"Figure—Pen in a scroll."

Cost, it is thought, will stand in the way of selecting the design most approved.

ODD-FELLOWS AND FORESTERS.—PROVIDENT HABITS.

THE continued advance of institutions which show the increased habits of saving and forethought of the industrious classes of the community is one of the satisfactory signs of the progress of the age. Amongst the most remarkable are the Manchester Unity of Odd-Fellows Friendly Society and the large Society known by the name of the Foresters. It is not many years since both Odd-Fellows and Foresters were but little better than meetings for convivial purposes, and they were looked upon with suspicion and contempt by the classes above the artisan, and even by a large majority of the English workmen. By years of a kind of management which is creditable to all concerned, these societies have grown into monster proportions, and become a power of dispensing benefits in all parts of the land. In order to show the extent of these societies we give the following figures of the numbers in 1860 and 1861 :—

	Odd-Fellows.	Foresters.
England	277,394	159,838
Wales	23,011	5,661
Scotland	3,277	825
Ireland	1,013	164
Abroad	16,566	2,088
In 1860	305,261	168,576
In 1861	316,215	189,584

In the metropolitan districts there are now about 20,000 members of the Manchester order of Odd-Fellows; and it appears that, since 1845, throughout the country, the increase has been at the rate of about 15,000 members in each year. At the beginning of 1860 the numbers in the London district were :—

	No of Members.	Average age.	Sick and Funeral Fund.
		Yrs. mths.	£. s. d.
North London ..	7,611	34	50,241 10 3
South London ..	4,130	35 10	29,476 4 11
Paddington	1,628	35 0	5,277 9
Stepney	1,594	33 1	13,369 18 9
Woolwich	1,340	32 5	1,102 10 3
Waltham Abbey ..	727	35 0	4,200 0 0
	17,030		105,638 2 8

This shows that a sum of 6*l.* 5*s.* is laid up for each member, and that the average age is 34 years 6 months. The whole capital of the unity is 9*l.* per member. This includes the Widows' and Orphans', as well as the Sick and Funeral and Management Funds. Many lodges possess over 12*l.* a member, and one as much as 22*l.* Besides attending to the wants of their own community, this order has often opened subscriptions for other purposes. In 1847, the members voluntarily subscribed 1,905*l.* for the relief of distress in England and Scotland; and in 1855, no less a sum than 2,590*l.* was collected for the Patriotic and Crimean Funds. They have on other occasions subscribed, and only recently a considerable sum was collected in a very short time in aid of the Coventry weavers.

The objects of the society are, by means of entrance-fees, subscriptions, donations, fines, &c., the raising of funds for the relief of its members during sickness, or while travelling in search of employment; superannuation in old age; and the insurance of the members and their wives,—generally in sums varying from 3*l.* to 6*l.* on the death

of the latter, and from 6*l.* to 14*l.* on the decease of the former. Separate funds are subscribed for three different purposes; and a distinct sum per member is put aside in weekly or monthly payments, as a fund for management expenses, and the relief of casual brethren in distressed circumstances.

The payments are made either weekly, monthly, or quarterly, in such proportions as best suit the convenience of members. The management is as follows:—on a lodge being recently started in the metropolis—members entering at twenty years of age pay an entrance-fee of 6*s.*, and an annual contribution of 1*l.* 14*s.* 8*d.*, or about 8*d.* per week, in order to secure 12*s.* per week during sickness for the first twelve months, and 6*s.* per week during the remainder of sickness, however long it may be; 12*l.* at death, and 6*l.* at the death of a wife, should a decease take place first; medical attendance and medicine, distress gifts, if required, and travelling relief; an annuity of 8*s.* a month to a widow, and 1*s.* per month for each child under fourteen at the time of its father's decease. These rules, more or less modified, and the payments arranged in proportion to the age of the member when admitted, are generally the same throughout the unity, although each lodge has the controlling of its own business; but, by a well-arranged plan, a number of lodges are formed into a district, and members of the several lodges elect delegates to the district committees, which are held either quarterly or half-yearly. The delegates, in their turn, elect deputations to the annual moveable committee, which each year holds a congress in some important town, for the consideration of matters affecting the welfare of the society. This year, on Whit-Monday, the deputations assembled at Bolton in Lancashire.

It is satisfactory to know that the profits arising from a periodical publication connected with the order, and a levy of 1*l.* from each member, were found sufficient to build a handsome house in Manchester as the head office of the society. It is also a pleasing fact that an Odd-Fellow seldom becomes chargeable to the parish. Mr. Tidd Pratt calculates that, by the operations of this and kindred societies of the British workmen, a saving to the poor-rates of no less than two millions sterling is annually effected.

THE BUILDERS' STRIKE.

FEELING naturally an interest in all that concerns the question which has agitated the public mind for the last three years, and occasioned so large an amount of loss, inconvenience, and misery to workmen and masters, I had hoped, when I saw the name of the well-known author of "Tom Brown's School-days" heading a list of learned gentlemen, appended to a long letter on this subject, that there would have been some new light thrown upon the matter, or some wise suggestion that would have removed difficulties. Judge, then, of my surprise, to find in this long epistle nothing which had not been already stated, and better stated, in the columns of the *Spectator*, a fortnight ago; and this surprise was turned into regret, when I found that seven of these eight gentlemen had penned a second letter, adding no new facts or arguments, but catching at individual expressions in the letter of the eight master-builders published on the 17*th*, and endeavouring to extort from them admissions which obviously were not intended, and are not expressed. The statements of these two letters, stripped of the verbiage in which they are enveloped, are—

1. That the public press has stifled the question so far as the men are concerned.
2. That the question, as it now stands, has nothing to do with the nine-hours question, which is abandoned.
3. That payment by the hour will tend to increase the number of working hours.
4. That the payment by the hour will jeopardize privileges that have been the subject of long struggles.
5. That payment by the hour is humiliating. Let us examine them in detail; and—
1. I fearlessly challenge an examination of the daily and periodical press for a refutation of this statement; and assert, without fear of contradiction, that no public question for many years past has been so fully and freely discussed.
2. This movement, as it is called, originated in, was caused by, and is still being worked with a view to, the nine-hours question. The "rough representation" which these gentlemen assure us, from personal examination, they have found to exist, is that which originated with, and was matured by, the mover of the nine-hours question,

into which the non-union men are introduced because of the union feeling its weakness; which has selected the masons as the trade to strike, under the belief that their organization will enable them to enforce it more completely than can be done by any other trade; and which has, within the last few days, issued printed hand-bills, addressed to the carpenters, calling upon them to contribute to the men now on strike, with a view to the ultimate enforcement of the nine hours. It is quite true that the actual demand of ten hours' pay for nine hours' work, in that definite form, is laid aside for the present; but it is impossible to detach this strike from that movement.

3. There is no reason why men paid by the hour should choose on that account to work more than ten, merely because those ten are not called a day. It is true that long hours are more advantageous to men than to masters; for, having a certain amount of work to be done, what can it matter to the master whether it is done by one man or by two; while, to the individual workman, it would cause an increase of his personal earnings.

4. What are "these privileges which have been the result of long struggles?" As the masters distinctly assert that they do not intend to interfere with any, we can only judge of them by the instances given in the letter of the 15*th*; and they are stated to be, a right to exact payment for a day, when only three or four hours have been worked; which right, however, the writer asserts has not generally been enforced. Upon this point I unhesitatingly declare that the men have always claimed the right to deduct one, two, or three hours, when it suited their convenience so to do, or to commence an hour or two later, if by any circumstance delayed in the morning. What advantage could result from the enforcement of this right, commensurate with its obvious result, that any man, by illness or accident, losing an hour or two in the morning, must be condemned to lose the whole day? For, if the obligation is complete on the one side, it must be equally so on the other. The other privilege instanced is extra payment for overtime. Now, as to this, it has never been a general rule: individual instances may have occurred in which additional payment has been made, but it has certainly been by no means a recognised rule. The rules of some of the societies forbid overtime altogether: with what consistency, then, can the loss of it be complained of as the abrogation of a privilege? The proof, therefore, of this grievance is a right by their own confession not enforced, and a "privilege" which up to this time has been complained of as a hardship, and which is directly forbidden by their own laws.

5. Payment by the hour humiliating! In how many professions is this the rule? Accountants uniformly, surveyors frequently, and many other professions make this their rule.

That a certain clique, which formerly possessed considerable power, and still retains its members in a comparatively perfect organization, may have succeeded to some extent in diminishing the number of working hands; and so rendered it, in a certain sense, necessary that longer hours should be worked by those who have accepted the arrangement, may be true; but this is because some of the workmen have been interfered with and intimidated, and is not the result of the system nor any argument against it; and it is curious logic, to say the least, which can draw from such exceptional facts arguments against a regulation so impeded.

It is to be regretted that the gentlemen who have come forward to sustain this falling cause, commencing with a representation that they only wanted a fair hearing for the workmen, should now pass into the position of unscrupulous advocates, and array facts and arrange arguments so one-sided.

I am "assured and cannot but express my belief" that greatly more than the number stated by these gentlemen are now working upon the hour system. Do I read rightly? Can thirty firms, employing in the aggregate 200 men, *i.e.*, seven men each, be cited as evidence of the success of the counter movement? Why, if these gentlemen had only taken the trouble to ask their eight correspondents, they would have found that these eight firms alone employ an aggregate exceeding 10,000 men.

I am further assured that the men who left when the hour system was introduced were a very small and insignificant minority; and that the figures stated should be reversed, for that not one in ten left; while, in more than one important firm, the hour system has been introduced at the express request of the workmen themselves.

I do most deeply deplore the alienation of feeling engendered by these discussions,—the necessary working out of the nine-hours agitation. Here an arrangement is made by which the workman is benefited, by which a source of bitter strife is put aside; such an arrangement as each individual master has a full right to make, infringing no right, and repugnant to no right feeling. What in such a matter is there for arbitration? Such arbitrations are questionable in principle altogether. The masters are ready to purchase labour: the workman wants to sell it: they are agreed as to price. The master says, "I am ready to engage you for ten hours;" and the man says, "Unless you'll call those ten hours a day I will not sell them;" and then gentlemen learned in the law step in, and say, "You must take this to arbitration."

The facts are fully and fairly before the public: *ex parte* statements can do no further good. It is to be hoped that persons not immediately interested will not persist in interfering; as no good, but much harm, is done by strengthening in appearance the hands of those who are really exercising a most pernicious and deadly influence over their fellow workmen. The standing out of those now refraining from work is far from voluntary. I have it on the best authority that the masons are kept away by a positive threat of a fine of 2*l.* if they go to work, enforced by a strike against them until it is paid.

The hour system was intended solely as a conciliatory means of removing the cause of strife. It was offered in all good faith, and with no reserve or covert intent; and they are not the best friends of the working man who set him to suggest that wrong is meant; and, instead of accepting an offer in good faith, as it is offered, urge him to exercise his ingenuity to discover how it may be turned to his disadvantage.

A CONTRACTOR.

BLINDNESS IN CONNECTION WITH THE CONSTRUCTION OF DWELLINGS AND PECULIAR PURSUITS.

THIS is a subject of great interest, and a matter worthy of careful inquiry; particularly when we consider that there are upwards of 22,000 persons in England and Wales who are blind. The following figures may perhaps direct useful attention to some of the causes of loss of sight; and show, in some degree, how this calamity affects particular classes of persons.

Taking the whole population of Great Britain, there is about one blind person in every 979;—in England and Wales, one in 970; in Scotland, one in 960; in the Channel Islands and the Isle of Man, one in 830. We thus see that, in proportion, there is less blindness in England and Wales than in Scotland; and much less in Scotland than in the Channel Islands. In Ireland the proportion of blind is one in 864 inhabitants.

In the level portions of Europe, comprising Belgium, Hanover, parts of Germany, and the plains of Lombardy and Denmark, the proportion is stated to be one blind in every 950 inhabitants;—but slightly differing from the average of Great Britain. In elevated regions the proportion is considerably lower; but in Norway, the proportion is one in every 482 inhabitants. We have not the means of arriving at an estimate of the proportion of blindness in other countries in which the population is, for a large portion of the year, chiefly confined in dark, ill-ventilated, smoky, and most unwholesome dwellings.

In Ireland, as is well known, the cottages are of a similar description; and in some of the Channel Islands, half a century ago (and they may still be found), the dwellings were not a bit improved from those in use throughout Great Britain in the days of the ancient Britons. When we consider how such dwellings affect the eyesight and health, there are great grounds for attributing a proportion of the excessive blindness to this cause.

In the towns where doubtless vast improvement is required, the dwellings, as regards the matter of smoke, are much better circumstanced than the cottages in many parts of the country. The proportion of blindness, although numbers come from the provinces, is not so great as the proportion in Great Britain. In London, notwithstanding the large number brought from other parts, the proportion is one blind person in every 1,025 inhabitants.

Manchester . . .	1 blind in every 1,107 persons*.
Liverpool . . .	1 " " 999 "
Birmingham . .	1 " " 1,181 "
Leeds	1 " " 1,203 "
Sheffield	1 " " 1,141 "

It has generally been thought that crowded dwellings and other circumstances attendant upon dense population, by inducing diseases of the organs of sight, have caused a greater amount of blindness in towns than in rural localities. It has also been considered that blindness has been increased by many of the employments followed in populous manufacturing towns. In order to show that this is not the case, it is worth while to contrast the extent of blindness in the following agricultural districts with the above-named large towns:—

In Wilts, Dorset, Devon, Cornwall, and Somerset, there is	1 blind in every 758 persons.
In Essex, Suffolk, and Norfolk	1 " 898 "
In the northern counties of Scotland, including the highlands	1 " 823 "
The highest proportion is in Herefordshire, viz. 1	" 665 "

In striking contrast with the above are the following manufacturing districts, in which a large proportion of the population are engaged in manufactures and mining:—

Yorkshire, West Riding	1 blind in every 1,231 inhabitants.
Cheshire & Lancashire	1 " 1,167 "
Durham	1 " 1,165 "
Staffordshire	1 " 1,082 "

Conclusions unfavourable to the rural districts, in this respect, are deduced from the above figures; but it may be said against this that blindness is a common infirmity of extreme old age. It follows, therefore, that in those localities in which the largest number of old men and women are living there will be found the largest proportion of blind; and an examination of the tables of the ages of the people shows that this is the case up to a certain age. The blind to 100,000 of the living at eighty years of age and upwards, in Hereford, is 2,019; Cornwall, 3,120; Devon, 2,942; Dorset, 2,800; Somerset, 1,887; Wilts, 1,705; Yorkshire, West Riding, 2,002.

Accidents and diseases resulting in the loss of sight are more likely to arise in the employments followed by males than females. It is therefore found, in Great Britain, that there is a proportion of about 110 males to 100 females who are blind; and, although there is difficulty in arriving at the exact numbers of the blind, who at the time of their affliction were in particular ways employed; it is clear that none of the large branches of industry are above the average liable to it. Indeed, the small numbers returned from the cotton, linen, silk, woollen-cloth, iron, and earthenware, are remarkable. Factory workers are, however, mostly young persons, and none would be employed in the midst of machinery with imperfection of vision.

Amongst the items which present the largest numbers in the classification of employments are—1. Agricultural labourers. 2. Labourers, not otherwise described. 3. Chelsea pensioners and soldiers, and Greenwich pensioners. 4. Farmers. 5. Domestic servants. 6. Weavers. 7. Coalminers. 8. Copper and lead miners. 9. Stone and limestone quarrymen. A large number of the blind are described as "annuitants" and living on alms: about one-tenth are blind paupers residing in workhouses.

It has been supposed that employment such as engraving is injurious to the sight. Long experience and much observation have led us to a contrary opinion. The exercise of the eye, like the working of the muscles of the blacksmith's arms, seems to give it increased strength and power of endurance.

CAVOUR AN ENGINEER.

COUNT CAMILLO BENSO DI CAVOUR, the Italian statesman, began life as a military engineer. The current number of the *Quarterly*, in a valuable memoir of him, says:—

"Like most young men of rank, Camillo was sent to the military academy. The army was then almost the only career open to a youth of noble birth. The civil service of the State was despised, and few in his position could be prepared for it by a suitable education. He soon distinguished himself by his diligence and ability, and was chosen as a royal page, then the next step to successful entrance into patrician life. His position at the Court seems to have been irksome to him. He took little pains to conceal his distaste for it, and was soon dismissed from its duties. Returning with renewed energies to his studies, chiefly directed by the celebrated astronomer Plana, he completed his military education at eighteen, leaving the Academy with the rank of Lieutenant in the Engineers, and the reputation of an able mathe-

matician and one of the most industrious pupils of the institution. He was soon employed as an engineer, although only nineteen years old, in important works. In a letter, dated the 9th March, 1829, he writes,—"I have passed the whole winter in the Apennines, to make the plan of a new fort, the object of which would be to close the road between Nice and Genoa."—a singular entry into life of the statesman who, thirty years later, was called upon to transfer the frontiers of his country to this very line of defence. From Genoa, he was sent to finish some works at L'Esseillon,—a fort perched upon precipitous heights, and commanding the pass of the Mont Cenis into Italy. He writes with a keen enjoyment of the grand mountain scenery which surrounds it. He had formed an early friendship with the late Mr. William Brockedon. That distinguished Alpine traveller had been the first to describe those beautiful passes and valleys, now the favourite resort of the English tourist, which lead from the spotless summits and stern grandeur of the Swiss Alps through almost imperceptible gradations of gloomy pine-forests, shady chestnut-groves, smiling vineyards, and convent-crowned hills, into the sunny plains of Italy. He had sent his magnificent work on 'The Passes of the Alps' to the young Count. To no one could the gift have been more grateful. He was proud of his glorious native valleys, and jealous of their reputation. In the letter we have just quoted, the first of a series of great interest addressed to his English friend, he writes:—

"Having, with the exception of the Stelvio, explored all the passes you so well describe, I have seen, with the liveliest pleasure, that, doing full justice to the picturesque beauties of our valleys, you give so charming a description of them. The Piedmontese, who have hitherto been sacrificed on this score to the Swiss, should be grateful to you for what you have done for them. You sustain their cause in the most triumphant manner, by making known to all Europe the singularly picturesque scenery of the Mont Genève, and the magnificent valley of Aosta, which are in no way inferior to the most beautiful parts of Switzerland. We shall be indebted to you as one of the first amongst strangers who, divesting himself of those accepted prejudices which assigned to Helvetia alone all the beauties of the Alps, has rendered complete and signal justice to a country which so well deserves to be known."

WORKS SUBMITTED IN COMPETITION FOR PREMIUMS OFFERED BY THE ART-UNION OF LONDON.

In reply to the invitation forwarded by the council of the Art-Union of London, to the schools in connection with the Science and Art Department, the following fifty-one works, from twenty schools, have been received:—

Birmingham, two drawings, majolica dish; one, flower vase.
Cork, two drawings, from life—human figure: five, majolica dish; one, flower vase.
Coventry, two drawings, sideboard.
Darlington, one drawing, bookcase.
Durham, one drawing, majolica dish.
Hunley, one model, tazza.
Lancaster, one drawing, sideboard.
London, South Kensington, one drawing, from life—animals; two, from life—human figure.
London, Lambeth, four drawings, from life—human figure; one, majolica dish; one, bookcase.
London (Female School), Queen-square, one drawing, from life—animals; one, flower vase; one, majolica dish.
Newcastle-on-Tyne, one drawing, Jaccoon group; one, from life—human figure.
Newcastle-under-Lyne, one drawing, majolica dish.
Nottingham, four drawings, from life—human figure; one, from life—animals; one, bookcase; one, sideboard.
Paisley, one drawing, sideboard.
Penzance, two drawings, majolica dish; one, flower vase.
Preston, one drawing, majolica dish.
Sheffield, one drawing, majolica dish; one, sideboard; two, flower vase.
Stoke, one model, pedestal for bust; one, majolica dish.
Yarmouth, one drawing, from life—animals.

DISCOVERIES IN ORKNEY.

A MOUND of great size, at Stennis, known as Maes How, has been opened by Mr. James Farrer, M.P., Mr. Stuart, the secretary of the Society of Antiquaries of Scotland, being present, and has afforded some interesting results. As in the case of the mound at New Grange, in Ireland, Maes How was found to contain a vaulted chamber, approached by a long gallery from the outside. These were principally constructed of slabs of stone, some of them of great size. The chamber was filled with stones of all sizes and with rubbish, which appeared to have been produced by a breach in the roof by which the chamber had been entered at some remote period.

On clearing out the rubbish the chamber was found to be about 20 feet in height to the point where the uppermost flag had rested, and 14 feet square. On three sides small openings in the walls were found, which gave admittance to three chambers averaging about 6 feet in length, 5 feet in

breadth, and not quite 4 feet in height. These had originally been closed from the inner chamber by stones, accurately fitted into the entrances, which were found on the floor.

Numerous lines of Runes of various sizes were found in various parts of the walls, so that when the bottom was reached the series of Runes discovered exceeded 700 in number, and it may be hoped that when translated they will throw light on a class of monuments of the history of which it may be said we as yet know nothing certain.

Colonel Forbes Leslie made drawings, and Mr. Petrie took casts, in gutta percha, of some of the inscriptions; and, as soon as the chamber has been emptied, careful casts will be taken of the whole of the inscriptions. A bowl-barrow, near the large quarry of Bookan, not far from the Standing Stones, was afterwards opened, and a circular building was found in it, containing four kists, arranged around a central kist, from which there was a small passage leading towards the outside of the building. There were human skeletons in three of the kists, and a lance or spear-head of flint, and fragments of small rude clay vessels lay in the central kist, but no bones.

THE DESIGN OF DRINKING FOUNTAINS.

AN esteemed correspondent, who appears to have overlooked our repeated objections to the same effect, writes:—

My attention has been lately called to Drinking Fountains, and I have been struck by one touch of "barbaric art" which mars most of the designs, and should be loudly protested against; and that is the practice of making the water flow from the mouths of snakes, dogs, lions, and even negroes. Surely what is repulsive and offensive in actual life can never be legitimate in art. The idea of any one taking water issuing from the month even of the fairest of human forms is revolting in the highest degree—let alone the jaws of the inferior animals. Nothing can be said in excuse of the notion, therefore, when executed in stone or iron. It is possible that the artists who have been accustomed to design other fountains have been led into the error by not reflecting on the essential difference between the mouth of the animal used as a mere spout for the playful diffusion of jets of water, and as the source of a stream of water which is to be used for drinking directly it issues.

Some flowers, such, for instance, as the *Arun*, with its white pitcher-mouthed bloom, and its bold stems and large leaves, would offer good hints for a more cleanly idea. A palm-tree pierced with reeds, as in drawing away the sap, or a group of boys playfully pouring out of vases into cups, are suggestive. Might not the water-carrier of the East, with his skin on his shoulder, delivering the water from his neck, be very artistically used by a competent designer? The one primary rule that ought to be laid down is, that the water should appear to come from some object with which we have natural and not disagreeable associations. I would prefer a plain tap to most of the things I have seen.

NEW AND ENLARGED SCHOOL AND MASTER'S HOUSE AT HOWICK.

THE village of Howick is made picturesque by the substitution of tasteful healthy dwellings, for the persons employed on Earl Grey's estate, for the squalid, damp, old-fashioned hut-cottages that yet form, in too many districts, the homes of the Northumbrian peasantry. Conspicuous from others stands the row of cottages for the widows whose husbands have done service on the estate. On one side of the square "place" of the village stands the more pretentious row of neat dwellings for the servants on the estate: these have a pleasing arrangement of gables and dormers, and an elevated advanced central portion, the ground floor of which is used as a girl's sewing-room, and which also terminates on the upper floor in a gable, to which is fixed a large pigeon-cot. In an angle of the square stands the new school, 32 feet by 16 feet 6 inches. It has every modern convenience, warm air apparatus, a system of ventilation and plenty of light, and a playground. The master's house consists of a sitting-room, kitchen, and three bed-rooms. The old school was a small room badly lighted, and the master's house a kitchen and a bedroom only. All the new work has been executed in a substantial manner by his lordship's people, under the direction of the surveyor of the estate, Mr. Robert Dunn.

The enlarged and beautiful church at Howick and elegant chapel at Chevington, are proofs of

Earl Grey's appreciation of matters connected with buildings ecclesiastical.

Mr. F. R. Wilson, architect, Alnwick, has certified that the design for the improvement of the school and master's house at Howick has been carried out in accordance with the views of the Committee of Council on Education.

THE CROYDON CEMETERY.

THE local board of health of the parish of Croydon have provided a cemetery for the town. It is situate between the Windmill-road and Benham-lane, a central position.

The grounds have been laid out, and the buildings erected, from the designs, and under the superintendence, of Mr. C. E. Robins, of London, architect, who carried out the alterations and improvements in the Town-hall. He was the successful competitor amongst twelve, named by the board of health.

The cemetery ground comprises 22 acres of land, of which 11 acres have been enclosed with dwarf stone walls and iron railings, and of these 11 acres four are reserved for Dissenters. There are three recessed entrances, with carved and moulded Bath stone piers between the carriage and foot gates. These entrances are connected with straight roadways twenty feet wide, at right angles with each other, the chapels being situate on the east of their intersection,—the Dissenters' chapel on the reserved land, and the episcopal chapel on the consecrated portion of the cemetery. Wide gravel carriage-ways surround and divide the chapels, which are connected with each other by the two covered carriage entrances. The tower and spire of the episcopal chapel is raised over its entrance. On the opposite side of each chapel is a door of exit; and the vestries have separate entrances both to the chapels and grounds. The lodge is situate on the south side of the west entrance gateway.

The style adopted for the buildings is the Decorated. Each of the chapels consists of a simple nave, with open timbered roof, but the episcopal chapel has the addition of a semi-octagonal apse at the east end; and, while the under side of the rafters of the Dissenters' chapel is ceiled with plaster, that of the episcopal is boarded, stained, and varnished a shade lighter than the carved trusses which sustain the roof, and which terminate on carved stone corbels.

The carving was executed by Mr. Redfern: the designs represent English fruits and flowers, figures of angels, heads of saints, griffins, &c. No symbolism is introduced in the decoration of the Dissenters' chapel.

The heads of all the windows are filled with open tracery, and the grey tone of the Kentish rag contrasts with the white Bath stone dressings and the roof slating, which is varied by the introduction of cut slates in bands of red and blue. Both the chapels are paved with ornamental tiles.

SUBJECTS FOR PREMIUMS OFFERED BY INSTITUTE OF CIVIL ENGINEERS.

THE council have issued a list of subjects on which they invite communications for premiums. For a limited number of papers of distinguished merit pecuniary awards will be made, not exceeding in each case twenty-five guineas, in addition to the honorary premiums. Certain subjects have been selected as those upon which it is hoped, such communications may be received during the ensuing session. We give a few of the subjects,—

On reclaiming land from seas and estuaries. (Twenty-five guineas.)

On the method of constructing foundations, for large structures, in deep water; and on the various systems of driving piles.

Description of cast or wrought iron cranes, scaffolding, and machinery, employed in large works, in stone quarries, as hoists, or lifts on quays, in warehouses, &c., especially where either steam or water is used as a motive power.

The selection of sites for, and the principles of the construction of, breakwaters, harbours of refuge, piers, moles (whether solid or on arches), sea walls, and shore defences; illustrated by examples of actual works.

The construction of lighthouses, their machinery and lighting apparatus.

The results of contrivances for facilitating the driving of tunnels, or drifts in rock.

Accounts of the various modes adopted for moving earth in tunnels, cuttings, or embankments, with the cost.

On the different systems of swing, lifting, and other opening bridges, with existing examples.

Accounts of existing waterworks; showing the

methods of supply, the distribution throughout the streets of towns, and the general practical results. (Twenty-five guineas.)

The drainage and sewerage of large towns; exemplified by accounts of the systems at present pursued, with regard to the level and position of the outfall, the form, dimensions, and material of the sewers, the prevention of emanations from them, the arrangements for connecting the house drains with the public sewers, and the disposal of the sewage, whether in a liquid form, as irrigation, or in a solid form after deodorisation.

On the means of rendering large supplies of water available for the purpose of extinguishing fires, and the best application of power to the working of fire-engines.

Description of street railways and carriages, as used in the United States of America, in Paris, and elsewhere, with the results.

On the construction and application of steam hammers.

The process of manufacture, and mode of treatment, of aluminium.

On the application of photography to engineering.

Railway accidents—their causes and means of prevention; showing the bearing which existing legislation has upon them. (Twenty-five guineas.)

Memoirs and accounts of the works and inventions of any of the following engineers:—Sir Hugh Middleton, Arthur Woolf, Jonathan Hornblower, Richard Trevithick, William Murdoch (of Soho), Alexander Nimmo, and John Rennie.

DR. WILLIAMS'S LIBRARY, REDCROSS-STREET, CRIPPLEGATE.

THE wayfarer in this direction may have noticed, on the east side of the street, close to the wall of the debtors' prison, a substantial-looking house, displaying that excellent brickwork which was in use two centuries or so ago. Besides this, there is nothing to indicate that this is an institution founded by a liberal benefactor for the use of the public, if we except a small brass plate upon the door, on which is engraved, "Dr. Williams's Library."

In years gone by this place was better known than it is at present; for, before the system of the registration of births, marriages, and deaths had been established at Somerset House, three denominations of Protestant dissenters, forming a congregation within twelve miles of London, established a registry of births here, which was continued from 1742 to 1837, when these records were placed in the care of the Registrar-General. In these books are entered nearly 50,000 births, attested by witnesses.

Without any formal introduction, the writer applied for admission to the library; and, while waiting for the presence of the librarian, saw that the house is very spacious. The hall is hung with portraits some of them having much artistic merit, and of very great curiosity. The person in charge of this place gave ready access; and we found that, independently of the books, there are various matters here well worthy of notice. The artistic visitor will look with interest at the portrait pictures of Milton, and the busts of eminent Nonconformists. There are two portraits of Dr. Priestley,—one by Fuseli, which is said to be an admirable likeness, but which is most unpleasant in its colouring: it looks like a ghost of the doctor.

On the first story is a noble apartment, beautifully proportioned, and well decorated. Above the mantelpiece,—which is well worthy of notice,—set in a panel, is a very fine portrait of Dr. Bagster. The effect of this portrait so placed is excellent.

This large apartment would make an admirable lecture-room; but how sadly this space is wasted is shown by the circumstance, that, when requested to sign our name in the book provided for that purpose, although it was the 11th of July, the writer's name made the seventh person who had called in course of the current month. Such a circumstance as this will be taken advantage of by those who oppose the establishment of libraries in the City of London. When, however, we reflect that the present contents of this library are not a popular kind of literature, and that this place, to the masses of the people of the metropolis, is but little known, we can scarcely wonder at the neglect of this gift.

Here is, however, a germ which might be made to produce most valuable results. Instead of the small brass plate upon the door, on the front of the house, the purpose of the institution should be written in bold letters, so that all might

know that this is a place to which even the men with jackets can be admitted.

The premises are of great value: so are the books and pictures; and it would be a most worthy effort to try to engraft on the library materials which would attract the present generation towards it.

Daniel De Foe, John Bunyan, and doubtless Dr. Williams also, if they could but now see that the pillory, the stocks, the punishment of being obliged to eat our books, have all succumbed to the march of improvement; and that railways, the electric telegraphs, great steam ships and steam printing-presses, are in use; would say "well done" to those who would raise this library once more into usefulness.

ALDERSHOT CAMP.

A CORRESPONDENT who signs C. R. E., writes to contradict some of the statements made by Mr. Bernal Osborne as to the mistakes committed at Aldershot. Our own experience confirms Mr. Osborne rather than C. R. E. The latter says,—

"The original estimate for the Houses of Parliament was, I believe, in round numbers, 780,000*l*. This amount will, by the time the work is completed, be increased about threefold. What large work was ever completed for the original estimate, and that when there has been plenty of time for considering all circumstances in connection therewith? How much greater allowance should be made for an establishment like Aldershot, where everything was done in the greatest hurry, without any matured plan or scheme being considered, in the depth of winter, and that a very severe winter, without anything of the same sort in existence to take notes of and improve upon? Would any amount of skill and talent from private architects have, under the same circumstances, done better?"

At the close of his letter he writes,—

"The department has long laboured under serious disadvantages, which have hitherto appeared almost irremediable; but the signs of the times are for an alteration; and I trust the results of the labours of the committee now sitting will be to place that department on its proper footing, and thereby render justice to whom it has long been denied."

We can assent to most of this, and yet not retract anything that has been said as to the wasteful expenditure and unsatisfactory works at Aldershot.

ADDITION TO THE BATH MINERAL WATER HOSPITAL.

THE new building forming an addition to the Bath Mineral Water Hospital has been formally opened. The elevation has been arranged in harmony with the design of the original structure. The two buildings are connected by a bridgeway on the first-floor over Parsonage-lane, and by a tunnel under the same thoroughfare. The hall and staircase occupy the centre of the ground-floor, and on the right-hand side is a board-room, 32 feet long by 26 feet wide. The waiting-room adjoins, and on the same floor is the registrar's office, porter's lodge, apothecaries' and matron's rooms, dispensary and chapel. Of the day-rooms on the first story, the women's room is 78 feet long, and the men's 70 feet long; the latter is 43 feet wide, and both are 22 feet high: on the south side of each is a balcony for the use of the patients in fine weather. The apartments will be lighted at night by sunlights, in the centre of the ceilings. The Roman pavement discovered when the foundation was being dug out, some 3 or 4 feet below the level of the basement floor, has been raised round and preserved. Behind the new edifice is a large exercising yard. To the chapel in the rear of the building the late Mr. James S. Brymer, gave 500*l*. for its decoration, with stained glass windows, &c. The carving throughout the chapel has been executed by Mr. H. Ezzard, jun., of Bath, under the direction of Mr. J. Elkington Gill. The floor of parts of the chapel is paved with red and black tiles. The chapel is 26 feet by 55 feet; is designed to accommodate 160 worshippers, and is furnished with open oak seats. The architects of the new building were Messrs. Manners & Gill; the contractor, Mr. G. C. Mann; the carpenters, Messrs. Morgan & Lovell; the plasterer, Mr. Cooke; the plumber, Mr. Kerslake. The expenses connected with the new building amount to nearly 20,000*l*.



THE ROYAL DAIRY, FROGMORE.—Plan.

THE ROYAL DAIRY, FROGMORE,
WINDSOR.

A NEW dairy has been constructed at Frogmore, near the Lodge, for Her Majesty and the Prince Consort. It stands upon the site of an old cottage, and contiguous to the Royal Aviary and Model Farm. Our engraving is a sectional view of it, and we add a plan. The dimensions within the walls are 37 feet 7 inches long, 23 feet wide, by about 23 feet high to the flat of the ceiling. The walls, to the spring of the sloping part, are 15 feet high. The length is divided into four bays, and the breadth into three bays, by six columns of an octagonal form, made of timber, as is all the framework, neatly coloured, decorated, and enamelled. The capitals of the columns are carved, and enriched with colour. The walls are surrounded with white marble tables, supported on marble shafts, inlaid with English and Belgian marble. Beneath these are reservoirs of a bluish encaustic tile: these reservoirs are to contain a flowing stream of cold water. The walls are lined with tiles of delicate tint and pattern, surrounded with a green border. There are ten windows, each filled with stained glass, carrying a border composed of the May-blossom, daisies, buttercups, primroses, &c. Opposite the windows, on one side, are slight recesses, made to correspond in richness. Between these, and between the windows, are delicate bas-reliefs, in majolica, of agricultural subjects, and the four seasons. Below these bas-reliefs is a border of richly-coloured tiles, which continues round the heads of the windows and recesses. Above this is an elegant frieze in majolica, having a rich scroll pattern, with medallions, containing portraits of her Majesty the Queen, H.R.H. Prince Albert, and the whole of the Royal family, at equal distances, and relieved by shields, with monograms. The ceiling above the cornice is painted with a delicately-pencilled pattern, enamelled, to correspond with the framework.

There are two fountains, one at each end of the room, in majolica ware, of similar design, composed of a large shell, supported by a heron and bulrushes. In this shell rises a triton, supporting

another but smaller shell, from which issues the jet of water.

In a niche in the wall opposite to the window is a little figure, in marble, holding a vase, from which flows a stream of water into a majolica basin.

The whole of the floor is laid with encaustic tiles, of a rich pattern. The flat of the ceiling is filled with compartments of perforated majolica tiles, for ventilation.

This charming apartment owes much of its elegance to valuable suggestions from her Majesty and the Prince Consort during its progress. To Mr. John Thomas, of Alpha-road, are due the design and decorations. Messrs. Minton were the manufacturers of the majolica ware and tiles. The ventilation was the work of Mr. Watson, of Halifax. The whole has been carried out under the careful superintendence of Mr. Turnbull, of Windsor Castle.

"THE ROYAL GALLERY OF ART."

At the Crystal Palace, in an apartment fitted up for the purpose, 119 drawings from the pictures forming the private collections of the Queen and Prince Consort are placed for exhibition and sale. Our readers will remember that permission was accorded to Mr. S. C. Hall to select from the Royal Galleries themselves such pictures as he considered best suited for engraving; and it was for this purpose that the drawings were made. They have been executed by various accomplished artists from the original pictures; in some instances, by the painters of the original pictures; in others, they have been "touched" upon by the painters; and in all cases the utmost care has been taken to obtain the best possible drawings, not alone to procure intrinsic worth, but to secure accuracy and truth in the engraving. The originals are in Buckingham Palace, Windsor Castle, and at Osborne. At the latter palace are principally collected works of modern art, chiefly of the British school, with examples of the schools of Germany, Belgium, and France, the purchases of Her Majesty and the Prince Consort. Many of the drawings are particularly beautiful, and

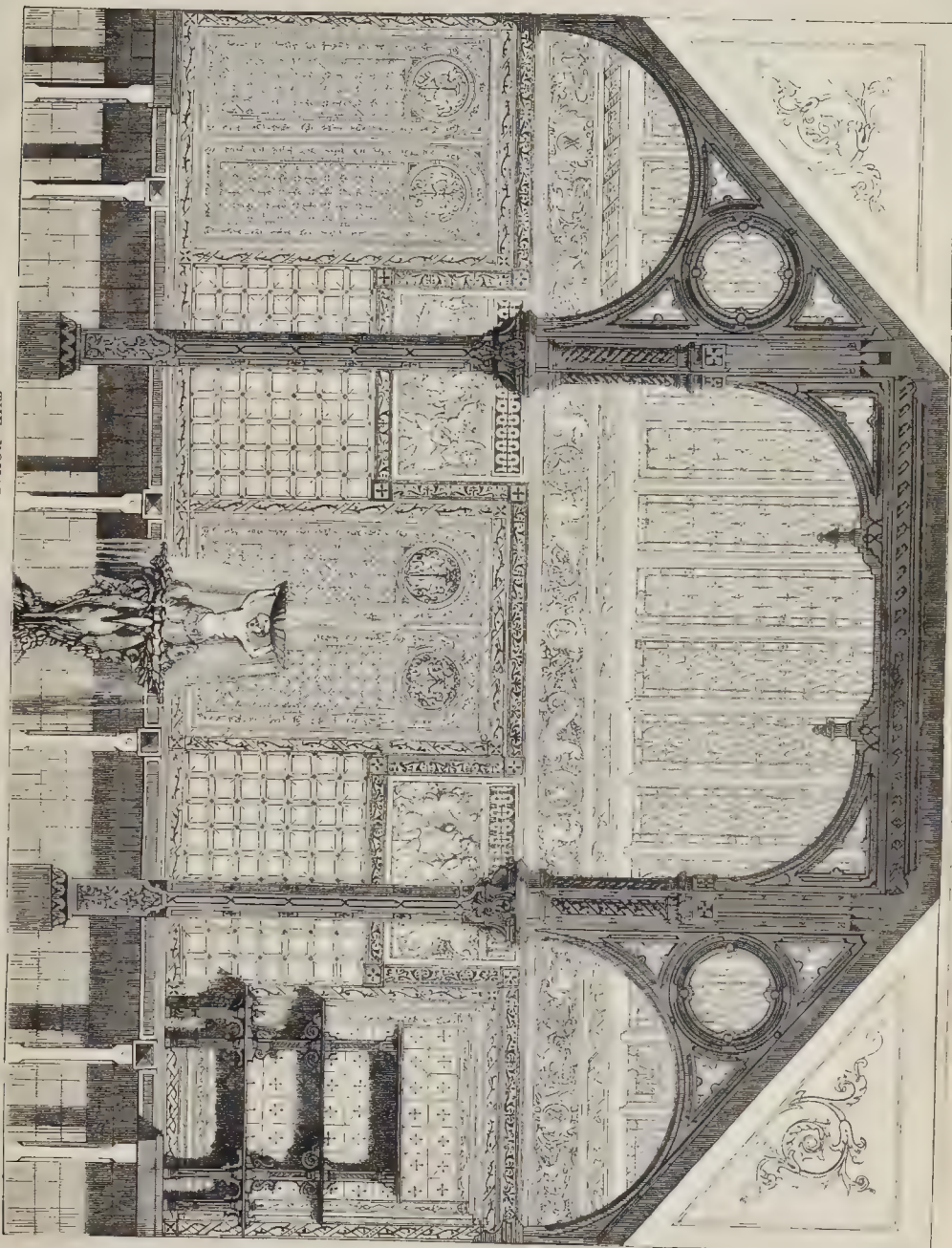
the whole forms an exhibition of very great interest. It is to be regretted that they should be separated. Some of our corporations should purchase the collection for the advantage of their town. As of this, however, there seems no immediate probability, and the outlay has, of course, been very great, the drawings are purchasable separately.

The last number of the published work has been issued, and is now before us.* It contains "The Two Grandmothers," by Marie Weigmann, engraved by C. H. Jeens; Guido's "Death of Cleopatra," engraved by Shenton & Bourne; and Wilkie's melodramatic "Maid of Saragossa," very well rendered by Groatbach. Now that this fine work is completed, it is to be hoped that the directors of public libraries and others will possess themselves of the few remaining copies. Each engraving is accompanied with descriptive letterpress, and the whole forms four beautiful volumes.

ROYAL INSTITUTE OF BRITISH
ARCHITECTS.

A SPECIAL GENERAL MEETING was held on Monday evening last, at the house in Conduit-street; Mr. Robert Kerr in the chair; to consider various subjects in accordance with a requisition as mentioned in our last. Reporters not being admitted, we content ourselves with a brief mention of what was done. Touching the desirability of taking steps to obtain a proper recognition of the artistic element in the scheme that may be adopted for the embankment of the Thames, a resolution was passed requesting the Council to appoint a committee to watch proceedings. With reference to a proposed certificate of membership, it was resolved "That it is inexpedient that any such certificate be issued at present." The manner in which the Exhibition Building design had been obtained was discussed, the movers simply seeking information. A Fellow present gave some explanation of the position of the commissioners towards the public; and, with the consent of the meeting, the matter dropped.

* "The Royal Gallery of Art, Ancient and Modern," Edited by S. C. Hall, F.S.A. London: P. & D. Colnaghi & Co. Manchester: Agnew & Son.



THE ROYAL DAIRY, FROGMORE, NEAR WINDSOR.

GUERNSEY.

THERE are numerous improvements being effected in Guernsey. In Smith-street, there have been some demolitions to widen the street; and at the present time they are levelling to the ground a large house in the same district. Roads have been made near the *Terres*, close by the New Harbour Works. These constitute a pleasant promenade, as they continue for some distance. It is elevated, and hence one has a fine sea-view. A plantation has also been made here; this being the fourth in town.

A drinking-fountain has been erected at a corner near these roads. It is not very ornamented, but it will be useful. Another drinking-fountain, of the same material, grey granite of the island, has been put up at the other extremity of the harbour works, near the *Pollet*. It is situated close by the road, on a plantation. This fountain is rather more elegant than the other. It consists of a square shaft, 6 feet high, deeply panelled, on a plinth 16 inches in height, and surmounted with a moulded cornice and cap; the entire height being 11 feet, and weight $5\frac{1}{2}$ tons. The water is brought from Havelot-road. It will be ejected from the mouth of a good-natured-looking animal, of the lion tribe, made of gun-metal, bronzed, as are likewise the brackets for sustaining the cups, and the trough, which is on the plinth, and intended for the use of dogs. There are to be seats fixed on each side of the column, which is to be inclosed by railings and a gate. Mr. Lyster, engineer of the Harbour Works, is the architect; and Mr. Bissan, of the Vale, dressed the stone. It is suggested to erect two similar structures in town; one near the town church, in red granite; and one towards the *Terres*, in blue granite, to match this one.

St. Paul's Methodist New Connection Chapel, near Smith-street, is nearly completed. The roof is placed. This erection looks very well from the sea. It is in the Decorated Gothic style. The architects are Messrs. Poulton & Woodman. The building is not to be finished as it was at first designed: it would have had a spire.

A new window was, a little time since, placed in the tower of St. Martin's Church. It is in the Early Gothic style, and was executed by Mr. Randall, of Allex-street.

There have been memorials placed lately in Guernsey; two at the Foulon-Vale Cemetery, one by Mr. Webber, in memory of the Rev. Mr. Laxon, a Dissenting clergyman.

The extension of the water service is being discussed. They hope to be able to supply water to the townspeople from Havelot and other fountains, at a slight cost.

CHURCH-BUILDING NEWS.

Summers-town, Totting.—The district church of St. Mary has been reopened, after undergoing extensive alteration. The nave has been lengthened towards the west 23 feet, and a gallery provided for children, approached from an external stone staircase. A new chancel, semi-octagonal on plan, has been attached; the east wall being cut away, and a moulded stone arch inserted, springing from small columns, with carved caps and brackets. The walls are pierced with three lancet windows, and the roof groined with foliated bosses. The building has been entirely refitted with open benches of stained deal; the pulpit, lectern, communion rail, &c., being all new. The style is Early Pointed. The present number of sittings is 310. The works have been carried out by Messrs. Adamson & Sons, under the superintendence of Mr. J. W. Dennison, architect, at a cost of £850, including front railing and entrance gates.

Whitley (Berks).—The foundation stone of a new church has been laid at Whitley, by the Bishop of Oxford. The site is on the hill approached by Kendrick-road. The church will be in the Decorated style; the walls of Bristol stone, with Bath stone dressings; and it will depend on the amount of subscriptions received whether it will have a spire. The estimate, excluding the spire, is £6,000. The architect is Mr. H. Woodyer, of Grafton; and the builders are Messrs. Wheeler & Sons. The carpenters and joiners' work will be executed by Mr. James Matthews, of Reading.

Hawkerst.—The new church of All Saints, founded at the sole expense of the incumbent, the Rev. H. A. Jeffreys, and his sister, Miss C. E. Jeffreys, has been consecrated by the Bishop of Salisbury. The edifice has been erected at that part of the parish known as Highgate. The design was furnished by Mr. Scott; the builder being Mr. Purnett, of Tunbridge. The architecture is French Gothic; the building being enriched with

stone carving. The church consists of a nave, chancel, and two side aisles; affording accommodation for 380 persons, which could be extended. On the south of the chancel rises a shingled spire, and in the tower are three bells. Near the north-west end is a porch of carved stone, the designs being clusters of flowers. The interior walls are all plain ashlar.

Oxton (Leicestershire).—The opening of Oxton Church took place on July 10th, and 1027. were collected at the close of the services. The church (the only remaining portion of the abbey founded here, in the reign of Edward III., by Robert Grimbold) has undergone a restoration. The spire has been heightened, and three new bells added: the pewing, pulpit, reading-desks, screen to vestry, and altar-rail, have been renewed in oak, carved; and a new roof has been put upon the north aisle. A five-light east window has also been added, and the chancel laid down with Minton's encaustic tiles. The whole of the works have been carried out from the designs and under the superintendence of Mr. Henry Goddard, of Leicester, architect. Mr. B. Broadbent, builder, of Leicester, was the contractor.

Yoxford.—The parish church of Peasenhall has been rebuilt on the site of the old one, at the entire expense of Mr. J. W. Brooke, of Sibton Park, near Yoxford, and is in a forward state of completion. It is built with black flint and stone. The nave is 10 feet longer than the former one, thereby giving increased accommodation. The window of the chancel is filled in with stained glass, the subject of which is the Crucifixion of our Saviour, and which is intended as a memorial window to the parents of Mr. Brooke. The tower has been restored and heightened about 4 feet, a new bell-frame erected, and the bells repaired and re-hung. The whole restoration has been in the hands of Mr. Ringham, of Ipswich, the contractor, assisted by Mr. D. Fulcher, of Lowestoft, as surveyor; the architect being Mr. R. D. Chantrell, of London.

Blackenhall.—The Bishop of Lichfield has consecrated the new district church at Blackenhall, near Wolverhampton. The edifice is of brick, of a light and simple character, and was erected from designs by Mr. Robinson, of Leamington, architect, at a cost of £3,000. New schools are also in progress in close contiguity to the new church.

Yardley.—Yardley Church has been reopened for divine service, after having undergone considerable repairs and restorations. The works include new seats throughout (except the chancel), in a plain style, worked in English oak. The floors are newly laid, and the internal stonework has been restored by denuding it of many coats of whitewash, and making good defective portions. The windows have been re-glazed in diamond squares, with a margin of stained glass round each light, including also the tracery. The south or Gilly aisle has undergone a restoration, including the roof, which, by the removal of the ceiling (which cut the window in half), is now open to view. The three-light window in this aisle is filled with stained glass, by Mr. Holland, of Warwick, the principal figures representing gift of Mr. J. Horsfall. A memorial stained-glass window of two-lights, also by Mr. Holland, was presented by Lord Milford, the principal figures representing the Resurrection and the Ascension. The roof of the nave, a specimen of sixteenth-century work, on the trussed-rafter principle, for want of funds remains concealed by an ugly layer of whitewash from the walls, the entire surface was found to have been decorated, *temp.* James I., with Scriptural texts and the peculiar scroll ornaments of the period. Below this were the remains of former decorations, evidently of which made them illegible: traces of a decorative painting appeared on all the piers and arches. Underneath the pewing was found an alabaster incised slab of the fourteenth century. Much yet remains to be done internally. The amount expended has been upwards of £900, and the whole has been executed by Mr. John Corbett, of Birmingham, from the designs and under the superintendence of Mr. Yeoville Thomason, architect.

Offham (Kent).—The church here is being restored. The old building has been raised, except the tower—an embattled structure, with gargoyles beneath its parapet. The work of rebuilding from the foundations, it seems, was absolutely necessary, owing to the long period during which the repairs of the late building had been wilfully neglected. Mr. Freedy, of London, is the architect; and Mr. J. Griffiths, of Elders-

field, the builder. Besides a nave and chancel, the church will now include a north aisle and vestry, and the porch will be on the south instead of the north side: there will be seventy-seven additional sittings, or in all nearly 200. The timbers of the new roof are all in their place, and the church will shortly be covered in. The total cost will be nearly £1,800.

Bristol.—Extensive restorations have been carried out at Bristol Cathedral; and, instead of a small dingy edifice, covered with abominable whitewash and disfigured by numerous excrescences, there is now a commodious and imposing fabric, restored to its original proportions and enriched with such aids as art and taste can furnish. The area, which previously accommodated 300 worshippers, is extended to receive at least 1,000, and 1,600 will be enabled to hear the service comfortably. In taking down the old screens and stalls, no antiquities connected with the history of the building were discovered. The walls were found to be composed of fragments of carved stonework, chiefly Norman and Early Decorated, with some few portions of Perpendicular work; and on the carving of the canopies and stalls some of the old blue paint was discovered. The holy-water stoup was found by accident in taking down an old monument.

Hollington.—The church of St. John the Evangelist, Hollington, has been consecrated. The edifice was designed by Mr. G. E. Street. It is simple in appearance. The chancel ends in the form of an apse. The stained windows in the chancel are from the manufactory of Messrs. Clayton & Bell, of London.

Ystradgynlais.—A new church here was opened for divine service on June 12th. The nave and the north and south aisles have been completed from plans prepared by Mr. B. Ferrey. The builder is Mr. John Gabe, of Merthyr Tydvil. The chancel and vestry-room have had their foundation walls laid and built up even with the surface of the ground. The nave is 72 feet long, being about 10 feet longer than that of Pontardawe new church. The width of the church, including both the nave and aisles, is 50 feet, and will afford sittings to about 650 people when all is finished. One feature of this building is that, instead of massive stone pillars, to support the arches, the capital of each arch rests on two short cast-iron pillars, about 5 feet long, and these are again supported by a base of stone pillars, about 3 feet high.

Ebbw Vale (Monmouthshire).—The new English Wesleyan Chapel in this place is drawing to completion, and is intended to be opened this month. It is in the Italian style, and is entered by a flight of stone steps, under an open freestone semi-circular portico, between which and the chapel itself is a spacious vestibule, with stairs in same to gallery. The chapel is a parallelogram, 81 feet by 41 feet in the clear, between front and back walls, and 30 feet high, and contains sitting accommodation on the ground-floor for 620 people. It is terminated by a semi-circular apse, the walls and domed roof of which are panelled. The apse is flanked by two vestries. The walls are built entirely of bluish grey Pennant (except the front, which is faced with Riscad red stone), in random ranged courses. The dressings are of freestone. The general contractor is Mr. Henry Guppy, of Ebbw Vale. The freestone work was relet to Mr. A. James, of Newport, Monmouthshire; the plastering to Mr. Charles, of Ebbw Vale; and the glazing and staining, &c., to Mr. Willis, Ebbw Vale. The entire cost of building, not including boundary walls, or stones for chapel (the latter being provided by trustees), will be about £1,400. The chapel has been erected from the design of Mr. Samuel Hancorn, of Newport, architect.

Merthyr Cynog.—The old church of Merthyr Cynog, situate eight miles distant from Brecon, has been restored under the directions of Mr. Buckenridge, and reopened. The bad portions of the walls have been taken out and rebuilt: new windows have been put in; the old ones in the north and south sides of the chancel being preserved—and, where needed, renewed in native stone: the internal fittings in nave and chancel have been all made new and rearranged; open sittings, all free throughout the church, taking the place of the former high and appropriated pews: the roof, before concealed from view, has been restored in oak—preserving the old principals where their condition rendered it possible. The total cost of the work, exclusive of the tower, which yet remains to be done, is about £254.

Llanfabon.—The foundation stone of St. Cynon's Church has been laid. The church will be Gothic, with a chancel 32 feet in length. The entire length of the building will be 48 feet. The architects are Messrs. Prichard & Seddon, of Llandaff.

* "Architect," in the *Buider* of the 26th inst., says:—
 "I do not presume to have sunk into the byways, al-
 though I have walked on the highways." Why should
 "Architect" presume that "H. B." has sunk in the by-
 ways? I might as fairly assume that "Architect" stuck
 in the mud last time he jumped into the wharves. Men who
 have had a "long experience" of life, be sure, have seen
 something of the byway of life. This Iron-Louis Napoleon
 to Gaibaldi, antitheses, but alike so far. To meet the
 wants of many in regard to "Chambers and Ledging,"
 one must be well up in byways, though not very
 high up. I have a little to say on the subject, but I do
 not pretend to such sobriety. I am obliged to him,—
 joking apart.

fuse a little more of Nature's garb within our city walls, to the softening of man's nature, to the kindling of those gladdening emotions which might—who shall say?—some day suggest to the bachelor's head breast the thought of love, and a cottage, green besprinkled, to put it in.

Is there any reason why chambers should be so very severe and boudoirs so very gay? why lodgings should be so very dismal and taverns so very garish in sense-appealing garniture? When will those who take in lodgers (in every sense) cease to look entirely to their own pockets, and more closely examine what constitutes comfort, what engenders cheerfulness, what gladdeneth the heart of those they house? It is not because a man cannot afford to marry, or because, when married, he cannot afford a large house, that he should be condemned to the *blues* for life. I do not wish to load houses with false ornament, but to make the most of the space and money at command, by establishing such allurements as will make the man of residence-chambers cease to grumble (if bachelors ever cease to grumble), and lodgers not so glad to rush to Cremorne or the silver-paper-wrapped evils of spurious singing (and boozing) "halls."

A company got up to carry out a residential structure for lodging folks would pay very well. We might graft upon some of the principles in "model lodging-houses" others more within the scope of those better to do,—a good kitchen, good ventilation, good smoke consuming or discharging; dryness of site and structure;—but, above all things, cheerful concomitants of every kind which taste, and not mere money, will command. The entrance and approaches of a place of this kind should be as a conservatory. We do not employ flowers as we might in our buildings. At Lord Mayors' banquets, and Queen's state balls, we, for the occasion, display heaps of roses, geraniums, &c., shorn cruelly from their parent stems; but the residence that is fit for human life will be fit for flowers in growth, and the one is but a barometer of what is proper for the other.

The Floral Hall of Covent Garden is a grand step in the right direction. Is it too glad some for business? Pity it is that we do not infuse a little more *heart-someness* into business.

HORACE B.

FIRE AND POLICE TELEGRAPH.

I READ with great pleasure your excellent article upon the subject of a fire telegraph in the *Builder* of last week, and I sincerely trust that the time is not far distant when the suggestions will be fully and advantageously realized. The enormous loss of life and property which has taken place in the metropolis during the last few years, cannot otherwise than give rise to a melancholy reflection and apprehension as to the future. When we contemplate that science has placed within our reach a means of giving an instantaneous alarm of danger, however distant, it seems strange that no effort has hitherto been made to render it available by our fire and police establishments in the metropolis as a general system. For a period of upwards of twenty years, I have from time to time called public attention to this important subject, and during the last five years I have made every possible effort to impress upon the public mind, through the medium of the press and otherwise, the desirability of adopting a system of police and fire telegraph.

In 1857, I proved the practicability of carrying telegraphic wires over the roofs of houses to considerable distances, upwards of nine miles, at a trifling expense, a plan now extensively adopted by telegraph companies; although, I am sorry to say, with a reckless disregard to the architectural beauties of our public and private buildings.

In 1857, I said,—"When a fire breaks out now, the police, or any other person who may happen at the time to be present, hastens to the nearest fire station, which may be a long distance from the scene of the conflagration, and then from that station messengers are sent to all the others. Sometimes, at night, the reflection gives the alarm, and is the only guide, though, too often, a deceptive one, the firemen have to direct them to the spot where their services are required. All these proceedings occupy much time, and often, before the engines have arrived, the premises are entirely destroyed; in other cases the fire has been subdued, and in others the alarm is found to be false. Nevertheless, engine after engine continues to arrive to no purpose, when (and such has often been the case) other fires are raging in the neighbourhood from which they have been unnecessarily withdrawn. The telegraph, as already observed, would be the means of concen-

trating at any required spot, the whole power of the brigade; and the authorities at the chief fire station in Watling-street, or the chief police station in Old Jewry or Scotland-yard, would be enabled to regulate the movements of their men as completely as if they were under their own eyes,—a system which could not fail to result in saving much trouble, expense, an immense amount of property and human life. It has been very truly observed, there can be no doubt that in many a half-hour occupied by messengers, &c., a larger amount of property has been destroyed than would have paid for constructing a most efficient and complete telegraphic system, embracing the whole of the metropolis. Of the truth of this, the fire at Camden Town affords a ready illustration."

It is to be hoped that the day is not far distant when all the police and fire stations of the metropolis will be connected by electric telegraph, and that large establishments will be similarly connected with the next police or fire station, so that an instantaneous alarm of fire would be given to every station, stating its exact locality, its nature and extent, together with the number of police and engines required.

With your kind permission I will, in a future early number, return to the subject, with respect especially to the method of construction adopted by the various companies to ensure security from the effects of lightning, &c.

OWEN ROWLAND, Electrician.

LEAD PENCILS.

THAT it is impossible to buy good lead pencils it is difficult to believe; but that it is next to impossible I am forced to think, having given fair trials to most of the well-known makers. It is not my grievance alone, but common to architects and draughtsmen, or I should not presume to trouble you.

Since the Exhibition year, 1851, I have been able to find no pencils equal to what Faber's were: then they were perfection; now they are no better than others. It is too bad that manufacturers who have made really good articles, to take medals at the Exhibitions, should take advantage of their well-known names to offer to the public an inferior article, at the same price, making believe it is equal to what deservedly took the medals.

Any pencil-maker who would produce pencils capable of making a fine, firm, black line, the same throughout, and insure all having the same letter on them being alike, would certainly confer a benefit on himself and the public.

If such exist, perhaps either you or some of your numerous readers could inform me and others where they may be procured. As it is, one cuts two pencils of the same letter, and the chances are, one is hard, the other soft; and often the same pencil is hard at first, and soft at the end. What is wanted is a pencil capable of making a thoroughly good perspective. Any pencil does for sketching; but, for clean line drawing, no pencil seems to be made with these requisites;—that will rub out—that will be alike all through—and that all pencils of one letter shall be exactly the same.

S. T.

FIREPROOF CONSTRUCTION.

ANOTHER great fire having aroused us to means of prevention, and the use of iron seeming to be condemned on various accounts, I again take the opportunity of urging the use of brick and cement. By judicious use, large warehouses can be erected almost entirely of brick and cement, the strength of which is known only to few. Iron is needed only for the doors, which should be double doors, with an air-passage from the outside through between them, and made light, of sheet-iron, to shut by weights, hanging visible outside, and convenient to get at to shut if seen to be open.

My system would be, for warehouses, to have a simple repetition of piers, the shape of a cross on plan, and supporting arches forming the floors, which should be paved with strong terra-cotta or earthenware tiles, 4 inches thick, thus giving strength; and tie across to each floor, which may be further strengthened by iron tie-rods, laid in between the arches and the paving, out of the way of injury by fire. I would have plenty of iron-hoop bond in the walls.

For the roof, I would divide the length into squares equal to the width, for the purpose of covering, with domes, formed of blocks or tiles of terra-cotta, of the same form as the floor tiles, but circular; the same as are exhibited in the South Kensington Museum.

In each corner of the squares (acting as pen-

dentives) I would have large tanks, supplied with water chiefly from the domes or roof, with pipes leading from them into each apartment; the floors of which should also be waterproof, and so laid that the water may run outside;—the ends of the pipes, as a correspondent (Mr. Hancock) suggests, stopped with gutta-percha, or other substance, to melt when heated, and let the water into the apartment only where required. Each apartment should be as small as consistent with convenience; so as, in case of fire of the stores, to keep it in small compass.

If preferred, the central part of an oblong building or buildings could equally well be arched over, the dome and ends forming the abutments. This would give a noble outline, treated architecturally, to any building. The staircases to be of York stone or Valencia slate, built in and on brickwork. The windows should be narrow; or, if required wide, subdivided with brick piers; glazed with thick sheet glass, or louvres of slate. If appearance be an object, then terra-cotta may be used, which will stand heat that stone will not, and be more durable.

By this arrangement no wood is required in the construction at all; and it would be difficult for fire to extend. The same system modified is applicable to other buildings, as I have endeavoured before to demonstrate in reference to other great fires, as at Covent Garden Theatre.

JAMES PULHAM.

P.S. Though not a professional architect, I venture to add, it is applicable to Gothic as well as Classic architecture.

SUBSCRIPTIONS FOR CHICHESTER CATHEDRAL.

A MEMBER of the London committee, Mr. G. R. Burnell, writes:—

"May I request the favour of your insertion of an appeal to the members of the architectural profession in favour of the subscription for the repairs of Chichester Cathedral?"

You, and they, must of course remember the story of the fall of this interesting national monument. Since that misfortune, vigorous efforts have been made in the diocese to collect the large sum required for the restoration of the building; and a London committee has been appointed for the purpose of securing extraneous aid for the good work. In this manner no less than about 31,000l. has been collected in the diocese; but the London committee have only been able to collect about 1,000l. The sum required is 50,000l.

I am sure that when these facts are known the lovers of our national art will hasten to contribute to the fund it is desired to raise; for the preservation of such monuments as this cathedral concerns the whole world of art, quite as much as it concerns the inhabitants of a particular ecclesiastical circumscription. It has been observed that the profession of architecture is not a highly remunerated one; and that architects, as a body, are not wealthy; but the number of their subscriptions will, in this case, it is to be hoped, compensate for any deficiency in their amount; nay, rather, it will serve to prove the extent of the interest felt in the movement. Emphatically, 'the smallest subscription will be thankfully received'; and in so noble a cause who would grudge to contribute his mite?"

"THE BUILDER'S" LAW NOTES.

Metropolis Local Management Act.—The Ecclesiastical Commissioners acquired a site for the erection of a church in Clerkenwell. When the church had been raised some feet the Vestry interfered, alleging that the building was being erected several feet beyond the regular line of buildings in the street. The Metropolitan Board of Works refused their consent to the works being proceeded with. As an attempt was made to continue the erection of the building, the Vestry pulled down part of the works. The Ecclesiastical Commissioners filed a bill to restrain the further demolition. It was held that the Vestry should be restrained, for that the powers of the Ecclesiastical Commissioners relating to the affairs of the Church were reserved, and were exempted from the *Metropolis Local Management Act*. *The Ecclesiastical Commissioners v. The Vestry of Clerkenwell.*

Abstraction of Water from Navigable Rivers.—Some magistrates in Kent (visitors of the county gaol) took, by means of pipes, water from the Medway, over which the Medway Navigation Proprietors had control by Act of Parliament, which water was applied to the uses of the gaol. An action being brought, it was decided that the magistrates were not entitled to abstract the water for purposes so extensive, without entering into arrangements with those in whom the control of the river was vested. *Medway Navigation Proprietors v. The Earl of Romney.*

Obstruction of Light.—A tenant, in consequence of his making improvements, including the opening of two new windows, received a new lease from his landlord. A neighbour, a tenant of the same landlord, began to build a wall which obstructed the

light of these two windows, and of others; and it was held that the erection of such wall should be restrained, for that the tenant was not only entitled to protect the ancient lights from being obstructed, but also the new lights which he had made, and which had been partly the cause of his obtaining the new lease.—*Davies v. Marshall.*

Corporation Local Act.—When the members of a corporation take proceedings under the local Act instead of asserting the common law rights of a corporation, they will be bound to proceed according to the provisions of such Act, even though their powers under such Act are less extensive than their rights at common law.—*Ellis v. Corporation of Bridgnorth.*

Joint-Stock Company.—An allottee of shares in a company constituted by charter and deed, containing provisions requiring the shares to be numbered in succession, is not liable to be sued in an action for calls, unless the shares are specifically numbered and appropriated by number, even although the allottee may have paid a deposit on the shares, and paid previous calls in respect of them.—*Irish Peat Company v. Phillips.*

Action for Negligence.—An action was brought for injuries caused by the negligent construction of a machide set up by a corporation, and used in a public washhouse erected by them; and it was held that the corporation was liable; for that, in the discharge of the statutory duty undertaken by them, they were bound to exercise care and diligence, and to provide machines reasonably safe for use.—*Cowley v. Corporation of Sunderland.*

Mining Shares.—In an action for the non-acceptance of mining shares, respecting which the contract provided for the time of payment but not for the time of the delivery of the shares, it was decided that parole evidence was admissible, of a custom among brokers of mining shares, that the vendor was not bound to deliver the shares without contemporaneous payment.—*Field v. Lelcan.*

BUILDERS' BENEVOLENT INSTITUTION

THE fourteenth annual meeting of the subscribers and friends of the above institution was held on 24th instant, at the London Tavern, Bishopsgate-street, for the purpose of receiving the report for the past year; for electing the president, treasurer, directors, and auditors for the year ensuing; and for the transaction of other matters connected with the welfare of the institution. Mr. George Plucknett, president, occupied the chair.

Mr. Harris, the secretary, read the report, as follows:—

"The directors, in submitting their fourteenth annual report to the subscribers, have much gratification in informing them that the progress of the society is both cheering and satisfactory, and they hope that the success which, after an arduous struggle, has been so far proved, though not equal to their wishes or expectations, will stimulate their kind supporters to still greater exertions. They are pleased to announce that there is an increase in the amount of the annual subscriptions, from which it may be inferred that the benefits of the institution are increased in the appreciation of several trades represented and relieved by the charity. And the friends and subscribers are earnestly requested to augment, by personal canvass and recommendation, this valuable and principal source of income, so that the present applicants—all of whom are most necessitous and urgent cases—may be admitted to the next or subsequent elections of pensioners."

The amount of the subscriptions and donations for the past twelve months is 1,326. 0s. 6d.; annual subscriptions 841. 8s. 6d., and donations 484. 12s.; showing an increase in annual subscriptions of 351. 8s. 6d., and the donations for the same period by 111. 3s. 6d. The directors have been enabled to make a further investment of stock in Three per Cent. Consols of 701. 3s. 7d.; 617. 11s. 1d. for the Relief Fund, which includes the profits of the late ball in February, 1861, and 831. 12s. 6d. for the Building Fund, which raises the funded property of the institution to 7,312. 11s. 4d.: viz., 5,565. 6s. 9d. stock for the Relief Fund, and 2,247. 4s. 7d. for the Building Fund, with a balance at the bankers' of 695. 13s. 3d.

Two elections of pensioners have been held during the past year: the first in November, 1860, when two were elected.—Robert Williams, and Sarah Cain; the second in May, 1861, when four were chosen, Thomas Barry, John Brothill, Mary A. Farnell, and Julia Garrod.

The deaths during the year were as follows:—Jane Wilkins, Brighton, elected May, 1858; Robert G. Miller, elected November, 1856.

Since the commencement of the institution, in 1847, the sum of 6,237. 13s. 4d. has been paid to pensioners; twenty-eight have died since that period, and thirty-three are now on the funds of the institution, making the total number relieved by the charity sixty-one.

The subscriptions and donations received at the annual dinner, held at the London Tavern in October last, amounted to 473. 11s. 6d.—an increase over the preceding year of 98. 1s.; and the ball, which took place in February last, gave the gratifying profit of 113. 3s. 6d.

At a meeting of the Board of Directors, held on Monday, 22nd July, 1861, a letter was read from B. W. Powys, Esq., solicitor, informing them of the decease of the late Robert Forest, Esq., of Montague-place, Clapham-road, and that he had bequeathed to the charity the sum of 10,000*l.*, to be received; whereupon the following resolution was unanimously agreed to, and ordered to be entered on the minutes:—"That the Board cannot record the decease of

Robert Forest, Esq., without expressing its deep sense of the lasting obligation which is due to his memory."

The directors when they see so many unsuccessful applicants, whom they were at the recent election obliged to send away with heavy hearts from want of funds to elect more, cannot but regret that there are still so many connected with the building trades who have not yet responded to their appeals for aid and assistance. This they do not attribute to want of inclination, but simply that, perhaps many so situated have not thought sufficiently on the subject: to such they again appeal for subscriptions to enable them to relieve from the pangs of poverty those who were formerly in comfort and affluence, but who are now in their old age reduced to privation and distress.

Mr. George Bird having resigned the office of treasurer to the institution, the directors take the opportunity of expressing to Mr. George Bird their warmest thanks for the energy and liberality which he has ever evinced, and which, in their opinion, have so materially contributed to advance the interests and prosperity of the charity.

The directors have the gratification of announcing, that the Right Hon. the Lord Mayor has consented to again become the president of the institution, and for the third time to preside at the annual dinner in October next. With the patronage and support of one so peculiarly qualified to represent the interests of builders and their charity, it is hoped that the annual dinner of 1861 will prove one of note; and that all those interested in the success of the Society will rally round his lordship, and by their liberality place the Builders' Benevolent Institution, where, from the wealth of its representatives, it ought to be, one of the foremost of the noble charities of the metropolis.

The directors have also the satisfaction of stating, that George Plucknett, esq., has kindly consented to become the treasurer of the institution."

The Chairman having alluded to the satisfactory progress of the institution since its foundation fourteen years since, said he could not but remark with surprise, that from among so many wealthy members of the trade the present was the first bequest which had been received. It was, however, a source of gratification to find that the large employers—the great builders of the metropolis—were taking a greater interest in the welfare of the institution, and he believed that by the great vigilance and energy which were displayed in its management, before long the Builders' Benevolent Institution would be a wealthy charity, representing a large and important branch of the community. He did not believe that any other branch held that great feeling of philanthropy which was evinced by the building trade, for they extended their assistance not only to builders, but to all trades connected with them. It was a charity deserving of the highest recommendation for support. The Chairman concluded by moving the adoption of the report.

The report was then adopted. Thanks were returned to the various officers serving during the past year, as also to Mr. Geo. Bird, the resigning treasurer, for his energetic services, among which was mentioned his instrumentality in obtaining an annual subscription of 25*l.* from the Master Builders' Society.

The retiring officers, together with new candidates, having been elected and re-elected,

Mr. F. Thorn said he had much pleasure in proposing the Right Hon. the Lord Mayor as their President for the ensuing year. He referred to the great interest which the Lord Mayor had ever taken in this institution, and his well-known benevolent character, and was confident that under such auspices the Builders' Benevolent Institution would be placed in a better position than ever, to administer to the wants of their poorer and necessitous brethren.

The motion was carried with acclamation.

Several complimentary votes and speeches concluded the evening.

Books Received.

A Woman's Wanderings in the Western World: a Series of Letters addressed to Sir Fitzroy Kelly, M.P., by his Daughter, Mrs. Bromley. London: Saunders & Otley, 1861.

DOMESTIC losses led Mrs. Bromley, the accomplished author of this book, to travel in North and South America, Mexico, and the West Indies, in search of health and spirits; and, in the course of these wanderings, the letters that form it were written. They are graphic, vigorous, and interesting; and include a long account of the memorable Lopez expedition to Cuba.

When Mrs. Bromley states, as a tribute of praise to the Spanish, American, and Spanish-American people, that, during a period of ten months' travel, over upwards of 20,000 miles of country, "a woman and a stranger, accompanied only by one friend (a girl) met with no word or act of annoyance from first to last," she says something for her own bravery and strong heart; and this is strikingly confirmed by an incident at Havana, where a fellow traveller, an American, falling ill with yellow fever, and being deserted by all the

inmates of the house, Mrs. Bromley remained behind and attended him till he died. All honour to her for a noble act!

Something for Everybody: and a Garland for the Year: a Book for House and Home. By JOHN TIMMS, F.S.A. London: Lockwood & Co. This very entertaining volume is full of varied information in regard to memorable days, domestic arts and customs, the glories of gardening, a collection of utilities, personal recollections of Brambletye, the game and street of Pall-mall, Whitebait, curiosities of Bees, &c. In that portion which relates to gardens and gardening, we have chapters on early gardeners and writers on gardening, and on Lord Bacon, John Evelyn, and Sir William Temple; a day at Hatfield; Pope at Twickenham; celebrated gardens, London gardens, &c. The garland for the year comprises much curious information as to all such days as St. Swithin's, Lammass, Good Friday, Lady-day, Shrove-tide, and many others, indeed, occurring all the year round, and forming a sort of quinquessence of old lore by comparison with Hone's two bulky volumes.

VARIORUM.

"HIGH SPEEDS: a Letter to the Right Hon. T. M. Gibson, M.P., President of the Board of Trade. By G. R. Stephenson, C.E. London. 1861." In this pamphlet Mr. Stephenson very strenuously protests against the dangerous consequences of high speeds on railways, and attributes many accidents for which other causes are offered to this cause chiefly. Railway accidents, he urges, are most frequent, and railway dividends proportionately smallest, on lines on which railway speeds are highest. It is partly to the irregularity of speed which high speed involves that he ascribes many accidents. An average of forty miles an hour is what he regards as high speed; but that necessarily involves an excessive speed of fifty, fifty-five, and even sixty miles an hour on certain portions of the line traversed. The accidents during and after the severe frost last winter were much more owing, he maintains, to high speed, than to defective or even frozen or embrittled axles and rails. Running at high speeds against facing points at junctions he particularly draws attention to as a most dangerous practice; necessarily prevalent wherever high-speed trains run; and break-power, he remarks, in this and other cases, is of little use, or rather cannot be used with effect, since it would be virtually in itself a collision, particularly in the shape of reversing the engine, the most powerful of all means of checking the speed of a train. The driver, in high speeds, the author maintains, has no command—no control—over his train, whereby accident may be averted. There is doubtless much truth in all this; but, if it be true, as Mr. Stephenson says, that accidents have of late years been increasing (which, looking back in memory, we very much doubt); and if high speed or excessive speed be the chief cause of this increase; how is it that, in our experience and that of others, we seldom hear from heretofore travel so fast on railway lines; although, of course, it is passenger lines which alone are blamed for excessive speed?

Miscellaneous.

FALL OF TWO HOUSES AT STOCKTON.—Two houses in course of erection at the back of Alma-street, Stockton, have fallen down. It appears that an archway had been formed, across the passage which separates the two houses fallen in, in order to bring the flues together, and the owner of the houses had inadvertently taken away the centre-piece before the work was set. The consequence was, the chimney fell upon the roof and brought the house to the ground, except the end walls. Fortunately no accident happened to the workmen.

EXCAVATIONS AT SIDON.—The *Moniteur* contains a report from Mr. Ernest Renan on the scientific mission committed to him in the East. To the assistance of the army and navy, the excavations at Sidon have been successful. Under the modern town a necropolis has been discovered, in which are vaults painted and decorated in the Roman style, but with Greek inscriptions. The necropolis was entered by vertical shafts; and, though the vaults have not escaped the hand of the spoiler, they still contain many sarcophagi of burnt clay and marble, ornamented with lions' heads and wreaths. Some of them are almost in the shape of mummy cases, and have sculptured heads. The necropolis of Sidon has been purchased by France, and further researches are to be made there.

THE LINCOLN EXHIBITION.—The building in the Temple Gardens for the Fine Arts' Exhibition at Lincoln, which opens on the 30th July, is now complete.

SITE OF THE GOVERNMENT OFFICES.—In the Commons, Mr. Cowper has introduced a bill for vesting in the Commissioners of her Majesty's Works and Public Buildings a portion of St. James's Park as part of a site for public offices.

IMPROVED STEAM-HAMMER.—At the Royal Agricultural Society, a single and double action steam-hammer, exhibited by the Kirtkall Forge Company, was said to be capable of working up to 350 strokes per minute; or "from three to four times faster" than any steam-hammer previously constructed; and its manipulation by the attendant showed that the length of the stroke can be instantaneously and certainly varied.

BRIDGE AT BREST.—Among the improvements (says the Paris correspondent of the *Times*) which have been lately made in the port of Brest, a magnificent bridge has been thrown over the Penfeld, an arm of the sea which separates Brest properly so called from Recouvrance. The arch of the bridge is 90 feet above the lowest tide, and will permit merchant ships and small vessels of war to pass under it. But to open a passage for ships of the line through a bridge so high and of such great dimensions appeared impossible. The work, nevertheless, has been accomplished. Great as the difficulty is to separate so gigantic a mass, two men are sufficient to accomplish it in the course of ten minutes. Nor does it require more force or a greater amount of time to close it. This stupendous work gives a just idea of the power of mechanism. The project is due to M. Oudry, of the Ponts et Chaussées, and the execution to M. Schneider of Creuzot.

A PINT OF BEER.—When I engage and pay a man to do an odd job of any kind—to dig in my garden—to slate my roof—to look after a leaky gas-pipe—to carry or wheel a load for me to the railway station or the coach—to empty a dust-bin, or run on an errand; if I pay him his price, is he to ask me—meekly and whining, and ashamed to look me in the face—whether I have as many halfpence in my pocket as will buy him a pint of beer? Or what principle does he ask me for beer? Or is it on any principle at all, except that of the slave and the mean-spirited mendicant? When I go into a factory, and an ingenious but not ingenious mechanic, earning handsome wages, explains to me intelligently the intricacies and excellencies of the machine at which he works—explanations for which I am exceedingly obliged to him—does he act the part of a true-hearted Briton—one of the men who swear "they never, never, never will be slaves"—if he take the opportunity of my thanking him and wishing him good day, to ask me for a pint of beer?—*John Goodfellow.*

WHO WAS JOHN O'GROAT?—Mr. J. T. Calder, in his "History of Caithness," gives the following answer to this query:—"In the reign of James IV. of Scotland, three brothers, Malcolm, Gavin, and John de Groat, natives of Holland, came to the county, carrying with them a letter, in Latin, from that monarch, recommending them to the protection and countenance of his loving subjects in Caithness. They purchased, or obtained by royal charter, the lands of Warse and Duncanbay, in the parish of Canisbay; and, in process of time, by the increase of their families, and the subdivision of the property, there came to be eight different proprietors of the name of Groat. An annual festive meeting having been established to commemorate the anniversary of their arrival in Caithness, a dispute arose on one of these occasions respecting the right of taking the door, the head of the table, &c., which increased to such a height as threatened to be attended with very disagreeable consequences, when John, who was now considerably advanced in years, happily interposed. He expatiated on the comforts which they had hitherto enjoyed in the land of their adoption, and conjured them, by the ties of blood and their mutual safety, to return quietly home, pledging himself that he would satisfy them on all points of precedence at their next meeting. They acquiesced, and departed in peace. In due time, to fulfil his engagement, John built a house, distinct by itself, of an octagonal form, with eight doors and windows; and, having placed a table of oak, of the same shape in the middle, when the next meeting took place, he desired each of his friends to enter at his own door, and sit at the head of the table. By this happy contrivance, any dispute in regard to rank was prevented, and the former harmony and good humour of the party were restored. Such was the origin of John O'Groat's House."

OLIVER CROMWELL.—A terra cotta bust of Oliver Cromwell has recently been added to the National Collection of Portraits. This portrait bust is by Edward Pierce, the statuary who executed the bust of Milton, and the statues of Gresham at the Royal Exchange, and of William Waltham at Fishmongers' Hall. His bust of Sir Christopher Wren is at Oxford. The clay model of Milton is at the Hyde, Mr. Disney's residence, in Essex. The terra cotta of Cromwell seems to have been Pierce's original study from the life for the marble bust which bears his signature, and which now belongs to Lord Taunton.

THE RECENT CENSUS.—The total number of inhabitants of the United Kingdom, including the islands in the British seas, may be set down as not less than 29,031,164. Of these 20,061,725 were numbered in England and Wales, 3,061,117 in Scotland, 5,764,543 in Ireland, and 143,779 in the Channel Islands and the Isle of Man. The army serving abroad and in Ireland, and the navy and merchant seamen absent at sea, are not included. In Ireland, emigration has diminished the population by 12 per cent., exactly the decennial rate of increase in England, since the census of 1851. We have a solid addition of more than a million and a half to the population of the United Kingdom.

THE DRINKING FOUNTAIN MOVEMENT.—A fountain recently erected in the Blackfriars-road, opposite Christchurch, has been opened. It is built of polished granite, consisting of a vase in the Egyptian style, mounted on a pedestal, and the design is not characterised by any display of taste or originality. The idea of erecting the fountain originated with the working men of the Vulcan Temperance Society. They went round and got a certain sum of money, and then the Drinking Fountain Committee made up the difference. A circular granite fountain, surrounded by palisades, has been erected in the Arboretum, at Derby, near the main entrance, to the memory of the late Dr. Hutton, of this town. Mr. Robinson, sculptor, is progressing with a monumental fountain in honour of Mr. W. T. Cox, high sheriff and mayor, to be erected near the Corn-exchange, in Albert-street.

BRISTOL FINE-ARTS ACADEMY.—The annual meeting of the subscribers to this institution has just been held. The honorary secretary read the annual report, which stated that, since the last meeting, the financial position of the Academy has decidedly improved. The fifteenth exhibition for 1860 remained open for thirteen weeks. The receipts at the doors amounted to 150*l.*, being 3*l.* less than those of the previous year. But pictures were sold to the amount of 960*l.*, the commission on which amounted to 47*l.* 14*s.* 6*d.*; partly attributable to the Shilling Art-Union, by means of which pictures were sold to the amount of 376*l.* 13*s.* The annual statement of accounts showed that the year had commenced with a balance from the last account of 382*l.* 6*s.* 6*d.*, and the receipts included a total of 756*l.* 4*s.* 5*d.* The disbursements amounted to 229*l.* 17*s.* 5*d.*; and, after paying interest on debt, there remained a balance in hand of 480*l.* 15*s.*

LIGHTING PUBLIC GALLERIES.—The letters written in April last by the late Mr. Braidwood and Mr. Sydney Smirke on the subject of lighting the British Museum with gas, to which we have already referred, have been laid before Professors Faraday, Tyndall, and Hoffman, but they adhere to their former opinion of the safety of the gas-temperature of the picture galleries there, in the so light when the gas is burning as when the sun is shining through the skylights. Professor Faraday, however, recommends that the roofs of such galleries lighted by gas be of iron, and he observes that he should greatly hesitate to recommend gas-lighting in the British Museum against the opinion of the architect, who alone is aware of the construction of the building and of the dangers by the fire which it may involve. He remarks that he erecting a church or other building by one set of hands under one mind, and then giving it over to another authority and set for the introduction of gas apparatus and pipes, or pipes of hot air or pressures) into parts and places where no intention respecting them had existed before, where no preparation had been made for them, and where the final arrangements must partake more of accident and risk than that of premeditation and forethought. District surveyors, who have to enforce certain requirements of the Building Act under this head, will fully confirm Mr. Faraday's observations.

THE POST-OFFICE AT EDINBURGH.—In the Commons, a few days ago, Mr. Black asked the First Commissioner of Works if he had received any tender for building the General Post-office at Edinburgh? to which Mr. Cowper replied that a fortnight ago the Government surveyor had been employed to calculate the quantities; and as soon as that process was completed he should call for tenders for the building.

EMIGRATION.—Sir: In answer to the thoughtful communication by Mr. Brien, in your most Christian paper, I would like to state my conviction that religiously organized emigration is the best cure for all the inconveniences of old countries. I have studied the subject twenty years, and never altered from that conviction. I wonder that our philanthropic chiefs do not save the thousands of valuable human machines, going to ruin by the wayside, because no one in power cares for them. Dives, rolling in superfluities, rides in his chariot past hundreds of his brothers and sisters, young and old, perishing miserably because he is a useless, selfish, unjust steward.—*DUNCAN MARCUS.*

A CHIMNEY QUERY.—A correspondent writes,—"I have a chimney which is backed by the chimney of a neighbour, who uses it as a flue to certain cooking stoves. Somehow, the peculiar soot from their apparatus finds its way down my chimney, and literally fills my room with 'blacks.' My books, my papers, my pictures, are often in a condition not to be described. I thought, at first, that there must be some communication between the two flues, and I sent a sweep up to explore mine with a candle. He assured me that the chimney was sound, and he could detect no fissures or any ingress of soot or smoke that way. I then had a chimney-pot with a curved end put on my chimney, so as to get above the mouth of that of my neighbour, the curve being turned away from it. But the nuisance continues, and I am still smothered. My chimney is old-fashioned and capacious, and has scarcely any draft—so little that a candle held up it burns with a steady flame. I rarely have a fire in that room: I have not had one, indeed, for the last twelve months; but I do not like to have the fire-place bricked up, and so deprive myself of the power of having one when needed. Nor would such a contrivance quite satisfy me, although it might effectually keep out the 'blacks.' The quantity of soot falling is such that in any long period the fire-place would be filled; and, supposing my neighbour's chimney to take fire, the soot in mine would probably become ignited too; and a mass of fire might lie there unnoticed, until at length the heat might set fire to the house. For this unhappy state of things can any of your correspondents suggest a remedy?" If they can, we shall be glad to receive it. The first obvious step to take to prevent the down-draught would be to supply the apartment with air by some other channel than the chimney.

THE COMET.—Astronomers have expressed themselves modestly, as became them on a subject respecting which they plainly know so little as of the comets, and especially of the comet which has just come—none of them know whence, and gone—none of them know whither. Leverrier thinks it may never return, as the orbit is nearly perpendicular to the plane of the ecliptic, while those of periodical comets usually form a very small angle with that plane. The distance of the comet from the earth on the 30th of June, he states was about 17,000,000 of miles; and Mr. Hind and others are of opinion that the earth actually passed through the tail, or *vice versa*, the tail through the earth's atmosphere. If so, one can only conceive why so little effect was produced by it by supposing that the tail, after all, is nothing else than the solar light refracted through the translucent vapours of the comet; and we have ourselves observed nothing in the present instance to modify or alter what we said on the 16th of October, 1858, on this subject: on the contrary, the idea seems to be corroborated by the successive changes of position and shape in the tail of the late comet, and especially with reference to the peculiarity of its orbit: while to the north-eastward the apparent bend was to the westward: while to the north-westward the bend was to the eastward, as shown by Sir John Herschel's sketch in the *Athenaeum* of 20th July; and when nearer the zenith, with the sun about midnight, the tail was straight, though short, and pointed almost due south. It still does appear, therefore, as if the apparent curves of the tails of comets, as we have suggested, bear some relationship to the convexity of our own atmosphere; hence obviating Kepler's objection to the simple and feasible idea that they are merely the solar light shining through the head as through a lens.

AN ARTESIAN WELL.—The artesian well at Columbus, Ohio, has reached the depth of 2,339 feet 10 inches—4 feet 2 inches deeper than any other well in the world! It now only lacks 300 feet 1 inch of being half a mile deep!

EXHIBITION OF INDUSTRIAL AND DECORATIVE ART IN EDINBURGH.—The Board of Manufactures intend to open an Exhibition of Industrial and Decorative Art, on Wednesday, the 20th November next, in the National Gallery, within the suite of galleries forming the east side of that building. Mr. W. B. Johnstone, R.S.A., has been appointed Art superintendent of the Exhibition.

THE INDIA MUSEUM.—The collection of raw materials and industrial products which was formerly exhibited at the old India House, in Leadenhall-street, has been removed to Fife House, in Whitehall-yard, where it has been re-arranged, and will be opened to the public on Mondays, Wednesdays, and Fridays. We shall take an early opportunity to give some particulars.

ECCLESIASTICAL AND SECULAR FURNITURE.—Sir: It has often struck me that most of the Gothic furniture now made has too ecclesiastical an appearance, and this seems to me to arise from the usual square form of everything. Hence, for instance, instead of a square chair-leg, let it be turned, and at once you have a secular, less stiff appearance; a thing, I think, designers should keep in mind. This I was much convinced of the other day in turning over Viollet-le-Duc's "Mobilier Français," where there are some fair secular motifs.

"NATIONAL VENTILATION COMPANY."—The advertisement of this company to carry out Mr. Cooke's arrangement says "its marked superiority over all preceding attempts at ventilation is pointed out in the strongest manner by the metropolitan press, more particularly by the Builder," &c. &c. This is not true. The Builder has never done anything of the sort. Mr. Cooke's wire gauze may often be usefully employed; but to assert its marked superiority over all preceding attempts at ventilation is simple nonsense,—nonsense of which we have not been guilty.

CLERKENWELL LAMB AND FLAG RAGGED SCHOOL.—There being great need of an enlargement of this very useful and growing school, a special appeal is being made to the friends of the destitute poor for aid in effecting the object in view. Plans have been kindly prepared by Mr. W. P. Griffith, architect; and so soon as half the requisite sum (in all 600l.) is realized, the committee will proceed to build. This school has been sixteen years established, and hundreds of poor children have been made respectable members of society by its aid. The daily average of attendance is 250, and the want of space for so many renders the present school unsafe to the health, both of children and teachers. Mr. James Terry, of 25, St. John-street, E.C., is the treasurer; and Mr. W. J. Watts, of Birchmore-terrace, Hampstead-road, N.W., is the hon. secretary.

INAUGURATION OF THE STATUE OF DR. WATTS. This work of art has just been erected in the public park of Southampton, to the memory of Dr. Isaac Watts, who was a native of that town: the 157th anniversary of the poet's birthday was appropriately chosen for the inauguration. A large procession, consisting of the mayor, recorder, magistrates, and corporation, of the borough, and other public bodies, accompanied the Earl of Shaftesbury to inaugurate the statue. After uncovering it his lordship addressed the spectators. This memorial of Dr. Watts consists of a monument rather over 19 feet high, having a base of 8 feet 6 inches square. The statue itself is about 8 feet high, and is of white Sicilian marble. There are three basso-relievos, and in Sicilian marble, on three sides of the shaft of the pedestal. The pedestal itself is of polished grey Aberdeen granite. The statue represents Watts in the attitude of a preacher of the Gospel proclaiming its Divine truths. The monument is erected at a total cost of about 850l., raised by voluntary contributions from the inhabitants of Southampton and other parts of the kingdom.

TENDERS

For school, Wright-lane, Edmonton. Mr. D. Campbell, architect:—
Williams £398 0 0
Mear 367 0 0
Haradine 316 0 0

For Local Board of Health offices and surveyor's residence, at Dorkfield. Mr. R. Warburton, architect. Quantities supplied:—
Green £1,172 0 0
Greenup & Co. 1,050 0 0
Tennant 955 0 0
Storr 960 0 0
Thompson (accepted) 935 0 0

For a villa, Harrow-road West, Dorking, for Mr. Checker. Mr. F. J. Dibble, architect:—
Hamblin £598 0 0
Holdsworth 595 0 0
English 545 0 0
Lynn & Dudley 529 0 0

For a villa, Vincent-place, Dorking, for Mr. Brown. Mr. F. J. Dibble, architect:—
Inken £690 0 0
English 653 18 0
Lynn & Dudley 613 0 0
Boxall 541 0 0
Grinstead 583 0 0
Hamblin (accepted) 569 0 0

For alterations to school-room of Woodbridge Chapel, Clerkenwell. Mr. Cotton, architect:—
Sands £112 14 0
Axford 368 0 0
Henshaw 354 0 0
Rowe 369 0 0

For alterations to premises, 163, Strand, for additions to the Somerset Hotel, for Mr. Henry Drew. Messrs. Mayhew & Knight, architects:—
Belcher £452 0 0
Selleck (accepted) 439 0 0

For pulling down certain parts of the old premises and erecting new buildings for Messrs. Taylor, Walker, & Co. Mr. Charles Dunch, architect:—
Hack & Sons £2,250 0 0
Charles Brown 2,116 0 0
Wood, Brothers 2,093 0 0
Hedges 2,069 0 0
Ennor 2,054 0 0
Hill, Keddel, & Robinson 2,026 0 0
Blackburn (accepted) 1,989 0 0

For two houses in the Market-place, Norwich. Mr. Barry, architect:—
Ling & Bails £1,540 0 0

For constructing and laying down 7,665 feet of brick, and Creeke's capped pipe sewers, and other works connected therewith, in the London-road, Park-road, England-lane, Upper Park-road, Havestock-terrace, Belsham-lane, Pond-street, Downshire-hill, and Downshire-hill Mews, for the vestry of the parish of St. John, Hampstead. Mr. John Douglas, surveyor:—
Dethick £5,450 0 0
Walker 5,342 0 0
Abbott & Hopwood 4,986 0 0
Hill & Co. 4,731 0 0
Thurst 4,703 0 0
Yeoman 4,587 0 0
Clowett 4,567 0 0
Ley 4,599 0 0
Cole 4,467 0 0
Rowe 4,400 0 0
Ridger 4,296 0 0
Creeke (accepted) 4,050 0 0
Tottle 3,227 0 0
Sharoll 3,200 0 0

For the erection of house and workshop at Chertsey. Mr. Peak, architect, Guildford:—
Lucas £550 0 0
Knight (accepted) 517 10 0

For rebuilding No. 82, Lombard-street, for Mr. T. Webber. Mr. P. Anson, architect:—
Deduct if Portland Stone is used in lieu of granite:
Ashby & Sons £4,240 0 0
Piper & Wheeler 4,003 0 0
Lawrence & Sons 3,870 0 0
P'Anson 3,655 0 0
Macey 3,623 0 0
Downs 3,590 0 0
Cabitt & Co. 3,510 0 0
Batstone 3,490 0 0
Ridger 3,460 0 0
Newman & Mann 3,255 0 0
Brown & Robinson 3,239 0 0

For millia depot, Hampstead:—
Matthews £8,530 0 0
Ashby & Sons 8,500 0 0
Axford & Co. 8,450 0 0
Piper 8,250 0 0
Mansfield 8,125 0 0
Norris 8,011 0 0
Jackson & Shaw 7,934 0 0
Myers 7,748 0 0
Ferry 6,885 0 0

For repairs and alterations at Nos. 77 and 18, New Bridge-street, Blackfriars, for the British Mutual Life Assurance Society and British Mutual Investment Loan and Discount Company. Mr. Curry, architect:—
Payne £935 0 0
Parkinson & Son 634 10 0
Downs 572 0 0
Hart 566 0 0
Longfellow 539 0 0
Heaps (accepted) 536 10 0

For building a house at Crauley, near Guildford, for Rev. W. Forbes Capel. Quantities supplied by Mr. Poland. Mr. Withers, architect:—
Wilkins & Bottom £899 0 0
Sharpton & Cole 873 0 0

For alterations, additions, &c., to No. 25, Wood-street, City, for Mr. J. S. Bassett. Messrs. Tillett & Chamberlain, architects:—
Heath £490 0 0
Wills 456 0 0
Jennings 428 0 0
Cannon 349 0 0

For alterations and repairs to No. 69, Aldersgate street, City, for Mr. William Swainson. Messrs. Tillett & Chamberlain, architects:—
Sewell £600 10 0
Wills 585 0 0
Heath 593 0 0
Cannon 466 0 0
Fish 455 0 0

For new warehouse and workshops, for the Old Hall Earthenware Company, Limited, Hanley. Mr. R. Scrivener, architect:—
Matthews £661 0 0
Hammersley 603 0 0
Watkins (accepted) 593 0 0

For the erection and completion of a pair of semi-detached Villas, to be built at Bexley Heath, Kent, for Mr. Richmond. Mr. W. Gosling, architect. Quantities supplied:—
Todd £1,569 0 0
Brown 1,461 0 0
Rudd 1,436 0 0
Elliott 1,419 0 0
Markes 1,398 0 0
Ginger 1,390 0 0
Walker 1,389 0 0
Kent 1,189 0 0
Vaughan 1,095 0 0
Greenwood 1,060 0 0
Moore 975 0 0
Lonegan 939 0 0
Lidbetter 883 0 0

For building vicarage-house and office, at Llanarth, Cardiganshire, for Rev. D. J. Jones. Mr. Withers, architect:—
Thomas & Davies £1,655 0 0
John Davies 1,400 0 0
C. J. Davies 1,315 0 0
T. Jones 1,263 0 0

For erecting stables at Peckham, for Mr. Short. Mr. Berriman, architect:—
Chamberlain £500 0 0
Kent 479 0 0
Smith 477 0 0
W. Smith 452 0 0
Watkins 451 0 0
Elliott 445 0 0
Weller 413 0 0
Kersey 439 0 0
Hardy 435 0 0
Sharpton & Cole 425 0 0
Wilkins & Bottom (accepted) 419 0 0

Twelve tenders were received by St. Marylebone Vestry for painting and repairs to All Souls' Church, Langham-place, and that of Messrs. Wilkins & Bottom accepted.

TO CORRESPONDENTS.

J. P.—W. H. S. (such an arrangement as that described was patented about two years ago)—J. B. D.—W. L.—C. D.—S. P.—W. A. B. (satellite)—J. J.—W. T.—W. T.—J. J.—Terra Costa (should send name)—H. P.—T. J. S.—Architect—A. O.—H. S.—L. E.—C. R.—H. & B.—W. G.—O. R.—S. (received).

NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the Builder," No. 1, York-street, Covent-garden. All other Communications should be addressed to the "Editor," and not to the "Publisher."

Advertisements cannot be received for the current week's issue, later than FIVE o'clock, p.m. on Thursday.

Post-office Orders and Remittances should be made payable to Mr. Morris R. Coleman.

ADVERTISEMENTS.

A. B. C. who advertised in "The Builder" of the 6th inst. begs to thank numerous applicants, and to inform them that he is suited with a foramen.—Messrs. DANBY & CALDER, Banbury, 15th July, 1861.

MR. WILLIAM ELLISON, ARCHITECT AND CONSULTING SURVEYOR, 13, FENCHURCH-BUILDINGS, FENCHURCH-STREET, E.C.

PARTNER OR SUCCESSOR.—An ARCHITECT and SURVEYOR at the West End would be happy to treat for annexing to his own the PRACTICE of any Gentleman willing to retire from the profession.—Address, A. B. Mr. Dick's, 24, Haymarket, S.W.

PARTNER WANTED, who can command about 3,000l. capital, in one of the most extensive and established pattern and brick and tile manufactories near London. No one need apply who cannot give his whole attention to the work. The highest reference given and required.—Apply to Messrs. DEBENHAM & TEWSON, 80, Cheapside.

TO BUILDERS AND OTHERS ASSISTANCE.—Plans, Specifications, &c., prepared or copied, quantities taken out, and estimates made, on reasonable terms. References given.—For card, address SURVEYOR, 23, Cambridge-terrace, Grosvenor-park, Chambers-wal, S.

The Builder.

VOL. XIX.—No. 965.

The Lighting of Theatres.—The Paris Opera-house.



IN our recent articles on the subject of the machinery and arrangements in theatres, we omitted to mention a contrivance which we were acquainted with, and which was brought last month into actual use in the Paris Opera House, and seems to be the first step to a different mode of lighting the whole *salle* and stage in this class of buildings. The immediate improvement effected consists in an arrangement of the *ramp*, or "float," by which the chief objections to the old method of lighting the stage, are done away with. Our readers are familiar with the principal heads of the subject of theatre-planning, and not merely as it has been

discussed in Paris; but it may be convenient that we should state again what the objections were to the "ramp," and give some further particulars of suggestions which had been made just previously to the experiment at the Opera House of the Rue Lepelletier. We need hardly add that we long since, offered hints as to a substitute for the "float;" and further it will be found that the contrivance now adopted in Paris is only a very ingenious combination of an arrangement of reflectors, with an enclosure of the burners, and with means of supplying air and of conduction of the deleterious products, identical in principle with arrangements in use, though far too slightly so, in public buildings, in England.

The first objection to be mentioned as applicable to the London and Paris theatres generally, and still to the Paris Opera House, with the one though important exception, relates to the absence of such means as we allude to, of conduction of the products of combustion. The chief attempt made, in this point of view, consists in the arrangement of the "ventilator" in the ceiling of the "salle," which however, in combination with the position of the *lustre* or chandelier, is inefficient or deleterious. The upper boxes and galleries are oppressively hot; the view of the stage is interfered with; and whatever there is of ventilation is chiefly productive of a current from the stage, which carries sound up into the "ventilator" instead of its passing to the audience. As regards the "float," the danger for dancers is considerable, as shown by sad accidents; the obstruction not only by the reflectors, but by the visible smoke, is great; whilst the heated air is unfavourable in every respect to the actors and to their efforts, and the light dazzles their eyes. In an article on the "Ventilation of Theatres and Hospitals" we spoke of the suggestions of Mr. Trélat, General Morin, Mr. Bonnafont, and others, by whom the desirableness of conducting away the products of combustion, or of some system of "exclusive lighting," was fully recognized. The last-named of these writers advocated, in place of the "float," the contrivance of a light from above, with reflectors. Dr. Tripié's several "notes" on the Ventilation of Theatres, in the *Annales d'Hygiène Publique et de Médecine Légale*, may be procured

in London.* He appears to have given his attention chiefly to the question of ventilation, and recommended a shaft and agent for extracting from the floor of the pit and ceilings of the lower boxes, and the admission of air from above, or immediately in front of the proscenium, as well as from the back of the stage in winter. He also seems to have had an impression of an advantage in doing away with the central *lustre*, though perhaps only to substitute for it small *lustres* as intended by Mr. Charpentier of the Opéra Comique on the construction of that building. Little improvement, however, practically, was attempted till last month in the Théâtre Impérial de l'Opéra.

Our notice of the contrivance there, is derived from a careful inspection in the house and below the stage, for the opportunity of making which our representative is indebted to the kindness of Mr. Martin, the *Secrétaire Général*. The suggestion of the actual contrivance is due to Mr. Lisajous, the professor of Chemistry and Physics in the Lycée Saint-Louis; and the work and much of the credit must be placed to the account of Mr. Lecoq, of the firm of Messrs. Melon & Lecoq, of the Rue St. Denis, who arrange the general lighting of the theatre. The present arrangement is not only to be regarded as fully successful, but as pointing the way, as we have intimated, to the adoption of a similar principle throughout the house; and designs with this object are, we believe, already in hand. The following particulars will be sufficient for the moment; and London managers should apply to the manufacturers in Paris, who will we hope derive profit thereby, in this country.

The gas-burners in a row, are placed 80 centimètres below the stage, where they are completely enclosed. The luminous rays are gathered by opposed reflectors of curved form in section, and projected to the *scène* through a conveniently inclined slit or opening in that part of the contrivance which is necessarily above the stage, extending the length of the "ramp," as of the row of lights below, and which opening is glazed with ground glass. The eyes of the actors are not dazzled; and sitting in the pit, we can say there is a very decided gain for the spectators. Some of the principal singers were at first not pleased with the change; but such objections, we believe, may disappear when it is discovered that sound will now more readily than before, reach the audience. It remains to be explained that the products of combustion being passed by the several chimneys of the burners into the long horizontally-placed light-reflecting recipient, pass from that by transverse ducts (of terra-cotta) into a pipe or channel placed parallel to the former, and connected at each end, that is each side of the house, with a pipe placed perpendicularly and ending above the roof. There may be a question as to the quantity of light, as at present arranged; but in the diffusion of the light, as well as those respects which are obvious, the system is a great improvement on the old one. There is so little danger to persons on the stage, that we are told a cambric handkerchief can be dropped on the "ramp" without being ignited. There is considerable heat in the place below the stage, where the lights are attended to, so much so indeed as to lead to the idea of danger; but this, it is right to say, is disputed by every one most interested in the truth. There need be no danger. The orchestra complained of heat, but that may be easily corrected; or no doubt, has been. The elevation of the metal-case, so to call it, as above the stage, is less than that of "the float," by so much as 15 centimètres; so that from this circumstance, the view for the audience is improved. The best mode of treating decoratively that which comes into view, will be found out: the dead brown or chocolate colour, might be improved upon. After all, it is a question whether an arrangement with the burners separately ventilated, might not have

been made to produce equally advantageous results. There is at least, no reason now for retaining the system of the London theatres. We should add, respecting the arrangement at the Paris Opera House, that as the leader of an orchestra must be conspicuous, it has been there found necessary to affix a couple of ordinary lights to his desk. The expense of gas, is admittedly, considerably more than that with the old arrangement of the "float."

We have given the credit of the contrivance to those by whom it has been introduced at the Opera House. It is however right to say, that besides what we have already referred to in England, the suggestions of General Morin seem to have pointed to an arrangement exactly similar. The whole subject of the ventilation and lighting of theatres continues to occupy much attention in Paris: a commission presided over by Mr. Dumas has been some time engaged with the subject; and great improvements are looked for in the Circus and the Théâtre Lyrique, which are approaching completion, as well as in the new Opera House and the other theatres about to be commenced.

Relative to the success of the arrangement we have spoken of, as it is in the Opera House of the Rue Lepelletier, something is to be credited to the original formation of the building. The floor of the pit has a considerable rise; so that, from all causes, the feet of the actors, and floor of the stage, may now be seen from nearly all the benches of the pit. The other stage arrangements at this Opera House are vastly inferior to those of such theatres as the New Adelphi in London, if not to some others in France. The confusion in the passages and dressing-rooms is deplorable; and of the staircases in the house, it may be sufficient to say that there is one, like the steps down a certain cliff to the sea-shore at Scarborough, with not a turn, and with little in the manner of landing, to break a fall from top to bottom of the house. It is not, we may assume, such features of the old plan, which the French are about a second time to repeat.

Referring to the new building, we ought to state that the architect, Mr. Garnier, has been some time appointed; and it is expected that early in August, the works will commence on the site originally chosen. The report on the last competition of selected architects was very short; and did not offer any explanation of the course that had been taken. Before stating what may be gathered as to the design, we may mention that the question of the new building and the mode of defraying the cost, was lately the subject of a report by a Commission of the Corps Législatif, which affords some interesting information respecting the manner in which works of the character in question, are pursued in France. It was unanimously decided that the Opera ought to remain a national institution; and that a new building was required. Respecting the site, it was held that the first decision ought to be adhered to. There would be an opening to the boulevard, of 60 mètres,—the breadth of the Boulevard de Sébastopol being but 34 mètres. As to the question whether the ground had been obtained under reasonable conditions of cost, the Commission held that considering the quarter of Paris, the ground had been so obtained, since it had cost an average of 715 francs the square metre, whilst ground in the neighbourhood was now worth 1,500 francs to 2,000 francs. On the fifth question, whether the expense should fall upon the State entirely, or whether the city of Paris should contribute, the result was a formal demand with this latter view. The gratuitous cession of the site was at the same time suggested as meeting the object. But, the Prefect of the Seine declined all participation in the cost of the building; and he was supported by the Government. The reasons of the refusal were the expense already accrued to the city by the street-improvements, and open spaces especially connected with the new building,—an expense

* See page 172, ante.

* H. Baillière.

exceeding 11,400,000 francs,—and the expense of other improvements which might be called for,—also the contributions of Paris generally to the State, and the fact of the aid given to the realization of certain plots of ground the produce of which is to be appropriated to the cost of the Opera House. The Government added as a general consideration, that like the Théâtre Français, and the Opéra-Comique, the Imperial Academy of Music was a national institution, “subventioned” by the State; and that it was desirable not only to preserve the direction in the Government, but to prevent all possible doubt on the subject; and that by the State charging itself with the cost of the building, and the City with that of the streets, each was following its proper part. The Commission therefore deferred to the view of the Government. The expense, the Commission reported simply the inability to give conclusively: an amount of 12 millions of francs for the building, was only named. We may suppose the State is about to expend on this business, at least 880,000*l.*, since, in the report, 22 millions of francs are mentioned, or 10 millions for the acquisition of 14,000 mètres of ground, and 12 millions for the building and expenses. That would make the whole cost as stated, or the cost of the building, 480,000*l.* There seems, however, no reason to doubt that the large outlay here named will fall again into the national exchequer, from the produce of the sale of lands, as of the existing Opera House, part of the Parc de Monceaux, the district called Trocadéro, and others.

Opera appears to have made its entrance into France in the year 1659, if not 1581. Ten years after the first-mentioned date, the Abbé Perrin commenced a speculation in a building in the Rue Mazarine. Associated with him was a certain Marquis de Sourdeac, very skilful in stage machinery, and said to be the inventor of nearly all that is now in use in Paris. In 1672, the first undertaking having come to an end, letters patent were granted by Louis XIV., to an Italian named Lully. Their first sentence says,—

“The sciences and the arts being the most considerable ornaments of states, we have not had more agreeable relaxation, since we gave peace to our people, than to revive them in calling near to us, all those who have acquired the reputation of excellence in them, not only in the extent of our kingdom, but in foreign countries; and to oblige these persons further to perfect themselves in them, we have honored them with our goodwill and our esteem.”

But it was not till 1781, after several changes of abode, that the lyric drama in Paris was installed in a building erected especially for it. What was erected however, was intended only as a temporary building. It was built in seventy-five days; and it still remains; it accommodates 1,800 persons; and it is now known as the theatre of the Porte-Sainte-Martin. In 1794 the Opera was transferred to a building which had been erected on the site which is now that of the Square Louvois, in the Rue de Richelieu. This was the work of the architect Louis, considered so successful as to be worthy of imitation in the present building, and we may say in the new one. The original of all these buildings, for the main features of plan at least, was the theatre at Bordeaux, also by Louis. The new building however, no doubt will be very different in all the accessories of the stage and “salle;” and the “salle” itself may be somewhat higher in proportion. In 1820 the Duc de Berry having been assassinated in coming out of the theatre of the Rue de Richelieu; and the Bibliothèque having been always deemed endangered by the vicinity of the other building, the Opera House was demolished. The present Opera House was opened in 1821, having been built in one year by the architect Debrat. It was intended only as a temporary building; it is in great part mere wood and plaster; and to this circumstance, as mentioned in a former article, has been attributed, though surely without entire reason, its remarkable sonority. The cost appears to have been only 2,287,495 francs 14 centimes; but the hôtel Choiseul was appropriated to the service of the administration and dependencies.

The suitability of the present building in the point of acoustics, has led to the retention of the form of the *salle*, as nearly as possible for the new building. The opening of the proscenium will however be greater. For the following information we are in part indebted to the *Presse* and other French journals.

The projected buildings will cover an area of 11,226 mètres. Open space to be laid out as gardens or plantations will absorb 2,774 mètres additional. The whole is about double the area of the existing Opera House with its courts and passages. The general form on plan is that of a parallelogram with retrenched angles. This is flanked by two pavilions. That in the centre of the lateral façade westerly, and which will be in the axis of a new street to the Madeleine, will be for the entrance of the emperor: the opposite one, in similar position with regard to the new street to the Chaussée d'Antin, will be for the entrance of all persons who arrive in carriages. Between 400 and 500 carriages, it is supposed, may arrive. Persons coming on foot will enter at the principal front, south.

The number of places provided in the new house will be about 2,000; the number in the present house is stated as 1,750 by one authority, and 1,950 by another. Each box will have a saloon, and considerable space will be allotted for each seat in the house. The *Presse* hopes that the plan of the house as on paper, will be modified by the addition of “loges découvertes” in advance of the principal tier of boxes. For this *balcon*, we may say, there is a good substitute in the present house, in the arrangement of what on plan are the back rows of seats of the pit. These are separated from and raised considerably above the other seats: indeed they are nearly on the same level as the seats of the boxes. It is stated that the existing Opera House affords on each performance, receipts amounting to 10,000 francs, or 400*l.*, and that half as much again ought to be provided for, also that there is every reason to anticipate a demand for any number of good places, that could be planned.

The opening of the proscenium will be the same as that of La Scala, 15 mètres,—2 mètres more than in the old house. The dimensions of the house, however, we understand, will be also increased, so as to preserve the present proportions, unless with the slight exception already named, of height. The stage will be much larger each way, and mechanical contrivances will take the place of much manual labour. Warehouses and workshops will, if we read rightly, be provided on a different site. The recent destruction of accessories of that kind, of the present Opera House, which were so detached, shows the advantage of the separation. Green-rooms and places for practice and study will be placed in the rear of the stage, but contiguous to it; whilst in the rear of all, will be the offices of the administration and apartments of the chief functionaries. It seems, however, that the area of ground has not been adequate: our authority regrets that there can be no court or sufficient breathing-space for the 700 or more persons, attached to the stage, in the intervals of their duties; and suggests how an extension of the site might be arranged.

The grand staircase will have some resemblance to that of the Doria palace at Genoa, as well as that of the theatre at Bordeaux. At the extremities of a vestibule will be secondary staircases communicating with all the tiers of the house. These staircases will be semicircular on plan, with superimposed arches. There will be a covered way of communication, externally, forming nearly an entire peristyle to the building. As regards those who come in carriages, they will traverse a corridor to a hall which is placed exactly under the “salle,” somewhat on the arrangement of the vestibule of the Théâtre Français. Around this waiting-hall is a gallery, which has a communication with the vestibule principal front. We hesitate at present to adopt the view of the writer in

the *Presse*, that the passages are too long, and that the entrances for foot-people and persons arriving in carriages ought to be each where it is now proposed to place the other; and it is evident that the distribution of the crowd will be better provided for, than generally it is in theatres.

In the external character of the design, there is not we apprehend so large an amount of new thought as might have been anticipated. The “Garde Meuble” of the Place de la Concorde and the colonnade of the Louvre are mentioned as having influenced the design; and our recollection of what was exhibited on the occasion of the first competition, induces us to think such a statement correct. The distinctive character of a theatre however appears in the crowning feature, which is the upper portion of the “salle;” and this, with the details of sculpture and ornament; and the visible purpose of the external *loggie*; and the actual differences which there may be in buildings described as the same, or even designed after a model, and the talent of the French architects, combine to make us believe that the Paris Opera House will be successful in external effect at least. It is likely to be completed in three years' time.

PETERBOROUGH CONGRESS OF THE ARCHEOLOGICAL INSTITUTE.

At the previous meeting of the Institute, when the letter of Mr. Hopkinson, of Stamford, was read, suggesting that the next should be held at Peterborough, it was received with great satisfaction by all those members who for so many years had enjoyed the pleasure of that kind-hearted old gentleman's society, and who regretted much his absence on the last two or three occasions.

To Peterborough, then, we came. This town is certainly the Meines of England, for every train in the kingdom seems of necessity to be obliged to come here. Those who lay awake, for to sleep was impossible until you got accustomed to the noise, were under the impression that there was a congress of all the screams of all the locomotives; and it appeared as if some of the engines that were for ever getting in each other's way were giving, *in alfo*, an imitation of the lively discussion that one occasionally hears in London between a cabman and a waggoner.

Some members of different fancy were thinking that all this noise arose from the large numbers that were coming to attend the Institute. But when the hour for meeting arrived this illusion was soon dispelled by the smallness of the attendance. Even the president was absent, from some mischance, notwithstanding the numerous rails conveying to this spot. The opening was of a very mild character. The Bishop and Dean were absent from indisposition, and the task of welcoming us devolved upon the Rev. Canon Argles, who performed this duty briefly but gracefully. I think we were unlucky in meeting in a city where there is no corporation; for, if the civic authorities have not so much knowledge, they make up for it in enthusiasm and hospitality; of which we have a lively recollection in our good friend who was mayor of Gloucester, and an equally favourable example in the present mayor of Stamford, of whom more presently.

The best thing on this day was a paper read by the Rev. Thomas James, of Theddingworth, “On the Archaeology of the County of Northampton.” He playfully stated that he should be guilty of plagiarism, as he intended to borrow from an article that had appeared in a popular publication; but he had the word of the anonymous author that he would not complain of the appropriation. This elicited much mirth and applause, as it was generally known to whose pen the *Quarterly* was indebted for its very able exposition of the county; and therefore, if there was any robbery, Peter and Paul were the same person. The paper was an epitome of that article; and, besides reproducing its more known archaeological features, it stated, for those who had not kindred tastes with ourselves, that even sporting, for which this county is famous, could take its stand on the ground of antiquity; for the Pythley hunting could trace its pedigree as far back as the “Domesday Book,” wherein its special privileges are recorded. He concluded by saying, that “in Northamptonshire they would find the oldest church, the oldest Christian monument, and the oldest council-chamber; great battle-fields, and a noble cathedral; a county plentifully stored with the seats of

nobility and gentry; a county in which a peculiar spirit prevailed; and, as Fuller said, 'a people speaking the best English spoken in England.' This gave good promise for our future investigations, and fully justified the choice of the locality.

The thanks of the meeting were proposed in eloquent terms by Lord Neaves, who, among other happy remarks, said that one of the reasons which made these societies popular was that their purpose was not all dry study; but, as we looked back upon the past, and then visited the memorials of former generations, we viewed things that address themselves to the heart as well as the understanding.

Notwithstanding the excellent elements of success that were there, the epithet I have applied to the first meeting was certainly justifiable. In the afternoon we proceeded to Thorpe, to view the church and tower, both about the date of 1260. There was nothing very remarkable in the former; but the latter is a very good example of a fortified house of the period. It reminded us of the Peel houses to which our attention was called when we visited the north.

In the evening there was a sectional meeting, when Mr. Parker read a paper "On the Ancient Houses, Domestic Chapels, and Hospitals of Northamptonshire." Some thought it was too technical for an early meeting, at which there were many local members who could not be expected to know much about archaeology in one day. It was a pity, also, that he nearly disturbed the equanimity of the meeting by dragging in the controversy about Merton College, Oxford. A discussion ensued; and, as an illustration of the freedom of debate that prevailed, Mr. Freeman stated that he knew nothing about domestic buildings, so he would make a few remarks about the special characteristics of the Northamptonshire churches. Those who felt somewhat depressed by the heaviness of this mental repast repaired to the Cathedral Close, when that noble pile was illuminated by a most brilliant moon; and, while walking round to see from every point of view the grand effects which were produced, they experienced a practical interpretation of the meaning of aesthetics.

On Wednesday, at the sectional meeting, Professor Earle read an interesting paper "On the Local Nomenclature of the County;" and the Rev. Abner Brown one "On Certain Existing Landmarks of Early English Ecclesiastical History."

We then made an excursion to Barnack, where the church has a Saxon tower with an Early English spire. The rector, the Rev. Canon Arles, gave a lucid account of the discoveries that had been made on the removal of the rubbish by which its peculiarities had been concealed. An animated conversation ensued on various points in connection with its date and history. Mr. Parker gave his opinion that it was built in the early part of the eleventh century, probably in the time of Canute. He thought that as many old English churches were built by the Danes as the Saxons, and the forms which they took were in imitation of the old wooden churches,—that it was, in fact, as others have said, carpentry in stone.

We then proceeded to Wittering, to Wansford, and to Castor, where the church became the theme of much admiration and critical inquiry. The Rev. Owen Davys gave us the results of his investigations, and the members devoted considerable time to the inspection.

We then returned to Peterborough, where the President, according to the programme, took the chair at the ordinary. I must here again protest against this innovation. It ought to be the public dinner of the Institute, or nothing at all. Why should the members be put to an additional expense for a more uncomfortable dinner, if they do not receive an equivalent in the way of social enjoyment and those ceremonies which are the usual concomitants of festive occasions. What a farce was a toastmaster, if there were to be no toasts. If there are some members who do not like addressing an audience, surely others might be found who would contribute something like eloquence and cheerfulness, as was the case with Lord Neaves, who in his speech produced some radiance, and by his good humour saved the meeting from being one of the most solemn and funeral proceedings. In the evening there was a *conversazione* at the Deanery, where we were most cordially received and most hospitably entertained. The choir of the cathedral, as "ye minstrels in ye gallerie," sang an excellent selection of pieces and madrigals.

On Thursday we went to Stamford, calling at Oakham by the way. Here we proceeded to

view the church, which has just been restored by Mr. Scott. As a church, I think it is amongst the most perfect for usefulness and beauty. A very large congregation can be accommodated, who can both see and hear; and there was no place that I could discover where any one would feel that irksomeness which results from being "cabin'd, cribb'd, confin'd." Some of our architects spoke of the great daring there was in many of the structural arrangements; but I am inclined to argue with the lay member who irreverently calls that in which they make their sketches their pattern-book, when he recommended them to copy it entirely as a sample.

We then went to see the Norman Hall, which is in excellent preservation. It is now used for the county courts. The wall is nearly covered with horse-shoes, some of which are of gigantic proportions. This arises from an old custom, that, whenever a peer visits the town, he is made to contribute a horse-shoe. The custodian, with great alacrity, seized upon our president, and secured, or, as a vulgar member said, soon "nailed" his shoe. We then proceeded to Stamford, where we were met by the Rev. C. Nevinson, who took us to the site of the castle, whereon was subsequently built the Nunnery of St. Michael. We then proceeded to St. Martin's Church, the Town Hall, where the city plate was exhibited, to St. John's and St. Mary's Church. In the former there have been some considerable reparations, but the colouring of the roof seemed to me to be very poor. Dates, styles, and records were quoted and discussed; nor must it be supposed that conjecture, in which many of the minds of the Institute are so very fertile, was not represented on this occasion. But, oh, the weather! These peregrinations were made in and between the most pitiless showers. We have been so unfortunate of late, that one or two have suggested to me that it is quite necessary to be amphibious to be a thorough archaeologist. We then proceeded to the hotel, where a most sumptuous entertainment had been provided by the corporation. The mayor, Mr. Johnson, took the chair, and performed the part of host, quite in accordance with the spirit of Old English hospitality. Lord Neaves again came to the rescue, and in a most humorous, telling speech, concluded the entertainment; and we proceeded in the highest possible spirits to view the other antiquities, which are very numerous. One of the most striking peculiarities to which our attention was called was at All Souls' Church, where is an Early English arcade, round the external walls. This was regarded as a great novelty of construction. At all the places visited, the Rev. Charles Nevinson gave us all the information which he had been able by great research to acquire; and we were also favoured with an architectural duet from Messrs. Parker and Freeman. Greatly pleased with our reception, and with what we had seen and heard, we returned to Peterborough. Great disappointment was expressed that we did not visit Burleigh, but the rules laid down for visiting that place are quite prohibitory to great numbers. Hopes were entertained that the Marquis of Exeter, seeing what other noble proprietors have done, would have received us in emulation of their kindness and liberality. A few members did, however, visit the house on the prescribed conditions.

In the evening there was a sectional meeting, at which Mr. Bloxam read a paper on "The Monumental Remains in the Cathedral;" and the Rev. J. Lee Warner, a communication on "The Manuscript Chronicle and Chantry of Robert Swapham."

Friday brought us a large accession of members and visitors, attracted by the announcement that Professor Willis was to lecture on the Cathedral. At the morning meeting, Professor Babington read a paper on the "Ancient History of the Fens." He was followed by the Rev. E. Trollope, on "The Cardyke," when an animated discussion ensued, more especially in connection with the natural history of the district.

At two o'clock there was a very large assembly in the Corn-Exchange, when Sir Charles Anderson read a short paper, to call attention to the repairs that were now going on at Lincoln Cathedral. He most emphatically condemned the scrapings and washings, which he said were entirely destructive of the harmony and beauty of the building. He exhibited two photographs, showing the scraped and unscraped portions, and he called upon the members to aid him in putting a stop to such desecration.

Then came the great attraction of the meeting, the lecture on the Cathedral, by Professor Willis, who, with his accustomed clearness and fluency,

gave us the history of the structure. It is his peculiarity that he has the power of so addressing himself to the subject, that his listeners are under the impression that he is invoking their knowledge, instead of propounding facts with which they were formerly unacquainted. He said the great feature of this cathedral was the few changes of style that it displayed; and when it was considered that the building was seventy-five years in the course of construction, it showed a great reverence was displayed by the builders, and those who employed them, for the original Norman design. He reconstructed the conventual buildings in words; and the arrangements, forms, and characteristics, were presented to our mind's eye as clearly and distinctly as if they were before us in substance. Oh, that some of our lecturers would take a leaf from his book! In the illustrations of his lecture, which he subsequently pointed out at the cathedral, he was followed by a large concourse of persons, who seemed to regret when his remarks came to a close.

In the evening, Mr. J. Lambert "offered some remarks on the Sarum Hymnal, with vocal illustrations." This was as great a novelty as "George Ridler's oven," at Gloucester, only not quite so amusing. Mr. Lambert, in calling attention to the archaeology of music, seemed to be quite ignorant of Mr. Wm. Chappell's excellent volumes on that subject. The Dean of Ely both said and sang a reply, which prevented any further discussion.

On Saturday we started on our way to Thorney Abbey. The nave of the old church, which was finished in 1108, still remains. Attention was called to the reason of the nave and aisles of the church of conventual buildings remaining when there was no vestige of any other part. It arose from those portions being claimed as the parish church; so that, at the dissolution of the monastic establishments, those to whom the rich lands and endowments were given took no care of the other portions of the buildings; but the parishioners secured that which was claimed as their right, and preserved a place in which they could worship.

Thence we went to Crowland, to view the remains of that abbey. A discussion took place between the rector and Mr. Freeman, who both acknowledged themselves so much corrected by the other, that we were left in a state of doubt; and old Guthlac himself, had he been present, would have acknowledged himself puzzled. We next visited Peakirk, a very curious church, with a Norman triple bell-cot, an arrangement not at all common. Northborough Church and House were the next objects of our attention. This place possessed an interest as belonging to the Claypoles; and there is a tradition that Cromwell was buried here,—that some of his friends, foreseeing the insults to which his remains would be subjected, had his body privately interred on this spot. The building is a very interesting specimen of a fourteenth-century house; with, of course, many additions and disfigurements, made at all periods. In the front of this building we had a short scene from "The Battle of the Styles," which was performed to the silent astonishment of the spectators. We then saw Grinton and Woodcroft House, which gave Mr. Parker another opportunity of displaying his research in connection with early domestic buildings.

The same or rather worse weather accompanied us as on our last excursion.

In the evening we were invited to a *fête champêtre* at the Vineyard, but the kind intentions of our entertainers were frustrated by the elements. Cold and damp, shawls, goshaws, and mackintoshes, are very antagonistic to the gaiety and cheerfulness of outdoor amusements.

On Sunday the Bishop of Oxford attracted a large congregation at the cathedral. He preached on the connection of the past with man's hope of the future. In showing "whence we derived the interest in the past," he affirmed that man must be educated before he can look back; that the uncivilized man only regards the present and his immediate wants. He who considers the past with its memorials, however mean and trivial the remains of these memorials may be, is thereby led to a contemplation of the future to fit him for an immortality.

On Monday we visited Elton, a fourteenth-century church; Warmington, a very interesting church, with an Early English tower, and a very rich west door. The spire of this church is esteemed one of the finest specimens in Northamptonshire. There is also a nave with a vaulted wooden roof. We proceeded to Fotheringhay. The church is Perpendicular, of the date 1440. Nothing now remains of the castle, but a green

mount is said to indicate where the keep was. A beautiful view is obtained from this point; and, whilst standing here, we tried to elicit some remarks from the fair biographer of the captive who made the castle famous, but she referred us to her book. Lord Neaves was then applied to, to say something about the Scottish queen; but he replied, "No, the English brought her here, and they ought to give the explanations."

We proceeded to Tansor and Cotterstock. At the latter church is one of the finest Late Decorated east windows.

We had but a brief view of Oundle, "and so home."

There was to be an excursion to Brixworth on the Tuesday; but I must leave those who went to describe this.

The museum presented a very choice collection of subjects, especially in connection with "the many-faced Mary," as she has been by some one called. The numerous portraits here exhibited justified the sobriquet, for never was anything so extraordinary as the difference of the features at various times of her life. Love, romance, and adversity must have made her a Proteus. Space will not permit me to give a catalogue, so I must content myself by saying that there was but one opinion as to the success of this part of the Institute's proceedings. The illuminated manuscripts, Hours, &c., exhibited by Mr. Tite and the Rev. J. Fuller Russell at the Society of Antiquaries, were transferred to this place, and excited much attention.

And now to sum up the result of the meeting. As will be seen from the preceding remarks, the architects "had it." We visited more churches than on any previous occasion; and all our proceedings had that branch of art as its leading feature. In this respect it was a success, but socially there was a great falling off. Save and excepting the generous hospitality of the dean, we saw no other interior.

This was the first attendance in that character of our new secretary, Mr. Warwick Brooks; and his kind attention and courtesy to the members evinced that, in connection with his other qualifications, his appointment is one upon which the Institute may congratulate itself.

It would be wrong to leave without recording one fact, which is most worthy of all commendation and general adoption. The dean has directed that the cathedral shall be open at all times. At different parts are suspended printed notices of the building, directing attention to the best points of view, its dates, and descriptions of its style. Any one can, therefore, pursue his own inspection, enjoy his own reflections, and indulge in his own sentiments and contemplations without being shackled with the gabble of an ignorant verger. And so farewell to Peterborough.

F. S. A.

BRITISH ARCHEOLOGICAL ASSOCIATION.

THE eighteenth annual meeting will be held in Exeter, commencing on the 19th, and ending on the 24th, inclusive, under the presidency of Sir Stafford Northcote, bart.

The following is the general programme—

19th. Reception of the president, members of the Association, and visitors, by the mayor and corporation; president's address; visit to remains of Rougemont Castle, and other antiquities in the city; *soirée* by the Devon and Exeter Institution; paper on the cathedral, preparatory to its examination, by Mr. C. E. Davis, F.S.A.

20th. Visit to various objects in Exeter; examination of the cathedral; excursion by rail to Pynes; reception by the president; visit to Copplestone; Crediton; evening meeting, for papers and discussion.

21st. Visit to Ford Abbey; excursion to Ottery St. Mary; reception by the Right Hon. Sir John T. Coleridge; Cadhay House; evening meeting, for papers.

22nd. United meeting of the Association and the Exeter Diocesan Architectural Society; excursion to Newton Abbott, Haccombe; Compton Castle, by Cockington, to Torquay; St. Michael's Chapel; Torr Church and Abbey; luncheon at Torquay; visit to Islam Chapel and Kent's Cavern; evening meeting, for papers.

23rd. Excursion to Tiverton; Collumpton; Bradfield House; reception by Mr. J. Walrond Walrond; Bradninch Manor House; evening meeting, for papers.

24th. Excursion to Dartmouth; Dartington Hall; Berry Pomeroy Castle; Totnes; evening meeting, for conclusion of the Congress, 9 p.m.

On the Monday following the Congress (August

26th) it is proposed to arrange a party to proceed to Dartmoor, and institute an examination of some of its most remarkable antiquities.

AIR-SPED PARCELS.

THE Pneumatic Despatch Company are showing, by experiments, what they can do in the way of transmitting letters and parcels. As most of our readers are aware, the chief feature of the invention consists in propelling a train of carriages through a tube by the creation of a vacuum before them; the tube being, in fact, the cylinder, and the carriages the piston. The locality selected for testing the project was on the ground adjoining the Victoria Railway Bridge at Battersea, and belonging to the Southwark and Vauxhall Waterworks Company and London and Brighton Commercials, where upwards of a quarter of a mile of the pany, where upwards of a quarter of a mile of the tubing has been laid down; various irregular curves and gradients being introduced to show that hills and valleys would not prevent the effective working of the system. The arrangements have been entirely in the hands of Mr. Latimer Clarke and Mr. Rammell, and the apparatus certainly works very well. With an exhaustion varying from 7 to 11 inches of water, or from 4 oz. to 6 oz. per square inch, the speed is about 25 miles an hour. The tube through which the despatch trucks are drawn is not circular in form, but of a section resembling that of an ordinary railway tunnel; the internal height being 2 ft. 9 in., the width 3 in., the "springing of the arch"—the top being semi-circular—2 feet 6 inches, and at the "springing of the invert,"—for the tube has a segment of the bottom,—2 feet 4 inches. The internal area of the tube is equal to that of a circle 33 inches in diameter, or 855 square inches. The tube is of cast-iron, in 9 feet lengths, each weighing about one ton, and fitted into each other with an ordinary socket joint, packed with lead. Within the tube, and at the lower angles on either side, are cast raised ledges, 2 inches wide on top, and 1 inch high, answering the purpose of rails for the wheels of the despatch trucks to run upon. The latter are made of a framing 7 or 8 feet long, enclosed in sheet iron, and having four flanged wheels, 20 inches in diameter each. The whole section, so made that its external form, in cross-section, conforms to that of the tube, although it does not fit it closely; an intervening space, of an inch or so, being left all around. Some of light India-rubber flanges or rings are applied at either end of the truck; but even these do not actually fit the inner surface of the tube; a slight "windage" being left around the whole truck. There is, therefore, friction beyond that of the wheels; and the leakage of air, under a pressure of 4 ounces or 5 ounces per square inch, amounts to but little. The air is exhausted, from near one end of the tube, by means of an exhausting apparatus, from which the air is discharged by centrifugal force. Some idea of this apparatus, which is very simple, may be formed by comparing it to an ordinary exhausting fan. It is the intention of the company, now that they have obtained Parliamentary powers for opening the streets to lay down their tubes, to establish a line between St. Martin's-le-Grand and one of the district post-offices, and ultimately to extend their system throughout the metropolis, so as to connect the railway stations and public offices. Mr. Frederick Gye made an early proposition for establishing a system of this kind.

THE SEWAGE FOR THE SOIL.

ANNALS OF A LIQUID MANURE FARM.

THE physical improvement of the population is more intimately connected with the improvement of agriculture than is commonly supposed by the public at large, or even by agriculturists themselves. In respect to towns, offensive smells from the decomposition of animal and vegetable matter, whilst they indicate the waste of highly-fertilizing manure, also indicate the generation and presence of potent causes of insubriety and of preventable disease, at the same time that they display a low state of mechanical and engineering, and of administrative art. As to rural districts, all offensive smells arising in the farm-yard, or in the field, from animal and vegetable decomposition, denote the preventable loss of fertilizing matter, loss of money, and bad husbandry. All excess of moisture on land which hinders the permeation of the air into the soil, and which prevents the chemical combinations of manure, and obstructs the free range of the roots of plants, and by evaporation lowers temperature, is injurious to animal and vegetable life, and is productive to men, as well as animals, of the diseases attendant

on damp, and denotes a low state of agricultural art. The practical application of these conclusions involves the future profit of agriculture, as well as a great proportion of sanitary improvements.

In a paper read before the Royal Agricultural Society of England by Mr. E. Chadwick, C.B., are particulars as to the arrangements of a liquid manure farm, successfully worked for six years, which Mr. Chadwick obtained from Mr. James Blackburn, now acting as an agricultural engineer; in relation to whom Sir John Forbes, the convener of the county of Aberdeen, gives high testimony. The subject being a highly important one as regards the town-sewage question, and the experiment in question having been very profitable, we propose to give from Mr. Chadwick's paper some of Mr. Blackburn's details of arrangements and cost.

First of all, however, we may state that Mr. Blackburn studied agriculture under a large practical farmer in East Lothian, about thirteen years ago, for two years; and he was previously acquainted with the practice of farming as carried out on his father's estate in the Isle of Thanet. After leaving the East Lothian farm, he laid the foundation of the study of agricultural chemistry under Dr. Gregory at the University of Edinburgh, where he also studied physiology and natural philosophy. He had previously had opportunities of studying practical mechanics at a large steam-engine factory.

Before carrying the principle of liquid manure cultivation into practice, he made examinations of the practical means in use for its application at Mr. Kennedy's, of Myer Mill; Mr. Telfer's, at Ayr; and Mr. Ralston's, near Ayr.

Mr. Blackburn's tanks were 8 feet deep, and the manure tank held 22,239 gallons, and the mixing tank held 25,293 gallons. They were faced with wood,—the rough slabs of the outside of trees, with a dry black mould rammed in at the back. They were covered with the cheapest whole trees with the bark on, and a bed of heather on the top to prevent soil falling through the interstices, and soil or road stuff over the heather. The cost of both tanks, well covered, was about 12s. or 13s. each, and they last very well. The bottom was a strong holding clay. He used 4-inch iron pipes, except at the extremities, where there were 3-inch pipes. His buildings, from their situation, required a larger extent of pipes than would, he thought, under ordinary circumstances, be necessary. The pipes commonly in use on most of the liquid manure farms are about 3 inches in diameter. He should, to save power, have them much larger. Junctions at right angles were avoided, and the branches led through the soil in a feathered form. There were 3,400 yards of piping, with one hydrant to every 5 acres. The expenses for machinery, and the charges for it per acre, were as follows:—

Expenses of Pipe Irrigation 20 acres.

Tanks	£ 25 0 0
Metals, pipes, lead, and laying	80 10 0
Cutting drains for do.	2 0 0
Hydrants and brass joints	6 8 0
Manure pumps and fitting	30 10 0
Water-pump and fitting	12 0 0
Shafting for do.	8 0 0
Gutta-percha pipe	19 10 0
For 20 acres	£ 159 18 0
Or 9d 10s. an acre.	

The estimated expenses of pipe irrigation for 100 acres of grass land, 1 hydrant to every 5 acres, were as under:—

4-horse engine with expenses, erecting, &c. ..	£ 140 0 0
T-pipes, cocks, and branches	22 0 0
3,400 yards of 3-inch and 4-inch pipe	380 0 0
20 hydrants, 25l.; lead and laying, 20l. ..	45 0 0
2 sets brass joints and 2 unions	5 0 0
2 manure-pumps, 6½ in. diameter 2 feet stroke ..	60 0 0
Shafting, connecting, and extras	10 0 0
Cutting drains for pipes	10 0 0
2 lengths, 90 yards each, gutta percha	40 0 0
Circular brick tanks, 100,000 gallons	100 0 0
Contingencies dependent on locality	50 0 0
£ 860 0 0	

860l. at 7½ per cent. = 65l. yearly charge.

Pumps will discharge 300 tons daily at 10 hours, and working for irrigation 150 days, at a daily expense of 18s., which equals for cost of distribution 4d. per ton, or per dressing of 1 inch deep—100 tons per acre, costing 6s. manuring at the rate of 3 acres daily.

The valuation of the farm, when Mr. Blackburn took it in order to try the experiment with liquid manure, was 632l. at high prices; and the value of his subsequent average yield at low prices, since he has got the farm in what he deems passably fair order, has been 1,500l.—that is to say, with wheat at about 48s. per quarter. The extra value of the produce is mainly due, he considers,

to the use of the liquid manure. The large quantities of cattle food raised by its use on a small portion of land, and consumed in the stall, afforded the means of heavily manuring the remainder of the farm, which comprises 128 acres of tillage, and is situated on the east coast of Scotland, and within a mile of Stonehaven.

In this case the irrigation was underground; and Mr. Blackburn says, as to the surface method adopted at Edinburgh, that he would not think of having recourse to it, either as a question of agricultural production, or as a sanitary question. The evaporation from the surface, which is one of a swamp, is at times very offensive, and must be very noxious. The proper dilution of his own farm manure is about as six to one, which extinguishes smell: when he has applied it in a less dilute state, as about three to one, it is offensive in its application, but in a very short time it is absorbed and loses all smell; and altogether the smell is less than in the common applications of dry manures. But he would engage that town sewage, even diluted as that at Edinburgh, may be applied inoffensively as well as more productively.

1825.

SOME GLEANINGS; LITERARY, ARTISTIC, AND SCIENTIFIC.

Some time ago we gave a few notes of events which occurred about the year 1825, and remarked upon the changes which have taken place in what seems, to read of, a brief space of time. We now go to some other sources, published just thirty-six years ago, for particulars of certain circumstances which are in the recollection of many now in the prime of life, but which sound of far more ancient date. During the period named, a generation of the people passed away: the chief number of the men of note whose names occur in this gossip of the past, are now no more: valuable ideas and suggestions, which were then looked at with doubt and curiosity, have become established facts; and more wonders have been wrought, and greater progress in various ways has been made, than in all the years since the reign of Queen Elizabeth. There are useful ideas to be got from all comparisons with our own state, and that of other periods: we therefore take another opportunity of having a brief gossip about some doings in 1825.

One of the books to which we just now refer is "The Circulation of Useful Knowledge," illustrated with woodcuts. Amongst these are some views of places celebrated in history, strange-looking representations of animals, diagrams, &c., to explain the lectures of eminent professors; view of the grand oratorio at Drury-lane, in which Robinson, Tinny, Bedford, Edmunds, Braham, Miss Graddon, Belamy, Mrs. Bedford, Miss Love, &c., were prominent singers. There are accounts of fights with dogs and other animals, and of other barbarous sports. On one of these occasions the London reporters gave a very minute and circumstantial account of what occurred. It, however, happened that means were taken to prevent the event from taking place; so that the public had the advantage of the excitement of reading the particulars without the poor animals being put to suffering.

Now were the artists always free from trouble; for below a woodcut of a gentleman's rustic villa we find the following:—"The common adage says, 'Mistakes happen in all families'; and it appears we are not exempt; for, through erroneous information, our artist has this week substituted the house of Williton, an eminent solicitor, for the site of the interesting story of George Barnwell, which we are obliged to defer till next week." We will, however, pass over these matters, and look in at some of the picture galleries, and glance at some of the talk of the town on literature and art.

Mr. Etty's picture of "Pandora crowned by the Seasons," is exhibited at the British Institution, and is purchased by Sir Thomas Lawrence for 150 guineas. At the British Gallery is Mr. Danby's "Enchanted Island," bought by John Gibbons, esq., for 200 guineas. "The Champion," by Mr. Eastlake, is sold for 150 guineas. "The Burial of Christ," by Mr. Northcote, R.A., for 150. Amongst other works of art we notice that "Rammaging an old Wardrobe," by Mr. Good, is purchased by Mr. Hutton for eighty guineas.

Sir Thomas Lawrence presents a very fine copy of the lower part of the famous "Transfiguration of Raffaele," executed by Romney, to the Royal Academy. We also learn that this work, executed by an artist who for a time divided the attention of the town with Sir Joshua Reynolds, remained, for some time after the death of Romney, in a neg-

lected state, in his house in Cavendish-square, which he had occupied (since the residence of Mr. Shee), and was afterwards claimed by the relatives, and purchased by Sir Thomas Lawrence for three or four pounds. It is executed on paper in bistre, and varnished.

The newly-discovered edition of Shakspeare's *Hamlet* is an attraction; and, in the month of February, is in active preparation at Covent Garden Theatre, and will shortly be brought forward in the costume of the time(?) and appropriate scenery.

The Duke of Devonshire has purchased the first edition of *Hamlet* from Messrs. Payne & Foss, for nearly 200 guineas; and the black-letter mania is as violent as ever. Evans sold on Monday the following bagatelle for twenty-two pounds ten shillings:—"Here beginneth a Lyttel Boke, that speaketh of Purgatorye, of the Paynes that be therein," &c. Messrs. Green and Mr. Graham rival each other in daring balloon ascents, and Mr. McCulloch is delighting the intelligent part of the community by his lectures on political economy at the London Tavern. Dr. Roget is also lecturing; and, at the Royal Institution, remarks on peculiarities in the mechanical organization of the parts of animals, &c.

The 16th of April (1825).—Poor Fuseli died this morning at the Countess of Guilford's, Putney-hill. He has been upwards of twenty years professor of painting and keeper of the Royal Academy. Fuseli was a native of Zurich, and came to England at an early age, more with a view of making literature his study than art. While yet undetermined on speculating, as he said, on the great resolve of life, he took some of his drawings to Sir Joshua Reynolds, and asked his candid opinion whether he thought he had any chance of success as an artist. The president was so struck with the conception and power displayed in them, that, after viewing them attentively, he said,—"Young man, were I the author of these drawings, and offered ten thousand a year not to practise as an artist, I would reject the offer with contempt?" This decided him; but it was not until the opening of his Milton gallery, about the year 1798, that the extent of his intellectual acquirements, his wondrous imagination and fancy, were fully appreciated. Amongst these works, the "Ghost of Hamlet" has been considered the grandest production. Mr. Fuseli enjoyed the friendship of many of the most distinguished literati of the age. The high opinion entertained of him even in youth by his celebrated townsman, Lavater, was shown by his putting into his hand at parting a small piece of paper, beautifully framed and glazed, on which he found written in German, "Do but the tenth part of what you can do." "Hang that up in your bedroom, my friend," said Lavater, "and I know what will be the result." The result did not disappoint him. Their friendship ended only with life; and, on the part of the artist, was continued to Lavater's son. Mr. Fuseli enjoyed excellent health, probably the result of his habitual temperance. He was also an early riser; and, whether in the country or in town, in summer or winter, was seldom in bed after five o'clock. He attained the age of eighty-seven without the least falling off in his intellectual powers.

The Water Colour exhibition commences its twenty-first season, and the novelty that drew its first visitors has been succeeded by the still stronger attraction of its sterling merit. There is a "Distant View of Ulleswater," by De Wint. The "Reconciliation of Selim and Nourmahal" is a distinguished picture by Sephanoff. The "Ponte di Rialto," by Prout, is a fine performance; and there are admirable drawings by Feilding, Richter, Cox, Varley, Hill, Barret, Heapy, Glover, &c.

At the Royal Academy, Mr. Fuseli's picture of "Comus" is greatly admired; as are also Mr. Hilton's, "Christ crowned with Thorns;" and "Woman at the Tomb of Christ," Westall. Mr. Wilkie has a "Scotch Family;" and the "Slender and Anne Page," of Leslie is truly humorous. Mr. Hayter exhibits a picture for the Duke of Bedford,—the trial of his ancestor. Sir Thomas Lawrence has several fine portraits. Mr. Danby exhibits "The Delivery of Israel," which is thought to be too close a copy of the style of Martin. Mr. Stodard's "Titania" is a playful invention; and Mr. Turner's painting of "The Harbour of Dieppe" is splendid in colour and composition. Mr. Ross's picture of "Christ casting out Devils" is well liked; as are also the figures of the "Madonna and Child," by Mr. Westmacott.

When reading these still well-known names, one cannot fail to observe, in the comparatively brief space of time, how busy the hand of death has been in gathering these worthies to the dust.

Very few are now left; but notwithstanding, their useful labours are still the means of both pleasure and instruction.

In those years gone by sanitary science was but little cared for or understood: there were, notwithstanding, even then, some men earnestly at work. Amongst these was Dr. Darwin; who, being one day at Nottingham, assembled a large crowd of people around him, and thus addressed himself to them:—

"Ye men of Nottingham, listen to me. You are industrious and ingenious mechanics. By your industry life's comforts are procured for yourselves and families. If you lose your health, the power of being industrious will forsake you. That you know; but you do not know that to breathe the fresh and changed air constantly is not less necessary to preserve health than sobriety itself. Air becomes unwholesome in a few hours, if the windows are shut. Open those of your sleeping-rooms whenever you quit them to go to your workshops. Keep the windows of your workshops open whenever the weather is not insupportably cold. I have no interest in giving you this advice. Remember what I, your countryman and a physician, tell you. If you would not bring infection and disease upon yourselves, and to your wives and little ones, change the air you breathe,—change it many times a day, by opening your windows."

The Peristepic Exhibition drew crowds to the great room in Spring-gardens. The original idea and execution of a panorama by the late Mr. Barker were highly ingenious; and the diorama was an improvement upon that new field opened for graphic art. The present pictorial display combines the principles of both. It is historical, and comprises no fewer than twelve different views. Amongst these are the "Quarter-deck of the Victory at the Death of Nelson;" the "Redoubtable on Fire;" the "Battle of Geuep;" the "Bellerophon in Plymouth Sound, with Napoleon on board," &c.

Amongst the signs of progress and improvement is a large meeting held in the City of London Tavern, for the purpose of advocating the necessity for superseding climbing-boys. Mention is also made of the Hecton Colliery Railway, in the county of Durham. But as this is a private railway constructed without an Act of Parliament, there is little choice of direction, and the engineer was under the necessity of adopting lines and trams by no means advantageous. This was the incline which was used for the conveyance of the coals from the pit to the river before George Stephenson devised his locomotive railway. In the metropolis it is proposed to make the following amendments:—

"The west side of Lancaster-court, Strand, and the east side of St. Martin's-lane, directly behind that side of the court, to be taken down, in order to make a spacious opening from the Strand to the church."

"The north side of Chandos-street, Covent-garden, to be continued in a line to St. Martin's-lane."

"Durham-yard to be opened, and laid out in handsome streets, with coal-wharfs and passages beneath them."

"Exeter Change to be taken down, and also the houses in the Strand that stand between that building and Southampton-street; so that an opening may be formed corresponding with that which will be produced by the removal of the Change."

"Drury-lane to be continued to the Strand, and to have a proper width given to its south end."

"The whole south side of Holywell-street to be removed, with the same side of Butcher-row; likewise St. Clement's Church, and the new space thus afforded to be thrown into the Strand."

"Bell-yard to be opened into Fleet-street, and a width given to it equal to that of Carey-street."

"Middle-row to be laid into Holborn; Chancery-lane to be widened at its two extremities."

"Fetter-lane, also, to be widened at both ends,—at its south end by throwing it into Fleur-de-Luce-court, and at its north end by removing some of the old houses on the east side."

"The area of the King's Bench-walk in the Temple to be continued into Fleet-street, and separated from it only by rails, having openings between them for foot passengers."

"All the houses between Bride-lane and Salisbury-court to be removed, in order to throw St. Bride's Church open to Fleet-street."

"The east side of Ave Maria-lane, the south side of Paternoster-row, the east side of Creed-lane, and the north side of Carter-lane to be levelled, and thrown into St. Paul's Church-yard."

"The east side of Warwick-lane to be thrown back ten or twelve feet."

"Newgate Market to be continued on its north and south sides to Newgate-street and Paternoster-row."

"All the houses forming the south side of the Poultry and the north side of Bucklersbury to be removed, by which a fine opening will be made leading to and displaying the City Mansion."

"In order to clear the back of the Mansion House, the Church of St. Stephen, Walbrook, to be taken down, and rebuilt on a site more to the south."

"All the ground on which stand the houses forming the north side of Cornhill and the south side of Threadneedle-street, from the Poultry to the Royal Exchange, to be thrown into the main street, by which the Bank and the Change will be laid open."

"A street, 50 feet wide, to be cut from the front of the Exchange; to be cleared, to the breadth of 50 feet."

"A street, 50 feet wide, to be cut from the front of the Change into Lombard-street."

"Bartholomew-lane, Finch-lane, and Birch-lane to be widened 10 feet."

"The south side of Thames-street to be entirely removed clear to the river, and the opening extended from Tower Wharf to the Temple. The north boundary of this quay to consist of a fine range of mercantile warehouses."

"London-wall, from Moorgate to Cripplegate, and all the houses on that side of Fore-street, to be taken down, and a line of new houses to be built upon London-wall, widening the whole street about 12 feet."

"In the spaces gained by opening Lancaster-court, St. Clement's Church-yard, Middle-row Holborn, the King's Bench Walk, St. Paul's Church-yard, the Poultry, Cornhill, and other places, public fountains to be constructed, which may be adorned with statues erected in honour of those patriots, philanthropists, and sages who merit such distinction from their country."

Many of the above changes would be of great advantage, but are not yet in the course of being carried out.

The London, Spitalfields, and numerous provincial Mechanics' Institutions are making head, and Dr. Spurzheim is endeavouring to direct the attention of artists and others to what is called the *craniological science*. He exhibits a variety of skulls to establish his theory of bumps. About this time Dr. Crichton has ascertained that appellation of *thick skull* is no misnomer, as he finds, on an examination of a number of subjects, that the skulls of idiots and deranged people are thicker than those possessed of strong and sound principles. In the Regent's Park thousands of persons are suddenly transported to the interior of Chartres Cathedral or the Chapel at Holyrood.

Various inventions, now common enough, are exciting curiosity. At the London Mechanic's Institute Dr. Birkbeck lectures; and a young man, who has been a miner in his youth, named Roberts, exhibits a hood and mouth-piece, invented by him, to enable persons to breathe and act in impure air. Mr. Ogg, Mr. Pettigrew, and others take interest in Mr. Roberts's experiments.

The erection of the London University is advocated, for it is said that it would be extremely economical. Instead of a liberal education being purchased at the expense of 300*l.* or 400*l.* per annum, it would not cost more than 20*l.* or 30*l.* per annum; and a noble university, erected in the New-road or anywhere else at an expense of 150,000*l.* to 200,000*l.*, would be an honour and an ornament to the metropolis.

Amongst the improvements and inventions it is mentioned that the schooner *Eliza* has returned from the Mediterranean after an absence of six months. This is the first vessel sheathed with leather, and we learn that the experiment has fully answered. A steam packet is about to make the voyage to India. This is the boldest attempt hitherto made for the application of steam to a sea voyage; yet it appears to be calculated with every chance of success. The vessel is of 500 tons burden, and to be fitted up for passengers only. She is to be completed with machinery of the best description by Maudslay. The vessel will be equally adapted for sailing and steaming. She will touch at the Cape of Good Hope to take in a fresh supply of coals and other necessities; will then proceed to Madras, and finally to Calcutta; and, upon moderate computation, it is estimated that she will make the whole voyage from London to Calcutta in less than two months.

It is reported that the members of the Athenæum Club are about to erect a splendid mansion on the site of the King's Mews, and that the Oriental Club are in treaty for the purchase of Uxbridge House in Savile-row.

The new Fish Company foresaw some opposition to the purposes of forming a West End Fishing Company, to be opened at Hungerford-market.

Forty new churches are to be built in the Highlands of Scotland, for some of the Highland parishes are from 20 to 50 miles wide; and, with all the obstructions of lakes, bogs, &c., will require no ordinary feats of pedestrianism in the minister to enable him to discharge his parochial duties.

It is remarkable for what a number of years we talk about some matters before they are carried into effect. There had been much discussion about the embankment of the Thames; and it is now said that the aquatic promenade will be erected on the south side of the river, in consequence of the late Duke of Northumberland having united with the benchers of the Temple to oppose its erection on the north side. The editor gives a more satisfactory account of the new London Bridge, and finds the numerous workmen driving piles for the foundation. Active preparations are being made for the commencement of the Thames Tunnel; but, as regards the Opera-house, it will not open this season, except on a *small scale*, in the Haymarket Theatre. The building, from some cause, has sunk; and Mr. Peel, from a regard for the lives of his Majesty's subjects, has interfered to prevent Mr. Ebers from commencing operations. The Custom House is found to be in a worse state than was at first supposed; and a project is on foot for a street from Southwark Bridge to the Royal Exchange, the expense of which is estimated at 600,000*l.*, which it is proposed to raise by a tonnage. The principal street from Fleet Market will, it is said, be considerably wider than Regent-street, and of striking architecture.

The art of glass-staining begins to receive notice; and in Walworth new church, designed by Mr. Soane, three windows are decorated with this material, under the direction of Mr. Collins, of Temple Bar.

We have already exceeded our present limits, and must conclude these notes with the following.

Companies for establishing railways are rapidly forming all over the kingdom. The Great Northern Railroad is to communicate between London, Manchester, Hull, and the principal manufacturing towns in the north. The Norfolk and Suffolk Railroad Company purpose constructing a railway from London to Norwich, through Chelmsford and Colchester, with branches to Harwich, Ipswich, Bury St. Edmund's, Lynn, and Yarmouth. The probable cost of a straight line from London to Norwich is 555,000*l.* In Yorkshire, a railway has been projected from Bradford, by way of Leeds, to Selby, whence the line is to be continued, on the east side of the Ouse, to Hull. Such is the popularity of these projections, that shares in the Liverpool and Manchester railroad are now at a premium of 100*l.* each, and the demand for them is so great, that they are advertised for.

The *Scotsman* remarks that, "when the steam-coach is brought into use, practice will teach us many things respecting it of which theory leaves us ignorant. With the facilities for rapid motion which it will afford, however, we think we are not too sanguine in expecting to see the present extreme rate of travelling doubled. We shall then be carried at the rate of 400 miles a day, with all the ease we now enjoy in a steamboat, but without the annoyance of sea-sickness, or the danger of being burned or drowned."

It is impossible to anticipate the effects of such an extraordinary facility for communication, when generally introduced. From Calais to St. Petersburg, or Constantinople, for instance, would be but a journey of five days; and the tour of Europe might be accomplished in a shorter time than our grandfathers took to travel to London and back again."

THE RUINS OF THE GREAT FIRE IN TOOLEY-STREET.

It is not possible to form a right idea of this conflagration except by taking a view of the scene of the calamity. The appearance of the great space is extraordinary. Many walls are still standing, rent and cracked by the intense heat. Girders, metal pillars, broken into fragments, are strewn in all directions. In some instances, the thick iron doors which had been put up with a view towards stopping the course of a fire have been so bent that they would be useless for the intended purpose. Near the river, part of a massive basement of granite is left standing, though from this large portions have been shivered.

When looking at the space, one can form some

idea of the immense body of flame with which the firemen had here to contend; and, great as has been the damage, it seems a matter for gratitude that the fire did not spread further in all directions. Men are at work digging out the skins and horns of animals, tallow, preserved meat, &c.: immense quantities of rice, dyes, and other commodities, are seemingly mixed together. In places are pieces of vitrified matter, like the clinkers drawn out of a furnace. A sight of the ruins shows very clearly the necessity which exists for a classified system of warehousing articles of commerce. A fireman of much experience who was actively engaged at this fire said that the effect of the extensive store of saltpetre was most extraordinary and destructive, and that the matters were so stored that if it had been intended to make a blaze there could not have been better placed. The pouring of water on the flames seemed but to add to their fierceness.

A visit to these ruins is not without use. It conveys, far better than any words can express, the immense power of fire, and ought to suggest the necessity of providing means for more successfully preventing such wholesale loss. The action of the fire on the various kinds of metal, too, is worthy of attention.

DRINKING FOUNTAIN OPPOSITE THE ROYAL EXCHANGE.

THE drinking-fountain, mentioned some time since as in preparation by Messrs. Wills, at the cost of Mr. Samuel Gurney, M.P., for the space opposite the portico of the Royal Exchange, has been opened for public use. It consists of a pedestal and large circular basin, some 5 feet in diameter, of polished granite, and resting on three bronze dolphins. Upon the basin is a circular 6-inch plinth of white marble, with three carved heads of lions. This forms a base for a bronze figure called "Temperance," semi-draped, in the act of pouring water from a slender vase or bottle. The water runs most objectionably from the lions' heads, and from the vase: the stream from the latter, however, as at present arranged, is useless, and splutters over all who are near. In the first instance an inscription on the pedestal, put on without permission, rendered the fountain a memorial of the late Mr. Bradwood; but this, though still partially legible, has given place to a notification that the fountain was opened on July 26th, 1861.

THE OWNERSHIP OF ARCHITECTS' DRAWINGS.

AN architect thus writes,—

"To whom do designs belong after the buildings have been erected—to the architect or his employer? To whom do working plans and drawings of details belong after the buildings have been completed—the architect or his employer? It is becoming a common practice for the clerks of works of employers to endeavour to retain all working drawings, and to lend them about, to be used by others; in which course, unfortunately, certain employers give them their countenance, and even sometimes join in it. A few words from you on the law and justice of this course may do good."

We have before now expressed an opinion, founded on custom and common sense, that an architect's drawings are merely his tools, the instruments he uses in performing the duty for which he is paid,—the production of a building;—and that, as a broad fact, they belong to the architect. This view has been more than once admitted by corporations and others; as at Norwich (in the case of their late surveyor) and elsewhere. The ownership would, however, be regulated by so many circumstances, and it seems so difficult to convey to the legal mind a right appreciation of the position of the architect and his employer, that it would be wise for architects to make it clearly understood on undertaking business that all drawings remain their property. Whatever argument may be raised in favour of the employer's right in respect of drawings which are made to form part of a contract with the builder, detailed drawings, it is obvious, are merely instructions,—sometimes even given with chalk on a board or by words alone,—and their return as they are finished with should be insisted on. The names of clerks of the works who allow use of the architects' drawings for other works should be made known, so that such persons might be avoided. The Artistic Copyright Amendment Act now before the House of Lords will, if passed, give architects protection as respects their drawings, even if it go no further, as it should do.



Dragon's Head Water-spout, formerly on the Gewerken Haus at Eisleben.

DRAGON'S HEAD WATER-SPOUT, FORMERLY ON THE GEWERKEN HAUS AT EISELEBEN.

In the course of a series of papers on the Mansfeld Copper-slate Mines, in Prussian Saxony, contributed to the *Journal of the Society of Arts*, Mr. W. P. Jervis, engineer, the writer of them, gives this sketch of a dragon's head water-spout, formerly ornamenting the Gewerken Haus in Eisleben, and now in the Mining School. He says of it,—It is a charming piece of *repoussé* work, attributed to the time of Bruno the elder, circa 1600. Many such water-spouts still exist in the vicinity: in former times they were so abundant at Neustadt on the Orla, near Weimar, that Luther facetiously called it the *Drachentstadt*, or "dragon-town." The local use of copper, for many purposes were not generally employed, is very striking. In St. Andreas church, in Eisleben, is a fine brass monument to Herr Von Eveleben; and four magnificent brass chandeliers, valued at 140*l.* each, presented by the people of Nuremberg, in 1610. There are also some ponderous brass candlesticks, apparently of far older date. The town-hall in Eisleben was originally roofed with copper, but this was removed and sold about twenty years ago.

Eisleben owed much to the discovery of the Mansfeld Mines. "The gigantic scale," says Mr. Jervis, "upon which these mines are worked is by no means a thing of yesterday, as may be judged by a careful walk over the ground. In approaching Eisleben towards evening from the west, that is by the post-road from Nordhausen, after passing the village of Blankenheim, we ascend to the top of the hill; the eye soars for many a mile around; the steeples and roofs of Eisleben repose peacefully enveloped in gray mist at the foot of the hills, on whose summit the tall forms of many engine-houses, with their gaunt chimneys, are picked out against the sky, while, at a greater distance, the silvery reflection of the lake indicates the spot where the drainage waters are conducted. Around us, on every side, little hillocks, scarcely larger than the graves in a country churchyard, and almost as close together, stretch to the right and left of the road, and have been for centuries overgrown with grass: as we advance, these hillocks, which might at first have escaped observation had they not been pointed out, assume larger dimensions, and present a distinct though partially filled crater: they become dotted over the fields, reminding one of a city of South America. In the distance, each is encircled at the base with a crown of brambles, giving a most singular effect to the landscape, as the intermediate space is highly cultivated land. Every hundred yards we proceed towards the town these mounds become larger and larger as also less numerous; they begin to bear a more rugged appearance, and instead of being clothed with vegetation present their sterile slaty faces to us, for these are newer burrows, which have not been subjected to the

disintegrating action of the atmosphere sufficiently long to convert the rock into soil. A local law, common in such cases, stipulates that whoever rents ground covered with ancient burrows should annually bury a certain quantity of the barren mounds, in order to expose the original surface of the soil, and render the land fit for agriculture. Another moment and we have reached Wimmelburg, where the burrows are from 300 to 800 feet long, and 50 feet high, and nothing but a mass of stones. These are what are at present being thrown up by working the copper-slate, at a depth of at least 500 feet."

THE CONSTRUCTION OF WAREHOUSES.

I HAVE read Mr. Hesketh's article on the great fire in Tooley-street, and with much of what he says on the subject I quite agree, but not with all. I agree with him that the Building Act is defective in its provisions for securing a more complete fireproof construction in buildings intended for mercantile warehousing purposes: I also agree with what he says about protecting the outside of windows in some form or other with iron shutters.

He says in the fifth paragraph that the main cause of the spread of fire is to be looked for in the number of windows, &c. I agree with him that it is a bad plan to have windows in warehouses on both sides of an alley 30 feet wide; but if they were on one side only, the fire could not spread across and set fire to the warehouse on the opposite side. Perhaps a clause might be introduced into a new Building Act prohibiting the erection of warehouses with windows so placed. I was resident in London when the old Custom House was burnt down, and happened to be standing at the Tower end of Thames-street, about half-past eight o'clock on the morning of the fire, when I saw the flames burst through the windows and drift across to the opposite side of the street, and set fire to four or five houses. This was said to be caused by the wind setting off the river. Just at that moment there was a report that some barrels of gunpowder were in the cellars. The men immediately left their engines; and when they returned, having found it a false alarm, the fire had got so much head as to gut the houses before it could be put out. I remember well, on looking down the street at that particular moment, that it had all the appearance of an immense furnace. I mention this great fire as confirming what Mr. Hesketh says about windows in warehouses built in a narrow street or alley, having their windows facing each other, and so increasing the danger of fire spreading when it breaks out in a mass of buildings.

I had written thus far when I noticed in the *Builder* of the 13th ult. that you had been good enough to insert my communication respecting the construction of warehouses, and that other persons had suggested the plan of placing the stairs outside of a building instead of within it. I hope this mode of doing it will be impressed

upon the attention of architects, as it will facilitate the fireproof construction of this description of building.

Mr. Hesketh, in paragraph No. 7, recommends that all well-holes through the various floors of a warehouse should be discontinued, but he does not appear to have any objection to staircases between walls *within* a building. I must, however, differ with him on this point, as my experience tells me that, *as approaches to the floors of a warehouse for business purposes*, they have no advantage whatever over those that might be placed outside. I know what it is to run up one pair of stairs and down another, and in to one floor and out to another, to inspect drugs in the warehouses at the London and other docks. I have no doubt that I travelled over more ground on such errands up stairs within a warehouse than I should have had to do if they had been placed outside the building. I have prepared a plan which accompanies this letter, that shows what I think will be considered an improvement upon the former one. It represents one floor, say the first, of a pile of warehouses, 93½ feet long by 75, from front to back, and the goods are supposed to be so stowed (as shown by the dotted lines), that one large window lights each gangway. The amount of light required in warehouses for merchandise is no more than will enable a man to see the marks and numbers upon a package in dull weather. If this rather important point be carefully considered, and in connection with it the stowage of goods, it might, perhaps, lead to a better arrangement of windows, and fewer of them than is sometimes adopted. My view is, that windows should be placed in accordance with such conditions: I have therefore shown them 6 feet wide within the reveals. The sill is supposed to be 2 feet above the floor, and the head as close under the joists of the floor above as circumstances will permit. The panes of glass should be large, in order that as much light as possible may be transmitted through them, and the jambs well played. There can be no objection to windows of large size where they are protected by outside shutters, however large they may be, and which can be opened and shut from a landing or gallery, as shown in my plan. The loophole doors might also be glazed, and the shutters or rather large doors, might be so constructed as to be completely fire-proof, and however heavy, very easily opened and shut.

In the thickness of the walls at the end of each of the three gangways, there would be air-flues, 15 inches by 9 inches, carried up so far above the roof as to produce a good draught. Suppose the warehouse to have cellars, and first, second, third, or more floors, and each to have a separate air or ventilating flue, placed side by side like a stack of chimneys. The aggregate sectional area of the three ventilating flues above mentioned would be nearly 3 square feet,—amply sufficient, I think, to ventilate a floor of the size shown upon the plan. The opening into each flue would be within a foot of the ceiling; and in the uptake there would be a

throttle valve so balanced as to require only a small cord to keep it open, which in case of fire would be immediately burnt, letting the heavier side fall, and so shut the valve. I borrowed this idea of the cord from an article, which recommended the doors between the floors to be suspended like the sashes of a window, instead of hung upon joints. The shutting of the throttle-valve would immediately check all inward draught from outside the building, through the loophole door and the two windows, which, if well constructed, would be nearly air-tight.

It will be seen that by this plan of having the stairs outside the building, with a gallery in front, the several floors would be as accessible as if the approach to them was within the building. The wrought-iron doors to the loopholes and shutters to the windows might be closed, as I have said before, by a person standing upon the gallery. A gallery projecting 3 feet beyond the front of the warehouse would facilitate the landing of goods at a loophole, especially when the packages are large, and it is required to get a truck underneath them. The jib of the cranes in such warehouse should stand farther out, so as to have the jib as short as circumstances will permit.

The form of a warehouse for merchandise will always be dependent upon that of the site, and also its particular requirements for the kind of goods to be stored up in it. I like Mr. Henman's idea (in the *Builder* of the 13th ult.), of having thoroughly fireproof buildings placed between stacks of other warehouses, constructed as he proposes. In such warehouses as these might be stowed silk, cochineal, and the like. No. 3 warehouse on the north side of the London Docks (one of those built, I believe, at the time the docks were constructed, and where each pile is separated by a wide roadway, leading to the warehouses in the rear), is one that I frequently had to visit; and I have been told that in this single pile there have been several hundred thousand pounds worth of goods. The first floor was principally silk and cochineal; and in one room I have seen many works of art, sculpture, painting, &c., imported from abroad, and lying there till cleared at the Custom House. Being a well-known visitor, I generally got a sight of them before they were delivered.

At the time the Earl of Liverpool was Premier, I sent him (not then knowing whom else to send it to) a letter, suggesting a plan for seasoning timber for the navy building yards. It was to sink a cast-iron cylinder, of large dimension, partly in the ground, and so as to leave the top of it a convenient height above the surface. Into this cylinder I proposed the timber should be placed, a cast-iron air-tight cover put on, and the air within exhausted. After a while the vacuum was to be filled with hot air, to dry the moisture which was supposed to cover the timber inside. My theory was, that, when the external pressure was removed from the surface of the wood, the sap and moisture would exude and be dried up. This process was to be repeated, if necessary. I never heard anything more of my letter; but, oddly enough, I saw, in a publication some months after, that some other person had made a similar discovery. For anything I know mine might not be the first: all, however, that I aimed at was, to direct the attention of Government to a matter which I believed to be deserving their consideration. A plan, very similar to this, has been adopted for the purpose of kyanizing railway sleepers, and timber for other purposes. My reason for alluding to this scheme for seasoning navy timber is to suggest, and perhaps others have done so before, the saturating the surface of the timber used in the construction of floors and roofs of warehouses with a liquor that would render them partially indestructible by fire for a few hours. It might perhaps be done by placing the wood in tanks, exhausting the air, letting in the liquid, and then compressing it into the pores of the wood. I believe this is somewhat after the manner of kyanizing timber. I am not prepared to say what the liquor should be, perhaps the silicate of potash, or what I believe is called water-glass. Both these substances—potash and sand—are indestructible by fire, but which, if intense enough, would of course convert them into glass.

H. LIDDELL.

RAILWAY TYRES.—Mr. A. P. Stocker, of Wolverhampton, proposes to combine layers of steel, iron, or puddled steel, with layers of ordinary wrought iron, and to roll and weld them together, so as to combine increased durability and power to resist wear and tear with sufficient toughness to resist breakage. Mr. J. Fenton, of Queen-street, Lincoln's-Inn, has also proposed an improvement connected with railway tyres.

THE METROPOLITAN ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.

At the last meeting of the Metropolitan Association of Medical Officers of Health, Dr. Aldis in the chair.

The following Report was read from the General Purposes Committee.

"The General Purposes Committee report that the Association has held three quarterly and six evening meetings during the year.

The evening meetings have been successful in eliciting interesting discussions on different sanitary topics.

The first evening was occupied by a discussion on Bakers, Bakehouses, and Bread, opened by Dr. Druitt.

The second and third meetings were engaged in discussing the Sanitary Condition of Public Schools, the subject being introduced by Mr. Chadwick, C.B.

A memorial was addressed to the Commissioners of National Education by resolution of this third meeting.

The fourth and fifth evenings were occupied by a discussion on the best means of Preventing the Entrance of Sewer Air into Houses, opened by Dr. Sanderson. At this meeting Mr. Lovegrove, surveyor, exhibited his apparatus and trap for drainage.

At the sixth meeting Mr. John Taylor, jun., explained the construction of his new patent smoke-consuming grates, and his patent walls for excluding damp; and Mr. Knippel exhibited models of his patent system of self-acting perpetual drainage.

During the winter your committee investigated an outbreak of disease at West Ham, brought under their notice by Mr. Elliott and Dr. Ansell. A report was presented to one of the general meetings on the subject.

Representations have been made to the Home Secretary and other influential members of Parliament on the Metropolitan Local Management Amendment Bill, with the view of getting clauses introduced to secure sufficient open space at the rear of newly-erected buildings, and to enable local Boards to compel owners of property to supply dwelling-houses with water in districts beyond the reach of the mains of any water company.

The committee have been in communication with the Registrar-General in reference to the Census, with the purpose of obtaining the statistics of the several districts of the medical officers of health. The Registrar-General has offered to allow any officer of health to extract from the books at the central office, as soon as he has done with them, such particulars as he may require for his own district. In the mean time he is willing to furnish to any member of the Association who may desire it the population and number of houses in each enumeration district, together with the plan on which the several registration districts were subdivided for the purposes of enumeration.

The question of establishing a museum of sanitary appliances has been under the consideration of your committee, as well as of endeavouring to secure space for an exhibition at the International Exhibition of 1862.—Signed on behalf of the committee, THOMAS HILLIER, Secretary.

July, 1861."

ARCHITECTURAL ASSOCIATION.

At a special business meeting, held on the 26th of July, in accordance with a requisition for the purpose of considering the report of the Committee of the Institute, on the subject of Architectural Examination, the following resolutions were passed:—

"That the Architectural Association expresses its general approval of the proposed regulations and curriculum as forwarded to it by the Honorary Secretaries of the Royal Institute of British Architects, but begs to submit that in the opinion of its members, the following modifications in detail would, if adopted, prove improvements."

"That the titles of ordinary proficiency and honourable distinction should be modified, and senior and junior examination be substituted."

"That to paragraph 4, on page 1, the following words be added:—'Or such other books or tables as the examiners upon his application shall allow.'"

"That except under extraordinary circumstances, the examiners shall be exclusively men belonging to the architectural profession."

"That 500 marks should be deducted from history and literature, and added to mathematics in the first examination."

"That on page 3 the words, 'whose president or secretary, at the time when such distinction was adjudged, shall have been a Fellow of the Institute,' be omitted."

"That the third paragraph on page 4, should be revised or omitted, as the practical result seems to be that the larger number of marks a candidate obtains for answers, the worse would be his position."

"That a method should be adopted for informing the unsuccessful candidates of the subjects in which they failed, and possibly it might be advantageous to tell them the number of marks they obtained."

"That the scale of fees should be reversed, one guinea being payable for the first, and two guineas for the second examination."

"That the declaration should be modified; that the fact of a candidate discontinuing his profession, or supplying materials with the knowledge of his client, should not occasion his removal from the lists of passed candidates."

"That the secretaries be requested to communicate these resolutions to the honorary secretaries of the Institute, and to the honorary secretary of the Examination Committee."

MANCHESTER ARCHITECTURAL ASSOCIATION.

The usual meeting of this association was held on the 24th ult. After some preliminary business Mr. John Rowland read a paper on "Stone." The paper was opened by a general review of stone as an important building element; and one, a thorough knowledge of which is indispensable to the architect. After noticing the peculiarities of the different kinds while in the rock, and confining his remarks in a great measure to the quarries of Yorkshire and Derbyshire, he referred to Pountains Abbey as an illustration of the unequal decay of stone obtained from the same quarry; showing that it is impossible to know with certainty that each stone raised to the edifice is perfect; but, having a knowledge of the most durable varieties, we must exercise our own judgment as to the qualities of the whole. He then, in continuation of the subject, arranged freestones under four heads, viz., sandstones, limestones, magnesian limestones, and oolitic stones; giving the names of the various quarries, colour, specific gravity, and other distinguishing characteristics; mentioning a number of buildings in which these stones were employed. Referring to decomposition and disintegration (the two causes of decay in stone), he remarked, "When we consider the state of the atmosphere in Manchester, we cannot wonder at the decay which often exhibits itself in our new warehouses, even before the workmen have left the building. The air of Manchester, which, in consequence of the large consumption of coal in the neighbourhood, always contains sulphuric and carbonic acids, must necessarily exercise a powerful and injurious influence. Upon examination of stone and brickwork in Manchester, sulphates of lime and magnesia are always found; which, after rain, are absorbed into the porous material; and, crystallising in dry weather, effect its destruction." In our populous and smoky towns we are to preserve our buildings, we must have recourse to chemical means." Having alluded to the various processes which have hitherto been discovered for the attainment of this object, the writer concluded with a hope that "a process may soon be found which, being applied to the external face of stone buildings, may be so effectual that after the lapse of centuries they may yet testify to the improvements of the nineteenth century."

After a short discussion it was decided that the importance of the subject merited further investigation. Its consideration will therefore be resumed at the next meeting, in the place of the paper for the evening.

AUSTRALIAN NEWS.

THE art-room at the public library in Melbourne has been formally opened to the public by his Excellency Sir Henry Barkly. In a long address Sir Redmond Barry stated that the primary idea entertained by the trustees, in recommending the formation of a museum of art in connection with the library, had reference to the establishment of a school of design. With this view casts of some of the best known works of antiquity had been procured. They arrived much mutilated by injuries received on the voyage; but the skill and patient labour of Mr. Summers (himself an accomplished sculptor), had wrought a complete restoration. They formed but a small part of what the collection would be: the remainder, which had not yet arrived, consisted of objects of equal interest. As to the library itself, it was stated that the number of volumes on the shelves was now 27,240, and at the end of the year the number would be 29,000. The readers within the library have increased with the enlargement of the building. As taken from the books in which the names are inscribed by the readers themselves, said Sir R. Barry, they appear as follows:—

1850	23,799
1851	43,224
1852	77,955
1853	127,687
1854 (eleven months)	163,115
1855 (three months)	41,859

This, he added, exceeds the number of readers at the British Museum in the year 1857!

The Swanston-street drinking-fountain at Melbourne, though disowned by the city corporation, has found favour with others. The managers of the Melbourne hospital have applied for it, in order that it might be erected in the hospital reserve, and a meeting has been convened to procure its removal from its present site to the Carlton Gardens.

The foundation stone of a Sailors' Home has been laid in Sydney, by Lady Young. The Home will provide 160 sleeping-berths, and will cost 11,000*l*. The basement, which opens upon the quay, will be made use of for kitchen, bathing apartments, and store-rooms, and also for separate kitchen offices for the superintendent's residence. Immediately to the south of that will be the large entrance-hall, with offices on one side, and waiting-rooms on the other. At the rear of the superintendent's residence there will be a dormitory, 60 feet by 30 feet; and extending parallel with Circular Quay will be the dining-room, 42 feet by 30, and an additional dormitory 32 feet square. On the first-floor, facing George-street, there will be a museum, a library, and a school-room. On the other side of the building will be two galleries, around which (and also beneath them on the ground floor) will range rows of cabins—there being altogether 160 sleeping-berths, each being 7 feet by 4 feet. It is upon this portion of the building that a commencement has been made—a considerable portion of the basement stonework being done. The two galleries will, when finished, afford sleeping-rooms for sixty men. The building will be of brick, with stone dressings, with a high-pitched roof and two tiers of Norman windows, so distributed as to give nearly every one of the sleeping-berths a separate window.

ANCIENT AND MODERN STAINED GLASS.

MAY I be allowed to say a word or two on the subject of stained glass. First of all, one can hardly be expected to agree with the Rev. A. Poole, as reported in the *Builder* of July 20th, who tells us, among other things, that stained-glass windows are not made to be looked at; and, secondly, that the principal charms of the old ones consist, not in their colour or their brilliancy, but in the atmosphere, whatever that may be. However, the last remarks of the lecturer, upon the quality and texture of the modern glass, are for the most part very true, although not very new; for Mr. Winston has been writing and lecturing upon this part of the subject, to my certain knowledge, for the last ten years. If we look at a modern window, it generally appears to be all right as long as the spectator is just in front of it; but when the said window is put in its place, say at the end of a chancel, where you can obtain a good view, it loses all its transparency, and looks like a painted deal board. Now it appears to me that this unfortunate result is due to two great causes: one of these is the want of proper artistic study; and the other is the quality of the glass itself. When I mention the want of proper artistic study, I do not refer to bad drawing or composition, although, unfortunately, these latter defects are by no means uncommon, but to the want of a properly-coloured cartoon, by which some idea may be obtained as to the result when executed, and which would also serve as a guide to the workman, and prevent him from cutting all the pieces of one colour from the same sheet of glass, as he is only too apt to do.

But, after all, the great difficulty is with the glass itself. Mr. Poole asserts that the texture of the old metal is not bright like a transparent jewel, but more like that of an opal. I am afraid if the lecturer could see an ancient window in its original state, that he would sadly miss the opal texture, or at all events a great portion of it; for although a toning is often found at the back of old work, this could never have produced the effect such as we see at the present day, after, say, 400 or 500 years, and which must be mainly due to the decomposition of the exterior surface. The best ancient windows I have ever seen are at Florence and those in the mosque of the Sultan Suleyman, at Constantinople, and they both look like jewellery. The former, which are made of thick metal, such as we use in our own modern work, look as if composed of alices of gems; while the latter, on the contrary, where the glass is as thin as an eggshell, resemble a number of small jewels arranged on a pattern; so that more thickness would appear to have but little to do with the effect. As far as I have been enabled to judge, it is very desirable to make the background of a highly-coloured win-

dow of a greyish, greenish blue, so that the brighter glass of the figures may tell out against it, and above all to vary the tints of the same colour; i.e., if it is a question of a green garment, to make it up of as many tints of green as possible, and not to cut the whole affair out of the same piece of glass. Again, more variety may be got by a judicious use of toning, the which toning may be made of the powdered glass, burnt on with a flux; but by far the most valuable results are obtained where the colour varies in the same piece of glass, when, in fact, it is streaky; and this brings me to the second consideration, viz.—the texture of the modern glass.

I am very much inclined to believe that there is not very much difference in the mere texture of Messrs. Powell's glass and that of the old metal; for the former has been made from the receipts furnished by Mr. Winston, who has devoted a great deal of time and care to the analysis of the old glass. Unfortunately, Messrs. Powell will persist in blending the colour too much with the metal, and the consequence is that the sheets for the most part come out all of a tint, instead of being streaky and clouded. What little does happen to possess the latter qualities, the firm very naturally keep for their own work, and thus the stained glass manufacturer cannot obtain what he most wants; for Mr. Winston has hitherto limited the use of his receipts to Messrs. Powell alone. Now, as these latter gentlemen are unable to produce a sufficient quantity of the glass in the right manner, I would suggest whether the time has not arrived to make these said receipts common to all the glassmakers, so that we may have a better chance of obtaining what we want. I should probably not have ventured on this suggestion, had I not heard a report that these very receipts have been forwarded to the Munich manufactory; and as our own countrymen are already losing orders which are sent to Munich, it is hardly fair to leave them at the mercy of a single firm.

W. BURGESS.

ARCHITECTS AND THE ROYAL ENGINEERS.

SIR,—I was never more surprised than at the statement the other night, at the Institute, as to the position of the engineers. We were told that Captain Fowke, and any other of that body, can at any time turn their back upon the service and accept any job that may offer, they continuing to receive their half-pay all the time, and being at liberty to return to the service and their full pay whenever they please. And not only so, but I find they can get any assistance from the corps of Sappers and Miners for next to nothing; so that I am not only paying the men who take the bread out of my mouth, but finding them clerks and assistants besides. No wonder the engineers get all the good things, and affect to look down on us. Let me hope, sir, by the assistance of your powerful journal, this state of things may be put an end to, and justice be done to the

TAX-PAYING ARCHITECT.

PROPOSED THAMES EMBANKMENT.

THE following is the report of the commissioners appointed to examine into plans for embanking the river Thames within the metropolis:—

To the *Queen's most excellent Majesty*.

We, the undersigned members of your Majesty's commission, appointed to examine into plans for embanking the river Thames within the metropolis, so as to "provide with the greatest efficiency and economy for the relief of the most crowded streets, by the establishment of a new and spacious thoroughfare, for the improvement of the navigation of the river, and which will afford an opportunity of making the low-level sewer without disturbing the Strand or Fleet-street, and also to report upon the cost and means of carrying the same into execution," now humbly submit to your Majesty the conclusions at which we have arrived, and the recommendations we have agreed to offer.

2. The nature of the inquiry entrusted to us was made known to the public by advertisement in the newspapers, and more than fifty designs were presented for our consideration. A short description of each is given in Appendix A., and the authors and other persons interested have had the opportunity of publicly explaining and illustrating their respective views upon the subject. The evidence given by the parties will be found in Appendix B.

3. The main features of the majority of the plans are an embanked roadway on the north side of the river, and the formation of docks with the view to retain all the existing wharfs; in others,

railways in addition to the roadway and docks have been proposed; whilst in a few, a solid embankment and roadway without either docks or railways have been suggested. Amongst these latter is a plan submitted by Mr. Shields, some of whose suggestions appear to us to afford in a greater degree than any of the other designs the basis upon which an efficient and economical scheme may be founded. We desire, however, to express our high appreciation of the great engineering skill and ability that has been displayed in many of those designs which contemplated the construction of docks and railways.

4. The wharf property between Westminster Bridge and the Temple Gardens is for the most part devoted to the coal trade. We find that great facilities are now afforded for the distribution of coal by the new system of unshipping in the docks into railway wagons, and by various depôts on the railways in and near the metropolis. We are of opinion that public convenience no longer necessitates the continuance either of the coal or any other trade in this immediate locality. We, therefore, think that it would not be expedient to construct and maintain docks for the sake of preserving the existing wharfs between the points we have mentioned; whilst their removal will greatly simplify the formation of the embankment, and add to the beauty of the river. The wharf property, however, between the Temple Gardens and Blackfriars Bridge, cannot, in our opinion, be so treated; and that eastward of Blackfriars Bridge is so important in a commercial point of view, that we do not recommend any interference with it.

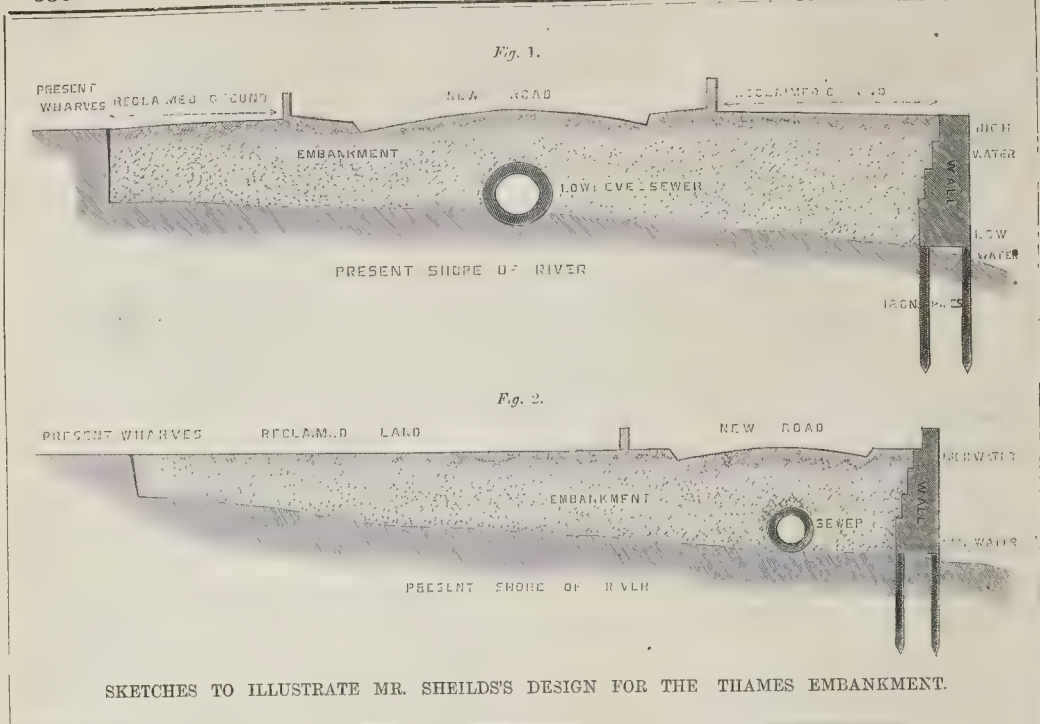
5. Having regard to these and other considerations, we are of opinion that we shall best fulfil your Majesty's instructions and provide for the requirements of the public, by establishing a spacious thoroughfare between Westminster Bridge and Blackfriars Bridge, by means of an embankment and roadway; and that the new thoroughfare thus created should be continued on eastward from Blackfriars Bridge by a new street, according to the line formerly laid down by Mr. Bunning, the City's architect, from the west end of Earl-street across Cannon-street, to the Mansion House. Without such a street no relief whatever would be given to the crowded thoroughfares of Ludgate-hill, St. Paul's churchyard, and Cheapside.

6. The line of embankment at Westminster would coincide with the terrace of the Houses of Parliament, and from thence to Blackfriars Bridge would nearly follow the line laid down for the Corporation of the City of London in 1841 by Mr. Walker, Captain Bullock, Mr. Saunders, and Mr. Leach. The general level of the embankment and road would be 4 feet above Trinity high water. The road would commence at Westminster by an easy descent opposite the Clock Tower, and be continued on, 100 feet in width, to the eastern boundary of the Temple Gardens: from this point the road would be reduced to 70 feet in width, and carried on a viaduct supported by piers of masonry, rising to the level of Blackfriars Bridge, so constructed as to leave a breadth of water for the convenience of the City gasworks and the adjoining wharfs of about 70 or 80 feet. The spaces between the piers under the ascending road would be left available for barges to lie, and afford easy access to the water between this structure and the wharfs.

7. From Westminster Bridge to the eastern boundary of the Temple Gardens the embankment—sustained by a river wall—would be solid in its whole breadth; which breadth opposite Richmond-terrace would be 220 feet from the existing river wall. At Hungerford it would be 320 feet from the existing wharf; at Somerset House about 120 feet; and at the Temple about 220 feet. The plan accompanying this report sets forth the entire scheme.

8. With respect to the appropriation of the reclaimed land, we would recommend that so much of it as shall be in front of the Crown property—which will be about 120 feet in width in its narrowest part—should be laid out in ornamental gardens for the accommodation of the occupiers of the houses, and the portion in front of the Temple Gardens, also about 120 feet wide, be placed at the disposal of the Society to be dealt with in a similar manner. The other portions of the reclaimed land may either be kept open for the health and recreation of the public, or be applied to building purposes.

9. We propose that communications should be made with the intended roadway from Whitehall, opposite the Horse Guards, and also from some of the streets in the Strand,—and that a new street should be formed passing through the



SKETCHES TO ILLUSTRATE MR. SHEILDS'S DESIGN FOR THE THAMES EMBANKMENT.

Savoy to Wellington-street. The frontages on these streets would offer eligible sites for building, as would also the inner frontage of the new road, if it should hereafter be thought fit so to utilize the ground. We, however, feel it our duty to recommend that while economy and utility in laying out and disposing of the ground should be kept in view, endeavours should be made to invest this new and conspicuous work with some elements of interest and beauty.

10. For the improvement of the navigation we recommend that the existing shoals between Waterloo and Westminster Bridges should be removed, due regard being had to the foundations of the former. Also that a uniform low-water channel of 6 feet in depth at ordinary spring tides, and 500 feet in width from the embankment wall, be secured, and thus the stream be more equalized in velocity. If at any future time any effect should be produced on the river from the diminution of its capacity for tidal water by reason of the embankment, arrangements may be made higher up the river by dredging, or by a tidal reservoir to compensate for the loss. The consideration, however, of this matter would naturally devolve on the conservators of the River Thames.

11. The embankment and street we have proposed will afford an opportunity of making the low-level sewer without disturbing the Strand or Fleet-street, and at the same time facilitate the construction of the sewer eastward of the embankment.

12. We are not prepared to recommend the construction of an embankment on the Surrey shore at present; but if hereafter it should be thought desirable or necessary to embank any portion of it, the scheme we have proposed for the Middlesex side will not in any way interfere with it.

13. With regard to that part of our instructions in which we are commanded by your Majesty to "report on the costs and means of carrying the same into execution," we beg to report that we estimate the cost of the land, making compensations, constructing the embankment and roadways, and also acquiring the property in the City for and forming the new street to the Mansion House, at 1,500,000*l*. This amount, however, would be reduced should it be thought right to dispose of any of the reclaimed land on the bank of the river for building purposes.

14. Parliament having appropriated the coal dues to provide for the outlay necessary for this

great work, it only remains for us to express our opinion as to the "means of carrying the same into execution."

15. Looking at the magnitude of the work, the important and varied interests, both public and private, which will be affected—and the urgent necessity for its early completion,—we are of opinion, that the control and management of the undertaking should be entrusted to a special commission, appointed by your Majesty, in order to ensure the speedy and economical attainment of an object so much needed by the public, and affording so favourable an opportunity for the improvement of the river and adornment of the metropolis.

All which we humbly report to your Majesty.

Witness our hands and seals, this twenty-second day of July, 1861.

WILLIAM CUBITT.

JOSHUA JEBB.

DOUGLAS GALTON.

EDWARD BUSTAL.

HENRY A. HUNT.

JOHN ROBINSON MCCLEAN.

HENRY KINGSFOTE, Secretary.

THE THAMES EMBANKMENT DESIGN BY MR. F. W. SHEILDS, C.E.

THE Commissioners having specially pointed out the design by Mr. Shields as most nearly meeting their views for execution, our readers will probably be glad to have a further description of the scheme.

Mr. Shields proposes to construct a river wall, following nearly the line of low water, as a face to the embankment; and a solid embankment within it to the present shore; between the bridges of Westminster and Blackfriars.

The line of wall recommended by the Commission corresponds with this.

A road, 80 feet wide, is carried, on the level, along the centre of this space (fig. 1), passing under Hungerford and Waterloo bridges, and communicating with the existing streets. The embankment being much wider than the road, there is thus a breadth of reclaimed land left on both the river side and the inland side of the road; whereof the portions in front of their premises would be given up to the owners of the more valuable waterside properties, in order to furnish them a new water frontage in place of their present frontage, which would be separated from the

Thus the waterside properties, whether business premises or pleasure-grounds, would retain all their present advantages, with large additions to their space. The less important wharfs are proposed to be brought up altogether; as, with the reclaimed ground adjoining, they would form a most valuable property, with frontages both to the river and to the main road, which might be disposed of in diminution of the cost.

It is also proposed, as an alternative, to carry the road as a public promenade by the river side, instead of in the centre of the embanked space (fig. 2).

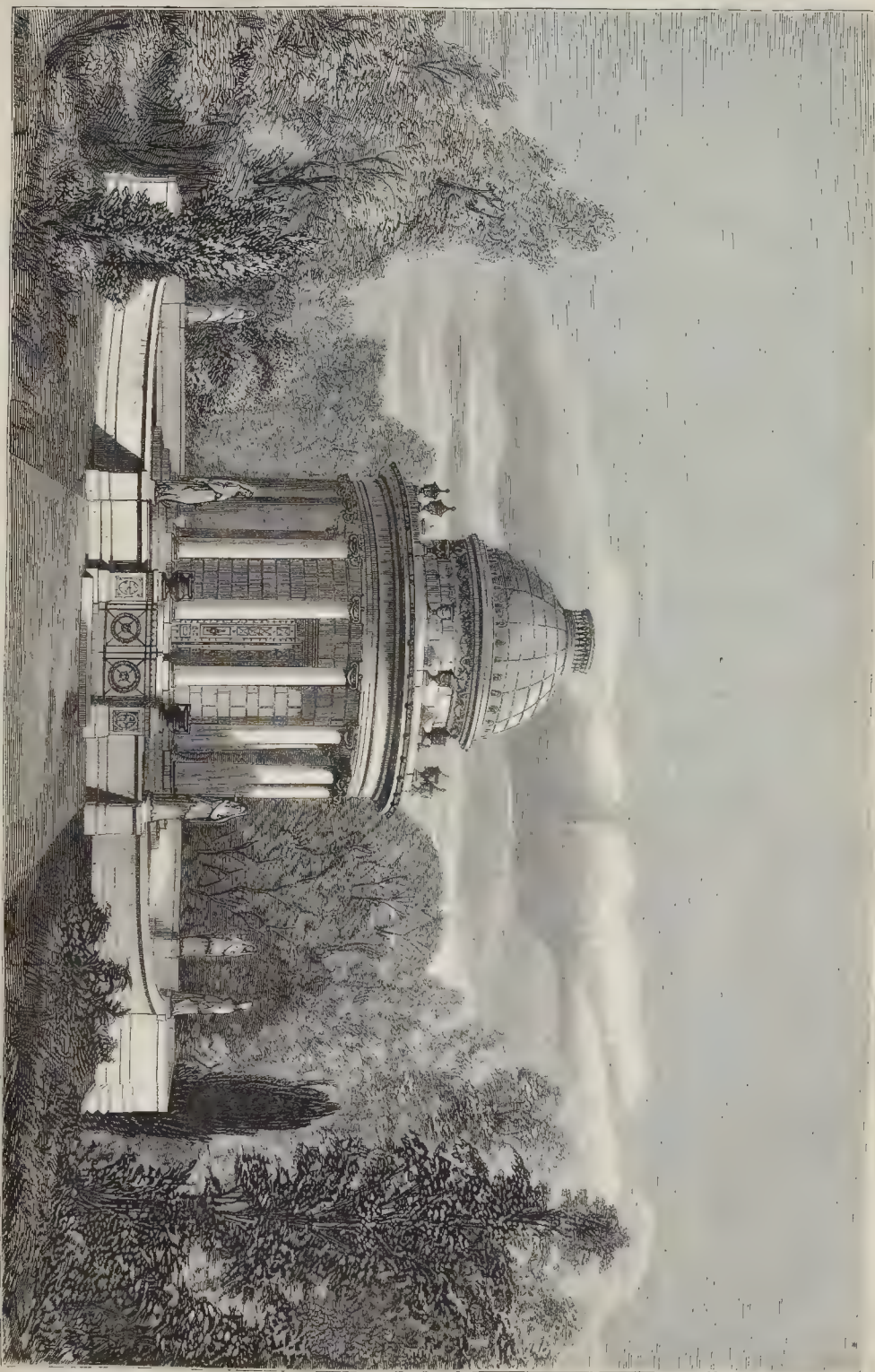
This design would be more costly, inasmuch as the reclaimed land, having frontage to one side only, and no frontage to the river, would be less valuable in its character, though the cost for works of construction would not be altered. The wharfs in this case would be bought up altogether; and, with the reclaimed land within the road, might either be laid out in ornamental grounds, or sold as building land, to defray part of the cost.

The design recommended by the Commission corresponds with the foregoing from Westminster Bridge to the Temple Gardens; but, for the short distance between the Temple and Blackfriars Bridge, they recommend the road to be raised and carried on arches, so as to give access for barges underneath the arches to the present wharfs, leaving also the space between the road and the present wharfs unfilled and in its present condition.

The advantages claimed for Mr. Shields's plan are, that it provides an additional great thoroughfare, a site for a main sewer, and the improvement of the condition of the river at a minimum of cost; avoiding the construction of docks and lock-gates, and of the series of arches necessary to carry the main road over them; thus reducing the work to the formation of a simple embankment.

The estimate for construction only, and without purchase of property, amounts to 250,000*l*., and includes the entire completion of the face-wall, embankment, and sewer; the construction of an approach to Waterloo Bridge, the formation of all the new streets, and a sum of 20,000*l*. for contingencies.

The Chief Commissioner of Her Majesty's Works, Mr. Cowper, has announced his intention to confide to the Metropolitan Board of Works the duty of carrying out the recommendation of the Embankment Commissioners.



MAUSOLEUM OF THE DUCHESS OF KENT, AT FROGMORE, NEAR WINDSOR.—MR. A. J. HUBBERT, ARCHITECT.

MAUSOLEUM OF THE LATE DUCHESS OF KENT AT FROGMORE, NEAR WINDSOR.

BEFORE the publication of the present number of the *Builder* the remains of H.R.H. the Duchess of Kent will probably have been placed in the chamber beneath the Mausoleum which has been prepared at Frogmore and is represented by our engraving. The building was consecrated by the Bishop of Oxford on Monday last.

When King George III. was reigning, in the early part of the present century, an artificial mound of considerable size was formed from the excavations made in enlarging the lake, or ornamental water, in the grounds at Frogmore.

This mound, about 30 feet or 35 feet in height, is now almost covered with shrubs and trees of large growth; and, surrounded on three sides by the ornamental water, forms at once the most striking and the most pleasing feature in the grounds. It has always been a place of frequent and favourite resort, and was so particularly with the late duchess; and it is upon this spot that, in accordance with the wishes expressed by her Royal Highness, the Mausoleum has been erected.

The structure, which has been erected from the designs and under the superintendence of Mr. A. J. Humbert, architect, occupies the whole of the summit of the mound. It comprises an upper and a lower chamber; the former (represented in the engraving) being reached by a path leading to the top of the mound.

It consists of a cella with internal diameter of 12 feet, surrounded with sixteen Ionic columns, the shafts of which are of polished grey Cornish granite, in monoliths 10 feet 4 inches high. The capitals and bases are of bronze: the dome (surmounted with a stone balustrade) is covered with copper: the frieze below the dome is of polished red granite, with bronze festoons: the door and frame are of bronze; while the remainder of the building is of Portland stone.

The structure is surrounded with a stone parapet having three projecting balconies commanding charming views, in three directions, of the grounds and ornamental water.

The interior arrangement of this chamber is not yet finally decided upon. It is lighted from the top, and will have an internal dome, probably of metal and painted glass; beneath which a statue of the duchess, by Mr. Theed, will be placed. The walls will be decorated and coloured.

The lower chamber, or sepulchral vault, is immediately beneath the upper chamber. It is constructed in white Suffolk brickwork, with a plain substantial semicircular brick dome. The entrance to it is by a doorway and vaulted passage in the side of the mound, not seen in the engraving.

Within this chamber the remains of her Royal Highness will rest in a sarcophagus of polished granite.

The sarcophagus is of blue granite, of very superior quality. The principal part is formed from a block of some six tons in weight, hollowed out to the requisite depth entirely by the chisel, with great labour, after the surface polishing had been finished. The top is a splendid slab, nearly four tons in weight, the upper surface bevelled from the edges upward. Under the body of the sarcophagus are four moulded supports resting on a sub-plinth. The length is about 8 feet, by 4 feet in width, and 5 feet in height. In style the sarcophagus is simple, with nothing in the way of ornament save plain mouldings. On one end there is a monogram of the letters Alpha and Omega, encircled by a serpent; and on the bevel of the top, on one side, an inscription in English setting forth her Royal Highness's age, titles, &c.; while on the other side there is an inscription in German. It was designed by Mr. Humbert, and executed at the works of Mr. Macdonald, of Aberdeen.

The work in the Mausoleum has been carried out with great care by Messrs. J. & C. L'Anson, the builders of the whole of the works above ground, as well as by the other parties who have been concerned in it, viz.—Messrs. Lawrence, of Waltham St. Lawrence, near Reading, who formed the foundations and sepulchral vault; Mr. Macdonald, of Aberdeen, who prepared, as already stated, the sarcophagus and granite frieze under the dome; Messrs. Freeman, of Penryn, who prepared the sixteen granite columns; and Messrs. Robinson & Cottam, London, the bronze and copper work. Messrs. Hart and Mr. Boulting, of London, executed the iron work; and Mr. Morris, as clerk of the works, had the charge of the whole throughout.

PROPOSED NEW BRIDGE AT BLACK-FRIARS.

THE committee of the Corporation for the Bridge House Lands have had under their consideration for some time the best mode of providing for the public convenience, which has been somewhat jeopardised by the state of the present bridge. After much deliberation they determined to call upon engineers for designs for a new bridge, leaving them quite unfettered in their arrangements and designs. The productions of these gentlemen, and of some rising engineers who were desirous of bringing forward their ideas voluntarily, have been under the consideration of the committee. The designs submitted to them are twelve in number, many of them elaborately drawn, with details of construction. The engineers were Mr. Barlow, Mr. Brereton, Mr. Goodchild, Mr. Brunlees, Mr. Joseph Cubitt, Messrs. E. Bidder & E. Clarke, Mr. R. W. Mylne, Mr. Fowler, Mr. Hawshaw, Mr. G. Rennie, Sir John Rennie, and Mr. Page. From these the committee have selected the design of Mr. Page, and appointed him the engineer for its construction.

THE COVENTRY RIBBON WEAVERS.

IN the time of the greatest disasters of these workmen we ventured to predict that, if the masters and the workpeople united vigorously and with intelligence to improve the changed conditions which were caused by the alteration of the French tariff, successful results would be the consequence. At the same time we expressed a strong opinion that the stagnation was in a measure caused by the unfavourable nature of the weather, and by the peculiarities of the fashion.

It is most satisfactory to find that the accounts from Coventry state that trade is improving, and that there is a prospect of future prosperity greater than has yet been enjoyed. It is reported that there are looms now in this ancient city on which can be woven almost anything that can be woven on any loom in any country; and other branches of manufacture are springing up. We feel convinced that it is only necessary to improve the skill of the designers, to employ the best chemical advice as to the improvement of colours, and use on a sufficient scale and in the best manner the power of steam machinery,—avoiding strikes, except in case of oppression,—to secure for the Coventry ribbons a profitable market, not only throughout our own country, but also among many other nations of Europe and elsewhere.

SMEATONIAN SOCIETY OF CIVIL ENGINEERS.

THIS Society, on Wednesday evening, the 31st instant, gave a special dinner at the Freemasons' Hall to their respected treasurer, Mr. Mylne, on the occasion of his fiftieth year of membership of the Society. About thirty gentlemen, including visitors, sat down to a sumptuous repast, and Mr. Wm. Gravatt, the president of the year, took the chair.

After dinner the standard toasts of the Society were given. The health of Mr. Mylne was proposed by Sir John Rennie, who first touched upon the history of the Society; saying it was founded in 1771, by Mr. Smeaton, for the purpose of encouraging civil engineers, and introducing, through social meetings, a friendly intercourse among men of science and the profession at large. Among the early members of the Society were the names of Watt, Jessop, Whitworth, Brindley, Rennie, Mylne, Huddart, and Chapman; and later those of Banks, Priestley, Evelyn, Boulton, Hutton, &c. A graceful notice of the merits and urbanity of disposition of the worthy treasurer was made, and great praise was given for his constant exertions towards maintaining the high position of the Society. Mr. Mylne, in reply, said it was one of the highest gratifications to see his professional brethren joining in so marked a compliment; that the Society had ever been one of great interest to him; and he had always endeavoured to maintain its character, and draw together opposing parties. After a long life, he was now proud to find such warm feelings of regard and respect.

Mr. Fairbairn proposed "The Visitors" in a brief speech, which was replied to by Mr. Robert Chambers. After alluding to the peculiar gratification that he felt in being favoured with the opportunity of paying a tribute of regard to his friend, he could not refrain, he said, from alluding to the long line of engineers and architects that the Scottish race of Mylne had produced. He could speak with certainty to nine consecutive generations, with every reason to

believe there were three previous to them; and he was sure it must be a source of deep gratification to Mr. Mylne to see that the hereditary profession was still continued by his son, the Vice-President of the evening. He thanked them all in the name of the visitors.

The party broke up at a late hour.

SEATS FOR THE WARWICK VOLUNTEER REVIEW.

IN order to provide accommodation for the public on the occasion of the late review of the Volunteers at Warwick, it was decided that raised platforms, extending on each side of the race stand, should be erected. Advertisements were, therefore, inserted in the local newspapers, soliciting tenders from builders for their construction. The committee received four tenders from the following parties:—Messrs. Essie, Gloucester, at 2s. 9d. per seat; Mr. Manlt, Coventry, at 1s. 9d.; Mr. J. H. Clark, Warwick, at 1s. 5d.; and Mr. Ballard, Leamington, at 1s. 4d. The last tender being the lowest, it was accepted, and the erection of the seats was entrusted to Mr. Ballard, who commenced his work on the 1st of July, and completed the erection of 11,000 seats on the 20th ult. The timber was brought to Warwick by railway and canal, and was supplied by Messrs. Price & Co., Nicks & Co., and Barkworth, Spalding, & Co., of Gloucester. The cost of the timber required for the seats exceeded 2,500l. It was afterwards sold by auction.

The committee placed the construction and arrangement of these galleries in the hands of Mr. G. T. Robinson, architect.

The supply exceeded the demand; but with that we have nothing to do. The review passed off admirably. The South Middlesex, as usual, showed their readiness and pluck, and travelled down to Warwick in force, making a day of twenty hours.

IRISH BUILDING NEWS.

IN the recent arbitration case, *Fulton v. The Ulster Banking Company*, the state of the verdict was as follows:—

The plaintiffs proceeded in their summons and plaint for	£4,668	4	10
Further sum claimed at the arbitration for commissions	141	7	8
Total claim	£4,809	12	6
Amount of award	£3,287	1	7

A new waiting-room is to be erected in connection with the Dublin and Kingstown Railway Terminus, Westland-row, to meet the demands of the increased passenger traffic of the above line. The architect is Mr. Wilkinson; contractors are Messrs. W. H. Beardwood & Son; amount of contract is about 600l.

A new church is in course of erection at Bray, co. Wicklow. The plan is a rectangle, consisting of nave, 123 feet by 32 feet 9 inches; north and south aisles, each 14 feet 10 inches wide; chancel, 29 feet deep by width of nave; and vestry at the south-west angle, 14 feet by 9 feet 9 inches. A tower 28 feet square, to be left unfinished for the present, stands at the north-west angle. The nave is divided from the side aisles by arcades of 6 arches each, and is lighted by a clerestory of twelve two-light windows. The height of nave to ridge from floor line is 66 feet. The roof is open-timbered, and will be stained and varnished. The material employed in the building is the granite of the locality. The style is Early English. Mr. William Slater, architect; Mr. Thomas Henry Carroll, contractor. The amount of contract (exclusive of the tower and spire), is, we understand, about 7,000l.

A new spire is in course of erection on the present tower of Blanchardstown (R.C.) Church. The framing of the spire is of Menel, and will be covered with scalloped slates of blue and green shades; also with alternate courses of black and red tiles. The spire, which is to be 73 feet high, will form a very prominent object, as seen from the railway, and will add to the picturesque beauty of the scenery of this district. Mr. Charles Geoghegan is the architect; Messrs. W. H. Beardwood & Son are contractors; amount of contract is about 3,000l.

We understand that the tower of the (R.C.) Church of St. Laurence O'Toole, North Strand, is about to be raised 34 feet, and a spire of 60 feet in height erected on same. The tower is 14 feet square in the clear, and 20 feet square from out to out, with angle buttresses. Each face of the tower is to have a three-light louvred window, with canopy mouldings. The spire is to be of stone 12 inches thick at the base and diminished to 9 inches at the top, with two stages of windows

and broached weathers where it meets the tower. The total height from the ground line to the summit of spire will be about 170 feet. Mr. John Bourke is the architect.

A new bank is about to be erected at Athy, county Carlow, for the National Banking Company, from the designs of Mr. W. F. Calbeck, architect.

SCOTLAND.

Edinburgh.—The twenty-seventh annual general meeting of the Royal Association for the Promotion of the Fine Arts in Scotland has just been held in Queen-street Hall, Edinburgh. The walls behind the platform were hung with the prizes. There was a large attendance. Sir John M'Niell was in the chair. The report stated that the amount of the fund subscribed during the year was 5,185*l*. The Committee of Management have purchased, at a cost of 2,024*l*, fifty-five works of art, consisting of five pictures, commissioned from Messrs. George Harvey, Horatio Macculloch, James Archer, Erskine Nicol, and Alexander H. Burr, in illustration of five songs of Robert Burns; and forty-seven paintings, seven water-colour drawings, and one marble bust, selected from the recent exhibition of the Royal Scottish Academy. —Workmen have commenced to erect on the High-street, a little to the east of St. Giles's, and opposite to the opening in Parliament-square, a rough wooden outline or model of the cross which was taken down in 1756, and which it is now proposed to restore.

Paisley.—At a meeting of the subscribers to the fund for the restoration of Paisley Abbey, a proposal to take away the east and side galleries, remove the pulpit to the east end, and reseat the church at the cost of the subscribers, has been approved of, and it has been resolved to raise, by subscriptions, an additional sum of 400*l*. required by this alteration.

Kirkcubright.—As a sign of the briskness of the mason trade in this quarter, it is stated that, although an advertisement appeared in the newspapers calling for estimates for the various departments of mason, joiner, slater, and plaster work required in the erection of a manse at Glenprosen, by the day appointed for settling the same there was not a single offer for the mason-work. Of course, the services of the other tradesmen were not required.

Elgin.—The south side of the city, this summer, says the local *Courant*, has presented a busy scene of house-building and road-making, which, if it continue, will soon rear a town where, a few years ago, there was nothing but corn-fields. South Guildry-street will soon be all built, but there will not be two houses in it alike: every one following his own fancy what part of his fence he will build upon, and whether his house shall face the east, west, south, or north, or any other point of the compass. Batchen-lane has now been converted into a street, thus making a thoroughfare from the High-street direct to Guildry-street, and thence to the railway station. The South Free Church stands in the very middle of South Guildry-street, in what is now seen to be a wrong place; but when it was built no street was expected to run from the back of it to a railway station. Some think there was more necessity for widening Lossie Wynd than for opening up Batchen-lane.

Aberdeen.—The following intimation, says last week's *Aberdeen Herald*, was copied from a board at the entrance to a quarry, near Buxburn station:—

TAK NOTICE
THAT THE HORN BLO
S IS A BAST WILDE
IN A MINIE.

PROVINCIAL NEWS.

Lincoln.—A new mechanics' institute is to be erected here. The building is to consist of a suite of rooms, and adequate accommodation for all the purposes of a literary and scientific institution. The library will be 30 feet by 36 feet, and 20 feet high; the reading-room 24 feet by 20 feet high; the committee-room 24 feet by 19 feet, and a class-room 36 feet by 18 feet. The museum and lecture-hall will be 75 feet by 37 feet, and four rooms will be provided for the librarian within a space 36 by 18. There will be an ante-room 36 by 20, and a school-room 40 feet by 25 feet. The cost is not to exceed 2,000*l*.

Reading.—West-street Hall is nearly completed. It is a plain building, according to the local *Mercury*, but very well adapted to the especial purpose for which it is principally intended, a Working Men's Hall. It is entered by a passage

from West-street, 9 feet wide. The body of the hall measures 54 feet by 35*l*, and will seat 400. At the west end there is a semicircular platform with a domed roof, which will form a reverberator of the speaker's voice. On one side of the platform is a retiring-room. The hall is lighted by lantern lights and sky-lights. The roof is open and constructed with iron tie-rods. Leading from the passage there is a committee-room, and a boiler-room is fitted up for *soirées*. The cost of the hall is 750*l*. Mr. Woodman gave his services as architect gratuitously. The funds have been raised by public subscription, and the hall is in connection with the Temperance Society.

Roath (Cardiff).—The following are the tenders for the erection of a cattle-market at Splotlands:—

Mr. Lane	£1,066 3 6
Tenpence per cube yard extra for supplying gravel.	
Mr. Watkins	£958 10 0
Sixpence per cube yard extra for supplying gravel.	
Mr. Jones	£917 6 0
8 <i>l</i> . extra for supplying gravel.	
Messrs. Griffiths & Thomas	£896 0 0
Fourpence per cube yard extra for supplying gravel.	
Mr. Waller	£879 6 0
Twopence per cube yard extra for supplying gravel.	
Mr. Price	£850 0 0
Sixpence per cube yard extra for supplying gravel.	

A schedule of prices accompanied each tender. Mr. Waller's tender has been accepted. Tenders for a loan of 1,000*l*. are now to be advertised for.

Liverpool.—The foundation-stone of the new lying-in-hospital, in Myrtle-street, has been laid by the mayoress. The building, as described by the *Journal*, is Elizabethan in character. It will be faced with Yorkshire stone and Stourton stone dressings. The basement contains the kitchens, servants' hall, washing-rooms, laundry, and drying closets. On the ground floor there will be a board-room, apartments for the matron, waiting-rooms, rooms for the reception of the patients, &c. The first and second floors are to be appropriated as wards for patients and nurses, kitchens and bedrooms, bathrooms, &c. A separate building at the back of the premises provides accommodation for the dispensary, with separate yard and entrances. The building is planned to admit of extension. The architect is Mr. J. D. Dee, of Liverpool, and the work will be executed under the direction of Messrs. Nicholson and Ayre, contractors. The other contractors are, Mr. W. Thornton, mason; Mr. W. Tomkinson, bricklayer; Mr. J. Sharpe, plumber; Mr. J. Wallworth, painter.

Manchester.—The foundation stone of new offices for the guardians and poor-law officers of Prestwich Union has been laid. The new building adjoins the town-hall of Chestham, in York-street, and will fill the vacant space between that building and the Assembly Rooms. The style will be Italian. The plan shows a central building with two wings, and in the centre of each wing a bay of polished Ashley, carved with ornamental balustrading at the top. The frontage to York-street extends to 43 feet. The cost of the building will be about 1,700*l*, which amount the guardians are about to borrow, to be repaid by instalments.

Sheffield.—The contract for the Crimean monument has been signed by Messrs. Lane & Lewis, contractors. The design is by Mr. George Goldie, of Westminster, architect. From a basement of Darley Dale stone will rise a column of polished Aberdeen granite. The column will have a capital, and will be surmounted by a figure of Victory, holding in one hand the sheathed sword, and in the other a wreath of laurel. The height of the monument will be near 60 feet, and its cost, 400*l*.

Rutherglen (near Glasgow).—The foundation stone of the new town-hall for Rutherglen has been laid. The cost will be nearly 5,000*l*. The building has a frontage of 56 feet towards Main-street, and is situate between Main-street and King-street. It is to consist of two flats; the street flat containing shops and a lower court-hall, 34 feet by 40 feet. The upper flat is to be occupied by the large hall, the dimensions of which are 40 feet by 75 feet. The interior of the roof will be of a semi-circular form, and the lighting of the hall from the street will be by means of an oriel window. At the south-east angle is the entrance hall, and there is also to be a tower 110 feet high and 19 feet square.

SCHOOL-BUILDING NEWS.

Moulsham.—The new National Schools, recently erected, at a cost of 1,500*l*, for the district of St. John's, Moulsham, have been opened. The new rooms are immediately contiguous to the church, with a slight elevation towards Moulsham-street. The architect was Mr. F. Chancellor, and the builder, Mr. J. Brown, of Baintree. The schools include a boys' room, 39 feet 6 inches long by 18

feet wide; a girls' room, 33 feet 6 inches long by 18 feet wide; and an infant's room, 34 feet long by 17 feet wide; each room being 12 feet high to the plate. The entrance to the boys' room is by a porch, with hat-room attached on the south side; that to the girls' room, which has also a porch and bonnet-room, being on the north side. The interiors of the school-rooms are faced throughout with white brick, with bands and patterns in red brick. The roofs are open-timbered and boarded; and in the centre of the boys' room rises a bell-turret, which also serves for ventilation. The boys' room is the principal elevation towards the street;—two three-light pointed windows, with double gable over, and the bell-turret rising between, forming the chief feature. The exterior is faced with yellow bricks, with bands and ornamental patterns in red and black bricks, and the roofs are slated with blue and red Bangor slates in alternate bands.

Ashty-le-la-Zouch.—The foundation-stone of the new National Schools at Swanington have been laid by Lady Beaumont. The schools, which are intended to accommodate 108 children, are in the Early English style of architecture, and are being built in brick and stone, at an estimated cost of 700*l*. The buildings will also be used as a place of worship on Sundays. Mr. T. W. H. Miller, of Loughborough, is the architect. The design is to include a teacher's house, girls' yard, and boys' yard; with master's and teachers' gardens.

Sheffield.—The first stone of the Park Wesleyan Reform Schools has been laid by Mr. Roebuck. The projected schools, which are near the top of Duke-street, on the east side, are estimated to cost about 1,000*l*, and will afford accommodation for 800 children, the entire building being about 76 feet by 33 feet. About 300*l*. have already been raised towards the object, leaving 700*l*. still to be subscribed. Mr. James Wing is the contractor for the building. There appears to be no architect.

CHURCH-BUILDING NEWS.

Leadenham.—The church here, which is dedicated to St. Swithin, and is in the Early Decorated style, has recently undergone considerable alteration and improvement. Mr. J. H. Halkewell, one of the architects to the Church-building Commissioners, had the superintendence of the work. Messrs. Kirk & Parry, of Sleaford, and Mr. W. Huddleston, of Lincoln, were invited to send tenders, and the latter was selected to do the work. The building is now heated with hot water; the apparatus, which has been placed at the south-east corner of the aisle, having been supplied by Mr. Hird, of Chelsea. The whole of the floors of the passages have been taken up, faced, relaid, and made good by stone of a similar description, viz., hard Ancaster. The internal walls have had a large coating of colour-wash taken off, and have been repainted, the lower part being cut away and replaced with new Ancaster ashlar. The colour-wash and paint on the piers and arches of the tower, the south and north aisles, and the chancel have been removed, and the whole restored to the original state, as also the internal parts of the windows and doors. A new window has been placed in the north-west end of the north aisle, the gift of Mr. Brown, of Leadenham. The benches are all open: the backs next the passages are carved and traceried; a portion of the ends being of carved poppy-heads. A new roof has been placed on the north porch, and other improvements have been effected.

Stutton (near Ipswich).—The foundation stone of a new Wesleyan chapel has been laid at Stutton. It will be erected in red and white bricks, and is Gothic in design. Its internal dimensions are 40 feet by 24 feet. It will afford accommodation for 250 hearers, and such arrangements have been made in the design as will at any future time admit the introduction of galleries. The architect is Mr. F. Barnes, of Ipswich. The builder is Mr. Bunnett, of Stutton.

Lavenham.—The restorations of Lavenham Church have been going on during the past year. The first work to be done was the securing of the nave roof, which was found to be in precisely the same situation as that of St. Mary's, Bury, when Mr. Cottingham examined it—namely, the feet of the principal spars all rotted away—so that the roof was resting, not upon the walls, but upon the carved figures and corbels. And the remedy was effected in the same manner—by every timber being shod with iron, all the unsound parts being, of course, removed. This, and the renewal of the lead, which was also necessary, involved an expenditure of 500*l*., an amount far beyond what was anticipated. The pillars and arches, and the carved stonework of the clerestory have been

freed from accumulated whitewash, and the imperfections in the Tudor flowers which surmount this feature of the church have been made good. New mullions, and mouldings, where necessary, have been placed in the clerestory and north aisle windows. The ugly organ gallery, which hid the lofty arch into the tower and the west window (restored a few years ago), has been removed. The roof of the chancel has been replaced in its original form, instead of the incongruous later introduction; and the Decorated east window has been improved. About 6 feet of its lower part had been blocked up with masonry by the "vestibule" (now used as a vestry) erected at the end of the sixteenth century, by the elder Spring. By cutting through a great timber which crossed the window, and supporting the ends with up-rights, a well, or dip, has been made in the roof of the vestry, so as to admit the light to the full depth of the window.

Brentwood.—A new Roman Catholic chapel has been erected and opened at Brentwood. The new building, which was designed by Mr. Gilbert Blount, of London, and has been erected by Messrs. Patman & Fotheringham, is in the Gothic style. It consists of a nave and chancel and two aisles, the latter being divided by arches. The length is 91 feet, the breadth about 40; the height to the open roof of the nave, 43 feet. It will seat about 600 persons. The exterior of the chancel is of Kentish rag-stone, with Bath-stone dressings; and it has a tower with a bell, and a spire, which, with the cross that surmounts it, rises to the height of 110 feet. The total cost was 2,500*l.*, which has been very nearly raised. Lord Petre gave the site and a subscription to the work.

Cranbrook.—A new reredos has just been completed for Cranbrook Church, at the expense of Mr. Robert Tooth, of Swift's Park, and is understood to be a portion of a memorial to his son. The screen of wood which stood at the east end of the chancel, and blocked up three or four feet of the bottom of the great east window, has been entirely removed, thereby opening the window to its original dimensions, and in its place one of Caen stone has been substituted. The style of architecture chosen has been the Perpendicular, in harmony with the oldest portion of the church. The drawings were furnished by Mr. Edward Hussey. The execution of the work was entrusted to Mr. F. Marshall, by whom it has been completed. Mr. Tooth is now engaged in the restoration of the great east window, which is eventually to be filled with stained glass. This will complete the memorial.

Brighton.—A new Catholic church has been raised by subscription on the south side of Upper North-street, near Hampton-place, and has been partly opened for divine service. The church is "dedicated to God, under the invocation of St. Mary Magdalen." In style the edifice is Gothic. It will comprise a nave with two aisles; a chancel, flanked on one side by a Lady Chapel, and on the other by a chapel dedicated to St. Joseph; a sacristy, confessional, &c. It is to be surmounted by a spire, crowned with a decorative metal cross. The following are some of the principal dimensions:—Total length (from east to west), 100 feet; total width (north to south), 64 feet; total height of tower and spire, 144 feet; height of nave (to point of roof), 45 feet; of side aisles, 22 feet; chancel, 39 feet; of side chapels, 20 feet; width of nave and chancel (exclusive of piers), 17 feet; width of side chapels and aisles, 9 feet 4 inches. When complete the church will contain between 700 and 800 sittings, and the total cost will be about 5,000*l.* Mr. Gilbert Blount, of London, is the architect, and the building contract has been taken by Messrs. Cheesman & Freeman, of Brighton; Mr. William Gildes superintending as clerk of the works. The chancel and side chapels were opened on the feast of St. Mary Magdalen.

Freemantle. (*Synhampston*).—The foundation-stone of a new church for the large district of Freemantle has been laid by the Ven. Archdeacon Jacob, of Winchester, on a spot of land adjoining the Church of England Sunday Schools. The design of the proposed building exhibits a cruciform plan, with chancel and nave, each with side aisle, north and south transepts, western tower and spire, and south porch. The extreme dimensions of the interior are about 130 feet by 80 feet, the chancel being 34 feet by 23 feet. The nave, 27 feet broad, consists of three bays of pointed arches, upon brick pillars, and stone capitals, to be eventually carved. There is a fully developed clerestory, with traceried window, of four lights. The glass is to be in large panes of rough plate, stencilled in simple ornamental patterns. The whole is to be cased with Swanage

stone, and lined with red and buff bricks. The roofs are to be covered with slate. The gable copings and crosses, and the window tracery (of geometrical middle-pointed character), are to be of Bath stone. There are to be no galleries, and the accommodation provided is for 976, including children. The total cost is to be 4,000*l.* A local builder, Mr. A. Watts, of Freemantle, has undertaken the contract, and the architect is Mr. William White, of London.

Dumfries.—An ugly barn-like structure, the Buccleuch-street United Presbyterian Church, is about to be replaced by a building in the Early Gothic style. Plans of the new church, prepared by Mr. Alex. Crombie, architect, have been adopted. The gable will front to Buccleuch-street, from which will be the principal entrance, the stairs to the galleries being on each side. Above the main door there is a large arched window, and a window on each side of the door to light the staircases. The height of the gable will be nearly 60 feet. The church will be 65 feet in length, by 46 feet in breadth. The walls are to be of red freestone in courses, hammer-dressed: the front, buttresses, and other hewn work, will be tooled, not polished. The pillars which extend from the galleries to the roof will be connected by arches, four on each side. These arches will be so constructed as to give a borrowed light from skylights in the roof, and which will be a new feature in Dumfries churches. The roof will be an open one, painted in imitation of oak. Beneath the church there will be a school-room, 47 feet by 26 feet; the height to the ceiling being 11 feet. The cost of the whole will be from 1,400*l.* to 1,500*l.*, exclusive of the value of old materials. The church will accommodate 650 persons.

STAINED GLASS.

St. Andrew's Church, Watford.—A new stained glass window has been put up in this church by Messrs. Heaton & Butler, of London. The three principal lights contain the subject of our Saviour in the Temple, more especially illustrating the passage,—"Lo! Thy mother and I have sought Thee, sorrowing." The first space contains the figures of Mary and Joseph, the second our Saviour at the age of twelve, and in the last one the figures of the doctors, priests, and scribes. There is some novelty in the colours, especially the background, being composed of numerous small pieces of glass glazed together. In the dress of the Virgin many tints of blue glass are used, varying from light to dark. The costume of the doctors and the high priest have, perhaps, nothing that calls for notice except the fringes on the garments and the phylacteries or frontlets on the foreheads of the latter. Dr. Cox, in his "Biblical Antiquities," states that "the wearing of phylacteries or frontlets was a Jewish custom, probably of comparatively recent origin, founded on a literal interpretation of the passage where God commands them to have the law as a sign on their foreheads and frontlets between their eyes. One kind of phylacteries was called a frontlet, and was composed of four pieces of parchment. On the first was written Exodus xiii. 2, 10; on the second, Exodus xiii. 11, 21; on the third, Deut. vi. 4, 9; on the fourth, Deut. xi. 18, 21. These parchments were inclosed in a piece of tough skin forming a square, on one side of which was the Hebrew letter *Shin* (shin), and bound round the forehead with a thong or ribbon when they went to the synagogue. Other authorities state that the phylacteries were attached to the head with a purple thong tied behind in a knot, forming the letter dalet*l.* The ends of the thongs were brought over the shoulder and fell on the breast. The dress of the high priest, one of whom is introduced among the doctors, was extremely rich: it consisted of an ephod, a short-sleeved garment, reaching to the hips, and richly embroidered. Over this was the pectoral or breast-plate, consisting of twelve precious stones, on which were engraved the names of the twelve tribes of Israel: this was fastened to the shoulders with a gold chain; and at the points of attachment was on each shoulder a precious stone, also engraved with the names of the tribes, six on each side. Underneath the ephod was the mihl, a long blue robe, reaching nearly to the feet: this had a border of golden balls and pomegranates,—seventy-two of each; and underneath this was the albe, a richly draped white robe." In the tracery of the window is a "majesty," or figure of our Lord, seated in glory, surrounded by the twelve apostles. The figure of Christ is here placed in a circle instead of a vesica, which latter is the most general treatment. Round the margin of the circle are the words, "I am the resurrection and the life; whoso

believeth in me shall never die." The figures of the Virgin and St. John the Baptist are in the other openings.

Lincoln Cathedral.—Two painted glass windows have been placed in Lincoln Cathedral,—one to the memory of Mr. Charles Chaplin, and the other to the memory of Mr. T. M. Keyworth. That to the memory of Mr. Chaplin contains four subjects, viz.,—"Our Lord's Appearance in the Garden," "The Walk to Emmaus," "The Incredulity of St. Thomas," and "Our Lord at the Sea of Tiberias." That to the memory of Mr. Keyworth is designed to form a companion to one previously erected by Messrs. Ward and Hughes to the memory of Mr. Aphorpe, and contains "The Nativity," "Christ in the Temple," "The Baptism," and "The Entry into Jerusalem." Mr. Chaplin's is put up by subscription; Mr. Keyworth's by his widow.

Boroughbridge Church.—A stained glass window has been introduced into the west end of Boroughbridge Church. The work is by Mr. Hughes, of London. It consists of three lights, with ornamental tracery above the figures. St. James is in the centre, to whom the church is dedicated; St. Paul on the left; and St. Peter on the right. The object of this window is a mark of respect and esteem to the Rev. R. D. Owen, incumbent.

METROPOLITAN BOARD OF WORKS.

At the last weekly meeting the embankment of the Thames formed the subject of a resolution by Mr. Le Breton, to the effect that,—"The bill for continuing the coal and wine duties having received the royal assent, it becomes the duty of this board, without delay, to take all necessary measures for carrying out the Thames embankment in connection with the low-level sewer north of the Thames; and that the officers be instructed to prepare the requisite plans and notices for obtaining legislative powers." Mr. Savage seconded the motion. Mr. Deputy Harrison moved, as an amendment, the postponement of the question. Mr. Legg seconded the amendment. The Chairman, as one of the Royal Commissioners, in a long address, said, as Parliament had provided the funds by continuing the coal duties, and as the first charge upon them would be for the Thames embankment, it was the duty of this board at once to proceed with the work which it was their right to perform; and there was not a day to be lost. Mr. Samuda strongly urged that there should be no delay, and that the construction of this embankment was a work which the Board ought to execute independently of any Royal Commission.

After some further discussion, the motion was put, when there appeared for the amendment, 8; against it, 27. Mr. Wilkinson then moved another amendment, that the Board should communicate with her Majesty's Government, and ask them to appoint their engineer to assist in carrying out the work. The amendment was negatived, and the original motion was agreed to.

DUBLIN "COLLEGE OF PHYSICIANS" COMPETITION.

Six architects were selected by the committee to compete for the carrying out of the works, and for a premium of 50*l.* The architects named were Messrs. McCurdy, Murray, Geoghegan, Turner & Drow, Butler, and Ferguson. The building was to cost 5,000*l.* The committee selected the design of Mr. Murray, to be carried out; and gave the 50*l.* prize to Mr. McCurdy. Some of the competitors assert that the premiated designs could not be built for double the money named; and will probably stir in the matter.

IMPROVEMENT AND TAXATION.

STRIKES may be likened to quarrels between husband and wife.

The main fear of the workmen seems to be, that hands are in excess of work,—that for every ten men there is employment but for nine,—and that consequently, unless their Union always support the tenth man in idleness, the higgling of the market will eventually lower wages.

Machinery (as in the case of the brickmakers), doubtless, also frightens them, as employment may not always keep pace immediately with machinery.

All this is merely significant that taxation has passed the limits of endurance. I mean the weight is greater than can be borne, without sensible injury to the bulk of the nation.

Your article on Aldershot shows that a certain saving could be effected without weakening our national defences: nay, the very effort to save

would improve them. Now, were it possible to save two millions by the introduction of order, system, and efficiency into the Government departments, dockyards, and arsenals, the assessed taxes might be turned over to the local authorities.

These impost not touching Ireland, the application thereof clearly should be local.

On the share of the metropolitan districts (486,270*l.* for the year ending March, 1860), 10,000,000*l.* might be borrowed, which would enable the various street-improvements, mentioned in the Commissioners' report, to be carried out.

This done, the strike would, I think, settle itself; and after next year we need not point out to the foreign visitor, Fleet-street as the chief thoroughfare of the largest city in the world.

Again, may not the stagnation of trade in London, so universally complained of, have something to do with this matter? G. W. F.

COATING FOR INTERNAL WALLS. DWELLINGS FOR THE WORKING CLASSES.

CAN any amongst your readers afford me any information as to a material for coating internal walls of dwellings, without the necessity of first plastering them?

My object is this: I am about to erect a block of buildings for the accommodation of artisans and their families; and, from my experience in the dwellings of the poorer class, I wish to avoid the necessity of coating the walls, either with colour wash or paper, both of which speedily get discoloured and dirty; in which state they, too often, are permitted to remain—the fruitful parent of infectious disease.

The material I am anxious to procure is one which would bear a vitreous glaze, capable of being washed with soap and water; and it should also admit of the introduction of some colouring matter, to afford variety to the eye.

If no such material does exist, this night, I trust, lend the thoughts of some practical man towards so desirable an object, the discovery of which would be hailed as a great boon by all who take an interest in model dwellings.

AN AGENT.

PARK-LANE THOROUGHFARE.

SIR,—Allow me a small space for a suggestion on this subject, as I consider that action should be taken, if practicable, without delay, to prepare for the exhibition traffic next year, and for the present wants of the west end of Marylebone and the Edgware road, in connection with the Victoria terminus. My plan is, I think, not open to the objections that can be raised to the various propositions already made; viz.—the enormous expense, and the opposition of holders of property required. It is simply this;—to enter from Park-lane the small enclosure or garden, south of Stanhope-gate, at an acute angle, a few yards from the lodge; throwing the present railing back from the right to the left hand, in a curved line to the corner of Apsley House garden; then add a new railing on the right hand from Stanhope Lodge to Hyde Park-corner, taking in one of the gates there and a compartment of the screen; three columns of which to be cleared away to make another gate for the public traffic; leaving ample space for the present fashionable drive. If required, also, a few yards could be got out of the body of the park, on the west side of the drive, by moving the railings back to the trees. The expense of this great public improvement should not exceed 1,000*l.* to 1,500*l.* Q. V.

THE PRIZE PLANS OF LABOURERS' COTTAGES, &c., AT LEEDS.

THE plans, of which we gave some account on the 16th March last, have just been exhibited at the meeting of the Royal Agricultural Society at Leeds. Among them were those of farm buildings, as to which no decision was come to when the prizes for the cottage plans were decided on. The following were the awards:—

For the best plan of farm buildings, adapted for a farm of not less than 500 acres, and providing for the use of steam-power, 50*l.* J. E. Watson, 22, Grey-street, Newcastle-upon-Tyne.

Highly commended—Messrs. Hicks & Isaacs, Bath; P. D. Tuckett, London; James Fox, Albion-street, Leeds; and Mr. Goughwate.

Commended J. Parsons, Harewood, Leeds.

For the best plan of farm buildings, adapted for a farm of 200 acres, 25*l.* Messrs. Hicks & Isaacs, Bath. Commended Frederick Chancellor, Chelmsford, Essex; Messrs. J. Bailey Denton, and W. Barnett, Westminster, London.

In the first class there were twenty-seven competitors; in the second, nineteen ditto.

A double cottage, from the selected design by Messrs. Richardson & Ross, of Darlington, was some time ago erected by the Leeds Local Committee of the Royal Agricultural Society, on a plot of land belonging to the Conservative Land Society, adjoining the show-ground. The internal accommodation consists of three rooms on each floor, and the necessary offices. It has been built under the direction of Mr. Thorpe, of Leeds, and the cost has been strictly kept within the amount specified—220*l.* The cottage was to be offered for public sale in the course of a few days after the meeting of last week.

The Leeds Local Committee of the Royal Agricultural Society also offered the sum of 80*l.* for building designs, viz.:—

For the best pair of agricultural cottages, containing not less than three bedrooms in each, and with suitable conveniences attached, already built, or to be built by the 1st of June, 1861, within ten miles of the Leeds Town Hall, at a cost not exceeding 180*l.* £20

For the best single ditto, at a cost not exceeding 100*l.* £10

For the best design for covering a quantity of land with dwellings, in blocks suitable for working men in towns, at rentals varying from 6*l.* to 10*l.* per annum, and a cost which will allow of a return of not less than 7*l.* per cent. per annum upon the building outlay, exclusive of the cost of the land. . . . £50

For the first two prizes there were no plans entered. For the third there were only ten, and the judges reported that, as the competition was so limited, and the designs sent in were so little satisfactory, they had declined to award the prize. The judges recommended, however, that the premium be suspended, and that competing designs be again invited by advertisement, to be sent in by the 1st of October next.

A correspondent on this subject writes,—

"If you will refer to your paper of July 7, 1860, you will find the prize design (double cottage) nearly an exact copy of Mr. Strickland's plan, as published by you.

The great objection I see to the prize plan is—

1. The direct draught from back to front doors.
2. The manner in which the entrance door is cribbed: it could only open square, and then either against the closet-door or into opening of living-room door, and the staircase would not allow of its being much above 6 feet high.
3. The small size of pantry, there being no cellar.

4. Only one door to scullery, and that opening in entrance. Each time coals are required, clothes taken out, &c., all the steam, heat, and smell from washing, &c., find their way into entrance and bed-rooms.

5. The sinks are badly situate for light.

6. The privies much too small.

7. No dirty-clothes closet on chamber plan—a most desirable thing in a cottage: as wardrobes, presses, &c., do not form part of a poor man's furniture, consequently the bedrooms are always in an untidy and flustered state, unless a closet be provided.

8. The only interior brick wall carried up to roof is the cross or division wall: the rest have false bearings. R."

THE PRESERVATION OF LIFE FROM FIRE.

SIR,—There is probably no subject connected with "social" economy of greater import than the preservation of life and property from fire; and with an equal confidence I fear it may be asserted that there has been none more *disregardedly* neglected, and where so little *practical* good has been effected towards the attainment of these objects.

From time to time various suggestions have appeared from many persons (the writer being one of them), and some of them bearing evidence of practical utility; yet such has been the public indifference to the subject that none of these have been taken in hand and brought into practice. Let us have hope, however, that attention has been aroused to this truly important question, and that this terrible scourge may be, if not overcome, at least greatly subdued.

To assist escape from the roof, a handrail should be affixed to the wall from dividing each house, and upon the coping of the wall in front of each building, and facing the thoroughfare. This protection would also be useful at the rear; but perhaps it might not be necessary to make the provision in both parts. The depth from the gutter to the coping is usually very shallow and dangerous; and, in a time of fire, when the nerves are liable to be weak, the power of balance is easily lost, and individuals frequently fall over

and are killed. Were such a measure of safety furnished for the bricklayers and others engaged in building operations, it would be well worth consideration.

As a means for the extinguishment of fires it is suggested that a series of pipes might be built into the ceilings of rooms, perforated with numerous holes; these being in connection with a tank on the roof, or any other suitable place. The water might be let loose in many ways.

Large and specially-made mattresses should be carried by all fire-engines; or in "tender" carriages, either attached to or following them. These might also be built with plenty of spare room, so as to accommodate any other appliances that may be already in use, or devised hereafter. Fire-escapes might also be so constructed as to find space for the same accessories.

It is a long time before the flow of water from fire-engines makes any sensible impression or subduction of a fire, even though several may be in use at the same time, and their capability great. It seems feasible and consistent with our increased and rapidly increasing knowledge of chemical agencies, that some product might be employed in combination with water to assist its action on the flames. Sulphate of ammonia is one (out of many) of these agents, which appears calculated to play the part of an auxiliary. It is an inexpensive article, and can be produced to almost any extent that may be required. A self-feeding "hopper," or reservoir, might be contrived, communicating with a tank to be attached to an engine under its pump apparatus; the water, instead of being thrown directly upon a fire, being first pumped into the tank, there to be infused by the chemical, and thence injected on the burning mass. Whether this suggestion be, or not, practicable, it is certain that the injection of water alone is far from being satisfactory; for it is notorious that when a fire has gained an ascendancy, instances are very rare where it is got under until the property and interior is utterly destroyed, and the fire spent out, from a deficiency of combustible material, or suffocation, by the falling in of the roof or other portions of the building. The water thus chiefly effects the cooling down of the incandescent mass; or, by continuously watering the walls of the fired and adjacent houses, prevents its spreading further. Therefore, an increase of subduing power seems imperatively needed. And this could (there is scarcely reason to doubt) be effected by the aid of chemistry.

Fire-escapes might be advantageously constructed in a curved form at the top, so as to keep them further off from the walls, and thus prevent the possibility of a fire catching the escape or the clothing or bodies of the persons using it for escaping. The wheels of these should be furnished with "skids," or some similar apparatus, to prevent the escapes moving after they are placed against a wall.

There is a Society for the Preservation of Life from Fire. Its operations and the escapes provided are, however, on a much too limited scale; and its proceedings are seldom heard of; offering a striking contrast to a similar institution for saving life from shipwreck. More actively encouraged and prosecuted, it might be rendered thoroughly efficient; and no life would then be sacrificed in consequence of the escapes being *too late*;—a circumstance now unhappily by no means unfrequently occurring. To be fully serviceable, there should be at least four times as many escapes as there are at present; and they should, of course, increase hereafter according to the ratio in which the population increases. It might tend greatly to the public advantage if prizes of money or medals were offered yearly for any novel and serviceable invention relating to life or property preservation.

It is conceived by the writer that an important means towards the preservation of life would be by erecting *escape shafts*, attached to the *backs* of houses; one to every two houses, or to each house; these, to reach from the basement to the top room window, and at the sides of the windows of each story. These should be sufficiently large to permit a human body to descend without inconvenience. They should be made perhaps of plate iron, or of wood covered with thin plates of *tinned* iron outside, as a protection from the dangerous proximity of the burning house. Where expense may be unimportant, it would probably be a better plan to build them of brick, and construct them as portions of houses, and at the time when these latter were in course of being erected. Inside these shafts or tubes a "skip" or tub should be capable of descending or ascending; the rope attached to which should pass over a small drum wheel fixed to an iron axle; the other end of

which is to be secured in a block of stone built into the house wall for that especial purpose. This wheel is to be placed on the side of the shaft furthest from the window. At the other end of the rope a weight is to be fastened exceeding the weight of the "skip," so that when the latter is free from the burden of a human body (or bodies), who may use it as a means of escape, it would rise to the top of the shaft, and be ready for use again, the weight of course falling to the bottom. As the "skip" or bucket will work in the shaft, the most timid person need have no apprehension as to falling out. The "shaft" should have frequent openings for air and light; indeed, if made of iron or wood, it might be constructed after a trellis-work fashion, and almost entirely open.

M. M.

OPENING OF THE BRITISH MUSEUM TO THE PUBLIC BY GASLIGHT.

SIR,—If I understand the question rightly, the late Mr. Braidwood recommended the use of oil in preference to gas, on account of the desiccating properties of the latter.

The subject under discussion is one of the highest importance to the public generally, the reason urged against the introduction of gas into the Museum being equally applicable to buildings devoted to other purposes. Now, I have to learn that any practical medium at present exists which, whilst imparting the same amount of light, gives off a less degree of heat. In a lecture delivered at the Royal Institution in 1853, Dr. Frankland thus estimates the amount of "carbonic acid" and "heat," produced per hour from various sources of light, the heat generated by tallow being assumed to be 100, for the purposes of comparison:—

	Carbonic acid.	Culic feet.	Heat.
Tallow	100	1	100
Wax	8.3	8.3	83
Sperm oil (Carcel's lamp)	6.4	6.4	64
London gas			
City			
Great Central	5.0	5.0	47
Imperial			
Chartered			
Western	3.0	3.0	22

It will be seen from the above that there is a marked difference, and one greatly in favour of gas, both as regards the production of a less amount both of carbonic acid and heat; the comparison between the (cannel) gas supplied by the Western Company showing a difference, as compared with oil, amounting to no less than 41 per cent. Dr. Frankland remarks (article, "Coal-Gas," *Ure's Dictionary of Arts*), that,—

"Notwithstanding the great economy and convenience attending the use of gas, and, in a sanitary point of view, the high position which, as an illuminating agent, coal-gas of a proper composition occupies, its use in dwelling-houses is still extremely objectionable. The objections are partly well founded, and partly groundless.

As is evident from the foregoing table, even the worst gases produce, for a given amount of light, less carbonic acid and heat than other lamps or candles. But, in fact, where gas is used, the consumer is never satisfied with a light equal in brilliancy only to that of lamps and candles, and, consequently, when three or four times the amount of light is produced from a gas of bad composition, the heat and atmospheric deterioration greatly exceed the corresponding effects produced by the other means of illumination. There is, nevertheless, a real objection to the employment of gas-light in apartments, founded upon the production of sulphurous acid during its combustion. The sulphurous acid is derived from bisulphuretted carbon, and the organic sulphur compounds which have already been referred to as incapable of removal from gas by the present methods of purification.

These impurities, which are encountered in almost all coal-gas now used, are the principal, if not the only, source of the unpleasant symptoms experienced by many sensitive persons in rooms lighted with gas. It is also owing to the sulphurous acid generated during the combustion of these impurities that the use of gas is found to injure the bindings of books, and impair or destroy the delicate colours of tapestry. Therefore the production of gas free from these noxious sulphur compounds is, at the present moment, a problem of the highest importance to the gas manufacturer, and one which demands his earnest attention.

The high sanitary position which gas takes with regard to the production of a minimum amount of carbonic acid and heat for a given amount of light, ought to stimulate the manufacturer to perfect the process by removing all sulphur compounds, and attaining the most desirable composition, so that this economical, and, if pure, agreeable, and sanitary light, may contribute to our domestic comfort to a much greater extent than it has hitherto done."

It is abundantly clear, from the doctor's very lucid exposition, that the objection to the use of gas on account of the extra heat supposed to be generated is, as compared with other sources of light of equal brilliancy, nothing more than a popular delusion; and that the strongest objection that can be urged against the introduction of gas into buildings (of a similar description to the British Museum) containing articles likely to be injuriously affected by the action of sulphur, is

the presence of this element in the form of bisulphide of carbon, which (until the discovery of the Rev. W. R. Bowditch) had hitherto been looked upon as irremovable. Now that means have been discovered, and can be applied in rendering gas free from all impurities, I cannot understand what real objection can exist for the exclusion of this valuable light-giving medium from our national Museum.

SAMUEL LOVELL.

THE BUILDERS' STRIKE.

SIR,—“A Contractor,” in your paper of the 27th of July, takes me and others to task for having passed “into the position of unscrupulous advocates,” and for arraying and arranging one-sided facts and arguments. He says, too, that we have stated in our letters “nothing which had not been already stated.” I am not going to defend myself or my friends against the former charges. There are the letters; let them speak for themselves. But if he wants facts not already stated, I can give him plenty. Here is one in the shape of a letter from Scotland, which I shall be obliged to you to print, which needs no arraying or arranging, and which will help your readers to judge between our statements and “A Contractor’s.” I would suggest that these are not the means which honourable men use, even in fighting. If “A Contractor” can stop this sort of thing he will be doing good service to his order.

Lincoln's-Inn, July 30. THOS. HUGHES.

SIR,—In the last of the admirable letters on the dispute in the London building trades, to which your name is attached, it is asked,—“Why, if the dispute is virtually at an end, are masons being imported from Scotland?” On seeing the repeated assurances in the *Times* and other London papers, that the employers had got nearly all the men they required, it seemed strange, if not suspicious, that efforts should be making to get masons from Scotland. The reference to this matter in your letter, and other causes, having induced me to make minute and personal inquiries, some rather significant facts have been elicited.

It now appears that the efforts have been both extensive and desperate. Agents have visited almost every town in Scotland, and not a few villages and populous districts; and every means have been resorted to for the purpose of inducing workmen to go to London. For example, in Aberbroath, 33s. per week, expenses of trains to the destination, and no broken time, were some of the inducements presented; while it was reported that “the dispute between the Union and non-Union men in the metropolis is the cause of this application to masons in the north.” In every case, so far as can be ascertained, the nature of the dispute was either misrepresented, or entirely ignored.

The London operatives having sent two of their number to Scotland for the purpose of removing misconceptions, and means having been employed in Scotland with the same view, the actual state of matters gradually became known; and there is good authority for saying that, notwithstanding these efforts, little more than thirty masons accepted the offers, this number including apprentices, and inferior or otherwise worthless hands. A few have returned to Scotland, and more will likely adopt the same course.

Such is the result of the London employers' mission to Scotland. Small enough, certainly. And now other and less honourable means have been resorted to, on the authority of whom it is not for me to say. The transaction, however, merits exposure and reprobation.

The publisher of the *Edinburgh News* received on Saturday last the following letter, dated July 25th, with enclosure, from an advertising firm in London, whose name and address I enclose:—

“Sir,—We would feel obliged by your inserting the enclosed announcement (with the word advertisement) in the body of your paper, forwarding a copy, with the CHARGE, to this address.—We remain, &c.”

Here is the announcement:—

“*Scottish Masons in London*—It will be a curious fact in the history of the splendid mansion now being erected for the Duke of Buccleuch on the site of the old Montague House, in Whitehall, that, from peculiar circumstances in connection with the building trade in London, it will have been built to a large extent by Scotch masons. Many of the London men, tired of the unhealthy condition of their craft, owing to the undue control exercised by the paid leaders of the strike, have left the metropolis, and thus afforded opportunities for new hands to obtain employment. Scotland, where building in stone is more common than in England, has sent up a great number of masons, and when first-rate workmen have applied, their expenses to London have been paid by the Duke's contractors, Messrs. Holland & Hannan, of Bloomsbury.”

I leave this without comment. A cause which requires such desperate expedients must be a bad and a failing one. I am aware other papers have received similar communications, and trusting this exposure of what looks very like a cunningly-devised fraud will break its influence, and be a warning to the perpetrators, I am, &c.

“*Edinburgh News*” Office, Edinburgh, July 29, 1861.

WAYSIDE CHAPELS.

At a recent meeting of the Bedfordshire Architectural Society, Mr. Hurst read a paper on “*Wayside Chapels*.” After some introductory remarks, in which he stated that the paper he was about to read must only be considered as a nucleus for a more comprehensive treatment of the subject; he observed that the remains of monastic and other religious edifices, erected during the early period of our national history, had lately occupied very much of the attention of architects and antiquaries; but there was one kind of building

that had received from them comparatively little notice, but which merited consideration; as, from its existence and purposes, much might be inferred respecting the habits and ideology of our ancestors: he alluded to the Wayside and Bridge Chapels.

The intention of these chapels seems to have been to afford to travellers, pilgrims, and the people generally, in their journeyings, an opportunity at various stations to offer up to the Throne of Divine Grace thanksgivings for deliverances from peril, and for other mercies; and to implore assistance, protection, and guidance, in the many casualties of this life. Previous to the Reformation, the Wayside Chapels, remote from inhabited places, gave shelter, rest, and religious consolation to the traveller. Like all other places of public worship, the doors during the day were always open. The church was formerly a house of prayer, but it is now frequently styled a place of hearing; and, strictly in character with this appellation, is locked up and bolted against private devotion. He then remarked that although many excellent customs, like that of keeping open the doors of places of worship, had fallen into disuse, there were others often very unimportant still lingering among them. At Eaton Bray, in this county, until within the last twenty years, the church was regularly strewn with bean straw, on the feast day, which occurred at Michaelmas. At Pavenham, the practice still prevails of littering the church with hay on St. Peter's day, which is the feast day. For this purpose the clerk has the privilege of cutting as much grass in the meadow near Stafford-bridge—a part of the great tithe allotment in that parish—as he can mow from sunrise to sunset in one day. The quantity obtained beyond what is required for the church he takes as a remuneration for his trouble. There were two bridge chapels on the passages of the Ouse, one at Biddenham Bridge, and the other on Bedford Bridge, used also as chantries. The one at Biddenham, which is said to have been well endowed, probably had services performed in it for the repose of the soul of the founder, and was charged with keeping the bridge in repair. The chapel on Bedford Bridge was dedicated to St. Thomas the Martyr; the date of erection was the early part of the fourteenth century, a century later than the bridge itself, which was built with part of the materials of the castle, demolished in the year 1224. It has been generally stated that the author of the “*Pilgrim's Progress*” was imprisoned in the gatehouse of the bridge; which, judging from the drawings that have been engraved to illustrate “*Gross's Antiquities*” and various editions of Bunyan's works, appears to have been erected between the second arch from the north and the centre of the bridge. The wayside chapels were suppressed and their estates forfeited with the general dissolution of monasteries. He then gave some particulars of a building in the parish of Meppershall, once used as a wayside chapel, but now converted into a barn. Meppershall is partly in Bedfordshire and partly in Hertfordshire. The chapel is admitted to be in the Hertfordshire portion of the parish. The rectory-house is supposed to have a portion in each county, as was expressed in an inscription on the mantelpiece, but which modern taste has removed,—

“If you wish to go into Hertfordshire, Hitch a little near the fire.”

LEAD PENCILS.

As I was the inventor and patentee of the pencil now universally known as “*Lund's Pencil*,” as my father's money founded the firm of S. Mordan & Co.; as my father was one of the largest purchasers of Cumberland lead, as correspondence with the firm of Brookman & Langdon will prove, inasmuch as that firm learnt of my father, and possibly he learnt of them;—allow me a word on the above subject.

Mr. Brockendon was an artist. Mr. Brockendon gained a Council Medal at the Great Exhibition of 1851, for his discovery and invention of purified and compressed Cumberland lead.

The respected firm of S. Mordan & Co., and the respectable firm, Brookman, Langdon, & Co., know well with what anxiety the gradually exhausting quarry or mine of Cumberland filled their minds. Every market-day more and more lead was rejected; the gritty refuse of the once valuable but now nearly exhausted mine.

Mr. Augustus Mordan told me that Mr. Brockendon suddenly acquired a Bright Idea—for the peace-ful reform of—not the British constitution, but black lead of Borussia.

Mr. Brockendon pulverised the gritty refuse of rejected heaps of market-days; he separated the grit from that unctuous substance of Cumberland which so puzzles philosophers and geologists, and is so coveted by artists and by draught-mau. Mr. Brockendon took the fine dust, and (probably in *vacuo*) submitted it to great pressure, much harder pressure than ball or counter gives when he puts “the screw on it” much harder pressure (though that is hard) than Jacob gives to Nancy in the return home pleasure-van.

With a palpitating hand doubtless Mr. Brockendon removed that which was no longer dust, but solid “clay” from the press; with delight did he exhibit the “new solid” to Mr. Augustus Mordan.

After that, until Mr. Brockedon's death, I feel certain that all that could be done for artists and draughtsmen was done by Brockedon, by S. Mordan & Co., and, for wipers who had been used to the touch of the genuine article,—by that Lund, the excellence of whose manufactures requires no comment from me.

But Mr. Brockedon is dead. His invention did not die with him, for Lord's best pencils are filled with the lead of Brockedon. Mordan's are likewise. Brookman's are—probably.

Has the writer of a complaint in your impression of the 27th ult. tried the pencils of these firms? I can testify to much difficulty in getting a pencil firm at the extreme point, black, and capable of proper erasure by plain, old fashioned indiarubber. As to that new-fangled eraser, something between a hearstone and a Kamytlou knife-board, it would rub its way through anything.

The firms I have named in the foregoing statement thoroughly understand the subject, and only require perhaps a little spurring by artists and draughtsmen. The fact of Mr. Brockedon getting a Council Medal shows that the subject was considered a very important one.

W. RIDDLE.

RECENT PATENTS CONNECTED WITH BUILDING.*

ARTIFICIAL STONE. *J. J. Whible*, Reading. Dated 7th December, 1860.—The patentee takes ordinary dry rubbish, sand, gravel, and shingle, and mixes the same with Bridgwater, or other similar lime, after being ground, when the whole is to be stirred and thoroughly mixed. Water is now to be added, and well incorporated with the material, which is to be placed in suitable moulds and frames, the moulds being first lubricated.

MANUFACTURE OF FIRE-BRICKS, BLOCKS, RECTORTS, &c. *W. Morris & J. Radford*, Oldbury. Dated 7th December, 1860.—This invention consists in the employment of boulders or pebbles, calcined, or partially calcined, and reduced to powder: this the patentees mix with common fire-clay, marl, loam, or other stiff clay. They also employ, for some purposes, stone of the description found in large quantities in Worcestershire, more particularly in the vicinity of Rednal, and which is there termed "gravel rock." This they can use either pulverised or in its natural state, mixed with the clay, and in place of, or with the ground pebbles.

ORNAMENTAL BRICKS, TILES, &c. *T. W. Walker*, Poole. Dated 17th December, 1860.—In making an encaustic tile, according to this invention, where, say, two colours only are used,—namely, for example, a red ground with a buff pattern,—the patentee takes a block of buff-coloured clay, and places it in a suitable box or receptacle, of a shape corresponding to that of the tile to be produced. The surface of this block clay is now stamped with any suitable design, by means of a suitable die, composed of flint and clay, burnt and hardened, or of any other suitable absorbent material. The impression having been made, he lays over the impressed surface a thin slice or bat of red clay for the ground, and brings the die down again, thereby forcing portions of such thin slice into the lower or sunk parts of the impression already made in the surface of the buff clay, so as to inlay the red clay therein. The die is now taken away, and the waste clay left on the surface is removed, when a piece of clay for forming the back or body of the tile is laid over the inlaid surface, and pressed thereon in a movable backing frame, so as to complete the body of the tile. The movable backing frame having been raised, a cut is made, by means of a fine wire, through the clay, at the part where the red clay has entered the buff clay; the result of which is, that the red and buff will appear on the surface of the tile, the one forming a ground, and the other a pattern, or design, inlaid thereon.

BRICKS. *W. E. Newton*, Chancery-lane, London. A communication. Dated 8th December, 1860.—This invention relates to that class of brick machines designed for making bricks of dry clay, through the agency of great pressure exerted thereon, and consists in constructing the entire frame in one large single body. The moulds are formed, arranged, and secured within the frame, in such a manner as to entirely expel the air from the clay. A suitable arrangement, or combination of parts, is also provided for lifting the bricks from the moulds.

APPARATUS FOR THE MANUFACTURE AND DRYING OF BRICKS, &c. *J. Sharp and W. Balmer*, Middlesborough. Dated 26th November, 1860.—These improvements consist in the employment, in a trough or case, in or to which the moulds or dies are fitted, and into which clay is placed, of a shaft with two or more curved arms or wipers in combination with a cranked lever, free to play on a fixed point on which it is centred or hung. The lever is so placed with regard to the wipers on the shaft that, upon the revolution of the shaft, one

wiper coming in contact with the short arm of the lever, causes it to move on its centre; and, consequently, the long arm to be raised, whereby the clay is prevented from being carried round by the next "wiper;" and, at the same time, a species of channel is formed in the direction of the moulds or moulding orifices in the box or case. The following or next wiper in succession bears against the raised long arm of the lever; depresses it, and thereby forces the clay in front of it through the moulds or moulding orifices, and so on.

Miscellaneous.

THE NATIONAL GALLERY.—In reply to a question by Lord H. Lennox in the Commons, as to accommodation for the Turner pictures in December next, Mr. Cowper stated that there was no plan of Mr. Pennethorne's for a National Gallery in such a state of maturity as that it could be produced. The great difficulty that presented itself was that they had two sites,—Trafalgar-square and Burlington House. There would be no difficulty whatever, he said, in building a gallery over the back of the barrack-yard, at a trifling expense, as it would not require much architectural ornament. The cost would probably be about 25,000*l*. He trusted that plans would be ready before the House was asked to agree to any estimate next year.

DISCOVERY AT ST. MARTIN'S CHURCH, LEICESTER.—An interesting discovery has been made at St. Martin's Church, Leicester, according to the local *Advertiser*. While excavating for the foundations of the staircase turret at the north-east corner of the north transept the remains of two pillars of Roman workmanship were discovered at about 9 feet below the surface, standing about 8 feet from each other, on a stone platform. The pillars are 21 inches in diameter, and of the Doric order. They appear to be made of the Sandiacre stone, near Ilkeston, and probably formed part of a colonnade or portico. This seems to substantiate the suggestion made some time ago, that a temple formerly stood where the church now is. A considerable quantity of animal bones have been dug up also, suggesting that the place has been used for the purpose of Pagan sacrifice. A little below the level of the platform a bed of concrete, about 3 inches thick, was found, which, no doubt, once supported a tessellated pavement, but no Roman tiles were found. The columns were observed to be solidly embedded in mortar on the platform, showing that they were in the position in which they were originally fixed, probably some sixteen or seventeen hundred years ago. Further excavations are now in progress, and Mr. W. Lindley, the clerk of the works, is preparing a plan, elevation, and section of the discovery.

MONTMENTAL.—The inauguration of the monument to Charles Albert, the late King of Sardinia, and father of Victor-Emmanuel, King of Italy, took place at Turin on the 21st July, on the square bearing the name of Charles Albert. Baron Ricasoli delivered a speech suitable to the occasion, at the end of which the veil was removed, and the new work of Baron Marochetti was displayed to view, amid the enthusiastic cheers of the multitude. The king is represented on horseback with his sword drawn, and in the act of calling the people to rally round him. The pedestal supporting this equestrian statue is of Scottish granite, beautifully polished, and rests upon a basement of the same material, which is an allegorical statue, severally representing Italy, Liberty, Justice, and the martyrdom of Charles Albert in the cause of freedom. Lastly, this basement itself rests on a vast plinth of greyish-blue granite, at the four corners of which stand as many bronze statues representing different types of the Sardinian army—viz., an artilleryman, a lancer, a grenadier, and a bersagliero. The insignia of Grand Officer of the Order of St. Maurice and St. Lazarus was conferred upon Marochetti on the occasion.—In the *Journal des Debats*, there has appeared a scientific article, by Mr. Babinet, which ends with these words—*apropos* to the fact that no national monument has been raised to Newton by the English—"Does not England fear that the entire family of European nations should be beforehand with her in this pious duty? Does she not fear lest a monument should be raised to him, by whom all human nature so justly sets such store, and that on it should be inscribed—

'A Newton,
Anglais,
Toutes les nations
Reconnaissantes,
Moins l'Angleterre
Ingrate.'"

THE ASCOT HOTEL AND STABLES COMPANY.—At a meeting held in the Stewards' Stand at Ascot Heath, on the first day of the races, a site was chosen for the project on the Kennel Allotment, near the junction of the Reading and Windsor roads. The buildings will enclose an area of two acres, and an additional two acres will be appropriated for garden and pleasure ground. The hotel and stables will be built in the Italian style, and contain all the requirements for its object—viz., the accommodation of thirty trainers and one hundred race-horses during the race week; and at other times it will be used as a public hotel. Among the directors of the Company are the Earls of Besborough, Portsmouth, Strathmore, and Coventry. Mr. J. F. Clark, of Newmarket (the racing judge), is appointed the secretary and architect to the company.

THE PROPOSED HIGH PREMIUMS ON FIRE INSURANCE.—A meeting of merchants, wharfingers, warehousemen, and others interested in fire insurance, was held last week at the Egyptian Hall, Mansion House, for the purpose of considering what steps should be taken with respect to the increased rates lately issued by various companies. The hall was crowded, and the meeting was called by the Lord Mayor, in response to a requisition, numerously signed. Mr. Crawford, M.P., was unanimously voted to the chair. Resolutions were unanimously passed to the effect that the proposed rates issued by the combined fire offices, who virtually form a monopoly, are manifestly unjust and excessive; and would, if submitted to, be the means of converting an unparalleled calamity into the basis of a permanent source of exorbitant profit; that thus an inducement would be offered to incur the hazard of non-insurance; and that such a temptation to imprudence would diminish the protection which the caution of the mercantile community has hitherto enabled them to secure to their property." It was also unanimously resolved to use all lawful means, by the formation of a new company, or otherwise, to oppose the establishment of the proposed new rates of insurance; and that a committee be appointed to consider the best course to be pursued towards that end. A gentleman from the Globe stated, among other apologetic remarks as to the increase of rates, that they were temporary, and imposed for the purpose of inducing dock proprietors and merchants to carry out the improvements in construction which the companies had suggested; and when that was done, and the risk of course diminished, they would be ready to make a large remission.

ECCLIESIASTICAL DILAPIDATIONS.—The Bill which the Bishop of London has laid before the House of Lords, with a view to its being considered during the recess, proposes that in every diocese surveyors of ecclesiastical dilapidations shall be elected by the archdeacons and rural deans, with the approbation of the bishop; and these surveyors are every five years to inspect the buildings belonging to the benefices in which there are buildings the incumbent is bound to maintain in repair, and to report thereon to the bishop, stating what repairs are needed, and what continuing charge ought to be made on the benefice in respect of the cost thereof, and by what instalments (not exceeding 30) it ought to be paid off. A copy of this report is to be sent to the incumbent; and if he makes objections to it they are to be considered by a referee selected by the bishop. Subject to any modifications made by the referee, the incumbent is to execute the works as prescribed in the surveyor's report, and is to be free from any further demand for dilapidations until the next quinquennial inspection, except in case of wilful waste, or damage by fire, flood, or tempest. Where there is to be a continuing charge on the benefice in respect of the cost, he may obtain an advance from the governors of Queen Anne's Bounty. He is to insure the buildings belonging to the benefice. The Bill is to apply also to buildings which deans and canons are bound to maintain in repair, and, in a modified form, to bishops' houses. To provide a fund for the remuneration of surveyors, &c., and for the other expenses, the archdeacons and rural deans are to fix, with the approbation of the bishop, an annual percentage to be paid on the net yearly value of the bishopric, and every deanery, canonry, and benefice of more than 50*l*. a year value. The Bill contains also provisions for the reduction of the size of a house of residence too large and expensive, with the concurrence of the surveyor, subject to a right of appeal on the part of the patron to the bishop. On the other hand, an incumbent is not to make any addition to the buildings at a cost exceeding 100*l*. without the bishop's consent.—*Times*.

* Selected from the lists in the *Engineer*.

TRAMWAYS IN THE METROPOLITAN DISTRICTS.—The local authorities of Southwark have granted permission for the laying down a double line of street rails along the Waterloo, Borough, Blackfriars, London, Westminster Bridge, and New Kent roads, Newington-causeway, Stones-end, and Blackman-street. The authorities of Westminster have given an opinion unfavourable to the extension of the Victoria-street tramway over Westminster Bridge, to unite with the beforementioned line.

THE INTERNATIONAL EXHIBITION OF 1862.—Her Majesty's Commissioners for the International Exhibition of 1862 have requested the following gentlemen to act as a committee, in connection with Class I. (mining, quarrying, metallurgy, and mineral products), in the coming Exhibition:—Sir R. Murchison, D.C.L., F.R.S.; Professor Warrington Smyth, F.R.S.; Professor Percy, M.D., F.R.S.; Professor Ramsay, F.R.S.; Professor Maskelyne, F.R.S.; Mr. Hussey Vivian, M.P.; Mr. Samuel Blackwell; Mr. Nicholas Wood; Mr. Thomas Sopwith, F.R.S.; Mr. R. B. Grantham; and Mr. J. Rawson Barker.

PLYMOUTH IMPROVED DWELLINGS FOR THE POOR.—At a recent meeting of the local company for providing dwellings for the poor a dividend of 2 per cent. was declared. The report states that in May, 1860, this Association purchased a site on one of the highest and healthiest parts of the town, for 1,937l. 6s. 4d.; and suitable plans being approved, the Association began to build. At Christmas thirty-five cottages were completed; and, subsequently, fourteen have been added; making together, forty-nine, all of which were tenanted immediately on completion. Including the purchase of land, the present outlay, with outstanding liabilities, amounts to about 7,542l. 12s. 3d. The cottages are of two classes, differing slightly in their arrangements and in the size of their rooms. There are fifteen larger cottages, let at 7l. 10s. per annum, and thirty-three smaller cottages, let at 6l. 10s. per annum, one cottage being already disposed of. At first, owing to the great wetness of the season, it was found impossible to dry the walls properly; and whilst this inconvenience continued, considerable deductions from the rent and allowances for coal had to be made; so that the entire rent received from September, 1860, to June 30th, does not represent half a year's rent. The directors fully expect that next year the probable returns will authorise a dividend of about 4 per cent. per annum. They have erected on the property a suitable reading-room and library, with offices, at the cost of 337l., with a residence, which is occupied, rent free, for superintending and keeping the rooms in order, and attending to the library, with the privilege of providing coffee.

MEANS OF EXTINGUISHING FIRES IN LONDON. This subject, as one well worthy the attention of Government, was brought before the Commons last week by Mr. Hankey, who admitted that the present arrangement was a great improvement; but still, he said, it was wrong to leave the protection of the metropolis from fire to the insurance offices. Although in one sense it might be to the interest of insurance companies to put out fire, yet their premiums were based upon a calculation of risks; and, if the fires doubled in number the premiums would be doubled also. [And if all fires could be prevented, he might have added, there would be no profits to insurance companies at all, because no one would insure; so that the companies have a clear interest in the continuance of fires.] If anything ought to be taken up as a municipal question, it was the protection of life and property against fire. In Paris there were 800 of the *sapeurs pompiers*, a most efficient fire brigade. In Edinburgh, Dublin, Liverpool, and Manchester, the extinction of fire was a municipal arrangement; and there was no continental town in which the same system did not prevail. In London alone there was no such system, and this important object was left to depend on voluntary exertions. Our public buildings were unprotected; and, considering the invaluable property which they contained, this was a most unsatisfactory state of things. He believed that the whole of the existing fire-brigade establishment would be handed over to the public on equitable terms, if they would take charge of it; and the companies would be glad to be relieved from a duty which he did not think ought to fall upon them at all. He hoped the matter would be considered by the Government during the recess. Sir G. C. Lewis concurred as to the importance of the subject as one requiring consideration. A concatenation of the parochial fire-engines under one management, he thought, would be an improvement on the present almost useless parish fire-engine practice.

UNADULTERATED FOOD AND DRINK: AN EQUITABLE GROCERY CONSUMERS' COMPANY.—The inveterate practice of adulteration amongst tradespeople, and the difficulty of reaching the delinquents, even under the new law, appear to have induced several respectable gentlemen to form a provisional committee for the establishment of a new company, under the Limited Liability Act, for the purchase of pure groceries from importers and others at first hand, and their sale to the public on principles similar to those which have been so successful at Rochdale and elsewhere. The capital of the company is to be 100,000l., divided into 20,000 5s. shares, of which no one individual shall hold more than a single share; the shareholders to elect twenty-four directors; and the profits to be divided thus:—5 per cent. to a redemption fund, either for extension of business operations or reduction of capital, and the remainder one-half as dividend on capital paid up (1l. at first on each 5s. share), and the other as bonus or discount on purchases by shareholders. The secretary is Mr. E. Hodder, and the offices are at 124, Fenchurch-street.

BUILDERS AND THEIR WORKMEN.—One of those friendly re-unions that tend to perpetuate a good feeling between master and man took place on Saturday, the 27th of July, at Rosherville Gardens. This was the annual dinner of some of the London employes of Messrs. Lucas, Brothers, builders, Belvedere-road. The company were conveyed by steam-boat from Westminster Bridge. In the unavoidable absence of Messrs. Lucas the chair was filled by Mr. Hadfield, one of the principal foremen of the firm, who was supported by Mr. Bayes as vice-chairman. After the cloth was withdrawn, and the usual loyal and patriotic toasts had been given, the chairman gave "The Health of Messrs. Lucas and their Families," which was drunk with great enthusiasm, and responded to by Mr. Bullivant, general foreman, and Mr. Aspinell, manager in the plasterers' department. The health of Mr. Stevens, the principal superintendent of the firm, was also drunk, and responded to by Mr. Daniel Steele. Another toast was also given, that of the architects of London, associated with the name of Mr. Henry Curteis, from whose designs the London Bridge Terminus Hotel is now being erected, by Messrs. Lucas. This toast was replied to by Mr. Harris. Dancing and other amusements finished the day.

NEW MUSEUM, COLOGNE.—The new museum built in Cologne, mainly by the donations of Herr Richartz, was inaugurated on the 1st of July. The *Athenaeum* says, the new edifice has been designed and erected by the Cologne architect, Herr Felten. It abuts at its southern side on the church of the Minorites. Its cloisters, which form the base of the new building, belonged to the convent of the Minorites. The other three sides round the building have been laid open and arranged for pleasure-grounds. The old city has reason to be proud of this new acquisition, not as an ornament alone, but as a memorial of patriotism and devotion of two of its citizens, both of whom have given their names to the edifice, which is called Museum Wallraf-Richartz. Ferdinand Franz Wallraf, born in 1748, laid the first foundation of the museum by his collections, which he had amassed with the assiduity and passion of a true lover of objects of art and curiosity. His means were slender, and he often suffered from hunger and cold in order to satisfy his passion of collecting objects of art. In 1818, when Wallraf was thought to be dying, he bequeathed his collections, consisting of coins, minerals, paintings, books, engravings, &c., to his native town, with the only condition that it should preserve, protect, and never part with them. He recovered once more; and the town, in gratitude and acknowledgment for his sacrifices and self-denials, fixed a yearly income of 4,000 francs on the devoted amateur. A love and understanding for art, after it had been sleeping for many years, became more and more prevalent at Cologne. Dr. Sulpice Boissere left to the town, at his death, in 1854, his valuable collections. More and more the want of a proper building for all these treasures of art was felt, till at last Herr Richartz, by his large donations, enabled the town to have a proper building for them erected. Herr Richartz did not live to see his work finished: he died last spring, lamented by his fellow citizens. He was a self-made man, and had raised himself from poverty to such wealth as enabled him to present a rich city with this fine temple of art. He has stipulated, moreover, for a certain sum for the purchase of pictures, and another for the ornamentation of the hall with frescoes; the execution of which has been intrusted to Professor Steinle, of Frankfurt.

PUBLIC BUILDINGS.—Mr. B. Cochrane gave notice to move early next session for a select committee to inquire into the state of the public buildings erected by Parliamentary grants within the last twenty years, and also of the houses rented for the public service, and to examine whether, by adopting more comprehensive plans of building, greater public convenience, greater economy and unity of design, may not be attained.

ENLARGEMENT OF SIR J. WILLIAMSON'S ROCHESTER FREE MATHEMATICAL SCHOOL.—The contract for the enlargement of this school was given by the governors to Mr. K. Spicer, builder, Strood, that gentleman's tender for 1,150l. being the lowest. Mr. Spicer has, however, since written to the governors, intimating his intention of declining the contract. Under these circumstances, according to the *South-Eastern Gazette*, the contract will be given to Mr. J. G. Naylor, of Rochester, whose tender for 1,163l. was the next lowest in amount.

LONDON DIOCESAN CHURCH BUILDING SOCIETY.—The seventh annual report of this society has been published at the office of the society, 21, Regent-street, Piccadilly. The objects of this society are more extensive than the brevity of its title would imply. It comprehends a complete scheme of church extension, and gives aid towards the building, enlarging, and endowing of churches, the erection of temporary places of worship, the purchase of sites, the building or purchasing of parsonages, and the employing of missionary curates in destitute districts. Of course all these objects are limited to the metropolis. The report shows a sum of 6,885l. expended in grants, &c., during the past year, and gives a list of numerous works in progress or in contemplation, churches consecrated, &c.

THE NATIONAL ASSOCIATION FOR THE PROMOTION OF SOCIAL SCIENCE.—The fifth annual meeting of this Association will be held in Dublin, from the 14th to the 21st of August, under the presidency of Lord Brougham. The fourth department, that of Public Health, will be presided over by Lord Talbot de Malahide; and Dr. E. Lankester is the secretary. Of the fifth department, that of Social Economy, the Hon. Judge Longfield will be president, and Messrs. A. Edgar and H. Fawcett, and Professor John Wilson, will be the secretaries. The third department, that of Punishment and Reformation, will be presided over by the Attorney-General for Ireland. Mr. George Melly and Mr. Martin Ware are the secretaries. Of the second department, that of Education, Sir J. G. Shaw Lefevre, K.C.B., will be president, and the Revs. G. D. Boyle and N. Stephenson the secretaries. The sixth department, that of Trade and International Law, will have Mr. Michael Chevalier as president, and Mr. T. Baines and Mr. J. Westlake as secretaries. The first department, that of Law Amendment and Jurisprudence, will be presided over by the Right Hon. Joseph Napier, and the secretaries will be Mr. J. Napier Higgins and Mr. Arthur Ryland.

SANITARY STATE OF WESTMINSTER.—The fifth annual report of Dr. Lankester, the medical officer of health to the vestry of St. James's, Westminster, has been printed by order of the vestry. The report states that one of the questions of practical interest which have been discussed in the sanitary committee during the past year has arisen out of the trapping of gullies and the complaints of stench from the ventilating shafts in the sewers, showing that the sewers and drains are not properly constructed, and allow of deposits, notwithstanding the ample water supply. A second evil is the access of the noxious gases to the interiors of houses where fires are kept, diminishing the pressure of the atmosphere, and occasioning a continued pouring in of poisonous gases from the sewers. Several fatal cases of fever, erysipelas, and sore throat, occurring in the largest houses in the parish, the medical officer could trace to no other cause. For the last two or three years the worst cases of neglected drainage have been in the best houses,—that is, among the wealthier classes, who are astonishingly regardless in this respect. Dr. Lankester has very properly, so far as regards poor dwellings, directed the landlords to provide the means of letting down the upper sashes of windows, holding an unventilated room to be a nuisance, injurious to health; but there are scores of houses of the better classes in which no window opens from the top, and where no current of fresh air has ever pervaded the apartments since they were closed in! Here health is silently and slowly, but surely and fatally undermined, while those who suffer scoff at the idea of so intangible and unappreciable a cause for the mischief that is doing and done.

LOCAL BANDS: TESTIMONIAL TO MR. F. LESLIE.—On the occasion of Mr. F. Leslie's appointment as engineer to the Stockport corporation, and his consequently leaving the Avon-street Gasworks at Bristol, a handsome silver goblet, and a photograph of the local band of twenty-seven of the workmen employed at the gasworks, originated and brought to maturity by Mr. Leslie (who is the brother of the well-known musical composer), were presented to him by the employees of the Avon-street Gasworks, as a memento of their respect and esteem for him.

SIX DAYS' BURIAL ALIVE IN A COAL-PIT.—Three men, supposed to have been drowned in Kelvin-side pit, near Glasgow, have survived, after enduring severe suffering. They saw the water gradually rising upon them, and took to prayer. One man had some bread with him, which they divided. They slept close together, the inside man taking an outside place when he became warm. All at once they noticed that the water was subsiding; and were then convinced that efforts were being made for their recovery. They placed a stone on the edge of the water, and thereby judged at what rate the water was receding.

DISCOVERY OF A WALL PAINTING IN ST. GREGORY'S CHURCH, NORWICH.—The repairs of St. Gregory's Church have brought to light what is called a fresco, representing the renowned fight between St. George and the Dragon—a subject which has a local association, St. George being the tutelary saint of the city, and patron of a once flourishing civic company. The painting, which in all probability is of the date of the middle of the fifteenth century, was discovered on the removal of the organ at the west end of the north aisle, for the purpose of cleaning the wall. The figures are life size, and the colours and drawing are good.

OXFORD CORN EXCHANGE.—The directors met at the Town Hall on Saturday last, when the two designs by Mr. S. L. Seckham, the city surveyor and architect, selected by the Committee of Estates, were submitted. The directors passed a resolution, which was agreed to unanimously, expressing their approval of both the designs, but gave the preference to the design marked No. 1, on the ground that it was, on the assurance of the architect, superior to either in three very important respects,—light, sound, and ventilation. We understand that estimates for both designs will be received; but that, should the cost of No. 1 exceed what the City are prepared to lay out (£2,200L), the design marked No. 3, which is of a plainer character, will be carried out.

PUBLIC OFFICES SITE BILL.—On the motion for the third reading of this bill, Mr. A. Smith entered his protest against the second clause, by which power is given to the Crown to obtain compensation from the public for land revenues in respect of the transfer of any premises which might be required for public offices. It was, he remarked, a very serious question, when they considered the enormous sums of money annually spent upon the parks, that it was possible for the public to be called upon to compensate the Crown for revenues thus lost; and the House might rest assured that the course pursued in this bill would be made a precedent. The bill was then read a third time and passed.

KNU GARDENS.—The flowers in the variegated beds on each side of the grand promenade, and those in the great parterre on the terrace, in front of the palm-house, are progressing towards their summer beauty and perfection. The Conservatory No. 10 is an especial object of attraction; the verdant embowered roof and walls being festooned, garlanded, and wreathed with foliage in endless variety of form and innumerable rich clusters of fragrant blossom. The pitcher-plant, trumpet-butterfly, and passion-flowers, and other botanical rarities, excite the admiration of the curious in such matters: models of the lotus, the Victoria Regia, and other tropical wonders have been placed in the old museum.

THE OMNIBUS.—Sir: In your article, "De Omnibus," in the last number, you mention the "buses at present in use in Manchester, and that others are about being built for London, on the same principle. We have had them in Liverpool for many years past: in fact, this was the first English town they were introduced in, by Gallows, of Glasgow, and very superior to London "buses they are; and I should think that, when the Londoners have once tried them, they will not patronise those at present in use. Regarding street railways, I may mention that the railway along the line of docks here has been in use for the last two years or more, and another line from Kensington to Old Swan (about two miles), opens to-day (July 27th), and "buses run every quarter of an hour.—A READER.

THE DRINKING-FOUNTAIN MOVEMENT.—A coast-guard barometer and drinking-fountain has been erected at Southport, on the Promenade, at the cost of Mr. John Fernley. The erection is in the form of a pillar, which has been executed by Mr. Williams, of Manchester, carver, from designs by Mr. Blackwell, of Southport, architect. The style of the pillar is Venetian, executed in Yorkshire stone, with Aberdeen granite columns, white marble vases and carved caps at the four angles, standing on a dado or plinth, and supporting a plain frieze with a recessed arch and circular pediment on the two corresponding faces.—At Pendleton, a drinking-fountain, the gift of Mr. John Purcell Fitzgerald, of Kersall Hall, has been opened for public use. The water issues from a stone pillar, placed at one end of the Pendleton churchyard. The pillar consists of two granite receptacles for surplus water. To this fountain is attached a large slate cistern, from which, when the main supply is stopped, drinkable water may be temporarily drawn.

TENDERS

For completing seven carcasses at Palmer's Green-road, Colney Hatch, for Messrs. Carritt & Son. Mr. John M. Bryson, architect:—
Ellis.....£640 0 0
Warren.....475 0 0
Downs.....432 10 0
Carroll.....410 0 0
Barcham.....395 10 0

For erecting a coal-store for the Reading Gaslight Company. Messrs. Cooper & Goulding, architects, Reading:—

Warwick.....£304 0 0
Watson.....278 0 0
Sheppard.....269 0 0
Woodroffe.....265 0 0
Jones.....236 0 0
Barnicoate (accepted).....240 0 0

For erecting a villa at Landscape Hill, Reading, for Mr. R. Scott. Messrs. Cooper & Goulding, architects, Reading:—

Woodroffe.....£1,845 0 0
Simmonds.....1,797 16 0
Watson (accepted).....1,550 0 0

For the erection of six cottages at Waltham Abbey, Essex, for Mr. Geo. Coxshall. Mr. W. Brown, architect. Quantities supplied:—

Chaytor.....£990 0 0
Elliott.....977 0 0
Sawyer.....859 0 0
Watson.....990 0 0
Cushing.....879 10 0
Pitchee.....858 15 0
Bentley.....850 0 0
Cook.....810 13 0
Pegler.....800 0 0
Wiggs.....793 11 6

For intended public-house on the Turner Estate at West Ham, for Mr. Abbott. Mr. John M. Dean, architect. Quantities supplied by Messrs. Hovenden & Heath:—

Reed.....£1,349 0 0
Perry.....1,320 0 0
Pilkington.....1,311 0 0
Rivet.....1,282 0 0
Conley.....1,265 0 0
Hedges (accepted).....1,198 0 0

For building two semi-detached villas at Bexley Heath. Messrs. Gosling & Son, architects:—

J. C. & N. Todd.....£1,569 0 0
Brown.....1,461 0 0
Rudd.....1,465 0 0
Elliott.....850 0 0
Markhall.....1,398 0 0
Ginger.....1,390 0 0
T. & J. Waller.....1,280 0 0
Kent.....1,197 0 0
Vaughan.....1,189 0 0
Greenwood.....1,095 0 0
Moore.....1,060 0 0
Lougear.....975 0 0
Flanders.....950 0 0
Leadbeater.....885 0 0

[We give this as sent to us, but do not profess to understand such doings.]

For Carshalton Gas Works, Surrey:—

Easton.....£799 0 0
Potter.....660 0 0
Dover.....650 0 0
Buck.....628 0 0
Sharlington & Cole.....555 0 0
Drewett (accepted).....525 0 0
Hills & Co.....475 0 0

For rebuilding the Vinegar Factory, Cumberland Market.

Cubitt & Co.....£1,793 0 0
T'Anson.....1,594 0 0
Batterbury (accepted).....1,488 0 0

For rebuilding the old King's Head public-house, in the Easton-road, for the Metropolitan Railway Company. Mr. Henry Baker, architect:—

Lawrence (accepted).....£2,121 0 0
For Jones & Bonham's new auction-rooms, at No. 410, Oxford-street. Mr. Henry Baker, architect:—
Clemence.....£2,419 0 0
Mansfield & Son.....2,300 0 0
Patrick & Son.....2,144 0 0
Palman & Potheringham.....2,094 0 0
Mathews.....2,064 0 0
T'Anson.....1,984 0 0
Walker.....1,983 0 0
Batterbury (accepted).....1,908 0 0

For works at No. 5, Devonshire-place, Marylebone, for Mr. A. F. Paxton. Mr. Henry Baker, architect:—
Trollope & Sons.....£718 0 0
Howard.....695 0 0
Parkinson & Son.....589 0 0
Warne & Son (accepted).....532 10 0

For new church at Clapham. Mr. B. Ferrey, architect:—

Hancock.....£1,185 0 0
Loat.....5,900 0 0
Holland & Hannan.....4,822 0 0
Hudson & Son.....4,700 0 0
Todd.....4,457 0 0
Ryder.....4,400 0 0
Trollope & Son.....4,300 0 0
Myers & Son.....4,141 0 0
Dove, Brothers.....4,075 0 0
Chinnock, Southampton.....3,960 12 0

For Seaford Church, Sussex. Mr. J. Billing, architect:—

Favian.....£2,555 0 0
Davey.....2,660 0 0
White.....2,475 0 0
Dove, Brothers.....2,445 0 0
Ellis.....2,423 0 0
Cane.....2,346 0 0

For the erection of a villa at Addington-road, Bow.

Mr. James Toller, architect:—
Pritchard & Son (accepted).....£765 0 0

For additions to mansion, Sexlingham, Norfolk, for the Rev. J. L. Johnson. Mr. John D. Ellis, architect, Norwich:—

Lacey (accepted).....£684 0 0

For warehouses, factories, &c., at Bunhill-row, for Messrs. Cooper & Holt. Mr. Barker, architect:—

Gross.....£3,395 0 0
Piper & Wheeler.....3,204 0 0
Conder.....3,220 0 0
F. & F. J. Wood.....2,993 0 0
Batterbury.....2,931 0 0

For the erection of a farm-house at Boro Fen, Lincolnshire, for Mr. W. Maxwell. Mr. Sextus Dyball, architect:—

Swan & Carrington.....£1,148 0 0
A. & W. Blood.....1,094 14 0
Booth & Son.....1,075 0 0
Machin (accepted).....973 0 0

For building a sale-room at 53, Brick-lane, Spitalfields, for Mr. Savage:—

Tolley.....£247 0 0
Bardell.....230 0 0
Norman.....198 0 0
Single.....180 0 0
Langmead.....176 0 0

For building manufactory, Newington Causeway, for Mr. D. Haywood. Mr. Henry Jarvis, architect:—

Higgs.....£5,346 0 0
Lawrence.....4,970 0 0
Myers.....4,939 0 0
Gammann.....4,679 0 0
Hack.....4,660 0 0
Wilson.....4,598 0 0
Downs (accepted).....4,548 0 0

For painting the Shire Hall, Norwich. Mr. R. M. Phillips, county surveyor:—

Love.....£194 6 0
Cousins.....187 0 0
Stirling.....180 0 0
Cook.....160 0 0
Storey.....140 0 0
Wright & Son (accepted).....139 19 0
Hardy.....117 0 0

For national school and residence, North Fawley, Berks. Messrs. John Money & Son, architects, Newbury:—

Kent.....£670 0 0
Wilkins.....630 0 0
Messenger (accepted).....670 0 0

For alterations, &c., at Dulwich College Chapel:—

Colls & Co.....£187 0 0
Patrick.....152 0 0
Mayer.....149 18 0
Piper & Wheeler.....126 0 0
Dearas (accepted).....117 0 0
Sawyer (accepted).....102 0 0

For a villa, at Leamington, Warwickshire, for Mr. W. A. Adams. Mr. Boulnois, architect. Quantities furnished:—

Bromwich.....£5,781 0 0
Marriott.....5,600 0 0
Briggs.....5,599 0 0
Trollope & Sons.....5,493 0 0
Hardwick & Son.....5,198 0 0
Clark & Son.....5,100 0 0
Ballard.....5,095 0 0
Barnesley & Sons.....4,989 0 0
Gascoyne (accepted).....4,784 0 0

For boundary-wall, iron fence, gates, &c., at St. Paul's, Haggerstone. Mr. Cesar A. Long, architect:—

Harman.....£179 0 0
Wells.....169 10 0
Scott.....145 10 0
Gerish.....101 0 0

For converting private houses into shops, Islington. Contract No. 1. Mr. Cesar A. Long, architect:—

Evans.....£852 0 0
Larkie.....398 0 0
Scott (accepted).....251 0 0

For farm buildings at Breadsall Priory, for Mr. Francis Morley. Mr. R. Scrivener, architect, Hanley:—

Kerry.....£1,486 0 0
Sheppard (accepted).....1,350 0 0

* Accepted.

The Builder.

VOL. XIX.—No. 966.

Condition of our Chief Towns.—Shrewsbury.

"For our Lord Jesus Christ's sake,
Do all the good you can,
In all the ways you can,
To all the people you can,
In every place you can,
And as long as you can."

MUCH was the remarkable notice we perceived affixed to the door of a Welsh temporary chapel, into which the minister thereof had converted a deserted warehouse in Claremont-hill, as soon as we found ourselves in the ancient border town of Shrewsbury,—the Pengwern (head of the meadow) of the ancient Britons,—the Amwythig (an eminence surrounded by water) of the Welsh,—the Scrobbsbyrig of the Saxons, and the Norman Sciroesperie. Hither we had come, hoping to show the reason why "the mortality of this county town is so much above the average, not only of healthy districts, but of London," as the Registrar-General proves it to be; the causes of the ills from which the people there die faster than the overtasked inhabitants of large and crowded cities; and the means by which they could remove them; and we could but reap confirmation of our intention,—humbly held, but persistently pursued,—when we saw unexpectedly, the startling exhortation on the chapel-door.

Glancing around at the general aspect of the town as we proceeded, we gathered the impression that its condition and characteristics are a century behind the age; and, after an investigation extended over some days, we have grown appalled at the evidences that come from time to time under notice, of the utter absence of anything like a proper provision for insuring the preservation of the public health. This same Claremont-hill, which is a sloping street of some consideration,—being occupied by the offices of the Shrewsbury and Welshpool Railways, the residences of a solicitor, two surgeons, an accountant, and a sporting gentleman, besides the premises of the Turf Tavern and the Foresters' Arms,—has no footways whatever, nor any other boundary line by which to mark a division between the accommodation for man and that for beasts: the road is paved with boulders up to the walls of the houses, and down its exact centre runs the gutter. Close to the door of one of the best houses is a huge, untrapped grating, over an old-fashioned, imperfect, gaping conduit-sewer, whence, of necessity, there must be a continuous exhalation of poisonous vapours. In the rear of Claremont-hill is a group of poor cottages, forming part of a square. To visit these, we take a passage by one side of the Foresters' Arms,—where the droppings from the inn sink are coming through an opening made in the wall, and running down the open gutter,—and come upon a region of foul ashpits and privies. The doors of the latter are immediately in front of the entrances of the dwellings, and are severally labelled (as if privacy could be possible) "for men"—"for women." From this point we get a further glimpse of a great reservoir of corruption,—a large plot of ground in the form of a quadrant, which is bounded by a row of lofty, respectable, and newly-painted houses, called Claremont-buildings, Austin-street, and Barker-

street, and which slopes down to the low-level of the Shrewsbury hide market. In this plot of closely-packed premises, gorged cesspools and ash-middens abound, and foul filtrations of every sort of deliquated offal are percolating down to the market, where ox, heifer, and horses' hides, calfskins, and heaps of mixed hides, cut, flawed, damaged, and irregular, swell the odoriferous accumulations. This is in the heart of the town; and to such a large and remunerative extent is the strong-smelling trade carried on in the Barker-street Tan-yard, that it is not considered inexpedient to put up a notice to the effect that "Tan is given away here."

Shrewsbury is built upon an irregular eminence which is encircled by a crescent-shaped bend of the river Severn. It therefore possesses a site of rare natural advantages for defeating purposes; but when this facility is left undirected, as in the present instance, the consequences are woeful. The main artery of the town is formed by a road bearing at different portions of it the successive names of St. John's-hill, Shoplatch, Pride-hill, and Castle-street. St. John's-hill is a part paved and pebbled and part Macadamized street, of cheerful red brick, clean-painted houses, with a three-storied Hanoverian mansion, the residence of Mr. J. Dickinson, at the upper end; but the houses are closely packed, having but few back-way entrances, and are generally undrained. Opposite the office of the *Shrewsbury Chronicle* is one of the plague spots to which we would call especial attention,—a circuitous inclined passageway, rising partly by steps into a densely-packed quarter of small tenements abutting upon the rear of the houses in the main street. The tenants of this place convert their privies into ash and offal wells, and the contents of these overflow and ooze and suppurate down from their elevated site through the soil and through the houses, and not unusually into the main street below. The stench and ghastly surroundings of this place were horrible, and fully bore out the testimony of the poor tenants, who professed to be invariably "sick, sorry, or sore" from these causes. The road narrows at Shoplatch into a street of small shops, interspersed with several passages, which have also small shops in them: these occupy nearly all the space for rear premises, so that there is no room for yards or conveniences, or for proper receptacles for ashes, nor indeed for ventilation, as a stifling sense of closeness testifies. At the junction of this street with High-street and Mardol-head the eye is gratified by a group of picturesque overhanging houses. This brings us to one of the sites of the proposed new general market, concerning the erection of which there has been recently a violent contest, ending in the defeat of the costly proposition. As we saw proof of the existing insufficiency of accommodation for the market people we shall refer specially to this subject.

The continuation of the same road, Pride-hill is a street of modern busy, pushing, continually selling-off sort of shops, for the sale of every conceivable kind of merchandise on one side, and, in strong contrast, a row of half-timbered overhanging houses on the other side, in which every alternate shop or so is a butcher's. Attracted by the filth in the gutters, and an unmistakable slaughter-house aroma,—which rushed through the alleys by the shops, and through the butchers' shops also, on to the passers-by,—we cross over into Double Butchers'-row, some passage-ways of ancient timber houses. Here, on one of the highest and most central parts of the town, is a crowded district of butcher's shambles. Without wishing to sicken the fastidious by a description of this fearful district, we desire emphatically to warn the inhabitants of this most deadly mischief. The pebble pavements, with their millions of little pools of stagnant blood, sweltering in the burning sun; the sweepings of the shops and stables and slaughter-houses, lying in dribbles and in heaps; the liquid cow manure; the rotting fat and refuse

of other disgusting kinds; the smells as of burnt horses' hoofs, singed hair, boiled offal, putrid meat and dung—all working together for evil in this channal district, add steadily, searchingly, and surely to the death rate. The good people of Shrewsbury should neither feast nor rest till they have put away the scythe that has mown many of their fellow townsmen down, and if suffered to remain will mow down many more. No wonder public-houses should be thick on the ground here, or that there should be great resort to the Bull, the Butchers' Arms, the Cock, and the Tankerville Arms, for ardent spirits, to take away the strange taste in the mouth such an atmosphere must engender.

On the modern side of this misnamed Pride-hill, the ground falls away behind the houses with a sudden descent. There are several narrow alleys leading down to a district below, called Roushill. We descend one called the Seventy Steps, and find it to be a crowded street of overflowing ashpit privies, which nestle against miserable tenements built in terraces down the steep hill-side. The whole of this rear-ground of the north-west side of Pride-hill, and the east side of Mardol, appears to be a mass of solid filth, which has been accumulating for centuries, and which has slipped down from time to time, from terrace to terrace. At the foot is a cadaverous neighbourhood of bespattered and bemired rows and odd jutments of tenements, rotten with age and filth,—without sufficient light, without sufficient air, without drainage, without water,—where pigs are kept, where cattle are temporarily dressed for the adjacent market in Smithfield, and lodged previously to a slaughter, far more merciful than the slow but certain poisonings by which the human beings herding in their neighbourhood prematurely perish. The liquified part of these death-dealing accumulations, beginning with the percolations from the crammed and closed-up churchyards of St. Alkmund and St. Julian, on the hill-top, joined by those from the slaughter-houses in Butcher-row, have filtered by degrees through the collars of the houses in Pride-hill, through those of the miserable terraced tenements down to Roushill-plain, where it finds a resting-place in a deep walled-in pool or pit of slimy green slush. A row of houses close by this pool make use of it as their only deposit for excrementitious filth. The emanations from these sources must be rank poison, and the cellars to the houses on Pride-hill must be so many wells of deadly gases. Between this place and the river there is a triangular block of houses, which at flood seasons is swamped.

It is pleasant, after the contemplation of these horrors, to stand upon the Welsh bridge and breathe the fresh air as it is borne down by the river from the neighbouring hills. As we have said, Shrewsbury is encompassed by the Severn almost as completely as an ancient castle was surrounded by a moat. Hence the town must be entered on either side by a bridge; from the English side by the English bridge, and from the Welsh side by the Welsh bridge. Tall linden trees arranged in malls, and a general luxuriant vegetation, diversified by a cluster of horse-chestnut trees on a dingle, render the river-side a delightful promenade. But the Corporation has made choice of the bank on one side of the river by the Welsh bridge as a spot on which to enforce the deposits of town scavengerage, and a promontory jutting out into the river is in gradual formation by the night-men, who there empty their carts. As though this were not quite sufficient to spoil the enchanting scenery, a great accumulative heap of tan lies on the opposite bank, to be washed away by the river, floods permitting; and, as far as the eye can see from the bridge, the embankment of the river is irregularly pierced by the outlets of the rude sewers that, up to this time, have sufficed for what scanty drainage there is. Out of these dribble slow streams of filth which are sufficient to be offensive without being adequately useful. Over the Welsh bridge there is a picturesque district of

ancient gabled houses, called Frankwell, where the ground behind the houses is higher than the floors; the inhabitants for generations having thrown all their refuse here, whence it has never been carted away. It is a quarter occupied principally by the working classes, and appears to furnish the conveniences that minister to their wants,—for instance, registered lodging-houses; and, near the quaint Elizabethan inn, called the "String of Horses," we noted one ominous announcement,—“Neat palls and mourning cloaks for hire.” The passages leading out of the main road are in a terrible condition; in one a dog was licking a puddle of blood, in another a chimney-sweep had invested the entrance with sable coatings too sooty to penetrate. Bromley's-passage, Bell-passage, and J. Wilson's rag and bone premises maintain the fetid characteristics. The architecture of this district deserves a more appreciating treatment: with proper management it would present as pretty a picture and as healthy a locality as could be found in any town in old England. Millington Hospital,—one of those institutions by which good men perpetuate their memory in a good way,—overlooks the town from this direction. Another oasis in the desert consists of St. George's Church, and the rows of red brick gabled cottages in the Mount Fields.

Nearer than this to the Welsh bridge, however, there is a place which adds its quota to the conglomeration of filth in which the people live: it is appropriately called “the Stew.” In an out-of-the-way corner so difficult of access, that carts must take an elbowed route to arrive at it, which forces them to include in their defilements the approach to the substantial Hanoverian mansion called *Stew House*, there is another huge deposit of town scavenger. The droppings from the carts bringing this filth, and then the droppings from the waggons of the farmers who purchase it and convey it away, make the circuitous roads in a constantly offensive condition. We must take breath, however, if we can find any pure, and will come back to the subject next week.

THE BARRY MEMORIAL.

At a meeting held on Tuesday, August 6th, 1861, at the Rooms of the Royal Institute of British Architects, Mr. Tite, M.P., president, in the chair, a report from the honorary secretaries was read and adopted, and in conformity therewith the following gentlemen were appointed a working committee, with power to enter into the necessary arrangements for expending the funds subscribed in accordance with the conditions upon which subscriptions had been invited.

The trustees of the Memorial Fund, viz.—the Right Hon. W. F. Cowper, M.P.; Lieut.-General the Hon. Sir E. Cust, K.C.H.; Sir Charles Eastlake, P.R.A.; Mr. C. R. Cockerell, R.A.; Mr. Tite, M.P., F.R.S., P.R.I.B.A.; and Professor Donaldson, Mr. J. Gibson, Mr. G. Godwin, F.R.S.; Mr. A. J. B. Beresford Hope, Mr. H. A. Hunt, Mr. Owen Jones, Mr. T. Hayter Lewis, Mr. Charles Lucas, Mr. J. R. McClean, Mr. D. Roberts, R.A.; Mr. J. L. Wolfe, and Mr. T. H. Wyatt, with the honorary secretaries of the memorial (Mr. C. C. Nelson and Mr. M. D. Wyatt).

The report gives a full account of all the steps that have been taken in the matter, with most of which our readers are acquainted,—the application to her Majesty's Government, and the part taken in the matter by the Duke of Newcastle:

“On the return of the Duke of Newcastle to England, an interview was again sought with his Grace, and on the 16th March, 1861, in reply to an intimation, for which the deputation was prepared, that difficulties had arisen, which might render it injudicious to seek for funds from the public purse, the deputation was enabled to assure his Grace, that want of them need be no impediment in the matter, as a determination had been formed, in the event of the contingency intimated by him, to appeal to the public and to the profession for subscriptions, which there was every reason to believe would be readily obtained to a sufficient amount to justify immediate action if necessary. The Duke of Newcastle terminated the interview by kind assurances of his support and sympathy, assurances which have been amply redeemed, and for which the friends of Sir Charles Barry should ever feel indebted to his Grace.

The above matters were fully reported to the council of the Royal Institute of British Architects, who forthwith expressed themselves prepared, while leaving, as they must, each individual member of the Institute free to contribute or not as he might see fit, to bring the subject as prominently as possible before the profession generally.”

Trustees were appointed, a circular was issued,

and a communication, under date June 3, 1861, was addressed to the secretary to her Majesty's Commissioners on the Fine Arts, in which, after reciting the general facts hereinbefore mentioned, the opinion of her Majesty's Commissioners was invited, and their co-operation asked for upon the following basis:—

“It is suggested that the statue should be of white marble, raised on a suitable pedestal of freestone. That the figure should be standing, and not more than 6 feet 6 inches in height. That it should be placed in St. Stephen's Porch, at the south end of Westminster Hall, at a short distance from the paneled wall under the great window, and that, if necessary, in order to afford a sufficient background for the statue, the parapet of the middle compartment of the wall behind should be raised,—an operation which, it is believed, could be done without detriment to the architecture. Lastly, that the statue should be designed and executed by John Henry Foley, R.A., the excellence of whose works in portrait sculpture is universally acknowledged. A small model would, in due time, be submitted to the Royal Commissioners. The site above mentioned is suggested chiefly because it appears to be the only one suitable for a statue that would stand alone, and that must not appear to come in competition with those of sovereigns and of legislators. The cost of the statue is estimated at from 800l. to 1,000l.; that of the pedestal, in freestone, at about 100l.; but incidental expenses might possibly raise the whole cost to about 1,500l.”

On the 17th June a reply was received from the secretary of the commissioners, containing the following resolution:—

“Several objections to the site proposed within the building have occurred to the Commissioners; but they would desire to suggest whether the centre of one of the courts or one of the open spaces adjacent to the building would not meet the object in view.”

On the 27th of June the honorary secretaries addressed a communication to her Majesty's Commissioners on the Fine Arts, urging various arguments in favour of an *internal* site in the building, either the one already suggested in their letter of June 3rd, or any other which might appear equally eligible. On the 4th of July a reply was received stating that the Royal Commissioners adopted the following resolution:—

“Resolved,—That it seems to the Commissioners impossible to recede from the determination which their former resolution expressed against placing the statue of Sir Charles Barry under the centre of the great window in St. Stephen's Porch. Their reasons against the statue at that place seem to them so strong, that they do not think their opinion would be altered were they to invite the conference which has been suggested for that object.

This determination of the Commissioners is, however, consistent with the most cordial respect for the memory of Sir Charles Barry, and with the no less cordial wish to see his effigy placed in a conspicuous and honourable situation not already appropriated to, or incompatible with, the scheme of decoration adopted by the Commissioners.

As the only available place within the building fulfilling these conditions, the Commissioners would propose the first landing-place of the staircase leading from the principal door to the committee-rooms of the House of Commons. The honorary secretaries of the Barry Memorial Fund will perhaps have the goodness to lay before the subscribers this suggestion as an alternative to a neighbouring site in the open air, as in a recent letter was proposed.”

The report thus concludes:—

“In accordance with the last paragraph in the above letter, the present meeting of subscribers to the Barry Memorial Fund has been called.

It remains only to state, before leaving the matter generally to their consideration, that the subscriptions up to the present time amount to 975l. 4s., of which 601l. 7s., as appears by the banker's book on the table, have been paid into the trustees' account at Messrs. Drummond's, and secondly, that if nominated to serve upon a working committee for the further prosecution of the subject we have all at heart, the following gentlemen will be prepared to serve.—The Hon. W. Cowper, Sir Charles Eastlake, W. Dix, esq., T. L. Donaldson, esq., J. Gibson, esq., T. Hayter Lewis, esq., Arthur Hunt, esq., J. Gibson, esq., David Roberts, esq., T. H. Wyatt, esq., G. Godwin, esq., and Messrs. Lucas. From some to whom application has been made, no answers have been received; but it is not considered there is reason to apprehend disinclination on the part of any of the gentlemen who have been invited to serve on the committee.

In addition to the list of subscriptions, the sum of 500l. has been placed in the hands of the hon. secretary, Mr. C. C. Nelson, by a very strenuous supporter of the memorial, to defray the expenses of printing, advertising, and incidental disbursements. Of this sum 13l. remain expended.

THE MILITARY ARCHITECTURE OF THE MIDDLE AGES.*

To those who are familiar with the literature of the Middle Ages, with the monorhymic romances, the historic ballads, the *chansons de geste*, lays, legends, and *fabliaux* of the Trouvères; the songs of the troubadours, with their vivid-flashing descriptions of battles, sieges, courts, and castles; this essay will possess a charm apart from its architectural character. Mr. Viollet-le-Duc descants lucidly and pleasantly, not only of the castellated architecture of these centuries, but of the engines of warfare, and of the successive modes of attack and defence; and, with the

assistance of numerous illustrations, succeeds in conveying a great deal of very minute information on these subjects. The work had already been received with marked favour on this side of the Channel before the translation was published; and this will place it within the enjoyment of a larger circle.

There are two great eras in military architecture; the first being the result of the Crusades, when the passive system of defence was superseded by an activity equal to that required for an attack; and the second being that marked by the introduction of gunpowder. The commencement of the latter era was the starting-point from which the subject has gradually been divested of everything like picturesque effect, till it has resolved itself, in the aspect of its fabrics, into the terrible uniformity and ugliness recognized by the term *barrack style*. In so far as a revival of pictorial results might be beneficial, the essay, with its telling illustrations, may be of service; but, *au reste*, the days of castle-building are departed. Castles were essentially a feature of feudalism, and it would be meaningless to revive them. Nevertheless, it is interesting to trace in the compass of a few pages the successive steps made by generations of men, through centuries of time, towards the protection of their possessions, or the acquisition of new territory. Until the middle of the fourteenth century, the defence was stronger than the attack, the balance of power, in the absence of gunpowder, being in favour of the massiveness of the architecture. Thus, in Norman times, the defence relied mainly upon its passive force,—the height of the walls defying all attempts at escalade,—the strength of the gates resisting all efforts at forcing them. But towards the end of the fourteenth century, the attack became superior to the defence, and so it has remained; the converging fire of besiegers having advantage over the diverging fire of the besieged. Not only this, but the whole scheme of warfare has been altered by the application of modern appliances. In old times, the attack and defence were subdivided into parts, and thence into parts again; each tower of a castle being a separate fort, and again each story of that tower capable of separate and strong defence; so that the action took place on sites crowded with infinity of unexpected contrivances, and depended in great measure upon individual prowess. The use of gunpowder demanded a wider range, an enlarged field of operations and united action. The futility of the axiom that *whatever defences should be defeated*, was perceived by Machiavelli, who laid down as a primary rule the inadvisability of any complexity of the kind in the construction of fortresses.

Mr. Viollet-le-Duc has chosen for especial illustration the Chateau Gaillard, the fortress built by Richard Cœur de Lion on the Seine for the protection of the capital of his Norman territory,—Rouen. With all due deference to the French architect and antiquary, this must be considered essentially an English castle as that of Newcastle-upon-Tyne. The details, which are amply illustrated, prove that our lion-hearted monarch was a most skilful architect, engineer, and master of defence. This is one of the new lights by which to read history, for which we should express ourselves indebted to Mr. Viollet-le-Duc. The castle was built under the immediate superintendence of Richard; and, with all its subtle contrivances and defences, was completed in a twelvemonth; when he said thus to have apostrophized it:—“*Qu'elle est belle, ma fille d'un an!*” The outworks were so extensive that a town, known as *Petit Andeley*, arose within their inclosure. The *enceinte* of the principal portion of the castle presents a variety to the usual mode of building prevalent, which must be ascribed to the genius of Richard. It consisted of massive masonry arranged in a succession of segments of a circle, connected by a series of short curtains of an even length. The keep also differed from the common type. It was a mighty tower, strengthened by a girth of reversed pyramids, through the broad bases of which, on a level with the summit of the tower, were machicolations for close defence; and these were surmounted with a crenellated parapet, which was pierced with loopholes. Notwithstanding the immense strength of this fortress, it fell before the skill of the warlike Philip Augustus only a few years after the death of Richard.

The timber galleries (*hourds*), which were thrown out on the crests of curtains and towers when in a state of siege, occupy a full meed of attention. These appear to have been too little considered by archaeologists when examining the remains of castellated buildings. When attack was anticipated, the defenders strengthened their

* An Essay on the Military Architecture of the Middle Ages. Translated from the French of Mr. E. Viollet-le-Duc by Mr. M. Macdormott. (J. H. & J. Parker, London and Oxford.)

position by erecting galleries whence they could command the bases of the curtain walls and exterior towers, which they would otherwise only have been enabled to protect so far as they were flanked by towers; and, as the operations of the enemy, both by mine and cats (*chats, gats, gates*), and battering-rams (*moutons, lossone*), were directed to these, it will be seen how important their defence became. This accession to the means of defence was as common to the English castles as to the French. Froissart, the French historian, who, from his five years' service with the queen of our Edward III., as secretary, would probably depict as an eyewitness, has left among his MSS. a vignette showing that the castle of Newcastle possessed these *hords*. In times of peace they were removed. They overhung on both sides of the curtain, forming an inner as well as outer gallery. At first the supports upon which they rested were of timber likewise; subsequently they were supported on corbels of stone, as at Coucy; and ultimately they were succeeded by overhanging stone parapets (*chemins de ronde*), resting on corbels trebly or polygonally notched. There are numerous instances of overhanging stone parapets to English gateways and towers, the Edwardian castles making free use of this effective mode of construction. Windsor, Morpeth, Conway, Warkworth, Brancepeth, the Pele Towers of Northumberland, are specimens in question.

Mr. Le Duc shows an intimate acquaintance with the various engines of war, and with skill depicts every particular of a siege. In the "Dictionnaire Raisonné de l'Architecture" these subjects are treated at still greater length; and it is to be regretted that all instead of part of the illustrations pertaining to this branch of the subject were not inserted in the present volume. Engineers (*ingeneurs*) were specially appointed for the construction of military engines as early as the end of the twelfth century. There was the moving wooden tower; which, running on rollers, could be propelled up to the castle walls; and which, being furnished with a movable bridge, permitted the besiegers to land on the parapets: then there was the moveable coloured platform called the cat (the Roman *musculus*, rat), which afforded cover to the assailants when they wanted to undermine the towers or curtains with pickaxes or fill up the moat with earth or stones: further, there were the battering rams and the catapults (*trebuchets*), *mangonels*, *calabres*, and *pierriers*, all of which were worked by counterpoise, and possessed accuracy of aim to the prevention of the besieged from keeping upon their walls. During the formation and putting into position of these several engines the workers were protected by palisades, *brat-fishes*, and moveable mantelets (wooden screens). The wooden turrets, the cats, and other machines were covered with raw ox or horse hides, to prevent them from catching fire, as the besieged used their utmost endeavours to set them alight, sewing up, in cloths, fire, sulphur, and flax, which they let down the walls by chains with the double purpose of blinding and suffocating the assailants as well as destroying their engines. When the walls were reached by means of mines, the besiegers smeared the timbers with which they propped the walls during the process of sapping with pitch and vast quantities of bacon fat. When they had accomplished their task they retreated, setting fire to this inflammable mixture. In fine, the energy with which the rude materials in command were used, and the invention bestowed upon their application to destructive purposes, are lessons which the most imposing of our gun-damen might study with profit. Water as well as fire was largely taken into account as an assistant in defence.

The immense number of castles, both in England and France is very remarkable. The French castles may be said to have accommodated the whole French army; not so the English. The English monarchs possessed an organized army of archers, which they could command independently of any assistance from their nobles. This is the reason why the French always lost and the English always won. The French nobles feared to trust the lower classes with weapons; feeling that their numerical strength was so considerable that, if once trained to act in combination, their own power would be held in check. Their sovereign, therefore, relied entirely upon them for his army, with the exception of hired troops of Genoese or Brabant archers. The nobles responded to his call with their retainers, *bidands*, *valets*, and brigands, forming a rabble rather than a regular force; and, as at the first reverse the hired archers took the opportunity to plunder and return to their homes, there had to bear the brunt of the battle. It is scarcely surprising, therefore, that

the châteaux were of an extent beyond that required for the *vie privée de la noblesse féodale*. This extent begat immense power on the part of the owners. The proud device of the lord of the Château de Coucy was,—

No prince je suis,
Ni comte aussi,
Mais le sire de Coucy.

We may recommend the volume more especially to our engineers, who may thence learn that the "ingeneurs" of old, whilst grasping their work with the most practical of aims, did not eschew beauty of form. No one will close the volume without an expression of admiration at the masterly manner in which the engravings have been executed; nor without a feeling of satisfaction at the *entente cordiale* now prevailing between the two nations, which has permitted the use of French illustrations in an English translation.

A SCAMPER ON THE KENTISH HORSE.

The clouds broke on the morning of the 31st of July, and the sun shone on the fair county of Kent, whose illuminated hill and dale were a great relief after the sombre flat scenery about Peterborough, whence several votaries at that shrine had come to Maidstone, where Kent had

"Gather'd then
Her beauty, and her chivalry, and bright
The sun shone o'er fair women and wise men."

The scene at the first meeting was one of great gaiety, and the earnestness of the countenances of those present bespoke great enthusiasm.

The chair was taken by the Marquis of Camden, who was supported by most of the nobility and gentry of the county.

The general business of the Society was transacted, and that portion of the day's proceedings which related to the election of a new secretary in the place of our dear old friend the Rev. Lambert Larking, was the theme of universal regret. To his untiring energy is owing the successful position of the Kent Archaeological Society, and to his great knowledge and care the members are indebted for the valuable volumes which have recorded its proceedings. He carries with him in his retirement the grateful recollection of all; and let us hope that life and health may for a long time be granted to him for his own enjoyment, a chief part of which consists in readily imparting to others that learning with which his mind is so amply stored.

After these formal proceedings, we were conducted to All Saints' Church, where a lecture was given by Mr. Beresford Hope. After some elementary remarks on the various styles of Gothic architecture, their nomenclature, and their dates, he said this church, which is of Perpendicular style, was erected by Archbishop Courteney. He explained the reason of the chance being so large in proportion to the other parts of the church, by stating that it was founded by the Archbishop as a Collegiate Institution, the members of those bodies always occupying the chance when attending the service of the church.

Mr. Hope said that by his will the archbishop had directed his body to be buried at this place, but it was also affirmed that he was buried at Canterbury. He added that, though it might seem paradoxical, he believed that both statements were consistent with the truth, for at that time there obtained the "butcherly custom" of dividing the body, and burying the heart or other portion at one place, and the trunk at another. A skeleton had been found, but there was nothing to identify it as the archbishop's.

I would here call attention to what is now generally well understood,—that we must not be led to suppose that, because a church or an abbey is said to be built by a certain bishop or abbot, he was necessarily the architect. The building, as a rule, was only erected under his presidency, and he superintended merely the expenditure of the bountiful contributions of the faithful. William of Wykeham was an architect, but in other cases the bishop employed architects, whose names, in most instances, are lost. In addition to this I would say, that in this age of revivals this fact ought to be kept in view; and in admiration of the architect, we ought not to follow entirely the example of the founder. For instance, in a work that is now before me, "The History of Maidstone, from the MS. Collections of the Rev. William Newton, chaplain to the Right Honourable Margaret Viscountess Torrington, published in 1741," the authors say, after speaking of this church, and recording its history,—

"Of this Archbishop Courteney I have nothing further to say, but that he was a great persecutor of Wicliffe and his followers; and that we are told he excommunicated one Richard Isomonger, a layman of Aylesford, near this

town, for daring to punish men for some crimes which the Church only ought to take cognizance of; and though the poor man submitted, asked pardon, and promised heartily never to do so again, yet the archbishop enjoined him this punishment, 'That he should be whipped naked three several market-days at West Malling, and as many at Maidstone; and then that he should also enter naked into Canterbury Cathedral, and there offer a weight of five pounds weight at St. Thomas Becket's Shrine.' A remarkable instance of Popish tyranny and cruelty."

Mr. Hope gave an account of the several changes that have been made in the church. In 1700, it was fitted with pews. He then read some very amusing letters from the incumbent at that time, the Rev. Gilbert Innes, to Sir Jacob Astley, illustrating the statement of Macaulay—which has so frequently been denied—that the clergy were about that period in a most degraded and dependent position. In one letter he complains that Lady Faunce had taken objection to the said Innes having put his wife in Sir Jacob's pew; and he adds, addressing him as "the right worshipful," that he thought, "when my Lady Marshaw was absent she sent her maid, and he thought his wife was quite as good, and would not disgrace the pew of Sir Jacob." Mr. Hope expressed some surprise that in such days a Scotchman—for so he supposed Mr. Innes to be—could have obtained preferment so far south. On this subject I must again quote William Newton, and Mr. Hope will see that Gilbert Innes was in some respects worthy of his countrymen—

"He was nominated to this curacy, July 15, 1692, by that excellent primate, Archbishop Tillotson, and was very regular, diligent, and laborious in the service of it. He made some considerable addition to the income by recovering the curate's right to the small tithes of Loddington."

Mr. Hope then spoke of the various monuments, and in conclusion called on Mr. Parker to offer some remarks on the college buildings, to the site of which we proceeded. Mr. Parker having concluded, and we having made a brief survey, proceeded to Allington Castle, where Mr. Larking gave us some historical anecdotes in connection with its former owners, and Mr. Parker gave us a conversational lecture on its architectural characteristics.

On our return we had to cross the Medway at the ferry, and those who got a fright and a cold footbath, by the punt becoming water-logged, were willing, as they walked to Maidstone with the water oozing from their boots, to acknowledge the opinion that I expressed at Peterborough, that to be a good archaeologist you must be amphibious, was quite correct.

We then went to the public dinner at the Corn Exchange. The success of this fully justifies the remarks I made about the neglect of this part of the proceedings of the Institute.

The dais was occupied by the president and many of the leading county families. The arrangements for the other members and visitors were such as conducted to their comfort in every particular, and reflected the highest credit on Mr. Espinasse, on whom the management of this portion of the business devolved. The speaking was good and not too long. Lord Stanhope, as President of the Society of Antiquaries, returned thanks for that body. There was one portion of his speech to which I must take exception, viz., the stereotyped attack on churchwardens, and throwing on them all the responsibility of the disfigurements of our parish churches. I think the blame rested quite as much with the clergy, whose neglect of their duties are we fortunately not so well acquainted with as our fathers and grandfathers were. In one of the churches that I lately visited I saw a churchwarden's notice signed with a cross. A few years ago this was the rule and not the exception. Could these illiterate men be blamed for not understanding and appreciating the beauties of a structure from which its minister was absent or in which he took no interest. Then his lordship stated that some of his ancestors were buried in Boughton Malherbes Church, and some years ago he went out of his way to look at the monuments, and he found that the stones had been taken to supply the deficiencies of the pavement. "Such things could not occur at the present time," said his lordship. Certainly not; but I think his lordship's family might have done something for the preservation of their memorials, and not have left them in the hands of strangers to become dilapidated.

Mr. Hope made an enthusiastic speech on the subject of architecture, and expressed a hope that by the fostering aid of such societies as this, and by the study of the past, we should be able to erect structures superior to Canterbury, and "that lively young architecture would spring up rejoicing in his strength." Will he permit me to say, that those who built Canterbury and other contem-

porary structures were not mere imitators, the inspiration and impress of genius were upon all and in all they did. The genius of our day takes a different course, and is developed in different results. The monuments of the mental power and constructive skill of our days are as great, or even greater, than any age that has preceded us. Originality must be manifested, or we shall not be able to eclipse Canterbury or any other triumph of architectural skill simply by having recourse to the pattern-book.

In the evening there was a conversation at the Town Hall, when Mr. Douglass Allport read a paper on "Antiquities." The inference drawn by most of his auditors was that he preferred conjecture to evidence, and that he did not value the pipe rolls and other documents of a similar character. This was a strange corollary to his quotation, "book openeth book." It called up Mr. Larking, who claimed the greatest value for these truly historical evidences. Mr. Allport explained that he only meant in their untranslated form, and that they were too dry for general perusal. This explanation did not mend the matter, as he ought to be aware of the pains taken by Mr. Larking to put in a popular form those papers of which he has superintended the publication.

The Rev. R. Jenkins read a paper on "The Gates of Bologna," which were given by Henry VIII. to Sir Thomas Hardres.

In the Council Chamber were exhibited many objects possessing antiquarian interest.

On Thursday morning some of us visited Chillington House. I mention this simply to offer a tribute to the liberality and public spirit of the Corporation, who have purchased this interesting old mansion for the use of the town; and it is now devoted to a local museum, which possesses many objects of interest, especially in geological specimens.

At the meeting in the Town-hall, Mr. Slatter read a paper upon Kit's Coty House. A large party then proceeded to Leeds Castle, where we had a most cordial reception from Mr. Wykeham Martin, who conducted us round and through the building, and gave us such information as he had been able to obtain from documents in his possession and from other sources. He was ably prompted by Mr. Parker, who mentioned that which was a novelty to some present,—one of the uses of the machicolations over the gateway. When the besiegers of a castle reached the gate they used to light a bonfire before it, to burn it down, and the besieged then poured water down to extinguish the fire. The visit was concluded by a sumptuous repast. Another large party proceeded to "the Friars," near Aylesford, where they met with an equally cordial reception from Mr. Henry Simmonds.

This ended a very satisfactory and successful meeting. I cannot conclude without again having recourse to my old friend Newton. He, a native of Maidstone, would have been delighted at the choice of the place of meeting. He says, with a prevision of the Kent Archaeological Society:—"The author desires leave to take this occasion of recommending such a public spirit to all, and more especially to the inhabitants of this large and populous town,—the largest and most beautiful in all this county, and most commodiously seated for public business. It is a most obvious as well as necessary duty, incumbent on every one, of whatever rank and station soever, in proportion to his power and ability, to promote the common good and welfare of the society or community he belongs to. Society and friendship are the life of life. Nothing is more agreeable to our nature, nothing more desirable. This is what we are naturally disposed and inclined to; and as of all creatures we are the best fitted for society, so we stand in the greatest need of it, which is the ground of that noted saying of old, 'Whoever affects to be entirely alone must be either a God or a wild beast.' All are born sociable, that all may be kind and communicative." F. S. A.

SUGGESTIONS AS TO CABINET-WORK, UPHOLSTERY, AND DECORATION, IN THE EXHIBITION OF 1862.

THE sub-committee appointed by the in-sending exhibitors of Class 30 have issued the following suggestions:—

The specialities of Class 30,—namely, cabinet-work, upholstery, decorative painting, relief ornament, and paperhangings,—require, very particularly, the exercise of sound taste and judgment in

the preparation of the designs; and the productions of this class will evidence, perhaps more than in any other, the degree of progress in manufacturing art since the Exhibition of 1851. Reflection on the specimens which were prepared for that occasion will afford to those who remember them valuable lessons of right and wrong,—of what to study, and what to avoid.

In cabinet-work especially, it is most desirable to direct our attention to objects of utility; to seek to give value to these by well-considered proportion and tasteful arrangement; and to encourage our workmen to exercise their utmost skill in applying to them the perfection of finish in workmanship. The designers should be careful to construct them on sound principles; to let the construction be evident; to avoid redundancy of ornamental carving, which should never be coarse or gross, but be kept so subdued as not to interfere with the main features of the design. The mouldings should be in due proportion, and of profile suitable to the style; the delicacy and finish of these add greatly to the artistic value of a piece of furniture. It cannot be too strongly enforced that a chest of drawers, of simple, good design, and of first-rate finish, is preferable, as an object for exhibition, to a gaudy commode, covered with coarse and ill-assorted carving.

In decorative furniture, inlaid woods offer an elegant means of ornamentation, not by confused masses of flowers and ribbons, but by well-considered designs, purely drawn, and often consisting of simple lines, tastefully interlaced, as in some of the Early Italian examples.

When brass or bronze ornaments are applied to cabinet work, they should be of an appropriate design, and well adapted to their place; not stuck on, without any meaning or expression, merely to make a show. They should be used moderately, and at all times be well finished.

In fine, let the designers of specimens of cabinet work for this Exhibition above all things avoid extravagancies. They are generally condemned, and rarely purchased. Let them also avoid that facile and vulgar style commonly called Louis Quatorze, which it is not, but is more justly denominated the Rococo, a hodge-podge of graceless scrolls and *outré* shellwork. Let them aim at purity of style, of whatever period; and however important may be their work, they will find that simplicity, combined with tasteful elegance, will be most likely to lead to success.

In decorative painting and paperhangings the same rules of art may be repeated: do not attempt these said *extravagancies*; be guided by the principles of good taste. Whatever is attempted, let it be first-rate of its kind; it is far better to do a simple thing well, than to attempt an elaborate one and fail. Our imitators of woods and marbles stand pre-eminent; let them sustain their reputation by adhering to nature, not going beyond it. Grainers very often delight in copying specimens of woods of a coarse and gaudy character, which are never employed in good cabinet work; rich, but more quiet patterns of wood are preferred.

In the preparation of the designs for paperhangings of a decorative character, purity of style is particularly to be desired, and artists should be engaged who can be depended on for this. Our French competitors exercise great judgment, good sense, and liberality in their employment of artists, whose skill and taste they make use of far more than we do. By this means they have raised the standard of excellence of their paperhangings, and obtained a very important export trade, of which, by well-directed energy, we may hope to obtain a larger share. A hundred years ago our decorative paperhangings surpassed those of the French, and in some respects exceeded in artistic excellence many of the productions of this day. In the more simple designs, harmonious arrangements of colour are a most important consideration. Very pleasing decorative effects may be obtained by tasteful borders; but these should be carefully drawn, properly coloured, and well contrasted to the papers that form the panels.

In every way it is most essential to bear in mind this important precept,—*That the proper application of tasteful art adds an appreciable value to all manufacturing products.*

LEICESTER-SQUARE.—In the Commons recently, Lord Redesdale called attention to the present state of Leicester-square, and said that as great doubts existed upon the subject of its improvement, he would ask leave to introduce a bill for the purpose of enabling the parties interested in the square to make the necessary improvements on the removal of the Great Globe. The bill was read a first time.

A GLANCE AT THE "CITÉS-OUVRIÈRES."

"*Loin de traiter les ouvriers en mineurs hâtons-nous d'en faire des hommes. Il y a pour cela trois moyens : développer chez eux le sentiment de la responsabilité individuelle ; fortifier leur volonté par l'éducation, le travail, et l'épargne ; les rattacher aux intérêts généraux de la société en leur facilitant l'accès de la propriété.*" (means of becoming proprietors).

"CITÉS-OUVRIÈRES" are towns so managed as to furnish suitable houses to working men and their families. In Mulhausen, after paying a sum periodically for a certain time, they become eventually proprietors.

Between Mulhausen (in Alsace, France) and Dornach, extends a vast plain traversed by a canal. It is there, on each side of the canal, that the Society of the "Cités-Ouvrières" fixed in 1854 the site of its town. The ground is perfectly level, and the streets are wide and straight. Each house has a garden, and the air is pure. On the Place Napoleon, situate in the centre where all the principal roads terminate, are found two houses larger than the rest: one of these is adapted to baths and laundry; and the other is used as an eating-house, a bakehouse, a shop, and a library. An infant school which can accommodate 150 children is found on the other side of the canal, at the meeting of the Lavoisier and Napoleon streets. The public school, or *école communale*, is one of the finest institutions of Mulhausen proper. It contains 2,800 children. The Society lodges a physician in one of its houses, and likewise a Protestant deaconess, whose occupation is similar to that of the Roman Catholic Sister of Charity.

There are two sorts of houses in the Cité-Ouvrière of Mulhausen. The one are unconnected in the midst of a garden; the other so constructed as to form a line. The number of houses of the first sort was 139, and of both sorts, in all, 560 in the year 1860; but since that time there have been additional ones erected. Each house (of the first sort) is divided by partition walls into four equal habitations, which are bought or let separately. All those intended for the use of a family have the same dimensions, and only differ in a few internal arrangements. Each group of four houses, with the gardens, covers 150 metres square. Those for a family live on the ground-floor two apartments, one of which is used as an eating-room and kitchen, and the other for bedroom of the father and mother. The stairs are usually placed in this second chamber; so that the children can neither go in nor come out without the knowledge of their parents. The upper story is composed of three sleeping apartments, and a closet so arranged as to be easily kept in order. The garret is large, and another room could be formed out of it if required. Under a part of the ground-floor is a cellar. There are casement windows. The principal chamber on the ground-floor has two windows, not looking the same way, and capable of airing the room well. All needful for a family is provided, and all is conducive to render cleanliness and health easily to be attained. The organizers of this town might have made the houses larger, but such was not their intention. The architect is Mr. E. Müller. The gardens attached to the houses are well cultivated. It is said that a garden can produce 40 frs. worth of produce (32s.) per year. There is plenty of water, and each garden is supplied with two fruit-trees. The price of lodgings for workmen was very great some time back in the real town of Mulhausen and in the environs: it is still the case, notwithstanding the construction of the Cité-Ouvrière adjoining it.

The houses are either sold or let.—If they are bought, the workmen not being able to pay at the moment the 3,000fr. and 2,400fr. (120*l.* and 96*l.*), which are the prices of the two sorts of houses, are allowed by the Society, to pay at the onset a sum of 400fr. or 300fr. (16*l.* or 12*l.*), after which to pay monthly the sum of 23fr. or 18fr. (18s. 5d. or 14s. 5d.). And continuing this payment for fourteen years, they at last become proprietors. One of the rules to be observed by the buyer is, that he cannot sell before a period of ten years nor let to a second family. The usefulness of such a society needs no comment. At first few buyers and few tenants were found; but at last the benefits began to be appreciated; and now not only are all the houses, not bought, let; but there is a demand for those which have been finished in 1860. The sale has advanced so rapidly, that at the end of November, 1860, out of 560 houses built, there were 403 sold. There are then, at the end of six years, 403 families of workmen at Mulhausen who are proprietors (or soon to be so).

* The sub-committee consists of Mr. John G. Craze, chairman; and Messrs. P. Graham, W. Holland, T. Fox, J. Jackson, S. M. Hubert, and R. L. Trollope.

These proprietors will have been during all this period lodged free from the caprices of any other proprietor. During this time they will have enjoyed for the same price the benefits of a garden, without naming the excellent street, agreeable squares, and the infant school. Then not only will it be they who will enjoy their children after them will become possessors thereof. There are some places forming *Cités Ouvrières*. The aggrandizement of Lille (Nord dep.), will allow a *Cité Ouvrière* to be formed. Mr. Dorémieux has made ready the plans. Some places have these cités. At Amiens there is one: it is called "La Cité Damisse." It consists of a street entirely bordered by houses of one story, built on a uniform plan. At Marc-en-Barœul, Messrs. Scrive have founded one. This place is four kilometres from Lille. Its houses are surrounded by gardens, and the factory is situate in the centre of the cité. There is, however, one fault to be observed: the houses do not belong to the men. It is found that everywhere where workmen can become proprietors, and thus have "accès de la propriété," there is gain to all. At Rouen there is a hill called California, where the workmen can buy ground. Here, too, the transformation is visible. At Rheims (dep. Marne), there is a street inhabited by weavers: nearly all of them are proprietors of houses: the name of this street is Tourne-bonneau. These weavers present a happy contrast to their neighbours. At Sedan (dep. Ardennes), the workmen love gardening extremely. Every man must have a plot of ground. There, too, say good order reigns. The honour of all this must fall on the "Société Industrielle de Mulhouse," or Mulhausen, which has rendered so many services to the cause of industry as well as to humanity. It is an association between the first manufacturers of the district, for the purpose of studying the "industrial" questions without regard to expense; to recompense and propagate new discoveries; and facilitate all ameliorations for the good of workmen. The constant occupation of the Society in promoting the welfare of mechanics is its pre-eminent distinction: thereby it renders innumerable services. It has comprehended and shows that a good workman is the principal maker of national wealth, and that seeking his welfare is at once a good action and a good calculation.

Mr. Dolfus can be considered as the originator of the *Cités Ouvrières*. The Society of the *Cité Ouvrière* of Mulhausen was formed in June, 1853. It commenced with sixty shares of 5,000fr. (200l.), taken by twelve persons. The French Government gave 300,000fr. (12,000l.), on condition that it would sell at cost price, and expend at least 900,000fr. Since, eleven other shares have been given to seven persons, making seventy-one shares in all, and nineteen shareholders. The capital then is 855,000fr. (14,200l.), together with the 300,000fr. from Government.

The Society also borrows money and repays in this manner:—During the first five years it only refunds the interest of the sum lent; and during the next fifteen years it pays the 1.15th of the principal. The landed money, *crédit foncier*, is to be reimbursed in about twenty years. In this way the Society has expended 1,600,000fr. (64,000l.), not including the 300,000fr. from Government, which are to be employed for useful purposes, such as for baths, drains, gas, footpaths, construction of Place Napoleon, streets with planted trees, &c. The State has agreed to withdraw for three years the land-tax. A great amelioration would be in freeing the workmen from the charges attendant upon becoming owners of houses. The loss, the advocates say, would be little for Government; but it would be doing a wondrous benefit; for if you help the workman you benefit society in general.

The rough inhabitants of Alsace have improved under the *Cité Ouvrière* system. Become proprietors, they have conducted themselves and their families with great prudence. In all places where workmen are not considered as purely mechanical creatures, their minds contract serious habits, and morality improves.*

SURVEYOR TO THE WELLS LOCAL BOARD.—At a special meeting of the council to elect a surveyor, collector of rates, and inspector of nuisances, the council selected the names of Mr. Richard Dix, the present temporary surveyor, and Mr. George Tompkins, assistant to Mr. E. Hippisley, of this town, surveyor, as the two persons for choice. The salary is 70l. per annum, in addition to other emoluments.

* The fifth of the above is translated from an article in the "Revue des deux Mondes."

THE DUKE OF ATHOLE'S DAIRY.

A PICTURESQUE and interesting account is given by "a Renfrewshire Dairyman," in the Glasgow Morning Journal, of the Duke of Athole's dairy and the Duchess's farm.

Of "the byre" he says,—
"It is not a modern show thing—a would-be palace for animals. No, no. It is characterised by airiness, proper temperature, cleanliness, and usefulness. Five of M. Kinnel's ventilators pour in the pure air and suck away the foul. The walls are pannelled all round, some four feet from the bottom. Each stall holds two cows; and the stalls are divided by low wooden partitions, like small stable trevies, so that the cows do not grind and injure their horns as where stone is used. There is a strap of wood, half way between the panneling in face of the cows and the ceiling, and on this strap is fixed the name, well printed, of each cow, above where she stands; so that a person unaccustomed to cows might think that they went correctly to their places from seeing their names. Each cow has a fixed square feeding trough formed of slates; and between the two feeding troughs is a similar drinking trough for both cows. The floor is of Arbroath pavement, which is covered with soft matting on two-thirds forward of the space where the cows stand or lie. The grips, in their whole length, are of perforated iron, so that all liquid drains off at once to the tank. At each end of the byre is a water tank, near the ceiling, to supply water to the drinking-troughs by a direct communication with each, and also to enable the floor to be flushed and made thoroughly clean and sweet. Connected with the byre are places for holding hay, straw, roots, meals, and cakes, and also the apparatus for crumpling, steaming, and otherwise preparing the food, through which and the byre, from end to end, is a continuous railway for conveying the cattle food. All the woodwork is painted with a mixture of asphalt and linseed oil, giving it a fine glossy look, and showing distinctly the natural markings of the wood."

The cows are all prize ones, picked up at various cattle shows,—the first prize cattle of every distinguished ring." The way in which "the kye come home" is quite Arcadian.

"I saw them as they walked quietly to their byres, not driven, or hunted, or shouted to, but [each] calmly following a milkmaid, in a long line, like a string of deer, or like a company of Volunteers marching past in single file. I followed them to the milking-house. They gently entered, one by one, without jostling, each taking the door which was nearest its own stall. It was a pretty sight, twenty-eight such cows, in a row, assorted in size and colour."

And then,—the milking over, with all its delicate operations of hands washing to each cow, measuring, weighing, and recording, &c., by the "pretty maids,"—

"The cows begin to be let out; and, as each is unbound, its chain is rattled in order to warn the fastened herd of their coming freedom; and the excitement is such that that deposit is made at once in the grip, which otherwise, as in most dairy establishments, would defile the outer yard, and be comparatively lost. Out goes a cow, and behind her walks a milkmaid; and, following her, the next cow; and so on; one by one, quietly and regularly, as if in review; till all are in the field, followed at a distance by the man who officiates as milk-carrier. I much admire the mode of taking in and out these mild and gentle dairy cows. It smacks of Rarey."

The Duke, it seems, gives the little "city" of Dunkeld the benefit of his "prize" milk,—of course for a reasonable consideration; but greatly to the advantage of the citizens, heretofore restricted to "beer," for their "porridge."

The Duchess's farm-buildings are also described:—

"They are on a right royal scale, embracing every modern improvement in plan, and displaying the best instruments known to the art of modern agriculture. The water-wheel, 22 feet in diameter, goes smoothly and easily as the wheelbarrow of a child; and the threshing mill, which was fed with oat sheaves to show me how it worked, is a triumph of its class. This water-wheel is the internal beast of burden, preparing food for the bestial, and grinding bones for the soil. It would form a volume in agriculture to detail the contrivances and conveniences this ostend presents; and a farmer's eye, alike in the houses and yards and fields, has only to look to learn. The noble lady of the farm has apartments for herself in a wing of the establishment, and from the higher windows what a view!"

THE "RECOLLECTIONS OF A. WELBY PUGIN."

I HAVE hitherto considered that one of the principal qualifications in writing the "personal recollections" of any man of eminence is to have a personal acquaintance with him; as it is a positive impossibility otherwise, under even the most favourable circumstances, and with all the information from any source, to estimate his private character, so as to give a proper impression of it, as well as to convey a right estimate of his talents and acquirements. Most men I have found have two characters, in consequence of their being taken under different aspects and varied influences: the one may be caused by old and friendly relationships, and the other by the course of action with the world; and perhaps, in some cases, by personal dislike or other circumstances; but, however this may be, most assuredly you should know a man yourself, before attempting his biography; otherwise, in all probability, it will convey wrong impressions, which may tend to cast the bright parts of his character in the shade, and bring small

faults and accidental failings unduly in the foreground. Now, these observations have immediate reference to "Recollections of A. Welby Pugin," reviewed in the Builder of July 27. The difficulty has obviously been to know what fresh matter to select from this book which might throw some new light on a character the most difficult to estimate. His general biography was written by me for this journal of September 25th, 1852; which, together with other contemporaneous narrations of other parts of his eventful career, conveyed a very general outline of his character and professional practice; but, in looking over this work of "Recollections," the only feeling must be that of dissatisfaction at the way the subject has been treated: frivolous anecdotes are dragged in, which, to say the least of them, do not tend to exalt my poor friend; and many of them are inventions of the most palpable kind. This is not at all surprising, when we consider that the author of "Recollections" did not see the object of these "Recollections" for twenty years, and was never in his house; therefore this omnium gatherum, which is to assist the world to know Pugin, has been collected from all corners and places,—from parties whose knowledge of him terminated twenty years since, and from others who only knew him after his first mortal affliction. All things seem huddled together, from the circumstances of their singular sources and want of knowledge; and some subjects are referred to which reflect little credit on the parties who supplied them, damage a reputation already over-assailed, and cry shame on all persons concerned in the book.

Now, as regards the character of "Pugin from a Roman Catholic point of view," that perhaps is the more astonishing production, as the author never saw Pugin or knew anything of him except from his works, which I know well were not sufficient for the purpose of estimating him. Poor fellow, of a verily, how surprised you would be if you could read your own "Recollections," with the "Appendix!" You would indeed be wroth; and, like the hero in the "Ingoldsby Legends," call for your boots, as was your custom when bent on something desperate.

But now to Ferrey's "Recollections." He states that "the elder Pugin was born in France in 1762," "his birthplace unknown." How this important information was obtained I cannot guess, as Mr. Pugin has several times told me that he did not know his own age; and his wife and son, naturally, were not more enlightened on this matter; therefore how this information was obtained is a mystery. Surely the author could not have attended this nativity 99 years since.

Following the review, I find it stated that "Mr. Nash was the cause of the elder Pugin bringing out works on Gothic." That is another fact I was not aware of. The vol. I. of "Specimens" was dedicated to Nash; but he had no more to do with its production than myself; as full two years elapsed between Mr. Pugin being in Mr. Nash's office and this said work being published. Mr. E. J. Willson, of Lincoln, was Mr. Pugin's adviser to publish Gothic Works Measured.

Where the author obtained his anecdotes of Nash surprises me likewise, and that Pugin acted with him. I never heard Pugin state it; and I know full well that, had it been so, he would have been too glad to have told it. How could Pugin take a part in a play when he did not speak English at that time? Nash's building a theatre is of a piece with Pugin's acting; and if Pugin acted, it certainly was on Nash's theatre. In fact, the information about Nash and Mr. Pugin's birthday leads one to the supposition of the great age of the author, who must have built Mr. Nash's theatre.

Another instance of the happy memory of the author is that, when the designs for the chapels for the cemetery were made by Brunel and Pugin, "Welby began to make himself useful." Now, as regards the details of these chapels, I never saw any; and as to Welby's usefulness, I know not in what way it was evinced, as he was at Christ's Hospital at that time; and even the author was not employed on these chapels. I could give fifty reasons why Welby did not give his talents here, but one will do: these detailed drawings were in nubibus, and nowhere else. I, being the author's senior in the affair, must have seen them had they been a reality.

The introduction to Rundell & Bridge leading to that of Morel & Seddon is a matter I do not clearly see; and yet I know the whole circumstances of it as a common fact; but the author's imagination is so fertile, it so pervades the whole work, that I am much puzzled to get at the real history of the Pugins from it.

The author's reference to "an acquaintance"

with a person of inferior position" is in bad taste and wholly uncalled for; poor Pugin's fame and character are too frequently made to suffer to make a book. The story following about the "pompe of St. Dunstan" is pumped up from no good well, so let it pass; for although Mr. P. liked water, he no more liked to carry his "tub" (of water) than other people do. I have been out with him in his boat for days together, and he never showed any great desire to carry a "tub," even when in more rural localities than that of St. Dunstan. What was the father doing at St. Dunstan's in the morning to see the son tubbing it?—a bad joke and nothing else. When W. P. had a boat, Mr. P. was too ill to go out of a morning to St. Dunstan's.

The letters I must assume may be realities; but I think more good taste would have been evinced by not publishing many of them, as they are entirely of a private nature. These "Recollections" and "Appendix" have too much the impression of proceeding from a joint publishing company, and with a view to pick my poor friend's bones. I, knowing the working of it all, must plainly express my sorrow at the proceedings.

One more anecdote of Pugin, as quoted in the *Builder*, which is as utterly devoid of foundation as those before commented on. It states that Pugin etched the plates of the "True Principles of Gothic Architecture" in a boat, "and pulled them out of his coat-pocket at the publisher's," just as he came from the sea. This makes me think that, like Rip Van Winkle, I have awaked to learn "I am not myself, but somebody else," when I recollect that all these identical etchings were executed in my own rooms conjointly with Pugin, and that I did nearly the whole work on them, and have the first proofs of the plates by me at the present time. What can we say to this? Oh, for shame, Mr. "Recollections," to attempt hum-ming us so: except it be stated (as Dickens did in the title of one of his works) that "this is the correct account of all that he did, and all that he didn't," you really draw too hard on the credulity of some people. For the present, I must bring my comments on this work of imagination to an end, or I shall be trespassing too much on the pages of the journal and the patience of its readers, as a review of the whole would occupy as much paper as the book itself (besides the time), and would be giving more importance to it than it deserves. However, I shall have much pleasure in giving my time to the further consideration of it when

"I'm disposed to be a moment merry,
No novel word in my vocabulary."

TALBOT BURY.

VALUE OF ARTISTIC LABOUR AT THE BUILDING OF ST. PAUL'S CATHEDRAL.

THE bills for work done in connection with the building of St. Paul's Cathedral serve to give an idea of the value of artistic workmanship at the dates stated.

Jasper Tatham received for work done on the north side,—the door-case and turn of the round pillars, the three-quarter pillar, and little three-quarter pillar, and for working and setting 1,124 feet of Portland stone in the bodies of two pillars, the three-quarters and half the architraves of the door-case, &c., 1127. 8s. 6d. For the ornaments above the same, 2s. per foot superficial. For masoning one three-fourth composite capital, one face and one half, at 16s. 6d.; for carving it, 12s. A scroll and festoons, 15s. A cartouch under the cornice of the door-case, 4s. Half the long festoons and candlesticks over the door, 17s. 10s.

The west end of the old church was not taken down till 1686. In the same year a great quantity of old alabaster was beaten into powder for making cement. Those fragments were, doubtless, monumental effigies or other ornaments of the old church.

The capitals of the great pillars of the north and south porticos cost 60s. each for the carving. In 1688, the tower was pulled down, and 162 corpses taken from its cemetery and reburied at the west end of the old foundation, at 6d. each.

The following will give an idea of the sums paid to Grinling Gibbons for some of the carvings of the interior:—

For two upper cimæ of the great cornice, carved with leaves, at 2s. 6d. per foot,—over the prebends' stalls.

The chattering of the parapet, upper cimæ, and members of the coromer, with lace and leaves, at 1s. per foot.

The moulding in the cistals, one member enriched, 7d. per foot.

Coping on the cartouches, one member enriched, 14d. per foot.

The small O-G on the corona of the bishop and lord mayor's thrones, 4d. per foot.

For the lower cima in the bottom of the nine-inch cornice, at 7d. per foot.

The cima and casements round the stalls, 9d. per foot.

The small cima on the top of the impostes over the prebends' heads, 8d. per foot; the hollow of the impost leaves, 5s. per foot; the swelling frieze, with grotesque enrichments, 6s. per foot; and the grotesque enrichments round the openings in the women's gallery, 4s. 3d. per foot; the scrolls in the partition pilasters in the stalls, 9s. 6d. per foot; the leaning scrolls on elbows, 1s. 5d. each; the frieze on the thrones, 6s. per foot; pedestals (grotesque) in the front, 1s. 4d. each; the great modillion cornices (six members enriched), 10s. per foot; the leaved cornice on the stone pilasters, 9s. per foot; the Corinthian three-quarter capitals, 5l. 6s. each, the whole ones, 7l. each; grotesque capitals in the choir, 7l. each. Total charge, 1,333l. 7s. 5d.

William Thompson painted the east end of the choir, in imitation of veined marble, at 4s. per yard. The gilding round the altar cost 168l.; the Glory, 3l.; the foliage on the frieze, 30l.; the palm and laurel branches, 5l.

The fluted pilasters, painted with ultramarine, and veined with gold, in imitation of lapis-lazuli, cost 160l. Edward Strong received 52l. 10s. each for the Corinthian pillars of veined marble which support the organ.

The sculptures by Caius Gabriel Cibber, which form an important feature in the decoration of St. Paul's, have much merit, inasmuch as they are bold and effective, and harmonise well with the architecture. The prices paid for some of these works are as follows:—For the phoenix in the tympanum of the south transept, which is 18 feet in length and 9 feet in height, he received, for the model 6l., and 100l. for the sculpture. He also received 280l. for carving the eight great key-stones of the arches round the dome, each 7 feet in height, 5 feet in breadth, and 18 inches in relief (that is 35l. for each*); he had also 6l. for three models of "antique lucarnes." The above, with four censers, at 7l. 10s. each, upon the piers of the south ascent, and four double festoons, with eight cherubim on the pedestals, at 13l. each, are all the sculptures charged in the books under Cibber's name.

Jonathan Mainie carved the ornaments of the Morning-prayer Chapel, and had 30l. each for shields surrounded by cherubim and drapery.

In 1710 Robert Trevel, engraver, was employed by the commissioners to make drawings, and engrave them, of the outside and inside views of the church and the choir, representing the time when the Queen and the two Houses of Parliament were there, for which he received 300l.

In 1712 Francis Bird had 250l. for the Queen's statue and enrichments. The four statues seated on the pedestal, of England, France, Ireland, and America, cost 220l. each; and the white marble shield of arms, 50l. The cost of this monument was 1,180l., nearly as much as Gibbons got for the whole of the carved work. Bird also sculptured the panels containing the history of St. Paul, in the portico, for 75l. each; and the reliefs over the great west door for 300l. There is also the following charge:—To Francis Bird, carver, for carving the great pediment of the west portico, in length 64 feet, and in height 17 feet, being the history of St. Paul's conversion, and containing eight large figures, six whereof on horseback, and several of them 24 feet impost, 650l. Bird also modelled the scrolls, ball, and cross, for the lantern of the cupola and the piers for the towers.

Samuel Fulkers carved the great capitals for the west portico, and had 60l. for each.

THE ANTWERP ARTISTIC CONGRESS.

SINCE we gave the outline of the programme laid down for the Artistic Congress fixed to be held in Antwerp, from the 18th to the 24th, its importance has enlarged. The minister, Mr. C. Rogier, has consented to accept the presidency of the congress; whilst Mr. Romberg, the General Director of the Fine Arts, has accepted the vice-presidency; and the whole of Belgium will be represented at Antwerp, it is said, by her most distinguished artists and most talented men.

In England, the Royal Academy, the Royal Institute of British Architects, the Art Union of London, and other Art-bodies, have deputed representatives to attend.

* These were done after the stones were set.

THE DIFFERENCES IN THE BUILDING TRADE.

SIR,—Your last week's number contains a letter, addressed by Mr. Reid to Mr. Thomas Hughes, in which our names are so prominently put forward, accompanied by such unfair remarks, that we feel bound to ask your admission of a few words in reply, more especially as the strictures contained in it appear to be endorsed by Mr. Hughes.

It is perfectly true that we have agents, not only in Scotland, but in several parts of England, collecting masons to supply the places of those who have left their work; and, at the same time, it is equally true that, so far as we are concerned, the strike is virtually at an end, because, by the "extensive and desperate" efforts, as Mr. Reid calls them, which we have made, we have now sufficient masons to carry on our works, with satisfaction to our employers, and without loss to ourselves. We are undoubtedly doing this with a less number of hands, in this particular trade, than previously, and more slowly than we could wish. So much the worse, however, for the strike leaders, because they have now forced us to do what, two years ago, they spent much energy in trying to prevent. Instead of the masons' work of such buildings as the Duke of Buccleuch's mansion being divided amongst as large a number of masons as possible, it will now be kept in the hands of the smallest possible number.

It is pretended that the men who are at work have been left by the trade, but, on the contrary, our agents have strict instructions not to engage a man without fully explaining to him the state of the case; and that these instructions have been carried out is a point on which Mr. Hughes has a ready answer. We shall be happy to give him the opportunity of ascertaining by his own personal examination of them whether they have been obtained by any other means than such as "honourable men" may think proper to use.

So far from it being a fact that the particulars of the dispute were unknown to the Scotch masons until the "London operatives" sent two of their body to correct, by a friendly visit, the false view circulated by the agents, our agents almost invariably found that the men were as thoroughly acquainted with every detail of the strike as they were themselves. We may add that for "London operatives" must be read the London Masons' Union; this latter having sent two gentlemen whose plan of operations consisted in tracking the agents of the various London builders about the country, and threatening to murder them if they did not return home. Mr. Reid may imagine that the intimidation, by which alone the unions act, has checked the influx of men to London: we can only say, for ourselves, that we have this day received communications from them, addressed to us by their respective agents, that they were coming to work.

With regard to the advertisement in the Scotch papers, the facts are these:—

A short paragraph appeared in one of the London daily papers, written by our agents, although partly based on information which had been obtained from us. The paragraph contained some inaccuracies, but as it appeared to us on the whole to be calculated to assist our agents in their work, we did not see fit to object to its being sent there as an advertisement. We are not responsible for the particular form of the instructions sent with it, but as the course adopted was the one best calculated to obtain for the intention we declared, we should without hesitation have agreed to a step, the iniquity of which we fail to recognize.

The way in which Mr. Reid carries out his notion of "correcting this without comment" would have induced us to consider remarks couched in so offensive a form as undeserving of any reply, had not his letter been placed before the public by Mr. Hughes. If this latter gentleman derives the information on which his opinions are based, from sources so untrustworthy as he appears to do, we cannot wonder at, although we sincerely regret, the result. H. and R. HOLLAND & HANNEN.

SIR,—Whilst the eight master builders who replied to the first letter which I, amongst others, subscribed, have left the grave counter-statements contained in our second letter without any answer, the duty is less incumbent to notice anonymous criticism: nevertheless, I would wish to make some remarks on a letter which appeared in a recent number of the *Builder*. Whether or not your correspondent be really a contractor, it was quite natural for him to subscribe himself as one. For, in truth, this movement ought to be called, not a "Builders' Strike," but a "Contractors' Lock-out." It is the contractors who have to gain by it—contractors who undertake great works at short notice under heavy penalty; whose whole trade is a series of races against time, to win or lose a heavy stake, whose calculations of so much material, so many hours of labour required for the job, against so many hours allowed to do it in) would be all upset by any temporary deficit of men, unless the operatives in their employ will make up the difference by over-work. To the contractor, that his men should be ready to work at his beck, all day, night and day, and even Sunday, is a frequent necessity: that they should prefer a reasonable day's work, and no more, is an annoyance; that they should ever dream of a nine-hours day is intolerable. The great London contractors—it was they, Messrs. Lucas & Kelk, who introduced the hour-system, which was not only to make the nine hours for ever impossible, but to abrogate the standard day of ten hours, and to systematize extra hours of labour—and extra hours, too, without the previous extra rate of wages: to them, doubtless, to sink some thousands of pounds in locking out their men for the sake of a speculation was a hazardous work, and they were to their future speculations. But it was otherwise with the master builders, properly so called, who are only occasionally under severe pressure for time, and who drive a steady, regular trade. And accordingly we find that the smaller master builders have, as a class, stood aloof from the hour-system; and even many of the larger ones have joined it only by degrees, and with reluctance; persuaded —(if I should copy the language of "A Contractor," I should say, intimidated) by their union, the Masters' Association. And some of these are by this time finding out their mistake, and that to be cat's paw to the great contractors is no pleasant position. But on this point I need say no more.

I now turn to the letter of "A Contractor."

His first step is to mix up this question with the nine-hours question.

The nine hours movement he stigmatizes as a demand of ten hours' pay for nine hours' work. On the same prin-

ple, if brickwork has risen 50 per cent. in price, I might impute to the contractor that he charges the price of three rods for every two that he supplies. But indeed such a question is not the question, as to what is an hour's pay, what is the price of a rod? What if, as there is at least some evidence in the present condition of work in the provinces to show, the hour's pay ought to be raised 10 per cent. Let a Contractor "look to his work." Perhaps he may find that instead of the men asking ten hours pay for nine hours' work, he himself was giving only nine hours' pay for ten hours' work.

But I am not about to defend the renewal of the nine-hours movement, but I assume that it was ill-timed, that the market would not bear it. I will only say, that that will be a good day when the market will bear it. Contractors will not be able to make great fortunes quite so rapidly; their customers will have to wait a little longer for their houses and buildings; but the great bulk of the 40,000 building operatives will be healthier, happier, and in time better educated. It is an auspicious fact, and one with which the public might sympathize, that the men feel the true improvement of their position to lie, not in increase of wages, but in reduction of hours. What then shall we say of the contractor who abruptly introduces a system which is to cut off for ever from the operative all chance of his gaining this improvement, and then calls it "conciliation," an arrangement by which the workman is benefited, and a source of strife is removed? But whether or not ill-timed, the nine-hours movement has now been dropped: the men asked for it, but did not strike, or even intend to strike; and now the demand has been abandoned, and the hour has been changed to a substitute. But the "Contractor" will say "they mean to renew it." Very likely, if trade becomes brisker; so, too, the "Contractor," I suppose, means to reduce wages if trade declines.

The "Contractor" states that "there is no reason why men paid by the hour should choose to do account to work more than ten, because when they are not called a day." On this point I might have the object of those who introduced the hour system, as to the effect of the introduction of similar rules in other trades, or rest content with the opinion of the men—the best judges on this subject. But I prefer to quote the details of a paper which the "Contractor," at least, will not accuse of any unfairness. *The Times* of the 27th of March, has this sentence, "The system of working by the hour would, unquestionably, lead to competition."

The "Contractor" proceeds to say, "It is true that long hours are more advantageous to men than to masters; for, having a certain amount of work to be done, what is more to the master whether it is done by one man or two?" What is it then necessary for me to instruct "A Contractor" in the rudimentary principle of his trade, that time is money?—to show to him that it is more to the master whether the same plant in the same period of time serves for two jobs or one; and that if he means to save a penalty, it will be better for him not only to employ two men than one, but to make each of the two perform double work.

Again, when he tells us that "overtime" cannot be both a grievance and a privilege, and that the unions, having long resisted it, can therefore complain of its abolition, I wish to ask him if he is not using the word in a double sense. "Overtime" is the name for extra work, is undoubtedly a grievance, and is resisted by the unions as injurious to their class. But "overtime," meaning extra rate of pay for this extra work, when unavoidable, is as undoubtedly a privilege, and the class who have struck the men are enabled to check the grievance in question.

The "Contractor" denies that this extra pay for overtime has ever been a general rule. The eight masters who answered our paper, in which it was a principal point, do not venture to do so. They carefully abstain from any allusion to the matter. Until they publicly deny that they have hitherto paid—until the "Contractor," in his paper, has said that he has paid "time and a half" for overtime—at least to many of the trades now chiefly in question,—we shall continue to believe that it is the rule. I may point out, too, that another anonymous critic, the "Master Builder," in the *Times* of July 23, does not venture to say more than that "50 per cent. has been the usual rate for masons." We are aware, also, that one of the eight masters has, in the course of negotiation, offered to pay "time and a half" from 12 to 1 p.m. on Saturday.

The "Contractor" asserts that the eight firms employ 10,000 men. He should have said did employ before the strike, and he leaves it to be inferred that all these are working under the hour system, and are happy and contented. Amongst these 10,000, then, he counts the carpenters by far the most numerous of the five trades, who have not struck, but subscribe to those on strike. Amongst them, too, he counts those of the other trades who have struck. These, however, he designates as "a very small and insignificant minority,—as not one in ten." But, if I am informed correctly, when Messrs. Kelk & Lucas introduced the hour system, they at once lost all their plasterers, and within thirty of all their masons and bricklayers.

The "Contractor" then proceeds to ridicule the idea of our venturing to compare these eight firms and their 10,000 men to forty firms with only 200, working on the "counter movement." But had he read our letter rightly, he would have seen that the 200 men were masons. And our position was, and is, that even these 200 masons (they are now increased to 300) the *bona fide* metropolitan masons under the hour system. But the "Contractor" treats the advanced terms of these men of 33s. for 56½ hours of labour, claimed for the first time in London, as the only "counter movement;" he omits all mention of another "counter movement," viz., the old system of 33s. for 58½ hours; though under it, at this moment, the great bulk of the 40,000 building operatives in London are quietly working, as they were before the strike.

The "Contractor" adds that "in more than one important firm the hour system has been introduced at the express request of the workmen themselves." If he alludes to the firm of Messrs. Trollope, who wrote to the *Times*, it is notorious that a considerable number of their men are "document men," that some did not even know of any memorial being sent in, and that thirty actually did leave when it was introduced.

The "Contractor" concludes by objecting to what he calls our interference; but this is a public matter. And if journalists have freely discussed the subject, and even issued no form of attack, and insinuation on one side, have not the liberty to state a few facts on behalf of the other side? We are not, I presume, disqualified from doing so by having taken pains to ascertain the truth, and given the guarantee of our names. Of

myself I may say that some months ago, when the dispute first began, I, trusting to representations, consented to attend a meeting of some building operatives in one of the suburbs of London, and then recommended them to accept payment (not hiring) by the hour; and above all (for public reasons) not to take advantage of the Exhibition contract to strike for a rise of wages, even if such a rise was justified by the market. I did not know then what I know now. I know now that the hour system is one directly calculated to prolong the hours of labour; and, therefore, if a gain to contractors, an evil of the worst kind to the working class. I think the public should have no sympathy with an innovation which seeks to extend a system of irregular hours especially adapted for the feverishly speculative operations of a few contractors, to the whole class of steady, substantial master builders. I wish for arbitration; but, if that is still rejected, I trust that by the continued indifference of the master builders as a class, and by the unyielding resistance of the men, the hour movement will be completely frustrated.

Doctors' Commons.

GODFREY LUSHINGTON.

HOW MUCH MORE DIRT DO ARCHITECTS INTEND TO EAT?

DOVER TOWN SURVEYORSHIP.

THE Corporation of Dover issued an advertisement a short time since, inviting competitors for the office of town surveyor, with a salary of 300*l.* a year, and a place of business to be provided, or an allowance of 20*l.* in lieu thereof.

There can be no doubt that, upon these terms, they might secure an efficient functionary; although, according to the advertisement, the surveyor must also possess, in no small degree, both knowledge and experience in architecture, and in all the branches of civil engineering. This advertisement has been answered by no less than fifty-nine professional men, who, we are bound to suppose, considered themselves, by their education and practical knowledge, qualified to meet the conditions offered to them.

Now to the point. How have these fifty-nine gentlemen been treated? A local newspaper informs us that, on Tuesday, the 29th ult., the managing committee of the Local Board of Health met, for the purpose of considering the merits of the candidates. Of course, the first and most obvious of their proceedings would have been to examine the testimonials; but this proposal was met by a determined and strenuous opposition; on the grounds, first, that some of the candidates had printed and circulated their testimonials; and, secondly, that the members of the committee could not spare so much time as the perusal of the testimonials would require; though some of the members were willing to read the testimonials of such candidates as they might themselves name!

A proposal to adjourn the meeting till the testimonials could be examined, and another to deposit them at the town clerk's office, for the members to see them at their own convenience, were equally resisted; and, after a long debate, garnished with such amenities and flowery eloquence as some assemblies are in the habit of exchanging when they meet for the despatch of business, the majority proceeded, without pretending to have knowledge of all the candidates, or of their qualifications, except their names, to eliminate fifty-one from the list. The remaining eight were then reduced to three, from whom the Town Council are to select their surveyor on a future day.

We wish we could hope that the exposure of these facts would operate either as a corrective to the Town Council, or a warning to the candidates; or others of the profession, for the future; but, however small our expectations may be on either account, the exposure is a duty to the profession and to the public.

The three gentlemen named are,—Mr. Hanvey (11 votes), Mr. Laing (6), and Mr. Benet (5).

ARCHITECTURAL CARE OF LINCOLN CATHEDRAL.

SIR,—A short time only has elapsed since the publication of a correspondence upon the subject of the restoration of this noble fabric. Since then death has deprived the Dean and Chapter of the services of the venerable surveyor, under whose superintendence the building has been during the last forty years. Amongst the candidates for the vacant office is a wealthy tradesman, who does not profess to have the slightest architectural knowledge, but rests his claims upon having made a considerable fortune in his business, and is ambitious to withdraw from its active duties, and settle down under his own vine and fig-tree, with the dignified appellation of "Architect and Surveyor to the Dean and Chapter of Lincoln." It is, however, an active political partizan, and flatters himself that this qualification alone will secure him the appointment! If the Dean and Chapter are desirous of placing themselves upon a par with the churchwardens of the parish, they cannot select a more suitable man; but in the name of common sense, I say, and in justice to the educated members of an honourable profession, they ought most assuredly to pause before they confide this *hallowed* building to the fostering care and protection of one who has not the slightest pretensions for seeking so important a trust.

AN ARCHITECT'S PUPIL.

MILITARY COOKING APPARATUS.

It is stated that at the official inspection of the new Royal Marine Infirmary, at Woolwich, the Duke of Somerset, and a full Board of the Lords of the Admiralty, together with Col. Green, "director of works," expressed themselves much pleased with the efficiency and economy of a new kind of cooking apparatus recently erected by Benham & Sons, which provides for all the various descriptions of cooking required for a large number of patients (about 500), with the consumption of only 200 lbs. of coal per day, including supply of hot water for baths. It is fixed against the side-wall, and stands partly out into the kitchen, and contains a large ventilated brick oven, capable of roasting for the whole of the patients, or baking bread; also a small iron oven, three meat or soup boilers, a large hot plate, a grilling stove, capable of cooking fish chops at once, and a steam boiler; the whole heated by one fire, which can be directed to any part by two dampers. At a short distance from the above is fixed, against the same wall, a large potato-steamer, a barley-water boiler, a Baimmarie hot closet tea-water boiler, and in the centre of kitchen a hot table for serving up dinner, all heated from boiler in above apparatus. It altogether forms a very complete apparatus, and is well adapted for any large establishment requiring a large amount of cooking with a small consumption of coal. The kitchen was very cool, not being raised above six or eight degrees. Messrs. Benham, under the same patent, have erected several for the War Department. The last one, just completed at the Tower of London, cooks the rations for each room in separate vessels; and the men can have either stewed, boiled, roasted, or steamed dinners; the consumption of coal being six ounces per day per man when apparatus is in full use, including water for washing up.

Though we have no doubt of the correctness of these statements, we give them as what we are told rather than as what we know. The question involved is of the greatest importance; and we have reason to believe that the Sanitary Committee, acting for the International Committee of 1862, will take steps to bring to the test all the known cooking apparatus, ranges, and stoves; so that the public may be rightly informed on the subject.

Inventors and manufacturers who are wise and confident, will do their best to meet the occasion.

APPROACH TO WESTMINSTER BRIDGE, MIDDLESEX SIDE.—COMPENSATION.

An inquiry has taken place before Mr. Daniel Norton, to determine the value of the fee of the land and houses (subject to the leases and tenancies) forming Nos. 32 and 33, Parliament-street, Nos. 14, 15, 16, 17, 18, 19, and 20, Bridge-street, and Nos. 1, 2, 3, 4, 5, and 6, New Palace-yard, required to be taken down to form the new approach to Westminster Bridge.

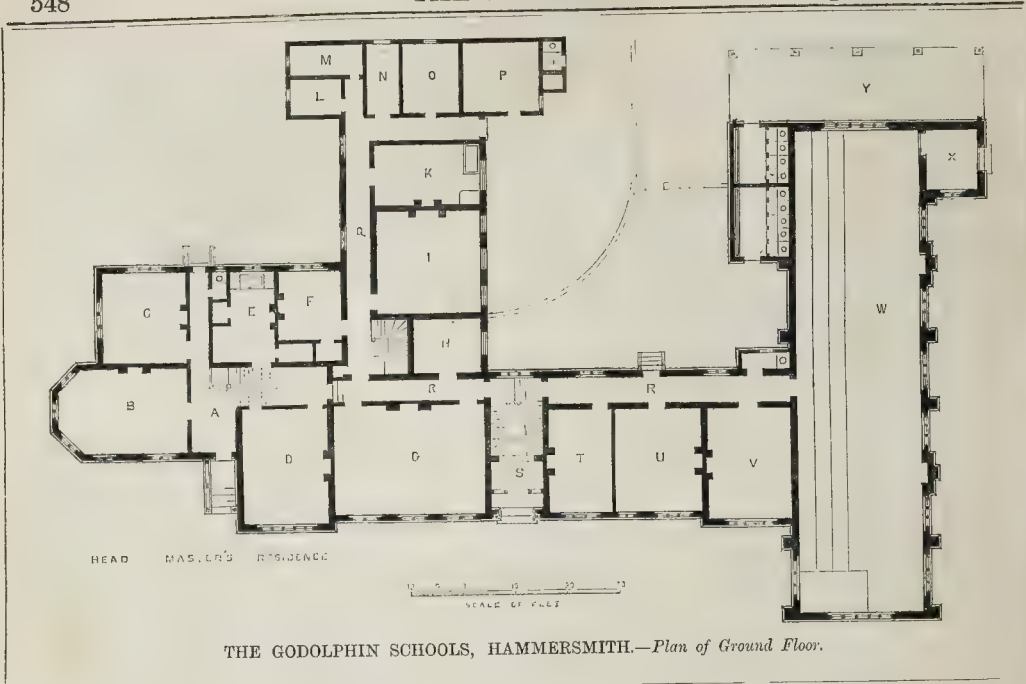
No. 32, Parliament-street, No. 14, Bridge-street (Fendall's Hotel), and No. 1, New Palace-yard, are held for three years, at 300*l.* per annum; No. 33, Parliament-street, is held for eleven years, at 100*l.* per annum; No. 15, Bridge-street, is held for seventeen years, at 80*l.* per annum; No. 16, Bridge-street, is held for three years, at 62*l.* per annum; No. 17, Bridge-street, with Nos. 1 and 2, New Palace-yard (the King's Arms), is a yearly tenancy at 280*l.* per annum; No. 18, Bridge-street, is a yearly tenancy at 55*l.* per annum; No. 19, Bridge-street, is held for three years, at 130*l.* per annum; No. 20, Bridge-street, is held for three years, at 70*l.* per annum; No. 4, New Palace-yard, is a yearly tenancy, at 60*l.* per annum; No. 5, Palace-yard, is held for nine years, at 110*l.* per annum; and No. 6, Palace-yard, is held for seven years, at 100*l.* per annum.

The amount of Mr. Norton's award is 45,000*l.* The area of land is 42 poles.

Mr. Charles Lee, Mr. John Oakley, and Mr. John Pownall, surveyors, were for the claimants (the trustees of the late Mr. James Savill Montgomerie Lamb); Mr. James Pennethorne and Mr. John Clutton were for the Commissioners of Her Majesty's Works, &c.

GUTTA-PERCHA PLUGS.—SIR: Will you oblige me by correcting a mis-statement made by your correspondent, Mr. Pullman, when he says that T. Hancock was the originator of the idea of stopping the ends of water-pipes, &c., with gutta-percha; whereas, by a reference to the two letters in your journal of the 6th instant, it will appear that the idea belongs to your humble servant,

R. F. C.



THE GODOLPHIN SCHOOLS, HAMMERSMITH, MIDDLESEX.

THE Godolphin Schools are among the results of the commission issued some years ago to inquire into public charities, and of a scheme founded on the report of the commission, and sanctioned by the Court of Chancery.

An improved scheme has lately received the approval of the Court; and, under the powers contained in it, the trustees have purchased a site, and are now erecting buildings at Hammersmith. They were led to the adoption of this particular locality partly by the advice of the late Bishop Blomfield, but principally by their own conviction that this particular neighbourhood was favourable to the development of a school especially designed for the liberal education of the middle classes.

The scheme requires that in the school—

"Instruction is to include the principles of the Christian religion, according to the doctrines of the Church of England; and that 'the foundation scholars shall be required to attend the services of the Church of England on Sundays, and at all proper times'" and it further requires "that children of persons not of the Church of England shall be admissible as day scholars, and that care shall be taken to respect the religious scruples of the parents of such children, and of persons standing to them in loco parentis."

"Thirty foundation scholars are educated gratuitously; but boys not on the foundation pay a small annual sum.

The school has hitherto been carried on in hired premises, which are found quite insufficient to accommodate the numerous candidates for admission; and this circumstance, in connection with the success of the undertaking, appears to justify the expectation of the trustees, that by a liberal expenditure and improved and extended accommodation, they will succeed in further developing the principles of the school. A foundation-stone, inserted in the wall of the schoolroom, records in its central portion that, "It was laid by the Lord Bishop of London, on the 8th of June, 1861."

At the four corners of the stone are monograms: the first (W. C. and E. G.) represent the founders.

The family of Godolphin is of great antiquity; and it was once in considerable repute in the county of Cornwall, which different members of the family frequently represented in Parliament. They also held offices of trust under the Crown and about the Court.

Sir William Godolphin, of Spongior, having amassed considerable wealth, left an estate at Glastonbury, in Somersetshire, to charitable uses; which estate, though still appropriated to such purposes, forms no part of the property applicable to the trust now under notice.

Additions to this endowment were subsequently made by Elizabeth, the above-named Sir William's

grand-daughter; and by her husband, Charles Godolphin, who was a branch of the same family, claiming a common descent with his wife from their remote ancestor, Sir Francis Godolphin, of Godolphin, in Cornwall.

Thus the above monograms represent the three founders, Sir William, Charles, and Elizabeth Godolphin.

The second set of monograms (M. A. B., and F. E. C.) denotes the names of Margaretta Ann Biggs, and Frances Elizabeth Cobbe, the present co-heiresses and legal representatives of the founders, on whom devolve the appointment of the head and second masters, and the nomination of the thirty foundation scholars.

The deans of St. Paul and Westminster, as official visitors of the school, are represented by the third monogram; and the present head master, the Rev. Henry Twells, by the fourth.

The trustees having invited designs from a limited number of architects, those now illustrated were selected.

The ground-floor arrangement is shown by the accompanying plan.

The first-floor is devoted to the dormitories for boarders (of whom the head master is allowed to take a limited number) and to a master's bed-room; and above this, and having no communication with the boys' department, are servants' bedrooms, sick rooms, &c., &c.; the other portions being devoted to the head master's residence.

The materials used are stock bricks, with red brick bands and Bath stone dressings. The roof of the school-room is open, with arched ribs springing from ornamental corbels.

Tenders were received from six builders for the erection of this building, when that of Mr. Fitzwater being the lowest, was accepted, and the works are now making rapid progress. The highest tender was 5,843*l.*; the lowest, 5,501*l.*

The first design proposed a tower in the centre, the walls of which are being carried up for that purpose; but the funds at the disposal of the trustees preclude that for the present.

The architect is Mr. Charles H. Cooke, of John-street, Bedford-row.

BLAKENHALL CHURCH.

In addition to our brief notice, on the 27th of July, of the consecration of the new church at Blakenhall, near Wolverhampton, we may now give a few details. The arrangement of the plan consists of a nave 90 feet long and 32 feet wide, flanked by north and south aisles of equal length, each 14 feet wide. On the east end is an apsidal chancel, 40 feet long, with two side chapels of equal width to the aisles, and 18 feet long, for the accommodation of 200 children. The

extreme length of the church is 132 feet, and its breadth 53 feet. On the west end is a long porch or cloister, extending the whole width of the church, and uniting it with a large and lofty tower and spire, which, when completed, will attain an altitude of upwards of 170 feet. The whole of the walls of the church and tower, and the internal arches, are constructed of brick of different colours, arranged in patterns, whilst the nave piers and the small shafts of the screen walls of the chapels and cloistral porch are composed of cast iron. Externally each bay of the aisles is marked by a brick buttress, and has in its centre a two-light window, with brick jambs, and a stone mullion, supporting corbels and caps of stone, ultimately intended to be carved, and the whole united by arches of moulded and variegated brickwork. The western front has a long cloistral porch extending across it. This is composed of an arcade of brickwork, supported on coupled cast-iron columns, and is intercepted in its centre by a central doorway of arched brickwork, having a stone lintel, supported by iron columns in the tympanum, above which it is ultimately intended to place a basso-relievo of the Supper at Emmaus. Beyond this arcade, and united to it by a flying buttress, capped by a lofty stone pinnace, rises the western wall of the nave, pierced by two two-light windows, having traceried heads in stone, and a large sixfoil rose window between them. The whole of the roof is covered with blue, green, and red slates, laid in various patterns, relieving the usual monotony of a long slated roof. The tower, which is as yet incomplete, terminates at a height of 80 feet from the ground, being not quite half its intended altitude. Beyond this point it will be covered by a slated spire of coloured slates, having at its base eight lucarne lights, and terminated by an ornamental wrought-iron top. Internally the nave is separated from the chancel by arches of coloured brick, supported by coupled columns of cast-iron, the capitals of which it is intended to clothe with wrought-iron foliage. The chancel is also divided from the nave by three arches; and the side chapels from its aisles and chancel by an arcaded screen of similar character; so that the east end of the chancel, despite its great length, can be seen from every part of the church. The floor of the chancel, which is elevated six steps from the nave, is laid with Milton's tiles, the gift of the late Mr. Herbert Milton. All the carving has been executed by Mr. Wood, of Lichfield; who, we believe, studied several years in the studio of Monti at Milan; and the wrought-iron work has been done by Mr. Brawn, of Birmingham. The edifice will accommodate 600 on the ground-floor, and the cost of it has been about 3,000*l.* The architect is Mr. G. T. Robinson.



THE GODOLPHIN SCHOOLS, HAMMERSMITH.—MR. CHARLES H. COKE, ARCHT.

WATER! WATER!!

Of late we have been far too much familiar with the cry of "Fire! fire!" and, in some instances, the latter evil has been increased to a great extent by a want of the sufficient flow of water. It is with regret we notice that, besides the scarcity in this respect at certain fires, the want of it is still found in this summer weather amongst the dwellings of the poor.

On Saturday last we called at Wild-court, Drury-lane. We found the whole place in great quiet and comfort: fever has not proved a visitor; and in spite of the predictions of those who thought that they understood the subject, and had been accustomed to deal with the description of people who find lodgings in these localities, and who said that it would be utterly impossible to make such a population clean; we found that this miracle had actually been effected. The staircases and yards were in excellent order: the women in all directions were busy in washing their rooms; and the children generally looked clean and healthy. There was plenty of water; and, as our readers know, it is laid on in parts of the staircases, close at hand, as well as in the rear of the premises. At the time of our visit, there were only four apartments to be let; and this appears to be about the weekly average throughout the year—a matter for surprise, when we consider the migratory disposition of the class of people. Looking at this with much satisfaction, we then called at Lincoln's-court, on the opposite side of the way; a place which passes to Drury-lane, and which contains an immense population. The condition of the back-yards was offensive in the extreme: the dust in all directions was overflowing the bins: the water-cisterns being without lids, it is said that various abominable substances get thrown into them from the upper windows. But what seemed to be worse than all, on Saturday evening, July 20th, between six and seven o'clock, there was not a gallon of water to be found in the cisterns of the court: the imperfect supply had been turned on and off again: some had carried a little store into their houses; but the greater part of the inhabitants had not enough to boil their kettle, or to wash their face on Sunday morning. There would be no more water until Monday evening—a period of forty-eight hours. We have so often referred to this,—which is an evil in many parts of the metropolis to a greater extent than would be credited,—that it seems to be almost a hopeless task to endeavour to obtain a remedy. But how, we ask, under such circumstances, is it possible for poor people to be cleanly? It is not encouraging to those of mature years; and it is shocking teaching to the young who are rising up to maturity, and from whom, if we are progressing at all, better things should be expected.

It would be a valuable piece of information if we could learn the exact number of houses which are without water on a particular Saturday night,—at, say, ten o'clock; something like the number of persons who occupy them; and the same return for Sunday night. We should also have the names of the companies on whom the supply depends; so that those who do their duty by freely throwing a good supply of this necessary of life and health into the neighbourhoods of the poor may receive due credit. Such a return, carefully and fairly made, might cause a change in the present arrangements.

FIRES.

ANOTHER great fire, not far distant from the scene of the last terrible conflagration, has happened in the Borough; and, but for the exertions of the fire brigade and a good supply of water, might have been even more disastrous than the Cotton Wharf affair; for, in addition to the inflammable contents of the premises of Messrs. Curling & Co., wharfingers; running from Tooley-street, Dockhead; the buildings which surrounded them are said to have been filled with stores of a more dangerous description. In Mark Brown's Wharf, we are told, there are over 10,000 casks of tallow and grease, and an immense quantity of cotton-seed oil. At the eastern end, in what is called Hartley Wharf, there are stores of naphtha oil, turpentine, resin, and other articles of an equally dangerous nature.

In this instance the police officer of the M division, who was the first to notice the outbreak of the fire, at once sent to the ruins of the last fire, where the engines were still engaged, and to the nearest stations; and information was simultaneously despatched to the Southwark Water Company's offices, apprising the secretary of the outbreak; and in the course of a few minutes the

engineer and chief inspector arrived at the spot. Even in this brief space of time the fire had made considerable head, and the bales of jute were blazing like a mighty furnace: it was, however, owing entirely to the promptness of the attendance of the firemen, and the large and ready supply of water, that this fire was kept within limits.

As we have before said, the frequent occurrence of great fires calls for more careful inquiry than has yet been made. In this case was the jute warehoused in a dry state, so as to be comparatively safe from spontaneous combustion? This commodity is becoming a rapidly increasing article of commerce. We should, therefore, take proper precautions for its safe keeping.

The fire at Messrs. Curling & Co.'s wharf commenced on the morning of Thursday last. In the afternoon of the same day, chancing to be in Smithfield, looking with no pleasant feelings at the still neglected condition of this venerable site, an alarm of fire was raised in a workshop and stable closely surrounded by the thickly populated tenements of the poor. This happened not far from the Charter-house, the fire-engine from which place was soon on the spot. But before then the turncock had fortunately been found, and an excellent supply of water from the New River was at once had. With this the neighbours set to work; and, before the arrival of the Brigade engines, the fire was got under, and the alarmed neighbours saved from damage.

On inquiry, we learned that it is the custom of the New River Company to keep their main turned on during the night; so that, in their district, when the turncock is in attendance, the water, in large quantities, is at once ready; and it would be well if this provision were made by all the water companies. If this had been the case at the great Tooley-street fire, half-an-hour of most valuable time might have been saved and usefully employed.

In nine instances out of ten, in the night-time, the police are the first to reach the scene of a fire; and it has been suggested that they should have power over the water-supply on such occasions. This could doubtless be managed; but there seem to be certain difficulties in the way. If, however, we had, in connection with the metropolitan supply, distinct mains, which—independent of distinct private supply (if indeed the latter is never to be constant)—should be always charged and ready for use during night and day. This is a question of expense; but, when we think of the vast amount of property which is consumed in each year, and the loss of life which takes place, such a plan as this might in the end prove a saving.

While speaking of the undoubted value of water in preventing the spread of fire, we may quote from the *Chemical News* a few remarks on its influence, when applied directly in the attempt to extinguish fire already rampant:—

"Every chemist knows that when a small quantity of water is projected into the midst of a large mass of red-hot combustible matter, it is decomposed in presence of the carbon into carbonic oxide and hydrogen, each a highly combustible gas, and thereby tends to increase the volume of flame. This was the case with a large proportion of the water which was thrown on during the first few days of the memorable fire at London Bridge. Standing inside the gates at Cotton's Wharf, we watched a jet of water from the powerful steam fire-engine, as the firemen directed it into a brightly burning mass. The liquid hissed and vaporized the instant it touched the incandescent matter; but in this and in most other instances where water was directed into the fiercest parts of the fire, the supply of heat from combustion was so much in excess of the loss of heat required to vaporize the water; that, except at the spot on which the solid jet of liquid fell, there was scarcely any appearance of deadening or quenching; and, as soon as the hose was directed towards another part of the blazing mass, the spot on which the water had been previously falling glowed as brightly as ever."

ST. GILES'S.

A MOVEMENT IN THE RIGHT DIRECTION.

THE changes and improvements which have taken place during the last few years in this once notorious portion of the metropolis have been remarkable, and it is satisfactory to find that, while so many of the buildings are putting on a fresh aspect, there are also persons earnestly at work in endeavouring to change those bad social conditions for which this neighbourhood has for a long period been notorious. One of the last of these efforts has been made by the Rev. E. Bayley, in the encouragement of *horticulture in St. Giles's*! This by many will be looked upon as a forlorn or Quixotic endeavour; but the results, so far as the experiments have been carried out, have been very encouraging.

The plan has been to issue a schedule of prizes offered for competition among various classes,

separated in such a manner that persons in the most confined situations should compete by themselves, and those residing in more open streets in another class; and independently of these the various parochial schools—divided from the boys and girls of the Ragged Schools; so that no class of exhibitors shall have to show against persons who have advantage over them. For instance, we have prizes for adults:—

1st. Persons living in the Little Coram-street district, viz.—Little Coram-street, Marchmont-place, Tavistock-mews, Colonnade, Little Guildford-street: for fuschias, 1st, 2nd, 3rd, and 4th prizes; for geraniums, similar prizes; for annuals, ditto.

2nd. Persons living in mews,—similar prizes.
3rd. Persons living elsewhere in the parish,—similar prizes.

There are also prizes offered for children of the working classes living in the parish. 1st, Parochial, National, Sunday, and evening schools. Boys for fuschias, 1st, 2nd, 3rd, and 4th prizes; for geraniums and annuals, the same. For girls there are similar prizes; and for the children of the Ragged Schools. Prizes are also offered to domestic servants, for any plants. Mr. Glenn, a good authority on these matters, remarks upon the beneficial effects of extending the cultivation of plants and flowers to children. This has been very successful at the Duke of Northumberland's school at Alnwick. This plan, introduced into large towns, such as London, Manchester, Liverpool, &c., will add to the comfort and beauty of many humble homes.

The show brought out plants grown in windows in some of the most miserable parts of St. Giles's; and the arrangements made placed those in the worst conditions on a comparative equality with each other; and although many of the flowers showed the blackened appearance which might be expected in such localities, the exhibition had an interest to gardeners and others. It brought out the ingenuity of the young aspirants to horticultural honours: one produced a young chestnut-tree, another an oak, a third a walnut-tree, another an orange-tree—all from their several nuts, pips, or seeds; for prizes are offered for things not in bloom, and therefore nothing was excluded.

The culture of flowers and plants must have a humanizing effect, and may be in many instances the means of producing some very desirable results.

PROVINCIAL NEWS.

Tynemouth.—The north pier at Tynemouth now extends from the corner of the castle-yard to a distance of 1,330 feet. The present contract extends to 1,400 feet of pier, and 1,450 feet of foundation.

Kirriemuir.—There is now in course of erection at Gella, about equidistant from Cortachy and Clova, a bridge across the Esk. It is built, says the *Montrose Review*, of a very hard stone, something similar to the Aberdeen granite, and is above 60 feet of a span. Similar bridges, but on a smaller scale, are in course of erection across the Burn of Rottal and the Brandy Burn, at the Milton of Clova, all of which, for practical purposes, will be ready before the end of harvest. Mr. Watson, builder, was the contractor. The want of sufficient bridges has been long felt by the farmers and others on the Esk.

THE LABOUR QUESTION.

London.—A deputation from the building trades of the metropolis, and also one from the London Trades' Delegates, waited by appointment on Sir G. C. Lewis, now the Secretary for War, at the House of Commons last week, to complain of Government interference with trades' disputes by supplying sappers and miners to Mr. Higgs at Chatham. Various members of the deputations addressed the Secretary, in strong but respectful terms; and Sir George in reply disclaimed any intention whatever, on the part of the Government, to interfere with the disputes between the men and their masters; the only object being to expedite the completion of urgent work. Without pledging himself for the Government to any particular course, he said, diligent inquiry should be made, and the various points urged should receive his most serious consideration. Subsequently, Mr. Ayrton and Sir S. Peto addressed the House with reference to petitions from the building and the general trades-unions; and Sir George Lewis announced that from the 1st of September the sappers would be withdrawn.

THE NATIONAL SCHOOL SYSTEM OF EDUCATION.

WE have from time to time remarked upon what we consider to be a fault of this, in many respects, useful system of instruction. We referred to the circumstance that sufficient care is not taken to convey the rudiments of education with sufficient speed to the younger children; and are glad that Mr. Henley has brought the matter under the notice of the House of Commons.

In the course of the discussion, the present system of the payment of capitation money was objected to. As this is at present managed, the schoolmaster or mistress receives a sum of money for each child who has attended 170 and odd times in twelve months. This capitation grant is only given in case the inspector reports favourably of the school. It has, however, been proposed that the inspectors should examine every child, in reading, writing, and arithmetic; and, should the child pass, the full capitation grant will be allowed; but should the child fail in reading and writing, two-thirds; and if in reading, writing, and arithmetic, the whole of the capitation money should be withdrawn.

As matters are at present managed, in many schools, the attention of the masters is too much given to the upper scholars, the younger ones being left in the care of pupil teachers. At about the time the inspector is expected to make his visit, the lower classes are looked to; but this, in order to ensure useful results, should be continually done. Good attendance of the children is not of much use, unless the teaching leads to real knowledge on the part of the children. It must be admitted that the duties of a National schoolmaster or mistress are very arduous; for besides the children, there is the teaching of the pupil teachers, from whom future schoolmasters are to be made; so that, at the age of eighteen, they may be prepared for admission into the training colleges. This, however, should not prevent the most careful attention to the younger scholars; and this is the more apparently necessary, when we consider the very early age at which a large proportion of the children are obliged to leave school. At present considerable numbers of children leave school without obtaining that amount of instruction which they ought to have before their being required to work.

If a child be able to read, write, and cypher when he leaves school, he has every opportunity of future improvement; but without this, the superficial knowledge which is acquired in those early years is speedily forgotten. We therefore trust that changes will be made in the management of the younger scholars which will lead to better results.

It is satisfactory to find that the number of children attending these schools is increasing. In 1857, the number of children found by the inspectors in the schools was 821,000; in the following year 880,000; showing an increase in round numbers of 60,000. In the present year the estimated sum granted by the Government is 803,000*l.*, and the number of children 902,000; this being a still further increase of upwards of 80,000.

In connection with these schools, which are so rapidly dispersing old-fashioned plans of education, the attention of the inspectors is most important. These gentlemen should go very carefully into detail; and, if the present number be not sufficient for the purpose of thoroughly attending to this work, it would be money well spent to increase it.

CHURCH-BUILDING NEWS.

Hanger-lane, Stamford-hill (Middlesex).—The new district church of St. Ann was consecrated, on the 20th ult., by the Bishop of London. This church, and the parsonage-house, the schools, and model cottages adjoining, have all been erected at the sole cost of one person, viz., Mr. Fowler Newnam, of Stamford-hill, who spared no means to obtain a satisfactory result. The foundation-stone was laid last July, and in ten working months, Mr. Myers, the builder, has completed the church and parsonage. The church (which is of the Second Pointed period in plan) has a nave, aisles, transepts, organ-chapel, vestry, and chancel, with an octagonal apse. The dimensions are as follow:—nave, 73 feet by 23 feet; aisles, 72 feet by 12 feet 4 inches; chancel, 36 feet by 23 feet; organ-chapel and vestry, 17 feet by 13 feet. The tower, which is at the west end of the south aisle, is 18 feet square; and, with the spire, is 120 feet high. The height of nave-roof to the cresting is 60 feet. The walls are of brick, faced with Kentish rag; and the windows, doors, buttresses,

and dressings generally, are of Bath stone. The fittings of the chancel are of oak, of an ornate character: the pulpit is of Caen stone. The chancel is paved throughout with encaustic tiles. The five sides of the apse, as a reredos, are painted and emblazoned. The organ is in the south chancel chapel. The whole of the windows of the apse, the transepts, and the large west window, are filled with stained glass, in subjects, well executed by Wailes, of Newcastle. The seats of the church are of deal, stained and varnished; and the passages are paved with Staffordshire tiles. The church will hold 625 persons, including 50 children in transept; and the cost of the church and parsonage is upwards of 11,000*l.* A considerable expense was necessitated on the foundations, the ground being wet clay. The parsonage adjoining is of a Mediæval design, with all modern comforts in the arrangements of the plan, and has been built regardless of cost. The architect to both buildings is Mr. Talbot Bury.

Devizes.—The vestry of St. John's parish have sanctioned the rector and churchwardens "to apply to the bishop of the diocese (provided they obtain the consent of the committee appointed to conduct the improvements of the church) for a faculty to rebuild, if necessary, the arcades; and also, if necessary, to put on new roofs, to extend the nave and aisles one bay to the westward, and to reseat the whole church, and to effect such portions of these works as may be within the compass of the funds placed, or to be placed, at the disposal of the said committee by public contributions and subscriptions."

Tachbrook.—At the flower show, the pulpit, recently erected in the church to commemorate the preservation of Lieut. Waller, R.N., from shipwreck in the ill-fated *Perseverance*, attracted much attention. It is of Caen stone, inlaid with red Mansfield stone and Devonshire marble, and has on its front a bas-relief of the shipwreck of St. Paul. Attached to the pulpit is a new reading desk, of stone, with wrought-iron and brass lecterns, which is partly erected from sums contributed towards a testimonial to the Rev. E. T. Codd (the vicar) for his gratuitous discharge of the early services at Christ Church during his residence in Leamington. The pulpit and reading desk have been designed by Mr. G. T. Robinson, and executed by Messrs. Price & Tennant, of Leamington.

Martock (Somerset).—The church of Martock has been re-opened, according to the *Sherborne Journal*. The carved oak roof has been repaired and made secure. The side-aisle roofs, which are panelled, are new. The aisles are continued into the chancel, forming a pseudo transept. The chancel roof is of plain oak, panelled. An Early English quintupled eastern window, which had been blocked up by a Grecian altarpiece, has been thrown open; as have also the west window and a west arch, formerly obscured by the organ, which has been enlarged and repaired, at a cost of 200*l.*, by Mr. King, of London. It is inclosed in a Gothic case, illuminated. The work of restoration has been conducted under the superintendence of Mr. Ferrey, the diocesan architect. The contractors were Messrs. Chincock, of Southampton. The reredos was executed by Mr. Hudson. The building is heated by Borritt, of Bolton-le-Moors. A skeleton gold-dial clock has been furnished by Hanwick, of Yeovil. The seats have been made uniform, and there has been a gain of 300 sittings. 3,500*l.* have been spent on the work, and there is a deficiency of 500*l.* in the funds. During the alterations, the remains of an old Saxon edifice were found.

Coppenhall.—The little church of this hamlet has been restored and reopened. The new roof is covered with brimble tiles, and a shingle campanile surmounts the ridge over the west gable. The lancet windows have been restored, and glazed with light amber-tinted glass. In the interior there has been a substitution of stalls in place of pews, a new pulpit, and the floor paved with tiles. There is accommodation for about 75 persons. The works have been carried out by Mr. J. Epsley, of Stafford, builder, from the drawings of Mr. Christian, the diocesan architect, and under the supervision of Archdeacon Moore. A burial-ground has been added. The cost of the restoration, &c., will be about 500*l.*

Yorkleton (near Shrewsbury).—A new church has been erected at Yorkleton, six miles from Shrewsbury, on a singularly beautiful site. The edifice consists of a nave, with south lean-to aisle, and tower at south-west angle, chancel with south aisle, and vestry to the north. The entrance to the church is under the tower, which, with the spire, rises to the height of 100 feet. The materials used are

Cardiston stone, with white Grinshill dressings and bands and alternate voussoirs of red and white Grinshill to arches of windows, &c. A low stone screen divides chancel and nave. The roof is covered with Staffordshire tile. The seats are open and moveable, affording accommodation for 240 people. The architect is Mr. E. Haycock, jun., of Shrewsbury; and the contractor, Mr. Treasure, who has completed the work, exclusive of the boundary-wall, for 1,713*l.*

Draycot (near Wells).—St. Peter's Church, Draycot, has been consecrated. The new church is in the Early Decorated style, and consists of a nave and two transepts, with an apse chancel, and entrances at the north and south. It is built of native stone, with Doulting stone dressings, the roof being of belted tiles. Over the chancel arch is a bell turret. The chancel contains three stained glass windows, by Messrs. Clayton & Bell, of London. The doors are of oak, varnished. The edifice has an open roof of stained deal: the seats are likewise of stained deal, with the exception of those in the chancel, which are of pitch pine. The chancel is laid with encaustic tiles, and is, with the transepts, supported by seven arches, resting on two freestone pillars. The former has a groined roof, which is decorated with blue and spangled with gold stars, whilst the timbers also are partly gilded. The edifice is lit by a single twelve-light chandelier, manufactured by Mr. Singer, of Frome, who also executed the whole of the metal work connected with the erection of the building. The contractor for the carpentry was Mr. Croom, of Binegar; whilst Mr. Emery undertook the rough stone work, and Mr. Vincell the freestone or lighter portion of the masonry. The reredos and the whole of the carving are the work of Mr. W. Bennett, of Portishead. Mr. Giles, of London, was the architect, under whose supervision the erection of the edifice has been brought to a conclusion. The total cost of the church will be probably about 1,400*l.*, or 1,500*l.*

PROPOSED DESTRUCTION OF MERTON COLLEGE, OXFORD.

The following memorial was sent to the authorities by the committee of the Architectural Museum:—

"July 8, 1861.
The committee of the Architectural Museum have learned with great concern that a plan is under the consideration of the Warden and Fellows of Merton College, Oxford, for the enlargement of the college, which would involve a very serious alteration in the character and appearance of Mob Quadrangle, so famous and valuable a singularly perfect and, indeed, unique specimen of the collegiate architecture of the fourteenth century. They are informed that it is in contemplation to pull down on wing of the college library, and to rebuild it in another direction, thereby effacing the peculiar character of the quadrangle."

The committee of the Architectural Museum, which willingly acknowledging the perfect legal right of a corporation to deal with its own property, cannot refrain from recording its anxious and respectful hope, in the interest of art and history, that the college authorities may be induced to reconsider the plan; and in expressing the belief that some method might be found of providing the additional accommodation which Merton College requires, without an interference with so famous an architectural monument as Mob Quadrangle."

The following reply has been received from the senior warden:—

"I have the honour to acknowledge, through you, the president, the receipt of the resolution of the committee of the Architectural Museum addressed to me, and to assure you that I will take an early opportunity of submitting it to the Fellows of Merton College."

The Society contemplates the enlargement of its buildings with a view to the reception of a greater number of students; and it hopes to effect its purpose with due consideration for the ornament of the University, and the health and comfort of the youth entrusted to its care; but it has not yet adopted any plans. It is right I should add, on the behalf of Mr. Butterfield, that the idea of removing Mob Quadrangle was not of his suggestion, and that I am not sure that it met with his approval."

R. BULLOCK MARSHAM.
To A. J. B. Beresford Hope, Esq., &c."

INJUSTICE TO BUILDERS.

Sir,—Of late we have had several contracts by tender disposed of in a very improper way, at least according to the views of myself, and a number of others in this district. The last instance is one in which I have been interested as tenderer. I tendered and was the lowest; after which was given to the person whose price was highest, on condition that he lowered his price so as to be under mine. The parties concerned in this game were inarted, doing, though without assigning any reason why I should not do it, and without in any way stipulating that they were not bound to the lowest. I think the question was settled by your views of the matter being inarted, and in your next impression, and you will very much oblige me, and I may say many others of your readers, by publishing your views on this subject.
C. TAYLOR.

* We have always maintained, and continue to do so, that, if a builder be invited to tender and be the lowest, should invariably be employed; a contrary course is manifestly unjust. Builders should have this understood before sending in tenders.

INSTITUTION OF MECHANICAL ENGINEERS.

The annual meetings of this Institution have been held this year in Sheffield. Meetings for the reading of papers and the transaction of business were held in the Music Hall, on the mornings of Wednesday and Thursday in last week, on both of which occasions there was a good attendance of members of the Institution from a distance, and also of gentlemen of the town and neighbourhood. Sir Wm. G. Armstrong, of Newcastle, inventor of the celebrated guns, president of the Institution, occupied the chair. The minutes of the last meeting having been read,—

Sir W. G. Armstrong proceeded to deliver the usual president's address. After advertng at some length to the history of steam and other inventions and processes, he said:—

"It is the iron and not the golden age, which is the true age of civilization; and England has led the way in the march of progress, chiefly through her skill and energy in producing this metal, and applying it to mechanical purposes. Iron, unlike all other metals, has three phases of existence—cast iron, wrought iron, and steel, each equally useful, and yet so different as to be virtually separate metals. In the manufacture of steel, the town of Sheffield enjoys an unrivalled eminence, and our discussions on this occasion will naturally be directed to those various questions of peculiar interest which at present apply to that most useful product. I have hitherto spoken only of the mechanical arts as applied to the purposes of peace, but I have yet to refer to the darker side of the picture in speaking of their application to the purposes of war."

The speaker then went at considerable length into this branch of the subject; and, in conclusion, he remarked that having called to remembrance the triumphs which have already been accomplished in mechanical science; and having directed attention to some of the subjects which at the present time merit consideration; it only remained to express his hope that the genius, enterprise, and intelligence which had hitherto distinguished their profession might continue to bear fruits worthy of the past; and that the proceedings of the Institution might serve to guide and stimulate the efforts of its members.

A paper by Alderman John Brown, on "The Manufacture of Steel Rails and Armour Plates," was then read by Mr. Marshall, the secretary. Amongst the most important methods hitherto used, it remarked, were forming the wearing surface of the rail of steel, case-hardening the outer coat of the ordinary iron-rail, and using rails of muddled steel. These processes were to some extent successful, but were open to serious objections. The introduction, however, of Bessemer's system, had opened out a mode of producing a pure, homogeneous, hard, and tough material, most admirably suited for the manufacture of rails; and, though their cost might prevent their extensive use; yet in every railway where there were certain places where they might be laid with economy; as, for instance, where the traffic was more than ordinarily severe. Specimens were shown, exhibiting homogeneity, toughness, and ductility of metal. The tensile strength was upwards of forty tons per square inch. Cast-steel rails were not an absolute novelty, having been used with success at the Derby station; but those were made by the old method, and it was impossible to introduce them commercially, on account of their great cost. Still, the experiment showed their greater power of resistance; and now, by the Bessemer process, steel rails could be produced, bidding fair to become a "permanent way."

The paper then went into the subject of armour plates, and a conversation afterwards took place upon this subject.

A paper by Mr. Bessemer, "On the Manufacture of Cast Steel, and its Application to Constructive Purposes," was then read. Steel, he said, had hitherto been to the engineer what granite was to the builder; and the problem was, now to produce cast steel that would take any form in the mould, or under the hammer; that would yield quickly and readily to all cutting and shaping machines; that would retain all the toughness of iron, with much greater tensile strength; and have all the clearness of surface, beauty of finish, and durability that distinguished the harder and more refractory qualities of steel in common use. These objects Mr. Bessemer believed he had fully accomplished by his process of converting crude molten iron into cast steel at a single operation, which had been carried on in this town for two years.

The process was then described at some length, and specimens were exhibited to show that the Bessemer steel met the desired requirements.

A paper by Mr. T. E. Vickers, of the firm of Taylor, Vickers, & Co., was read, "On the Effect

of the Combination of Carbon with Iron in increasing or diminishing its Strength." The paper stated that

"The superior strength of cast steel cannot be better illustrated than by remarking that castings of steel, without hammering, rolling, or other means of mechanical compression, show a very high degree of strength and tenacity, far above that of castings of any other metal in practical use. Advantage is taken of this property of cast steel to make bells of that material, one-third lighter than bronze bells of the same diameter; and this lighter steel bell will still bear double the breaking strain of the bronze one. Another superiority of steel castings is that they are not as liable as other metal to break when subjected to concussions during intense frost, as proved by the fact that cast steel bells are rung in Russia and Canada, where the thermometer ranges below 20 deg. under zero (Fahrenheit), without the least injury, while the heavier and thicker bronze bells could not be rung in the same temperature without cracking. The same properties have led to the manufacture of cast steel railway carriage and engine disc wheels, with tyres, in one solid body."

During the afternoon, several of the principal manufactories were visited, and the meetings were resumed on Thursday morning.

One of the papers read was by Lieut.-Col. Kennedy, "On the Construction and Erection of Iron Piers and Superstructures for Railway Bridges in Alluvial Districts." The object of the paper was stated to be, to consider the most eligible construction of these structures in alluvial districts, as regarded economy in the first cost; facility and economy of erection in the colonies, in situations where the supply of skilled labour and mechanical appliances were very limited; and more especially in reference to the extension of railways as a means of facilitating the industrial development of the British colonies. The author referred more especially to Indian railways, most of which took their course through rich alluvial plains, where the only important impediment to their construction was the bridging of rivers, combining the greatest difficulties experienced in the construction of masonry bridges.

The process of rolling armour-plates was witnessed in the afternoon, as well as other processes.*

THE OLD FLEET PRISON.

Two important City prisons within the last quarter of a century have passed out of use. Not one stone of Giltspur-street compter is left standing, and now the time has come of the street screen of the ancient Fleet prison. Thinking of the dark doorway of this prison, the inconvenient and unwholesome apartments, the groups of miserable and shabby-looking prisoners, we looked in within the wall, and noticed the valuable space now only occupied for stone-breaking and partly filled with lumber, and thought of the singular contrast of the present scene, with that presented twenty years or so ago. Still greater is the change in the appearance of the place and the manners of the people since the days when marriages were solemnized by wholesale in the prison and in places adjoining, and it was common for wayfarers to be asked by the touters to the Fleet prison, "Sir, would it please you to walk in and be married?" There is, however, a far more ancient history of the Fleet, when the wardenship of Fleet and the custody of the prisoners appear to have been vested in fee with Nathaniel Leveland, of Leveland, in the county of Kent, in the reign of Richard I., and to have been in his ancestors' care from the time of the Conquest.

In the 9th of Richard I. (1198), Nathaniel de Leveland and Robert de Leveland, his son, were fined in sixty marks, to have the custody of the King's houses at Westminster, and of the Fleet prison, which they stated had been their inheritance ever since the Conquest, and that they might not be hindered therein by the counterfeint of Osbert de Longchamp; and Osbert de Longchamp fined in D. marks to have the King's favour and seizer of all his lands and chattels whereof he was dis-seized by the King's command; and to have seizer of the custody of the gaol in London, with the appurtenances, and of the custody of the King's House, Westminster, provided that right be done in the King's Court, according to the judgment of the King's Court, in case any one would implede him for the same.

Stow mentions that, in 1202, 3rd of King John, the King granted the wardenship of the Fleet and the wardenship of the daughter and heir of Robert Leveland to Simon Fitz-Robert, archdeacon of Wells. From 1206 to 1215 Robert de Leveland was warden, and it appears that,

* A full report of the whole proceedings appears in the *Sheffield Independent* of 3rd August.

from 1217 to 1222 there followed a long succession of wardens of the Fleet,—Margaret, widow of Robert de Leveland, Gilles de Badlesmere, who married without leave the ward of the archdeacon of Wells above mentioned, and only obtained the King's pardon for this unlicensed act in the 40th year of Henry III.

In 1586 the prisoners of the Fleet petitioned the Lords of the Council, in consequence of the warden having underlet to John Harvey and Thomas Newport, who were guilty of cruelty and extortion; and in that year a commission was issued for the purpose of inquiry. This led to beneficial changes.

This prison was used for the reception of the prisoners committed by the Court of the Star-chamber. After the 16th Car. II., the prison was used as a place of confinement for debtors, and for persons guilty of contempt of the Courts of Chancery, Exchequer, and Common Pleas; and fell under the same regulations as other prisons in the kingdom. Charles II., having by letters patent granted the office of warden of the Fleet and keeper of the old Palace at Westminster, the shops in Westminster Hall, certain tenements adjoining to the Fleet, and other rents and profits belonging to the warden, to Sir Jeremy Whitchcot and his heirs, for ever; he, in consideration of such grant, rebuilt the prison at his own expense. The prison was burnt in the great fire of 1666, and, being rebuilt, was pulled down in 1846.

ILLUMINATED CLOCKS.

PASSING over Waterloo Bridge late at night, the large illuminated dials of Westminster clock immediately attract the eye. They are strange, "moony"-looking objects, placed high in air; and are quite as difficult as the moon herself to decipher. It occurred to me the other evening while gazing at them, that if the whole dial were dark instead of light, and the index to the hour the only bright part, the time of night would be discernible at a much greater distance. Of course the exact minute could not be specified, but half-hours could be easily distinguished, from their known position on the circle.

I think the change could be effected thus:—A plate of thin metal, the size of the present dial up to the foot of the figures, could be placed between the illuminator and the present transparent dial; and on it should be cut a broad slit as wide as half the distance between any two hour-figures. The slit must extend almost from the edge to the centre support, and the opaque metal dial must be made to revolve slowly with the hour-hand.

This plan would not in any way interfere with the present usefulness of the clock by day, and would add to it a more extended usefulness by night. The minute-hand, in passing the opening, would not materially darken it, on account of being so much narrower.



* * A somewhat similar suggestion was made in our pages when the clock was under discussion, but may be usefully repeated in its present shape.

GRAMMAR-SCHOOL COMPETITION, NOTTINGHAM.

IN reply to the offered premiums of 50*l*. and 25*l*. by the Charitable Trustees, twelve sets of designs were sent in, the majority by architects of the neighbourhood. Amongst the competitors were Mr. Arthur Wilson, Messrs. Sutton & Andre, Mr. Bakewell, Messrs. Jackson & Heavell, Mr. R. Clarke, Mr. Stayner, Mr. Gilbert, Mr. Lomas, Mr. Edwards, Mr. Ordish. The first premium has been awarded to Mr. Arthur Wilson, Nottingham; the second to Messrs. Sutton & Andre. Mr. Wilson's plan is described as of the Decorated Gothic style. The perspective drawing of the school comprises the additions which are proposed to be made at some future time, the latter proceeding at an angle of 45 degrees, so as to parallel the line of street, from the other part of the building, from which it is separated by a Decorated tower of three stories. Adjoining the tower is a staircase and bell-turret. The main building, intended for the school, is of two stories, the upper windows being square-headed, the lower ones pointed. At the south end of the building are the master's residence and class-rooms, the former comprising a conservatory, the principal entrance to the school being beneath the tower at the other extremity.

THE DISTRICT SURVEYORS' ASSOCIATION.

MR. GUTH, the district surveyor for Paddington, the chairman of the committee of the District Surveyors' Association, recently entertained, with his usual hospitality, the members of that body at dinner, at the Trafalgar, Greenwich. Mr. Guth having been chairman to the committee for many years; and having, by his good judgment and by the urbanity and kindness which he has on all occasions shown to his colleagues in office, won their regard, they determined to take the opportunity thereby afforded to present him with a testimonial in the shape of a silver inkstand, bearing an inscription to that effect. The members of the committee present were Messrs. Fowler, Good, Hesketh, Howell, Kendall, Mayhew, and Oliver. Messrs. Baker, Donaldson, and Godwin were unavoidably absent, but heartily concurred in the presentation of the memorial. After the removal of the cloth, and a few toasts proposed by the worthy chairman were disposed of, Mr. Mayhew, who was deputed to present "the tribute of their esteem and regard," rose, and proposed the health of their chairman; and, after a few appropriate remarks, presented it accordingly. The chairman acknowledged the gift with much feeling, and expressed his thanks to his colleagues for their kindness towards him. He referred to the advantages that had resulted from the establishment of the Association, not only to themselves as district surveyors, but especially to the public; by establishing, as far as possible, a uniformity of practice, and leading to a sound interpretation of the Act of Parliament.

SCIENCE INSTRUCTION TO THE INDUSTRIAL CLASSES.

THE first annual examination of Science Classes, under the minutes of the Committee of Council on Education, has just been completed. This examination is open to any persons, of whatever age or sex, who choose to present themselves, and is held in different places in the kingdom, and superintended entirely by the voluntary action of local committees.

For the late examinations there were thirty-five local centres. The examination papers were prepared by examiners in London, and sent by post to the local committees, by whom the examination was held in each subject simultaneously, all over the kingdom; and the worked papers were returned by the first post to London for revision. A thousand papers were thus sent up, which represent rather a fewer number of candidates, as the same person might be examined in more than one subject. 725 papers were considered good enough to be passed, of which 310 were up to the standard for Queen's prizes: 59 first class, 100 second class, and 151 third class Queen's prizes are awarded. Besides these, four gold, eleven silver, and sixteen bronze medals have been awarded competitively among the candidates; which leaves three gold, three silver, and five bronze medals unawarded of those offered, in consequence of candidates not having in some subjects done sufficiently well to merit them. From the list of medalists, we see that Frederick William Rudler, a solicitor's clerk, obtained two gold medals—one in chemistry, and the other in physics.

THE DISCOVERIES IN ORKNEY.

PICTS AND LAPS.

MR. FARRER, M.P., is of opinion that the two great mounds of Stennis are coeval with the well known "standing stones of Stennis." The mounds, he conceives, were not sepulchral, but sacrificial; and we may remark that it is an interesting coincidence that the mound of New Grange, in Ireland, to which the explored mound at Stennis is so similar, with its "narrow house beneath the tumulus," and its no less narrow passage, or "brance" leading into it, was surrounded at one time by standing stones,—also, it is believed, of Druidical origin. Some remarks in the *Builder*, of 16th October, 1853, on the mound at New Grange, in an article on Symbols, may be read with interest in connection with the discoveries at Stennis. These latter have been suspended for a time. An attempt, however, is in the meantime to be made to decipher the numerous Runic inscriptions in the interior of the cells or chambers of the tumulus. At the ancient "Weems," in the bay of Skail, too, in Orkney, "Weems," in the ground cells or chambers, containing stone implements called knives, have been found. In this connection we may here note that on the east

coast of Scotland there is a town called "The Weems;" and that several detached districts between Lochs Tummel and Earn, where there are vestiges, we think, of ancient coasts, are also called "The Weem." It would be interesting to ascertain whether the underground dwellings of those curious and interesting little people, the Laps, who still inhabit Lapland and the north of Norway, have any such name. May not these be a remnant of the very same little people who, in Scotland, were called the Picts? And may not both have been descendants of that race of the glacial era of whom, and of whose stone implements, geologists have of late got glimpses? Such an identification would account for the common origin of the Lapland and the Scottish tribes, if their forefathers of extreme antiquity were wanderers, like the Esquimaux of the present Arctic circle, on the face of a vast glacial ocean; which, in fact, must have just comprised the still more extended outlimits of an Arctic circle spreading over all Europe, and of which our present sheet of Arctic ice is but the continuous remnant; whatever astronomers may guess as to the narrow extent of the ecliptical pendulation, now and from time immemorial admittedly on the decrease towards a full coincidence of ecliptic and equator. The data for such a mere guess, Sir John Herschel and other astronomers admit, are very meagre; although he, too, considers the limits of the pendulation to be very small; but the angles which the ecliptics of the different planets make with their respective equators vary so widely, from an almost complete coincidence, as in Jupiter, to comparatively immense extremes, as in others of the planets, that astronomers have, at all events, this analogy against them; and, although each ecliptic might be comparatively fixed, were the mutual planes of the orbits perpetually fixed, *inter se*, and also with reference to the solar and planetary equators; the whole band of planets, for all that astronomers know, may have a secular movement across the solar equator, combined with the partially recognized ones of expansion and contraction, and of circularization and elliptization, if we may so call them for brevity's sake,—all these tending, from their very obscurity, to destroy the force of the dictum of some astronomers as to the very restricted limits of the pendulation of the earth's ecliptic.

Before concluding, we may remark that there is a circumstance bearing on the association of the stone implements of the glacial drift with the huge animals among whose bones they have been found, which we have not seen noticed; namely, the ponderous size of many of these apparent arrow or harpoon-heads—so accordant with the idea of their use in killing huge animals. Let any one compare some of these with analogous implements of later times, and we think the circumstance will strike him as notable.

RECENT PATENTS CONNECTED WITH BUILDING.

APPARATUS FOR CURING SMOKY CHIMNEYS AND FOR VENTILATING PURPOSES. *W. S. Wood, Chiselmhurst.* Dated 27th November, 1860.—This invention consists in placing one chimney-pot within another of greater diameter, from the base of which a draught is obtained. The interior pot is constructed with slots or perforations in a vertical or other position, for the purpose of enabling the outer pot to be cleansed when required. When necessary, a hood or cover is placed on the top to adapt it to ventilating purposes, in which case the vitiated air passes gradually away through the slots or perforations in the interior pot or tube.

AN IMPROVED DRAUGHT GENERATOR. *G. F. Chantrell, Liverpool.* A communication. Dated Dec. 13, 1860.—The patentee takes a square tube of say 3 feet long and 1 foot diameter, and removes one-half of each side of the tube at reverse angles, so as to form two openings at reverse angles, which openings extend 2 feet downwards; and, at the foot of each opening he inserts, horizontally, a right-angled triangular piece, extending from one upright corner piece to the other. The under sides of the angular gusset pieces he makes good, or encloses, by a triangular piece of metal, or other material, which dies away into the corners of the tube about 1 foot below. By this arrangement the fine opening partakes of a hexagonal form inscribed within the square. On the outside of the square tube, and 1 inch or 2 inches below the side openings, the square tube is surrounded by a hexagonal flange of an irregular octagon form inscribed a square of 2 feet diameter, upon which he erects two vertical screens, which are of the same width, and placed parallel to the inner edge

of the horizontal gusset pieces, the apices of which coincide in vertical line with the vertical centre of the screen pieces; which, with the two angular covering pieces of the square tube, are surmounted by a domed or flat horizontal plate of an octagonal form, so as to coincide with the horizontal flange described. The lower flange and the irregular octagon crown pieces are connected together at their outer edges by four flat vertical screen pieces, of 1 foot wide, placed parallel to, and 6 inches from, the vertical sides of the square tubular base of the apparatus; thus leaving an opening between each of these last described plates of about 8 inches, according to the thickness of material used.

CASES UNDER METROPOLITAN BUILDING ACT.

CUTTING AWAY CHIMNEY BREAST.

AT Clerkenwell Police-court, Mr. John Studd, builder of 72, Pearson-street, Kingsland-road, was summoned before Mr. Barker, by Mr. Henry Baker, the district surveyor of the parish of St. Pancras, "for that on the 24th day of July, 1861, you (the defendant) in doing certain work to or upon buildings situate and being Nos. 19 and 20, Goswell-street, St. Pancras, and within the limits of the Metropolitan Building Act, 1855, did do certain things contrary to certain rules of the said Act, to wit, did cut away the several chimney breasts and shafts, built in and with the party-walls between the said buildings, without the certificate of the said district surveyor, and in such manner as materially to injure the stability of the said building."

Mr. Baker said the proceedings in this case were taken under the 20th section of the Building Act, and the 15th clause. That clause is as follows:—"No chimney breast or shaft built with or in any party-wall, shall be cut away without the certificate of the district surveyor, who may, without injuriously affecting the stability of any building." In this case the defendant had cut away the party-wall between the two houses.

The defendant said he was ignorant of the requirements of the Act of Parliament. He had sent the district surveyor notice, and that he thought was sufficient.

Mr. Baker.—Yes; but the alteration of which I complain is not mentioned. The alteration you have made requires a certificate. When I saw what had been done I gave him notice to replace the party-wall, but he had not done it, nor taken any notice of it.

The defendant said the matter had been placed in the hands of a surveyor, and he had submitted the plans for the approval of Mr. Baker.

Mr. Baker said he had seen the drawings, but he could not approve of them.

Mr. Baker said he should make an order for the defendant to do what Mr. Baker required, but he would adjourn the summons for fourteen days; but if in the meantime the defendant could come to terms with Mr. Baker, the parties need not again attend. The defendant must pay the costs.

RAILWAY MATTERS.

THE report of Mr. Fowler, the engineer of the Victoria Station and Piccadilly Railway, the directors, states that the permanent works and general works of the railway have been maintained during the last half-year in excellent condition. The bridge over the river Thames has never required the smallest expenditure for its maintenance, and has not been affected the slightest degree by the traffic passing over it. The contract for the permanent station building has been let to Mr. Kelk for a sum within the amount of 105,000*l.*, which the Victoria Station committee have undertaken to provide. The permanent station is to be ready for use by the 1st April, 1862. The capital account showed that 880,260*l.* had been received, and 885,267*l.* expended. The revenue account to the 30th of June showed that 12,329*l.* had been received, 3,315*l.* expended, leaving a balance of 9,013*l.* The Oldham, Ashton, and Guide Bridge Junction Railway has been opened. This junction line is five miles and a quarter long. The deepest cutting on the line is at Dean Shut, between Oldham and Park Bridge. This cutting is 56 feet deep. The greatest embankment is 80 feet high, at Little Hurst, between Ashton and Park Bridge. There is, however, another embankment almost of the same height at Ganner Hog, a little near Ashton. The most expensive work on the line has been the construction of the Park Bridge viaduct, which spans a ravine upwards of 60 feet across, at the bottom of which flows the Mersey. This viaduct consists of twelve semicircular arches, nine of which are 50 feet span, and the 23 feet span. It is 215 yards long; and, measuring from the Medlock below, it is 96 feet 9 inches high. The height to the keystone of the highest arch is 90 feet, and the parapet at the sides is 4 feet 6 inches high. There is a tunnel just after passing Ashton, on the way to Oldham, 55 yards long. There is a station at Clegg-street, at Oldham end, which is only about 100 yards from the centre of the town. There are also stations at Park Bridge Charlestown (for Ashton), and Ashton Moss, between Guide Bridge and Ashton. The line has been constructed under the direction of Mr. Blackburne, C.E., of Oldham.

Books Received.

Treatise on Mills and Mill-work: Part I. On the Principles of Mechanism, and on Prime Movers. By WILLIAM FAIRBAIRN, C.E., LL.D., &c. London: Longman & Co. 1861.

We do not yet know whether Mr. Fairbairn accepts the title of doctor; but, having recently accepted that of LL.D., he cannot help himself; and Dr. Fairbairn therefore he is, to all intents and purposes; and so must we name him. This gentleman is not only highly competent to write such a work as the present, from his general abilities and acquirements; but it so happens that he has been associated with millwrights from early life, and has had an experience of this kind of fifty years' standing. Little else, therefore, need be said in favour of the present work, which must form a valuable acquisition to mechanical science. It is not only treats of mills and mill-work in general, water-wheels and turbines, water power, and windmills; but also of steam and stationary steam-engines, boilers, and other requisites of steam-mills and machinery.

The Climate of England: its Meteorological Character explained, and the Changes of Future Years revealed: with Appendix. By GEORGE SHEPHERD, C.E. London: Longman & Co. 1861.

THIS is rather a singular work, of almost an astrological order; inasmuch as it places the chief weather office in the planet Jupiter, with branch offices in Saturn and the other planets, and an indefinite number of flying train offices in the comets. Seriously, however, there is something worth consideration in Mr. Shepherd's weather scheme, if his tables really show with accuracy, as they profess to do, the comparative state of seasons for many years under the divers "aspects" of Jupiter, Saturn, &c., with which they have happened to be coincident. It is impossible for us here to give any adequate idea of the scheme, theory, or hypothesis, or whatever we may call it: suffice it to say that the author professes to give, in this volume, "a solution of the great problem which has defied the philosophy of all ages."

"[I now [he says] humbly, yet boldly, proclaim that the planet Jupiter, not excepting Saturn, Uranus, Neptune, or the smaller planets, and those great wanderers, the comets, as they revolve in their respective orbits round the sun, control, both directly and indirectly, the meteorology of our climate. I think it is so conclusive, that there remains not a shadow of doubt as to the great fact."

We shall see: meantime Mr. Shepherd has put the predictive powers of his new scheme boldly to the test by saying, a few days since, in the *Times*:-

"The harvest has already commenced in several districts. The present sudden fall in the barometer at the moment is causing some anxiety. Having to a considerable extent unravelled the mysteries of our climate, will you permit me to state in the *Times* the weather will only be unsettled until the 6th instant, after which date we shall have fine weather throughout the month, with only very trifling exceptions."

Mr. Shepherd seemed for a day to have some little acquaintance with the clerk of the weather office; for the 6th did bring us what looked much more like settled summer than anything we have yet had: but, alas! neither the clerk nor his friend are much to be depended on we fear, since this morning (Thursday, 8th August) we have a return of exactly such "unsettled" weather as that of which the summer has already brought us a good deal of experience.

The Appendix to Mr. Shepherd's work has much less to do with climatology than with his old topic, the sewage question, and the experiments and projects at Croydon, of which we have already given an account.

Miscellaneous.

GAS.—The Hertford Gas Company have declared dividend of 7½ per cent.; the Worcester New Gas-light and Coke Company one of 7 per cent.; and the Taunton Gas Company one of 6 per cent. The Worcester Company have besides extended their apparatus and means of distribution greatly this half-year. There has been a very large gas-holder added to the apparatus, capable of containing about a quarter of a million cubic feet of gas; and new steam-engines have been purchased, an engine-house erected, and a large addition to the trunk main of pipes has been laid. The cost of all these items has been defrayed out of revenue.—At Midhurst, an adjourned meeting for receiving tenders for lighting the church with gas was held on the 29th ultimo. The tenders were as follows:—Mr. Rosser, 53½; Mr. Wardes, 47½ 10s.; Mr. Othen, 46½; the latter being accepted.

THE STATE OF THE WARWICK ASSIZE COURTS. The inefficient ventilation of the courts at the Shirehall, Warwick, has been a frequent subject of remark. In the Nisi Prius Court, in the trial of the cause *Humphreys v. Sidgwick*, during the examination of the defendant, the foreman of the jury fainted; and, after the lapse of some time, and the administration of restoratives, he recovered sufficiently to allow the case to be proceeded with. The Lord Chief Baron remarked upon the close atmosphere of the court, notwithstanding that the windows were open; and spoke of the desirability of some better plan of ventilation being adopted.

INAUGURATION OF THE LINCOLN ARTS EXHIBITION.—The Lincoln Exhibition of Arts, Science, and Manufactures has been opened. The building has been erected by Messrs. Barnes & Birch, under the superintendence of Messrs. Bellamy & Hardy, architects. The main part is in the form of a parallelogram, 95 feet by 35 feet, with a transept 47 feet by 17 feet. The former consists of a nave and side aisles. It has been decorated by Mr. Miles Foster and Mr. Slingsby, the spandrels being filled in with the crests of the nobility of the county, and the arches with banners. A fountain-basin, supplied by Mr. William Vickers, builder, plays in the nave, opposite the transept. The gas is supplied by Mr. T. J. B. Porter, by means of his portable gas apparatus, which is fixed outside, in the gardens. An orchestra, capable of accommodating about fifty performers, is situate at the east end of the nave. The building is completely filled with works of art, &c., comprising oil and water-colour paintings, chromo-lithographs, engravings, photographs, tapestry, wood carvings, carvings in ivory and tortoise-shell, inlaid cabinets, models of churches and cathedrals, &c., ancient pottery, Chinese, Japanese, and Egyptian saddles, stuffed birds, &c., and also a collection of relics and works of art from the Kensington Museum. The inauguration took place under the presidency of Major Weston Amcotts, the High Sheriff of Lincolnshire, supported on the platform by the Mayor of Lincoln, and various other gentlemen.

DRINKING-FOUNTAIN MOVEMENT.—A miserable little parody of a fountain, says a Gloucester paper, has been erected at the Cross, at the expense, and for the purpose of celebrating the mayoralty, of Mr. Richard Helps. It has been indicted as a nuisance by a tradesman residing in the vicinity of its site. The conduits, the hereditary right of the citizens, it adds, were removed, and the civic Solons, by way of extenuating their own conduct, pronounced the conduits a perfect nuisance; if they were a nuisance, however, this dribbling little fountain is a compound nuisance.

SWANSEA HARBOUR WORKS.—At a recent meeting of the Swansea Harbour Trustees, the report of the New Works Committee was read. This report states that "The outlay upon the Half-tide Basin Works has been as follows:—works executed by the contractors, 15,800*l.* 17*s.* 6*d.*; compensation to contractors for delaying work in 1857, 1,195*l.*; amount agreed to be paid to contractors for giving up contract, for material on the ground, and for use of plant to complete works, 3,250*l.*; work executed under resident engineer (less amount realized on sale of plant), 14,578*l.* 18*s.* 11*d.*; rents and compensation, 8,922*l.* 2*s.* 9*d.*; total, 35,784*l.* 9*s.* 2*d.*, less amount to be repaid to the trustees for work executed by them for the Duke of Beaufort, the corporation of Swansea, and the Messrs. Bath, 6,352*l.* 17*s.* 9*d.*; total costs, 29,431*l.* 11*s.* 5*d.*. The above sum of 29,431*l.* 11*s.* 5*d.* includes 4,658*l.* 2*s.* 4*d.* for extra works not included in the contract with Messrs. Jones & Morris; reducing the outlay upon the works originally contracted for to 24,773*l.* 9*s.* 1*d.*; being an excess upon the contract amount of 3,877*l.* 9*s.* 6*d.*. In bringing up the final report of the Half-tide Basin Works (adds the report), your committee desire unanimously to express their high opinion of the energetic and able manner in which Mr. Neill has performed his important duties of resident engineer upon the extensive works which have been executed under his charge during the last six years, and especially during the period that the Half-tide Basin Works were carried on by the trustees under his direction."

MONUMENTAL.—The Sheffield monument to the memory of James Montgomery, the poet, has been unveiled. The monument is erected over the poet's grave in the Sheffield cemetery, and consists of a bronze statue standing upon a square pedestal of granite, on the four sides of which are inscriptions. The statue is from the design of Mr. John Bell, the sculptor. It has cost about 1,200*l.*, and has been cast at Colebrook Dale.

FRESH PAINT IN APARTMENTS.—Mr. Leclerc, a well-known house-painter in Paris, has lately made some experiments to ascertain whether emanations from certain paints containing such substances as white lead, zinc white, linseed oil, essence of turpentine, coal oil, essence of lavender, &c., are injurious to health. He caused the insides of some boxes to be painted, and within them he placed wire cages containing rabbits, which were not in contact with the paint, but only subject to the influence of the emanations from it. The rabbits, he says, suffered while the paint was fresh, especially when it contained coal oil, but none of them died; and he considers it (according to the *Mechanic's Magazine*) to be "thus proved that living in apartments recently painted, and which emit the odour of the oil of turpentine, is not permanently injurious to health;" a conclusion the force of which we cannot see.

CRINOLINE ACCIDENTS.—In reference to these very numerous, inexcusable, and truly "alarming sacrifices," Mr. W. Odling, F.R.S., reminds the public of the fact, duly noted in the *Builder* at the time, that (at her Majesty's instance) a scientific inquiry was instituted into the best mode of rendering muslin and other textile fabrics for ladies' dresses unflammable, and that the experiments of Messrs. Versmann & Oppenheim, two well-known chemists, showed that the best results were obtained with a solution of sulphate of ammonia, or of tungstate of soda, neither of which liquids produced any injurious effect upon the tissue or colour of the fabric. The tungstate of soda solution was found most applicable to laundry purposes, on account of its not interfering in any way with the process of ironing. Muslin, &c., steeped in a 7 per cent. solution of sulphate of ammonia, or a 20 per cent. solution of tungstate of soda, and then dried, may be held in the flame of a candle or gas-lamp without taking fire. That portion of the stuff in contact with the light becomes charred and destroyed, but it does not inflame, and consequently the burning state does not spread to the rest of the material.

LONDON SMOKE.—Mr. Evelyn tells us that Bridgewater-square in his time was celebrated for its orchards, "productive of such quantities of fruits as never were produced before or after." This he attributed to the decrease of smoke, resulting from the scarcity of coal, when Newcastle had refused to supply the City with that article during the civil wars. He inveighs at the time with great indignation at the increase of that species of fuel; and at the introduction of so many manufactories, productive of smoke, which not only deformed our noblest buildings with the sooty tinge, but also, from the quantity of coal, brought on catarrhs, coughs, and consumptions in a degree unknown in Paris, and other cities, which made use of wood only! His words are very strong: "The City of London resembles rather the face of Mount Ætna, the court of Vulcan Stromboli, or the suburbs of Hell, than an assembly of rational creatures, and the imperial seat of our incomparable monarch." Count Romford's stoves certainly consumed the greatest part of the smoke from coal fires; but as this smoke may be turned to a profitable account by being converted into "mineral tar," it is to be hoped that the Industrial Exhibition of 1862 will furnish one or more self-consuming smoke fire-grates for private dwellings.

VENTILATION OF MINES.—A tractate on "Colliery Explosions and a Means to Prevent them; by Richard H. Hughes," has been printed by F. Plummer, Great New-street, London. It contains an account of a patented invention analogous to the apparatus for gas supply, by means of which, mines can be supplied with fresh air from a reservoir, through pipes, to any part, or all parts, of the workings; the fresh air being simply poured in, and foul air diluted and expelled by the diffusion of the fresh air. The invention seems to have good points, not the least of which is its natural simplicity. In cases of accident, as by water, or in falls, not only fresh air, but even nutritive fluids, might be contributed in this way to those below, till their escape could be secured. Air-pipes are, of course, easily applied to the inmost recesses of mines, and fresh air could thus be directly introduced to the spot where most wanted, and waste of it elsewhere prevented by taps, &c.

BUILDERS' EXCURSIONS. We have received a dozen notes of excursions enjoyed by the workmen in the employ of various firms, as usual at this time of the year, but do not find it desirable to print them. Nevertheless we hear of them with more than common satisfaction at a moment when good feeling between masters and men is so much to be desired.

AN AEROLITE.—One of the most authentic, as well as recent, instances of the fall of an aerolite has just been recorded by the Rev. A. H. Denham, of Chorley, near Lancaster, who witnessed its fall, in a flaming mass and with a loud screeching noise, on the 1st inst., only a few yards in front of his horse's head, while driving with his wife and family in that vicinity. He caused it to be dug up, and it was found, still red-hot, nearly 6 feet below the surface of the road. The weight is 8½ lbs.; and, as usual, it consists mainly of heavy metallic matter; but several crystals of sulphur were found in its cavities, and it had a strong sulphurous smell. We well remember the time when astronomers, meteorologists, and other scientific authorities ridiculed the idea of heavy masses such as these falling from the sky, notwithstanding the occurrence of many well-enough authenticated examples. It was at length reluctantly admitted to be possible that the elements of which they are composed might exist in a diffused state in the upper regions of our atmosphere, and by some electrical or other natural action might be condensed into a mass; but the most recent explanation of the no longer deniable fact of the frequent fall, and at certain times of the year especially, of such aerolites, is that a vast band of small fragments, analogous to the greater asteroidal band, revolves round the sun in an elliptical orbit nearly as wide as that of the earth, which, therefore, occasionally encroaches on their territory, and gets some stones thrown at it in consequence.

PORTADOWN.—In reference to an item in our Irish news, a Portadown correspondent, under the signature of "A Looker-on," complains of the conduct of the Ulster Railway directors in removing the railway station from a convenient to an inconvenient site, in contravention of their Act of Parliament for the abatement of a level crossing near the station and the enlargement of the existing station itself. The abatement works, says our correspondent, will be an irreparable injury to a large portion of the town; and, although the enlargement of the station was regarded as in some measure a compensation, the directors are about to abandon the station and its site altogether, and build the new one referred to by us, at one of the outskirts of the town, and nearly half a mile from the present station, with a considerable declivity, and a long narrow bridge in the way. This, it appears, they are bent on doing, in defiance of the public opinion and of the remonstrance of the local commissioners, as well as of the interests and convenience of the great bulk of the inhabitants. The present site is said to be everything that could be desired, both as to space, position, and approach.

CALCUTTA: THE GRAND TRUNK ROAD.—The speed and skill with which the Goolsunkree River has been bridged over, says the *Engineer's Journal* of Calcutta, reflect the highest credit upon the Department of Public Works. The bridge consists of one semi-circular land arch on each side, of 18 feet span, composed of dressed granite obtained about four miles distant. Between these two land arches is an iron girder of 154 feet span in the clear, on Warren and Kennard's principle, and comprised of three parallel girders, each about 16 feet in depth. Upon these three girders cross-beams of teak timber are placed 3 feet apart: upon these again 2½-inch teak planking has been laid longitudinally; and lastly, over all, 1½-inch boards are placed transversely to form the flooring of the bridge. The span is one of a number sent out from England some years ago, and destined to receive a timber flooring. Mr. Duell, the engineer in special charge of this bridge, experienced great difficulty in getting in the foundations, in consequence of portions of the old bridge being in the way, as well as having to found one of the piers on a rock with a sharp shelving dip. The Leelaun River, not far from the Goolsunkree, is also to be bridged; and when completed, the immense traffic of the Hazareebagh District will be conveyed over the Gya Road, and on to Patna, to take the railway there. The other great breaks on the Grand Trunk Road are also progressing.

THE LATE PROFESSOR HOSKING.—We notice with extreme regret the death of Mr. Hosking, professor of architecture at King's College, London, which took place at his house in Woburn-square, on the 2nd instant. We will revert to his career in our next.

DISTRICT SURVEYOR OF WOOLWICH.—The Metropolitan Board of Works, at a recent meeting, elected Mr. Aitchison to fill the office of district surveyor vacant by the death of his father. It was understood that he would make no claim for compensation, should the district of Woolwich be divided.

THE LATEST EXCAVATIONS AT POMPEII.—A letter from the Naples correspondent of the *Morning Post* says,—"Under the direction of the Inspector General, Don Giuseppe Fiorello, and the chief architect, Don Gaetano Genovesi, the excavations at Pompeii are proceeding in a methodical but rapid manner, and the uncovering of the whole city, which, in the same ratio as the portion hitherto revealed, would have required four centuries, is expected to be effected in fifteen years. A tramway has been laid down for the removal of the earth and ashes out of the city, and a large number of labourers are now engaged in opening a street behind the new Thermae, which leads from the Via di Strabia to the Forum, and may be expected to give interesting results." In describing one of the most recent discoveries nearly opposite to the new Thermae, he states that the decorations on the walls were in good style and excellent preservation, especially in the *gynaeceum*, or women's apartments. Amongst the most striking subjects are, "Apollo and Daphne;" "Ulysses discovering Achilles disguised in female apparel;" "The Judgment of Paris," a composition which he found extremely curious for the costume of that classic personage,—a Phrygian cap, green tunic tied with yellow sash, and crimson mantle over it, yellow stockings, and white shoes, with red soles and heels, and red ribbons. Another remarkable painting represented a Satyr, uncovering a beautiful sleeping figure of Ariadne, towards whom Bacchus was approaching with a triumphant air, followed by a joyous troop of nymphs and bacchantes.

VALUE OF PROPERTY.—At the Mart, recently, Messrs. Chinnock & Galsworthy sold the Wroxhall Abbey estate. This property, comprising the old abbey, with the mansion and nearly 2,000 acres of land, brought 93,000*l.* It is understood the possessor of the estate is now Mr. James Dugdale, of Harthill, Manchester; and it is gratifying to find the new owner is of an old Warwickshire family, whose name has been long associated with the Abbey of Wroxhall through the work known as "Dugdale's Monasticon," which gives a minute historical description of the venerable abbey, from which it appears that the priory of Wroxhall was founded by Hugh de Hattin, in the reign of Stephen, about 1141. Henry VIII., in 1544, granted the abbey and lands to Robert Burgoyne, in whose family it remained until 1713, when it passed to Sir Christopher Wren, whose fame will ever give an interest to the place, and whose descendants have been in possession up to the present time. A freehold estate, near Kingston, Surrey, comprising 163½ acres, and known as Norbiton-park farm, sold for 15,000*l.*, exclusive of timber. Leasehold house and shop, No. 152, Regent-street; let at 250*l.*; ground-rent, 98*l.* 10*s.*; term, fifty-five years; sold for 2,660*l.* Leasehold private house, No. 2, Chester-place, Regent's-park; annual value, 56*l.*; ground-rent, 55*l.*; term, sixty-two years; sold for 650*l.* Private house, known as Ivy-bank, Notting-hill; let at 55*l.*, held for 999 years at a peppercorn, sold for 900*l.* A plot of freehold building ground, containing 1*l.* 2*r.* 2*p.*, situate at Wimbledon, sold for 630*l.* A plot of freehold building ground, containing about 2*l.* 3*r.*, at Wimbledon, sold for 1,900*l.* A plot of freehold building ground, containing 2*l.* 2*r.* 7*p.*, at Wimbledon, sold for 1,450*l.* A plot of freehold building ground, containing 1 acre, at Wimbledon, sold for 400*l.*

CHICHESTER CATHEDRAL.—The Bishop of Chichester has sent letters to his clergy, begging them to preach a sermon in their churches on some early day, urging their congregation to contribute towards the repair of the cathedral and the re-construction of the spire and tower. Collections are to be made after the services. Wednesday in the present week was set apart for an especial service of thanksgiving in that portion of the cathedral which is re-opened for divine worship, in gratitude for the safety of life that had ensued, from the fall of the tower taking place when the cathedral had not a single person within it.

"DE OMNIBUS."—Sir: The omnibuses your correspondent "T." so highly commends were first introduced from Glasgow, where they were commenced, over twelve years ago, by Messrs. Mitchell & Menzies. They were afterwards introduced into Manchester by Alderman Mackie and another, and about the same time into Liverpool, by Mr. Galloway, who was unfortunate. The plan has, however, been taken up there, and carried out with great success, by the Messrs. Busby. The system of using horses without blinkers is the common usage in Scotland, as is the break, which is even applied to private vehicles which have to ascend or descend acclivities.—ALEX. THOMSON.

LONDON WELLS.—A pump now covers St. Clement's Well. Fitzstephen, in his description of London in the reign of Henry II., informs "that round the city again, and towards the north arise certain excellent springs at a small distance whose waters are sweet, salubrious, and clear, as whose runnels murmur over the shining stones." Among these, Holywell, Clerkenwell, and St. Clement's Well, may be esteemed the principal, being the much most frequented, both by the scholars from the school (Westminster), and the youth from the city, when in a summer's evening they are disposed to take an airing." The last named well was also much resorted to on account of its being supposed of peculiar efficacy in the cure of cutaneous disease, and other disorders. At the end of Old-street-road is a famous spring dedicated to St. Agnes; and from the transparency and salubrity of its waters, denominated St. Agnes la Clair. It has claims to antiquity, for it appears that in the reign of Henry VIII. it was thus named:—"Foras vobis Dame Agnes Clere." It belonged to Charles Stuart, late king of England. This spring is 18 feet deep, and said to be of great efficacy in all rheumatic and nervous cases, headache, &c. The spring was divided into two baths. In a six-acre field facing the great wall of Aldgate House Gardens, but on the other side of the high road to Bow, is a fine spring of excellent water, dedicated, as early as the year 1160, to St. Winifrid. The water was conveyed to the houses from it, by copper pipe underground, to the villages, monasteries, and other religious foundations in the neighbourhood. J. B.

TESTIMONIAL TO A BUILDER IN ISLINGTON.—A few days ago a dinner was given to Mr. John Hebb, by a number of his friends, with a view to present to him a testimonial of their respect and approval of his conduct during a course of transactions ending in the completion of the Packington estate, of which Mr. Hebb is the ground landlord, the houses on which cover a large portion of what was formerly called the Britannia-fields. Mr. Henry Dodd, the contractor, presided, and Mr. James Stroud filled the vice-chair. There were present also, Messrs. W. Styles, W. Jones, Bishop Starkey, Brown, Higgins, and a number of the representatives of extensive firms connected with the building trades. Some very complimentary expressions were used, and a silver salver was given to Mr. Hebb, thus inscribed:—

"Presented to
Mr. JOHN HEBB,
by Builders and Friends,
for his spirited and business-like
manner in conducting building operations
on the 'Clothworkers' Estate,'
Islington,
July, 1861."

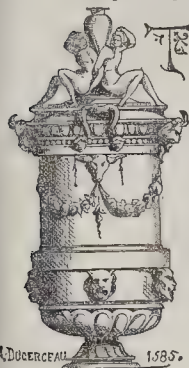
WARMING RAILWAY CARRIAGES.—We would remind our railway managers and engineers of time, says the *Glasgow Herald*, of the method of warming their carriages, introduced by our Continental neighbours last season, which should be adopted in this country, involving as it does on a trifling expense, and being a great boon to travellers. The waste steam from the engine, instead of being allowed to escape into the air, is conducted from the escape-pipe of engine means of a vulcanized India-rubber tube to pipes through which it circulates under the seats throughout the carriages. As soon as the train is set in motion, the steam commences to circulate through all the systems of pipes, and warms the carriages, first, second, and third class equally, and being connected with each other by India-rubber tubing, they can be immediately detached or reunited at pleasure. In a train on the Lynton line, two thermometers placed in first-class carriages marked sixty degrees Fahrenheit during the whole journey; and in the second and third class carriages the temperature was sufficient to allow of the longest winter's journey being accomplished without discomfort. However cold the carriages may be when at rest, so soon as the train is started the steam commences to circulate through the tubing, and communicates agreeable temperature to the whole train.

WAGES TABLES OR HOUR PAYMENTS.—A set of "Wages Tables for the Building Trades, adapted to the System of Payment by the Hour," as issued by Messrs. William Cubitt & Co.'s, of Gray's-inn-road, has been printed for private use; and, dare say, copies might be had on application to that firm, by those adopting the one-hour payment. Messrs. Judd & Glass, of New Bridge-street, are the printers. The tables are simple, and must facilitate the payment of wages on the hour system.

The Builder.

VOL. XIX.—No. 967.

Something more of Shrewsbury.



THE Castle at Shrewsbury was built on the narrow neck of land between the horns of the crescent formed by the river. The town was further protected by a wall. Part of the latter remains, and is used as a terraced walk by the Salopians. The houses rising row behind row, just within the wall, have a beautiful prospect

over the green space between the wall and the Severn, which we have mentioned as serving all the purposes of a public park, called the Quarry, and the Quarry fields, and of the landscape beyond. But the same perverse judgment elsewhere apparent has placed another deposit of town scrapings on the sward within sight and scent of the judge's lodgings. This garbage heap, although so near the houses, can only be reached by a roundabout route through St. Julian Friars, past a line of piggeries: it is covered by a crop of swine, who pick up their living from it. The fluid part of this heap lies round about in slushy quagmires. How can cleanliness prevail in a place where such a system is in existence? The town scavenger carts, instead of making fresh messes all along their routes to and from these places, should be sent with their contents by the shortest road to the canal or railway, where by previous arrangement the sweepings could be deposited in trucks and forwarded to the farmers contracting for it. The night soil should be disposed of by a well-ordered scheme of house-drainage.

A ferry across the river near this point conducts to a large foundry, and to the suburb called Coleham. In the main street a gutter full of black liquid refuse comes running down the road, from a set of rickety stables, adjoining Blockley's timber-yard, to welcome the visitor. The street doors open into the rooms of the houses, and for more light and more air were for the most part standing open, thus affording free access for the aroma of this bubbling filth. There are several passages leading out of the principal streets where the ground is the only deposit place for ashes and refuse, as in the corresponding suburb of Frankwell. One of these, Pipe-passage, widens out into a long double row of houses, with small gardens in front of them, facing each other. These houses have no back premises whatever, nor even back windows: the garden spaces in front are part piggeries and part places for throwing refuse. The privy accommodation here is scanty: a few dilapidated shed apologies for conveniences are staring in the fore-gardens, and are used in common. In the rear of these walled-in abominations there is a fruitful orchard, and ample space for less degrading and depressing arrangements.

Passing Trinity Schools we come to Trinity Church, where there is a new chancel, with apsidal end, in progress. These additions are cleverly treated, with an effective arrangement of red and white stones and red and white bricks. Close by, in Belle Vue, there are large villas building, in which red, white, and black bricks are made use

of with very pleasing results. But here the want of drainage is so complete that the builders have no other resource than to form more cesspools, which will in time produce fresh evils for the inhabitants of the lower and poorer districts at Coleham. The Black Horse Inn has a huge stone arched gullet beneath it in which floods leave a foul deposit. From this a bridge over a branch of the river which feeds the Abbey pool affords an approach to the commencement of the south-east suburb called the Abbey Foregate. This is the road from the English bridge towards Uriconium (Wroxeter). The National Schools are in this neighbourhood; they form a large establishment, but are unfortunately surrounded by unpleasant and unhealthy neighbours,—wholesale rag and bone merchants. All this district was once the site of a large monastery. Parts of the ancient Abbey Church of the Holy Cross—the nave and aisles—have been preserved as the parish church. It is in course of partial restoration: the Norman clerestory windows, which are built of red sandstone, are being divided with mullions, and the heads filled with Decorated tracery constructed of white stone. The east end was pretentiously restored some thirty years since, in the highly ornate Norman style, presenting the usual hard and wiry peculiarities of the period; dark, harsh, and inharmonious stained glass, a reredos formed by elaborate and senseless imitation of Norman doorways, and a lattice-like communion rail. There are some exceedingly interesting fragments of the ancient monastery, one of which is a beautiful octagonal pulpit, built in the refectory wall, corroborative of the traditionary accounts of the splendours of the place when Richard II. feasted his Parliament here. The faubourg of the Abbey Foregate would suggest subjects that would be a fortune to a scene-painter. It is very wide, and is planted with trees at the edges of the footway; the houses in it are principally gabled, some having dormers—some high, some low—presenting every charm that diversity ensures to a long perspective. Semi-detached villas are newly built by the way-side, of bold and original design, and these are in keeping with the picturesque features of the more ancient architecture. There is one ugly blot upon the picture,—a blank wall, abutting on to the footway, about 16 feet high, forming the inclosure to the entrance to Mr. Philips's mansion. With this exception, all is fair in the foreground; but step to the rear, and the miserable shifts the people are put to for want of drainage are offensively apparent.

The distance thence to Wroxeter is about four miles, in the course of which stands Lord Hill's column, supposed to be the largest Grecian-Doric column in the world. The present aspect of the excavations at Uriconium is disappointing. Much that has been laid bare has since been filled in for the purpose of permitting the culture of the few roots of earth by the farmer; and, owing to the too early publication of the details of the investigation, excursionists from Shrewsbury swarming over the exhumed site have wantonly overturned the columns of the hypocausts. A large pit in a field, with a heap of bones, and another heap of broken pottery close to that, and the well-known length of old Roman walling above ground, are the most striking features at a glance. Of these we have before spoken. A labourer with a wooden leg, who has the charge of the remains of the excavations, and of the sixpenny admission-fees, tells us, in the broad Shropshire dialect, that cartloads of selections from these bone and pottery heaps have been already deposited in the museum at Shrewsbury. Nothing has been done now for about a year, except by the vegetation, which has silently crept over the exposed walls; and we observed that this long exposure to the atmosphere was not without its effect upon the tiling of the hypocausts. Curiously enough, those portions that were close to the furnaces are still in good preservation, while the parts that were more removed from them are crumbling away. Picking

our way about among the excavations on the herring-bone pavement, and noting the large provision for the purposes of ablution, we cannot but feel how much the inhabitants of this part of the world have fallen back in this respect. The tessellated pavements, tessellated coating to the walls, and tessellated lining to the baths, must have all conducted in the highest degree to a general cleanliness. The everlasting character of the concrete and the mortar is remarkable. The principal ingredients are ground bricks and tiles, and lime. In the museum at Shrewsbury are skeletons, pavements, sculpture, statuettes, pottery, glass, weights, keys, whetstones, painters' palettes, fighting-cock spurs, and the like. There are articles throwing even more light upon the domestic life of these interesting people,—the hairpins with which their women fastened their hair in knots behind their heads, their bracelets, brooches, studs, finger-rings, beads, one of their children's toys, and an advertising medium of one of their quack doctors. There is a stamp bearing a Latin inscription to the following effect:—"The Dialbanum of Tiberius Claudius, the physician, for all complaints of the eyes, to be used with egg."

Another morning we start from the handsome rebuilt Raven Hotel, to inspect the northern suburb, Castle Foregate. To do this we pass the Royal Free Grammar School, where there is a fresh deposit of rotting refuse lying near the porter's lodge. Turning in to unriddle this unaccountable circumstance, we ascertain that all the sewage and scavenger of the schools is collected in a huge pit close to the under-master's house, close to the boys' dormitory and to the dining-hall. This accumulation is emptied twice a year, during the vacations, when something like a hundred cartloads must be dug up. If such a source of zymotic disease be coolly tolerated by the governors of a Royal Grammar School, possessing an income of 3,000*l.* per annum, and enjoying the prestige of having been held up to admiration by the learned Camden, and of having sent forth one of the most brilliant ornaments of the court of Queen Elizabeth, the accomplished Sydney, and the nearly equally celebrated Sir Fulke Greville, Lord Brooke, we must not censure too severely the sluggishness of a corporation that has made little effort to reduce the death-rate of the inhabitants within their charge.

We are now on the neck of land where the river doubles after sweeping round Shrewsbury. Here are the ruins of the castle, and the handsome Gothic collegiate-looking railway terminus. Passing these, we are in Castle Foregate,—an unusually wide street of gabled houses, quaint and pleasant to look upon, with two odd old inns by the wayside—The Old House at Home, and The Old Thrashers; but possessing the same unhealthy drawbacks as the other localities described,—with rear-grounds saturated with filth, gutters full of running slush, floors below the level of the pebble pavement, which inclines in places towards the houses, and other unsanitary conditions. Lady Brinckman's waggon is slowly grinding homewards, dropping by the way part of the scavenger it has been to the deposit heaps to procure. A troop of women and boys are coming from the opposite direction, where they have been working in Marshall's thread factory, not more slatternly in appearance, perhaps, than the state of their homes should hold them excusable for. We must put in a plea for an admirable little institution we saw by the roadside near here—St. Mary's Infant School. About 150 little children of the most tender age were seated in a small schoolroom, at one end of which is a truckle-bed, capable of holding four at a time when they fall asleep in school-hours. It was an old room, of inadequate accommodation, and the door is in the middle of the north side, without a porch, letting in the wind and rain. But the children are evidently so much better off even here than they would be in their homes, that it seems a thousand pities that

the benefits of this humane establishment are not extended. A little more air, a little more space, and shelter from the draughts of a north aspect, would render this school a great boon. Opposite there are rows of houses three stories high, standing back to back; that is, with nothing but a party-wall between the two sets of habitations. They lead out of a main road, towards which are exposed their ash and filthy open pits. Pigs are prized all about this neighbourhood, and the moisture from their sties brings forth from Plough-yard fresh accessions to the swimming gutters. In the rear in this locality are gasworks, the canal, the coal-wharfs, Royal Lancasterian School, and the gaol, which is as extensive as the cattle-market.

The water with which the town is supplied is obtained from the river. It is pumped up by an engine from a point above the Welsh Bridge, just after it has been fouled by the sewerage from a lunatic asylum, and a district called Cotton Hill, to a large ugly round tank or water-tower in the centre of the town. The site and shape of this unsightly erection deform the sky-line of the old town, which is, with that exception, a picturesque grouping, capped by the towers and spires of St. Mary's, St. Julian's, St. Alkmund's, St. Chad's Churches, and the belfry of Pugin's Roman Catholic Chapel. The Severn, owing to the drainage matter it holds in dissolution, resembles the Tiber, both in its yellow colour and heavy oleaginous appearance. Naturally it is a rapid river; but, under its present treatment, the strongest breeze can scarcely summon a ruffle to its surface. River water is always objectionable, on the score of the constituents of manure which find its way into it from the highly-cultivated soil from the lands and farms; but when drainage matter is added to this, it becomes too revolting for use. The salmon, which used to be considered only second to that in the Tweed, is so affected by the deleterious matter in the water, that it becomes diseased, and when caught below Shrewsbury, is found to have parasitic insects under the scales. The water, as conveyed to the houses, is of the colour and consistency of weak tea, muddy to the sight and slimy to the touch. The drinking water is conveyed from a spring called Broadwell to stand-cocks in different parts—few and far between—in the town. Instead of this double, hard and soft, yet inefficient supply, the substitution of one comprehensive system, by which a supply would be ensured of undoubted purity and sufficient abundance, is much to be desired. There are sources within a short distance of the town at a proper elevation.

To return to the question of the market. The present market-house is an ancient erection, highly picturesque, but very much too small. The market women, with their wicker coops of live and dead ducks, fowls, and other country produce, sit along the narrow pavements of Market-hill and High-street, round the angles of the streets, into Pride-hill and Shop-latch, because there is no room for them under shelter. As the census, numbering 25,783 persons, shows an increase of 2,688 for the last ten years, it will be seen that Shrewsbury is thriving; so that there is no question as to whether or not additional accommodation is required. The recent controversy related only to the site. There were four plans and proposals. One is in favour of Mardol-head, another of Pride-hill, a third of Double-butcher-row, and a fourth of Roushill. Mr. Commissioner Ranger presided over an inquiry in which Mr. C. Trubshaw, of Stafford; Mr. E. Banks, Wolverhampton; Mr. S. P. Smith, of Shrewsbury; Mr. J. Ash-down, Charing-cross; Mr. J. Lee, London; Mr. Tisdale, Corporation surveyor; and Mr. H. Robertson, C.E., Shrewsbury, were examined as to the relative merits of the different proposals. Common sense dictates the choice of Roushill, first because the other sites proposed are more valuable and suitable for other public institutions; secondly, because the selection of Roushill would ensure the

remodelling of the terrible district we described under the head of "Seventy Steps," where the accumulations of ages are lying in terraces on which houses have been set down; and, thirdly, because this site is on the country side of the town, and would afford freer ingress and egress for the market carts, and more space for every approach and purpose. But, before the expense of a new market is thought of, the drainage and water supply should be attended to and accomplished. A competent engineer should be consulted for these in preference to the Corporation officials, who must have as much as they can possibly attend to properly in the interests of the Corporation and the public above ground.

That there is a good feeling afloat that would assist in the energetic accomplishment of so desirable a work is patent. There is a society incorporated for improving the condition of the industrial classes, of which Dr. Jukes Styrup is the active organ and honorary secretary. There is a lady, Mrs. Julia B. Wightman, who has purchased, at a cost of 500*l.*, a plot of ground, and presented it to the people for a working men's hall. There are the unflinching recognition and indication of the existing sanitary imperfections of Mr. Robert Slaney; and there is the frequent recurrence to the disastrous consequences of a disregard of the public health in the columns of the *Shrewsbury Chronicle*; with co-operation in the publication of memorials from the medical profession respecting the effects of the crowded churchyards, and help from Mr. Blunt, the analytical chemist. One man can do but little: Hotspur could not control the result of the battle of Shrewsbury. To accomplish a decrease of the death-rate there must be accord and determination; in other words, "a long pull, and a strong pull, and a pull altogether."

It is to be hoped the men of Shrewsbury will go in and do it.

CHRISTIAN IDEALISM IN REFERENCE TO THE FINE ARTS.

No subject can be properly understood till it be contemplated as a portion of the cosmos: any attempt at isolation from the cosmic at-one-ment must always be injurious and destructive in its tendency. It is with this conviction that I draw your attention to that grand harmonic whole which Christian governance is destined to effect, and which teaches us to regard artistic power in that wide sense of intelligible, under moral control, moulding the material world to physical rectitude.

The conformation of the material by the spiritual, of the physical world by the morality or immorality of mind, to beauty by holiness or to deformity by sin, is one of the great lessons taught by the sacred writings; and therefore the Christian mission has a twofold object, a spiritual and a material regeneration: first, the renovation of the soul; and secondly, through the wisdom and knowledge of the renewed spirit of man, the re-investiture of his body and the material world with a correlative beauty and conformity. Christ, "the pattern" of spiritual and physical perfection, came to restore, to reconcile, to make at one "all things" with himself.

It is only the complete understanding of this secondary object of the Divine will—if secondary may be applied to any portion of the great Christian dispensation—this physical restoration, this revealed purpose, with reference to the material world, that will enable us to grasp the entire nature and compass of Christian work,—that will teach us to regard every species of physical culture as a plastic Christian art.

It is the remoulding power of Christian wisdom and knowledge which is to convert this wilderness of error, ignorance, and deformity, into that promised land of fruitfulness and beauty, of peace and happiness—that restored world of prophecy,—that ideal world of the future, for which we are taught to pray in the words, "Thy will be done on earth as it is in heaven,"—and—if science and art be not mockeries, be not anti-Christian in their tendencies,—that ideal world which, guided by the Holy Spirit of Truth, they are destined to prepare and realize. If there were no great end to be attained by science and art; if these were to be but the records of individual conceits without purpose, without reference to a distinctly defined

progress and a future harmonic whole; they would scarcely be worth the time and trouble they cost; and we might indeed abandon ourselves to indifference, and exclaim, *Cui bono?*

The opposite doctrine to that which is herein advocated is that held by the materialists; viz., "the conformation of mind by matter;" a doctrine which brings its own reproof and chastisement. It is one which has sometimes led bewildered intellect to withhold its allegiance to the Almighty will, to attempt to dethrone the right government of the world, to darken the horizon of faith and hope, and to extinguish the poetry of life. It is without a defined idea: it disunites, divides, and destroys. Materialism recognizes no distinction of good and evil, and surrenders everything to the anarchy of individual will. It is in every way opposed to,—the reverse of,—Christian idealism, which recognizes a scheme of universal moral governance, conforming and building up material elements to a perfect whole.

It has been too much the fashion to suppose that true religion and science are at variance,—to consider science to be opposed to religion. Never was there a greater or more pernicious mistake: they are, in the full comprehension of the Christian scheme, indissolubly bound together; nay, I will venture to say, that science is a part of religion; for, what is the knowledge of the laws of the highest generality which govern phenomena, but the knowledge of God's will in reference to phenomena? And what is science, when rightly understood, but a Christian power confirming, fulfilling, and carrying out those broad principles which are enunciated in the Gospel? It is only upon the basis of a faith in an Almighty will, that science can consistently be recognized. If there were no governing power, there could be no governing laws, and, consequently, no science. It is religion only which prevents science and art being purposeless, beyond that of accommodating some immediate commercial want or momentary caprice. Science and art identify themselves with Christianity, in completing and restoring nature to its normal condition; in healing, in making whole after the example of Christ and the Apostles.

Art has too long attempted to claim exemption from precise laws, from scientific governance on the plea of its having a more divine and ethereal nature than ordinary affairs; in total forgetfulness that divine work, from the motion of the spheres to the minuteness of chemical combination, is carried on by precise, definite, quantitative laws. This tendency of art, therefore, is irreligious, and contrary to the spirit of truth, which is silently acting and converting the age.

The restoration of nature to rectitude, perfection, and beauty, taught by the sacred writings, at once exhibits and defines the nature of material progress, and invests science and art with purpose. It infers, also, that nature is in an aberrant, abnormal condition, requiring correction, healing, perfecting. Christian idealism, therefore, seeks the knowledge of the right, the best; and thereafter seeks to realize it in all things.

To correct, heal, or make perfect, we must have a pattern, or an ideal conception of the being to be made whole, or, instead of healing, we should, in all probability, still further mar the work. The object of restoration may be stated in general terms to be that of the re-institution of nature in the perfection of its first creation to the will of God. This perfect will is only to be comprehended by the study of revealed truth and of science. To know this, and to act in obedience to it, is the aspiration of Christian idealism.

We learn from Scripture that the world was created in measure; that it was corrupted from the measure in which it was first set; and that it is to be corrected in measure. Now, to correct in measure, it must be known to what measure; and, therefore, Scripture and science must be interrogated for a quantitative expression of the ideal. And to the earnest inquiry, what is the measure of physical rectitude, perfection, beauty, and permanence? revelation and science unequivocally respond,—the mean; that mean which has been called "the golden," and "the immutable."

The mean or average of all the possible variations of any special function, power, or form is the measure of the perfection of that special function, power, or form. It is the measure of ideal physical rectitude: it is the great quantitative law of ethics, aesthetics, politics, and the celestial mechanics, from which a departure is only rectified by this principle of harmonic compensation; viz., that every aberration from the mean of any system in excess must be compensated at some time or other by an equal and opposite one in defect. This law appears to hold good with reference to the less

and greater physical systems, and to be the key to the true remedial and curative measures for excesses and defects.

There is an argument which in its first statement appears to militate against and to turn to ridicule the theory of the mean being the measure of beauty; viz., that if this were the case, beauty would be the average of deformity. The theory, however, is not more apparently paradoxical and ridiculous than the statement, that physical right is the average of every possible form of physical wrong, but which is nevertheless true; in confirmation of which I will quote the words of an eminent scientific authority: "But how, it may be asked, are we to ascertain by observation data more precise than observation itself? How are we to conclude the value of that which we do not see with greater certainty than that of quantities which we actually see and measure? It is the number of observations which may be brought to bear on the determination of data that enables us to do this. Whatever error we may commit in a single determination, it is highly improbable that we should always err the same way; so that when we come to take an average of a great number of determinations (unless there be some constant cause which gives a bias one way or the other), we cannot fail, at length, to obtain a very near approximation to the truth; and, even allowing a bias, to come much nearer to it than can fairly be expected from any single observation liable to be influenced by the same bias.

This useful and valuable property of the average of a great many observations, that it brings us nearer to the truth than any single observation can be relied on as doing,* renders it the most constant resource in all physical inquiries where accuracy is desired. And it is surprising what a rapid effect, in equalizing fluctuations and destroying deviations, a moderate multiplication of individual observation has."

Fortunately, however, we can have recourse to experiment to confirm the theory of the mean in regard to beauty. Here are a number of disproportioned sketches of faces placed upon a cylinder; which, being made to revolve rapidly, leaves a mean and more pleasing impression of all the pictures on the retina than would be produced by any one picture viewed singly.

So far, then, we have stated briefly the general principles of Christian Idealism. Let us now examine the position taken up by the naturalists or individualists in art; of those who repudiate ideal tendencies for a professed obedience to *nature* and *truth*; and who hold that Nature cannot be improved in any of her aspects, and that she may be portrayed unquestioned, under whatsoever form she may be found.—"Whatever is, is right;" and who, therefore, become mere automatic cameras, receiving impressions of an imperfect, uncorrected world,—mere imitators of individual facts or instances. It will be seen at once that this dogma would banish all idea of material progress from the world. Carry it out in reference to other phenomena than that with which painting and sculpture are concerned, and its absurdity becomes more and more evident. The very same notion which leads to the indiscriminate imitation of nature by painters and sculptors would sanction every species of vice and deformity,—would sanction every evil which afflicts the world;—for these are nature too; not nature in that limited sense of the word which means only that nature which is right, but in its all-including sense; in which sense it ought to be evident to every one, that everything that is, or is possible to be, must be within the compass or power of nature, or it would not be, or be possible. It is this double meaning which may be attached to the words *nature* and *truth* which leads to a misconception of principle. We may see, too, that the naturalist or individualist art dogma associates itself in principle with materialism; and would, if it were consistent, resist all control, all governance, and obliterate all moral distinction; and furthermore, upon its own basis must admit idealism to be natural. For, whatever is possible in the form of thought, or in the form of matter, is in the nature of mind or matter. Therefore, the ideal, being a possible form of thought and of matter, is nature also.

The testimony of the Scriptures is uniformly in favour of idealism, and against individuation in art. Now, if this were to be considered in no other light than that of a philosophic history, it would be great indeed; but when this testimony is regarded as a divine revelation of principles, and the record of the consequences of departing

from those principles—from the Divine will,—it cannot be neglected with impunity. The Scriptures bear witness to the tendency of ignorance to enshrine individual forms in the mind in the place of the ideal; to idealism, being the elevating principle, the principle from which a departure may lead to that recorded depth of idolatry against which the second commandment was aimed, and which decreed that the Israelites were not to make graven images "in the likeness of anything in the heavens above, in the earth beneath, or in the waters under the earth,"—which was, in effect, that they were not to make idols of birds, beasts, or fishes, nor of the individualities of their leaders and kings,—bow down to them nor worship them; but were to preserve their reverence for Him of whom an ideal is man's most worthy conception. The inference that this was the real intent of the law is strengthened by the fact that the ideal cherubim of the mercy-seat were according to divine command.

The theory that the present condition of nature in all its aspects is immaculate is one which would lead to the inference that human and other nature needs no physical improvement, renovation, or restoration: it is one which does not permit distinction of right and wrong; and one which, if it were to receive general acceptance, would convert the earth into a waste, and degrade man to the level of the brute. It will be evident, therefore, that the terms "earnest and conscientious endeavour" are misapplied to that very prevalent, absolute, and minute imitation of nature as it is; such imitation being mere slavish acquiescence on the part of artists in the errors and deformities of nature which it should be a part of a Christian's duty to correct. It is a total abnegation of the faculty of judgment, of moral discrimination, of selection; which, instead of elevating nature by those regenerative and reformative powers which science should command, tends to debase man, morally and physically, by a false aim, and to mar the outward world by denying it the aid of human intervention of art.

The naturalists or individualists in art affect a microscopic rendering of nature beyond ordinary powers of vision; but it is beyond human skill to imitate the minutiae of vital organisms. Art may pretend to represent each and every leaf upon a tree, each and every blade of grass in a field, each and every hair on a head; but it is but pretence. The microscope discloses minutiae on minutiae in organic being; whereas a very slight magnifying power applied to imitative art discloses the imposture. Microscopic minuteness is not within the province of the highest order of painting and sculpture. Man's proper work is of a different nature: it is his duty to discover, rule, and work by, general laws, to be perfected morally and physically, to moderate, to reconcile other nature to that which his advanced and more comprehensive knowledge approves.

It may be interesting and instructive to inquire how this pursuit of the individualities of nature by art has assumed importance, and threatened at times to extinguish all desire for ideal excellence. This may be attributed, in a great measure, I think, to the ambiguity of the words *nature* and *truth*, which leads men unwittingly to cheat themselves and others, that truthfulness to the nature of individual instances or facts is the all in all of pictorial or plastic art.

Questions like the following are frequently asked:—What ought to be the sole inquiry with every man who takes to himself, or deserves from others, the designation of philosopher? Should not the exclusive question be, and should not the answer to it be sought with equal simplicity and earnestness of purpose,—What is truth? What other object can there be, of ought that is entitled to be called philosophy, but the discovery of truth? Of what conceivable use or value are all the investigations and reasonings of philosophy, if not for ascertaining truth? But who also, in assenting to these questions, has not felt their vagueness, or found the thread of his own inquiry soon entangled, or has not for a time at least given up all hope of solving the question,—"What is truth?" But if the equivalent and more explicit word for the kind of truth implied in these questions had been substituted, they would have gained simplicity. The question of paramount importance to mankind is, What is right in thought, act, and being? Truths are multifarious; but in every species of phenomena there is but one right, and this it is which scientific idealism seeks to determine, which revelation declares.

The same kind of entanglement of thought takes place when it is asked,—"What, in the name of common sense, has a man to do but to act

and work in conformity to nature?" If by "to act and work in conformity with nature" be here meant the fallen nature of man, and of other nature corrupted by his agency, this is certainly not his duty. But if in the question, the word *nature* had been qualified or connoted as *right* nature, it would have been tantamount to asking, whether to live, think, and act righteously, according to that nature which revelation and reason declare to be the best, be not the whole duty of man? This is a more definite question, and one to which unreserved assent may be given.

The word *truth* may, as commonly used, sometimes include every possible fact, imitation, or relation of a fact; on other occasions, exclude from its meaning all but the right, the perfect, the beautiful. In like manner, too, the word *nature* may often mean the everything that has been, is, or is possible to be; and as often only that *some* nature which is, according to right reason, nature in its best and perfect conditions. In conversation and argument these shifting significations of the words *nature* and *truth* are lost sight of: the qualification which should limit their application to the *some* is extended to the *all*, and *all* nature and *all* truth by this confusion of language come to be considered by some minds as worthy of imitation; whereas it is only the right and best truth and nature which deserve reiteration and perpetuation. It is thus that the minute relation and imitation of a fact have been esteemed by a section of the public as of the highest virtue in art; but it appears never to have occurred to this section that a fact related in language or imitated in form and colour may be a moral or physical wrong in the great scheme; and, in that case, the exactness of the relation or of the imitation neither improves the relation nor imitator, nor corrects the wrong; whereas the idealist is a physician whose curative art sends forth nature healed, restored. It should always be recollected that, although everything in nature, *per se*, is a fact, is a truth; it does not necessarily follow that, being a fact, it is also right. To eliminate every possible form of wrong, and to re-form, restore, according to the residual ideal, is the doctrine consonant with divine teaching.

The pernicious and deforming influence of man's moral fall extends beyond that of his own physical nature to that under his dominion; so that this is also marred in its outward form and fabric. The Christian doctrine teaches that the material world retrogrades or progresses as the soul of man falls or soars,—that the body is moulded by the deformity or beauty of the mind. To the right use of knowledge, the practice of Christian virtue, is promised peace, health, beauty, and prosperity, the gradual outward development of human and other nature to their full perfection and glory.

"Man's history, physical and moral, has been one of incessant change and progress. The features of different races, their mental qualities, civil systems, and religious beliefs, have all less or more partaken of this mutation; and the difference that now subsists between the most intellectual, city-dwelling, machine-making Anglo-Saxons, and the man of the old flint implements and bone caves, may be infinitesimally small when compared with that which may exist between the noblest living nations and races yet to be evoked. Unless science has altogether misinterpreted the past, and the (general) course of creation as unfolded by geology be no better than a delusion, the future must transcend the present, as the present transcends that which has gone before it. Man present cannot be man future."

In a conversation with the Marchioness Pescara, Michelangelo used these words: "Good painting is noble and religious in itself; for, among the wise, nothing elevates the mind more, or inclines it more effectually to devotion, than that *perfectness* which draws near to God, and unites itself to him. Now, true painting is only a copy of *His* *perfections*—a shadow from his pencil; in short, a music, a melody, of which only a very keen intelligence can feel the difficulty: this is why it happens so seldom that even a few can attain to and realize it."

To quote this or that rapid work of painting or sculpture as instances of the failure of the ideal principle, has no force against Christian idealism, which seeks those forms of being which would be the highest conditions of reality. The question which every one has to answer, before declaring for or against idealism, is this—Is there a fundamental right independent of the fluctuations of opinion? If yes, idealism is incontrovertible; if no, it is not of the slightest consequence how men think, or how they act: criticism is an inconsistency: every one is a law to himself.

Whoever admits that there is imperfect nature,

* Apply the principle italicised against the dogma of the Naturalists or Individualists in art.

and partial truth, virtually acknowledges the superiority of the nature and truth which idealism seeks. If, therefore, after admitting this, any painter continues to render the inferior, he offends against his own moral sense of rectitude. The general tenor of these remarks will save them, I hope, from the misapprehension of being thought to be aimed against earnestness of purpose, the perfection of artistic workmanship, or the intimate study of particulars, so far as this is used as a means to right ends.

In conclusion, I must beg you to bear in mind that I do not profess to represent the opinions of any section of English artists. I have given you my own strong convictions regarding Christian idealism, because they appear to me to rest on the sure foundations of religion and science, and to suggest that common purpose to which the thought and work of the world should be directed; and also because it appears to me to be highly desirable that criticism should take its stand as a science, and direct investigation and art into safe channels; arbitrate and govern by precise laws; failing which they must for ever labour in a dangerous sea, without load star or compass.*

W. CAVE THOMAS.

THE LATE PROFESSOR HOSKING, ARCHITECT.

MR. HOSKING, whose lamented death on the 2nd instant we briefly announced in our last, was born at Buckfastleigh, Devon, in 1800; but was taken by his family, when quite young, to New South Wales, where he was apprenticed to a builder and surveyor. Returning to England, in 1819, he was, in 1820, articled for three years to the late Mr. Jenkins, architect, of Red Lion-square, London; and afterwards spent a year in Italy and Sicily for the study of his profession. Some lectures on Architecture, which he delivered at the Western Literary and Scientific Institution, being reported in the *Athenaeum*, led to his engagement to write the articles "Architecture and Building," in the 7th edition of the *Encyclopædia Britannica*; treatises which, afterwards published as a separate volume, were cordially received, and gave him at once a reputation. In 1831 Mr. Hosking became engineer of the Birmingham, Bristol, and Thames Junction Railway; now known as the West London Railway; and designed for it the arrangement near Kensal-green, by which the Paddington Canal is carried over the railway, and a public road over the canal. The alteration of this recently by the companies who now possess the line caused him some annoyance. In 1840 he was appointed professor, at King's College, London, of the "Art of Construction;" and afterwards of the "Principles and Practice of Architecture," which he held until his decease. His introductory lectures have been published, and were made known to our readers at the time. On the passing of the Building Act, in 1844, he was appointed one of the official referees under the Act, and remained so until it was superseded by the Act of 1855, when he retired with his colleagues, Mr. Ambrose Poynter and Mr. John Shaw, each upon two-thirds of his salary. Amongst his published works should be mentioned an "Essay on the Construction of Bridges," for Mr. Weale; "A Guide to the Proper Regulation of Buildings in Towns," 1848, reviewed more than once in our pages; and a thin folio setting forth his claim to be considered the originator of the scheme adopted to increase the accommodation of the British Museum, — the circular structure in the quadrangle, first illustrated in the *Builder*. His architectural works were fewer than might have been anticipated. Amongst the most recent of them is the pile on the south side of Cannon-street, erected for Messrs. Berens & Co., Abney Park Cemetery was formed under Mr. Hosking's superintendence; and he erected a chapel at Poplar for Mr. Green.

For some time previously to his lamented death, he had been engaged in the preparation of a greatly enlarged edition of his essay on Architecture, which it may be hoped will still be given to the public.

The illness to which he yielded attacked him more than three months ago.

Writing in the middle of June last to the penner of this regretful notice, in answer to a request that he would join some mutual friends in July, he replied, — "Unwilling to say no, and fearing to say yes, lest I should not be able to keep my engagements, I have delayed from day to day in replying to your invitation. When you learn, however, that I have suffered a now long and

severe illness, the crisis of which came on with the first days of May, and the consequences of which, in oppressed breathing and extreme weakness, still continue; — whilst hope has prevented me from concluding that it could be many weeks, — that it could be so long as to the first week in July, before I should be able to go out with safety and so to present myself to you; — you will not be surprised. However, I must now give it up. I have been out of town for change of air; but the necessity of continued close medical attendance brought me back again last week; and here I am waiting as patiently as I can wait for the health that comes but slowly. I know that upon this explanation you will not only pardon me, but feel for me; and that you will continue to believe me to be and to remain ever most sincerely yours."

The health, however, that he waited for never came; and his friends have to lament the loss of a man of sterling worth and great abilities. To his loving family, to whom he had devoted himself, the loss is irreparable.

THE PARISH OF ST. JAMES, WESTMINSTER, AND THE NEW CHURCH OF ST. PETER, WINDMILL-STREET.

THIS church is situate in Great Windmill-street, at a few steps from the top of the Haymarket, lying in close juxtaposition with the Argyle-rooms, of equivocal notoriety. The first stone was laid by the Earl of Derby on Midsummer-day last year, in the presence of the Lord Bishop of London and the Lord Bishop of Lincoln, and a large assemblage of persons interested in the object; and the consecration, by his lordship the Metropolitan, took place on the 12th ult. Bishop Jackson, of Lincoln, the former rector of St. James's, the Rev. John E. Kempe, A.M., the present rector, together with the incumbents of several of the adjoining parishes, and the thirteen parochial clergy, being in attendance. The church has been built by subscription of the richer of the parish, to supply the wants of the poorer. A district has been assigned to it, comprising 4,000 souls, which, with the district just taken to by the church of St. Philip, Waterloo-place, under its new incumbency, completes the partitioning of St. James's parish into five conveniently manageable ecclesiastical district parishes, under the "Blandford Act."

The parish of St. James comprises a population of 27,000, on an area of 160 acres — the acreage of a small English farm; and embraces residents of every grade of society, intermediate between the Sovereign of the realm, whose palace is at one confine, to the vagrant whose abode is a "rookery" at the other. But, for consideration in connection with the present immediate subject, the population may be divided into two portions, viz., — 7,000 who can afford to provide themselves with church accommodation, and 20,000 unable to do so. The latter, for the most part, occupy the space bounded by Regent-street, Oxford-street, Wardour-street, and Coventry-street. In this district, although intersected by some good business streets, there are numerous dark spots of most dense population, and where a total disregard of the ordinary observances enjoined for the Sabbath has for years prevailed. Sunday trading, Sunday labour, adult intemperance, juvenile disorder, and other depravity, contribute to make this population as rank a crop of vice as is to be found in any quarter of London. In this limb of the parish there was but one Church of England church, and that one was set up as recently as twenty years ago; whilst in the other, with less than half the number of inhabitants, there were three and a chapel of ease. Thus for the rich there was ample church accommodation, and to spare; but of free accommodation for the 20,000 poor, a total of 650 free sittings in all the churches of the parish was all that had been provided.

About ten years ago the condition of the parish, as regarded its spiritual welfare, engaged the anxious attention of the Rev. John Jackson, the then rector, and the late Lord Bishop of London (himself a parishioner), and church extension in the parish, on a scale that should give it a fair chance to cope with the vast benighted population, was then determined on. But it was not till the promotion of Mr. Jackson to the see of Lincoln, and the appointment of his successor, the Rev. John E. Kempe, to the rectory, in 1853, that practical steps were taken to give effect to the determination. The business-like habits and indefatigable energy of Mr. Kempe eminently fitted him for the work; and it is well it was so, or St. James's would still have been without its additional church, clergymen, and schools, for

great difficulties beset the undertaking at every point, and notwithstanding that nominally a lay committee for the conduct of the work has existed, the aid such committee has rendered has been of a trifling nature. On the rector's shoulders has rested the burden of the undertaking. To him mainly the parish is indebted for this benefit, and the Christian community at large for the impulse to the influence of the Gospel which the work altogether creates.

A comprehensive scheme was now put forth, the primary proposition of which was to raise a fund by voluntary contributions, an eye having been fixed on the amount of 30,000*l.* as necessary to the work. Among the objects contemplated in the application of this fund was to build two new churches of moderate dimensions, the accommodation of which to be in great part free; to negotiate arrangements for the redemption of a quantity of the pew accommodation of all the existing churches of the parish, converting the same into free sittings; the employment of additional clergymen to go out and minister to the poorer parishioners in their homes, and bring them to the churches; the establishment of additional schools, &c., &c.

The scheme came ushered by the bishop (Blomfield), offering the munificent sum of 1,000*l.* as a beginning. This was quickly followed by donations of 500*l.* each by the Marquis of Bristol (since deceased), Earl de Grey (since deceased), Mr. Wilbraham Egerton (since deceased), Sir Walter Farquhar, Bart., and Lord Egerton; 200*l.* each by the Marquis of Ailesbury, the Marchioness of Ailesbury, Duke of Cleveland, Earl of Eglinton, Archbishop of Armagh, Earl Spencer (since deceased), Mr. John Jones, of 6, Regent-street, the Marquis of Bristol, and Earl Spencer; 150*l.* by Her Majesty, the Queen, and Mr. W. Bowman; 125*l.* by Mr. Hudson Curney, the Duke of Norfolk (since deceased), Miss Burdett Coutts, and Lord Redesdale; 100*l.* by the Earl of Aberdeen, the Bank of England, the London and Westminster Bank, Lord Egerton (2nd donation), Mr. Walter Beaumont, and Mrs. Hyng (since deceased). By the present Bishop of London (a parishioner), 300*l.*, and by the Earl of Derby, in successive gifts, 4,500*l.* From every family of distinction resident in the parish, liberal donations in various lesser amounts poured in. In this way a sum of eleven or twelve thousand pounds was soon found to have been subscribed; and at this point, things seemed to give promise of the financial portion of the scheme being readily accomplished; for, although the source comprised in the higher classes had now become exhausted, a far more extensive field, — the trading community, — yet remained untouched; and, when it was considered how the parish abounded in opulent traders, the prospect at this point was cheering. But on exploration, the production of this field, rich as is the land, has been disappointing. The expectation entertained that the wealthy traders and great employers of labour would emulate the noble example of munificence set by the upper class, has not been realised. On appealing to this interest, a great apathy in the good work soon became apparent. Commercial prosperity, that seemed so reasonably to justify great expectations, from this source, proved, on the contrary, the very cause of the failure. The well-to-do West-end trader now, like the City merchant of old, has his suburban villa residence, and sojourning there on the Sabbath, becomes connected with the district church, and, probably, a liberal subscriber to its calls; and excuses himself on that ground from responding to the call here. Thus, although relieved by a few bright examples of liberality on the part of a few firms, the business streets of the parish make a very meagre show in the subscription list. Yet here, after all, more than anywhere, would seem to lie the obligation. This part of St. James's forms the nucleus of the *factories* of a staple product. Clothing, and boots and shoes for the world of fashion are that staple, and the workers employed in the production constitute chiefly the poor population of the district sought to be benefited; and it might seem but a duty incumbent on the rich employer to aid a work the object of which was the improvement of the religious, moral, and social condition of the community, — the source of his wealth. Another promising source also proved a disappointment in this way. It is pretty generally known that the great West-end clubs are mostly situate in St. James's. The rich corporate bodies, the owners of these palatial properties, — of which there are sixteen in the parish, — could not be induced to come forward with a shilling in aid of this good work. The influence of the pulpit of the parish church in Piccadilly on the affluent stranger worshippers there, has

* A paper to be read in the philosophical section of the Congress Artists, Antwerp.

been the means, mainly, by which the fund became eked out to its eventual proportions.

The total sum collected and expended on the various objects is between sixteen and seventeen thousand pounds; the shortcoming of the funds circumscribing the scheme to one church only, instead of two, as originally proposed. But the expenditure includes the investment of 2,344*l.* for completing the endowment of St. Luke's Church (the other church of this poor district) to 7,000*l.* The church itself has cost 11,500*l.*: that is, 5,500*l.* for the building and furniture, and 6,000*l.* for the ground on which it stands,—a plot of less than half a rood in extent,—a rate of upwards of 50,000*l.* per acre, yet the cheapest thing that could be found within the district after two years of active search and inquiries in the best channels of information.

The church has been erected from the designs of Mr. Raphael Brandon, architect, and built by Mr. George Myers. It is in the Gothic style, after that which prevailed in the fourteenth century; and probably the choir of a well-known Continental cathedral has given the idea of the interior forms. Externally only one of its fronts is seen; this is its western end, which ranges with the line of the houses of the street. And here the architect has bestowed all his external ornamentation, and a very picturesque elevation has been produced. The material used in the construction is Bath stone. The chief features of the elevation being a lofty gable, with two buttresses terminating in crocketed pinnacles; a large traciced window mullioned into four divisions; the centre of the tympanum being ornamented with a bust of St. Peter, the patron saint, set in a circular niche, and the apex with a large foliated cross. On each side of the gable are flat wings, forming the ends of the aisles. Each of these flats is pierced with a small lancet-light below, and one of trefoil character above; the latter being covered by richly crocketed canopies: at the two extremities are octangular turrets. A triple-arched porch occupies the lower part of the front; it is carried on massive circular columns in pairs, depthwise, and square piers uniform at the sides. The porch communicates right and left with an inclosed lobby, whence a second door leads into the church,—an arrangement intended to prevent, as much as possible, cold draughts of air. The porch and flank walls are just flush with the face of the foot of the buttresses; but from a string-course running immediately above the arches of the porch, and on a line with the first stage weatherings of the buttresses, there is a bold splay to a level with the sill of the great and the side windows, which splay rolls the porch and the lobbies. The porch is shut off from the street by an iron palisade which passes between the columns, opening for passage by a sliding process into the masonry of the flank walls; beneath the porch are three single lancets, which light the part of the church under the gallery. The mouldings of the gable, the canopies of the side windows, the arches of the porch, the capitals of the columns, the string-courses, &c., are all of them richly carved. The corbels of the outer mouldings of the porch arches, and of the hood moulds of the lancet windows in the flanks, being sculptured heads.

The interior is planned into clerestoried nave, with north and south aisles, a short apsidal chancel, and a transept-like chamber jutting out from the easternmost bay on the south side, the latter being intended to receive the organ. The space on the north side of the chancel is devoted to the vestry. The corresponding space on the south side is the site for the tower, to be built at some future period. The nave is of five bays: the supporting columns are circular shafts, on circular bases, with richly carved capitals, of flowing foliage, by Mr. Ruddock, who has executed all the stone carving. Projecting from the columns on either side near their top is a dwarf column, the carved capitals of which come on a level with, and merge into, that of the main column. The shafts of these dwarf columns are of red Mansfield stone. The corbels on which they stand are carved heads. From these columns spring the inner mouldings of the nave arches. A hood mould surrounding the arches also rests on carved heads. In order to make the most of the ground space, and accommodate the building to fit the irregularities in the form of the ground plot, the architect has had recourse to the expedient of building the side walls on the outer side of the buttresses. These projections, however, are rendered unobtrusive in the church by the skillful manner in which they are treated, and made contributory to a general design. From the face of the upper portion of the buttresses projects the dwarf

columns of red Mansfield, with carved capital, and a head for the corbel, the same as the others just adverted to, and on them rests a flying buttress, which spans the aisle to the clerestory wall. There are no windows in the side wall, but abundance of light pours down into the body of the church from a series of clerestory windows; these latter are lancets in pairs, separated on the inside by a detached column of red Mansfield. In the spandril of each of the nave arches is a circular medallion, the centre of which is left in block; they form a series of twelve, and are intended to receive carvings of three-quarter figures, representing the twelve Apostles, with their proper emblems, to be completed whenever 100*l.* can be got to pay for the work. The roofs are all open, and are left in the native colour of the timber. They are of simple yet effective construction. That of the nave has two principals to each bay all along; these spring alternately,—one from a wall plate that runs down between the clerestory windows, the other from a hammer-beam, the end of which is a carved head. Carved bosses cover the junction of the principals in the apex. The roofs of the aisles are merely close boarding, on plain chamfered ribs. A gallery for the school children is set up at the western end. It is of plain front, and is supported on plain chamfered story-posts with brackets.

The chancel is raised three steps, and is divided off by a low carved wooden railing. In each of the five sides of the apsis is a Decorated window of two lights, with a cinque-foil heading. In the space below each window is a blank arch, carried on columns of red Mansfield, the five together forming a continuous arcading round the chancel. In the three easternmost of these arches are set the Decalogue tablets; the inscriptions being in text, surrounded by an illuminated border. Tall shafts of red Mansfield, with white stone moulded belts and carved capitals, go up from the chancel floor between each window; from these spring the ribs of the apse roof, which converge to the centre, where they are united by a curved boss. Red Mansfield shafts, projecting from the chancel piers, and having long foliated corbels, carry the inner mouldings of the great chancel arch: the outer moulding of it terminates, as the nave arches, before described, on sculptured heads; and in the latter the artist has endeavoured to typify the Law and Gospel, by portraying, it will be seen, the head of a sovereign on one side and that of a bishop on the other. The pulpit—not yet finished—is to stand against the chancel pier, north side; and in the corresponding position on the south side is the reading-desk arrangement, consisting of two simple lectern-like stands of wood set at right angles. The seating is in fixed open benches, with low backs, of deal, stained; in the arrangement of which, however, the loss of space is particularly striking. Of the total of floor space applicable to congregation accommodation, considerably more than one-third of it (that is, 1,200 square feet, out of a total of less than 3,000 feet) is occupied in lobbies and passages—a sacrifice of utility to effect much to be lamented here, since every foot of that space has cost 3*l.* 15*s.*, which places the cost of the adult accommodation of the church at upwards of 30*l.* per sitting, and nullifies the commendable economy noticed in the design in chief, which brought every foot of the purchased land into the area of the church. The lighting for evening service is by a series of twisted brass standards, bearing double coronets of twenty jets, one placed under each of the nave arches, and one attached to each of the supporting piers of the chancel arch. The columns and arches and dressings in general are constructed of Bath stone, and the carvings are all in this material: the work comprised in the latter is here of great merit. The foliage of the capitals of the columns is different in every column; and it will generally be conceded that the whole aspect the interior bears is very effective.

The communion plate is a choice little service of five pieces, of the value of 50*l.*, a "free-will offering" (in addition to a subscription of smaller amount to the Building Fund), by Miss Prince, daughter of Mrs. Hoare, of St. James's-square.

The windows of this church present an eligible field for adornment by stained glass; and offer to the people of St. James's the opportunity of setting up within their own parish—and without the usual ecclesiastical fees—monuments (obituary, mortuary, or complimentary), in material of the most enduring kind. A beginning in this way has already been made. A small lancet at the east end of the south aisle has been filled in at the expense of Lady Rennie, as a monument to an affectionate daughter deceased. It has a small

picture representing Christ healing the Sick. Another window in the corresponding position in the north aisle is similarly treated. This has a picture of Christ blessing little Children, and is the gift of the parochial-school teachers. They have cost 25*l.* each, and were executed by Messrs. Lavers & Barrand. Mr. Bowman, the well-known surgeon, who has also been a large contributor to the general fund of this work, has offered to present a painted window for the centre of the apse, to cost about 75*l.*; and there is talk of opening a subscription for filling in the great western window, to be complimentary to my Lord Derby; and a member of the Building Committee—a gentleman who has for some years taken an active part in the parochial affairs of St. James's, and who has been mainly instrumental in setting up three church organs in the parish,—is endeavouring to raise a fund for the like purpose here. The Rev. George Smith is the incumbent of the church, and the Rev. P. S. Duval is his curate. F. C.

A NOTE FROM NORMANDY.

I HAVE just now returned from a short tour, and send you a few jottings, though I have nothing particularly new to say. The streets in Normandy are now well paved, and kept tolerably clean. The roads, too, are well kept, and extremely wide. They are lined with telegraph wires in some places. The roads have the distance in kilometres (5 furlongs = 1 kilomètre) marked on posts on one side; and on the other are the marks for the *cantonnier* and wire-man. The *cantonnier* has a certain distance on the road to keep in order: the other attends to the wires. Along the roads there are heaps of stones: this year, 1861, on one side (from St. Lo to Coutances on right hand); and next year on the other. The stones are placed there for one year, and are worked by the poor people of those parts, and then used by the *cantonnier*. The roads are visited by an inspector. The houses along the road to Coutances from St. Lo were mostly built of earth, on a foundation of stone.

The railroad stations are built on an excellent principle. At Cherbourg, for instance, and at Caen, you are seated in rooms according to your class, until the time for starting arrives; then the officials let in the first-class passengers; thus avoiding any mistake of carriage, as all the second and third class places are shut. Afterwards the second are let in, and so on. The stations themselves look well: that at Caen is well ornamented in the Classic style. But the *commodités* are wretchedly built. It is surprising that they have not constructed better conveniences for both sexes at the stations. It is not only there, but about the roads, that we see irregularity. To an Englishman such conduct is insupportable.

There seem to be many erections and restorations being carried out in Normandy. At Caen many of the churches are very dilapidated, but are being renewed. The Abbaye aux Dames, founded by Matilda, A.D. 1066, an immense pile, undergoes the same. At St. Lo a fine old church is being considerably repaired. At Coutances the same thing is being performed. There is a fine hospital being erected at Cherbourg, close by a classical church (St. Clement's). There is a railroad being formed from Cherbourg. There are additions being made to the Hôtel de Ville of Caen. At Coutances the cathedral has had a part (a chapel) renewed, having a rich appearance, but being, according to some tastes, spoiled. This alteration is said to have cost 800*l.* Granville Church has been restored. Its stained glass bears comparison with any I have seen in Normandy. Many towns have statues: Cherbourg, Caen, and Coutances are examples. Cherbourg has two,—one of Napoleon I. (much talked of), and the other of Napoleon III. Coutances has a bronze statue of Prince le Brun. He was third consul, and lived between 1739 and 1824. On a curious monument at Caen are found these words:—"Non, non, jamais en France aucun Bourbon ne dominera."

Bridges in these parts are substantially erected. That called the Pont-à-la-Roque, between Coutances and Argneville, has many arches. This one has not long been erected, the former one having fallen a few years ago. Those over the Vire, and over the rivers Orne and Odon united, are well built. The public buildings are really beautiful. The hôtels de Ville and palaces of justice are highly fine. St. Lo, considering its small size, has beautiful examples of these. At Caen, the university buildings are fine. Statues are placed in front. Cemeteries are neatly and artistically arranged. That at Cherbourg is well worth seeing. Coutances has two. They mostly have crosses.

Those for the poorer classes are made of wood; others of stone, ornamented.

Coutances has a Jardin des Plantes, handsomely adorned. Near Coutances, as you know, is a Roman aqueduct. It has many pointed arches still standing. It is said that it underwent repair in the fourteenth century, or later.

At Argneville, on the coast, at a distance of 63 miles west from Coutances, there is an old castle, used as a sea-mark. Argneville has a lighthouse. Granville has two, one on the pier, and the other on the head of land on which the old town is built.

M. G. Manel has laid before the Society of Antiquaries of Normandy the desirability of this society furnishing the *Annuaire du Calvados* with memoranda on historical and other subjects. The proposition has been taken into consideration by the society. The Society of Antiquaries of Picardy has recently edited an "Annual of the Somme." These annuals are excellent works. M. Renault has contributed to the "Annual of the Manche" a paper which has taken him nine years to execute. He has described the abbeys, churches, &c., in full.

As I have stated, Caen has a Society of Fine Arts. I translate from the *Moniteur du Calvados* the following facts concerning its movements at this time:—

"The Society of Fine Arts of Caen decided on the 8th March last that (independently of the Exposition to which are asked to compete the living artists, born or living in Normandy), it had organized an exhibition of objects of ancient art, to be kindly lent by private persons. The principal objects to be displayed are,—pictures, statues, and statuettes, ivory and wood sculptures, enamel works, porcelain, arms, little chests, antique jewels, illuminated manuscripts, tapestries, sculptured furniture, ancient glasswork, &c. The objects, after being exchanged for a note of deposit, will be securely kept under the inspection of the committee, and under the protection of a guard. Those of small dimensions will be placed in glass cases. Proprietors to be allowed to conduct their objects to the destined place. The names of the lenders to be indicated (unless otherwise wished). The committee also ask lenders to send to the secretary of the committee (before the articles themselves are delivered), a short notice on the subjects intended to be exhibited; this notice to include their origin; to say if there is any historical importance connected with them; to name the artists and the schools to which they belong, and also an indication of the size."

These articles were to be received up to the 15th July; the exhibition to commence on the 20th July, and to close on the 10th August following.

The above is taken from a circular dated Caen, 23rd June. Any persons not receiving a copy of such, and who possess works of art, were they but few, and even a single one, are likewise invited to send them in to the Society of Fine Arts of Caen.

No doubt the Bayeux Tapestry will be exhibited. If so, it will be a chance for many to see it, as it is generally kept at Bayeux, at the Sous-Prefecture. I take this opportunity to induce Englishmen to go to this exhibition, as well as to see Caen, which possesses beauties of an extraordinary character. It is closely allied with England, as it contains the tomb of William I., in St. Stephen's church, or the Abbaye aux Hommes, where took place those curious details given in histories concerning his burial. Also the Lycée, or Imperial College, containing hundreds of students—400 internal and a large number of external scholars. Sir Bernard Burke was educated there: so was Leverrier the astronomer. About these two buildings the antiquary will hear very gratifying things.

AMATEUR.

VITALITY IN BUILDING OPERATIONS AT BIRMINGHAM.

It is scarcely six months since we examined into the condition of Birmingham, and we are glad to find that, although measures to improve the unsanitary state of the town, as to sewers and pavements, are still, comparatively speaking, only in embryo, considerable progress continues to be made in its architectural adornment. Indeed, with such rapidity have changes taken place in this respect since the publication of our notice, and so much do we find the public spirit smitten with the desire to be considered foremost in matters connected with street architecture, as all know it also to be in mechanical prowess, that we are glad to have our eye again upon Birmingham to see whether these changes are for the better or worse.

In "Castle Buildings" Napp's hotel has been

rebuilt from the foundations within the past ten weeks. A five-storied erection, with nine semicircular-headed windows in each row or story of the facade, has been literally "run up" in good, sound brickwork; and we have an instance here of the pliability of this material in enabling the contractor, Mr. Partridge, to execute this simple, straightforward-looking building with such rapidity. It must be of great importance to the proprietor of a mercantile hotel that his habitual customers should not be kept very long away from their usual place of resort, and there is no material that admits of such safe and rapid building as is required under such circumstances as that afforded by bricks. Although the street in which this hotel is building is so narrow that you can almost shake hands from the windows with your neighbours opposite, and hence the building cannot be viewed satisfactorily from any point, a slight ornamentation has been adopted in blocked cornices and in a free use of alternate white and red bricks. The effect of recessing deeply the windows, which we presume will be filled with large sheets of glass to admit as much light to the rooms as possible, contrasts favourably with a similarly treated building, though with a longer front of twelve windows, in a row adjacent,—George Watson's paper warehouse,—where the glass has been brought so near the front that no light or shade whatever is produced.

At the corner of High-street and Carr's-lane we find a practical illustration of the *questionezata*,—Classic or Gothic? Mr. Browning, the contractor, has erected, under the direction of Mr. Yeovil, four sets of "premises to let," in the most ornate Italian style. The semicircular arch, which is adopted to nearly all the windows in this many-storied building, on a conspicuous site, tells well: plate glass to the windows, projecting balconies, elaborate cornices, and rich dormer or attic windows,—all tend, too, to the generally expensive and showy result; but the ornamentation, in cement, appears to be unnecessarily extravagant, and one feels a sympathy for the proprietor, Mr. George Even, as to the chance of pecuniary success in his gorgeous speculation. A somewhat new feature of glass mullions to the mezzanine above the shop fronts and glass mullions to the shop fronts is striking; but they look weak. Immediately abutting on these Italian buildings we have an equally costly, though more modest, venture in the intensely Edwardian Gothic premises designed by Mr. Charles Edge and executed by Mr. Baxter for Mr. Powell. Here genuine materials,—stone, with excellent carvings, many coloured bricks, free use of large plates of glass, &c.—are all combined. The effect of these rival premises is the more striking by their contiguity to the late Rev. John Angel James's sombre-looking Classic tabernacle. We shall watch with much interest the future success of these novel Italian and Gothic "premises to let."

In Union-street we observed Messrs. Worsey & Baxter's Manchester and woolen warehouse, undergoing a complete remodelling. Here the builder, Mr. John Cresswell, is successfully rebuilding and enlarging the upper portions of the building, while the business is being "carried on"—a great accommodation to business men—"as usual." Nine arched windows in a row, with coved jambs, occupy two stories above the shop-fronts, and the upper stories are treated with innumerable arcades of windows. This is promising to be another effective Italian building. We regret, however, that the excellent brick coved jambs and labels to the semicircular-headed windows are roughed—unnecessarily so we think—to receive cement; and we still further regret the unfortunate shape adopted in the shop windows. These are so very flat-centred, that iron columns are introduced, apparently with no other intention than to support the flat part of the arch, which appears to have been constructed originally to support itself. Closely contiguous to this alteration we perceive Midland House—Messrs. Eld and Chamberlain's corner house. This is well known as a vigorously treated modern Medieval building. Coloured stones, coloured bricks, and coloured tiles, are profusely introduced.

At the junction of Bull-street and Dale-end—the spot which we mentioned on a previous occasion, where the traffic had overgrown the proportions of the streets to a dangerous extent—we find new premises erecting, which extend through from Dale-end to Bull-street. To us this erection has a most perplexing appearance. We cannot believe that the ugly building which occupies the rounded junction corner of these streets—Mr. Joseph Smout's tobacco and snuff shop—is to remain long, as the demolition of this building is so vitally important for the accommodation of the

greatly increased traffic of the locality; but we are puzzled to know what will be the effect of the new building which is erecting in the rear of it. A more straight-laced affair of four stories is seldom seen.

The men of Birmingham seem to decide upon and carry out their schemes with such vigour and rapidity, that we hastened to the open space in New-street, opposite Hyam's tailoring establishment, and bounded by the entrance to the North-Western Railway station, the Grammar School, and the Attwood statue, fully expecting to see some metamorphosis there. We were glad to find the open space still remains railled in, and occupied as a deposit for flagstones only. We sincerely hope that when we visit the town again, we may find this ventricle of the heart of Birmingham still unbuild upon, and our suggestions with reference to it carried out.

THE GEORGE STREET MODEL LODGING HOUSE.

DESCRIBED BY ONE WHO LIVED THERE.

HAVING already* gone so much about this model lodging-house—upstairs and downstairs; in its bedding department and washing closets; glanced upon the food lock-up quarter, and the coal and coke holes; and mentioned the plentifulness of firing whenever deemed necessary; but as, withal, we have never ostensibly ventured into the kitchen itself, it has become quite time that such should now be done; nor need we be long about it, as it is only to turn to the south-lying side of the basement passage, and there the kitchen is found and may be as readily entered. There are three doors on the right of the kitchen, one of which opens into a small square nook, to which the inmates are expected to go when they want to clean their shoes or boots, and for which purpose free brushes are provided, but not the blacking, which is but to be had at the cost of the user. The second door is only connected with a staircase of the strictly private kind, and is seldom employed even in that way; and so likewise the third door has scarcely any special purpose.

Five o'clock in the morning is the expected hour for the fire-lighting, and not very long after one of the tea-kettles will be found puffing forth its evidences of boiling, three of these being commonly on the fire at the same time; and as the first to boil becomes emptied for breakfast operations, the others are getting ready for the like service, each kettle as it is drawn dry being filled up again with the partially hot water to be had from the boiler in communication with the grate. The fire-drange, as may be supposed, is of goodly depth as well as frontage; has a metal platform hung before it, and on this, when breakfast-taking is in full activity, as from seven o'clock to about half-past eight, there may be seen a thickened cluster of coffee-pots and tea-pots, while higher up, as in regimental order, the fall-down top bar of the grate is covered over in the like manner. Just imagine the scene in the full flash of action in this way; the great fire, of the liveliest red in the under parts, and a-top all gas-spurt and blaze; the several fillers up of coffee or tea pot standing one by the other for their soonest turn at the kettle in use; and now while some hurry away at once to get coffee or tea beverage into the cup and then down the throat at the table close by, others, not so much pushed for time, or more greedy to force out every possible virtue of the mixture called coffee and chickory, or green and black tea-leaves, proceed more leisurely.

From nine o'clock to ten, this chief fuss of the breakfast proceedings generally lessens; while at eleven o'clock it is a chance to find a single kettle on boil; for now the fire has to be put in requisition for the dinner pots, and then again there will be found an eager strife going on for room,—one with big pot in hand, another with some smaller pot, another with frying-pan spread over with steak and sliced onion, another for his tripe browning; though, supreme over all, the regular cook of the place "rules the roast;" and yet not from any positive right he may possess to do so, but simply because of the forbearance which the position he has assumed has obtained, being but a lodger himself, paying as other lodgers pay; and yet somehow he has got into office, and no doubt usefully so, seeing there is no compulsion on any inmate to sit down at his twelve o'clock *table-d'hôte*; though if you take your seat and eat of his good things, you must of course pay the charge made,—sixpence or fourpence for your plate of roast or boiled, so much for your share of

* See page 568, ante.

potatoes and greens, and so much also for your gooseberry or cherry pie.

The Sunday dinner-hour of the kitchen is held somewhat later in the day than on the six preceding ones, though rarely all that is provided for these occasions is eaten up at the exact hour of dinner, so a "plate" is commonly to be had by any after-comers; while, if nothing of the "ready-cooked" remains, the cook will soon prepare an equivalent in steak, chop, or a fry of rashers and eggs. The week in which this writing is done is one in the month of July; and so, if truth be stranger than fiction, it must also prove more satisfactory where fact is the main object at value; and hence it is that the following copy of the daily bill-of-fare of this cook of the George-street Model is given, this time being extended to a week, in order to arrive at a fuller appreciation of these matters of the stomach and pocket conjoined.

"BILL OF FARE.—Sunday: roast beef, roast mutton, stewed meat, peas, new potatoes, rhubarb pie, baked plum-pudding. Tuesday: stewed meat, vegetables, &c. Wednesday: meat pie. Thursday: roast beef. Friday: liver and bacon. Saturday (a blank)."

Now, is there not much for reflection here? much in the singularly graduating and varying of those daily dishes from the plentiful Sunday to the abstemious Saturday? But so it is, and, possibly, no one knows better how to take a faithful gauging of these changes than this cook of the George-street Model; a *cuisinier* who only can afford to get ready what he knows will be eaten and paid for, the small profits he in this obtains being his only means of keeping clear in his rent, securing his own share of the food he daily provides, and retaining a coat to his back. Most sagacious man, therefore, is he to have thought of this mode of living, and as able as prudent in working it into profitable practice. Then below, from rasher time in the morning till the hour of dinner, and next from soon after dinner till rasher time again in the early evening, he is always to be found; and then up he may emerge to the reading-room for his morsel of daily news from the journals; and after which he may once more be seen down below at the height of the supper hours, or from eight to ten o'clock, and then bedward he goes, to be up in bed-time on the next morning. This seems his regular life, the only bits of changes in it, from the description just given, being those of his marketing journeys to the butchers, the ham-shop, or the greengrocers; and these cannot be considered as enforcing to either much change or much pedestrian exertion.

Many of the inmates, however, do not dine in the place, the nature or the distance of their employments not allowing an opportunity; while many others are their own dinner cooks, as they are their own coffee or tea-beverage preparers. These are generally of the less employed class,—men who feel it quite time enough for their pockets, if not for their stomachs, to sit down to their breakfast some time between ten and eleven o'clock in the forenoon; their subsequent meal to be a conjoined one of dinner and tea, and possibly to go supperless to bed.

Such, then, are some of the common orders of facts observable in respect to these matters, and the more especially as witnessed in the spacious sitting or reading room, among the newspapers and other journals there to be seen, the joint pleasure of mastication and information going on at the same time. At night, when the gas is full on, and those have returned who had been absent at their different kinds of daily labour, the thronging of incomers becomes extreme. But soon they will all be seen to seat themselves along the fronts and backs of the various tables; there, head chatting with head in close proximity; here, the mouth as busy at its feeding operations; and at the other places eyes, spectacled and unspectacled, bent intently over the printed page, the reading so provided being in a sense common reading, free to all who will but subscribe a weekly penny to pay the cost in this way involved.

But who is the collector of these pence, as also the expender, and what the mode of proceeding in respect to the choice of the purchases so made? These matters are ordered thus: the superintendent, Mr. Taylor, takes, with the weekly half-crown lodging money, the penny in demand for the use of the reading; that is, supposing the lodger is willing to be so accommodated, for if not, there is no compulsion to pay.

And now, what is the general character of this reading, as indicative of the class of mind which has its own uncontrolled option in its providing? And here a clue to some probable answer in this way may be arrived at, by giving attention to the

following list of the publications which are at present in ascendant favour among the George-street model lodgers:—

The Times, Morning Chronicle, Morning Star, Express (evening), daily; and then come the weeklies, which are these: *Illustrated London News, Illustrated Times, Examiner, Weekly Dispatch, Lloyd's Newspaper, Punch, Builder, All-the-Year-Round, Once-a-Week, Welcome Guest, Chambers's Journal, London Journal, Family Herald, Cassell's Family Paper, Leisure Hour, Sunday-at-Home*, and lastly, *Cassell's History of England*—which, although not of the strictly periodical grade of literature, yet, as it issues in weekly penny numbers from the printer, has been allowed to creep in in company with the more legitimate cast of periodicals.

Lately (and this happens in the beginning of every month), the subscribers to the just mentioned newspapers and periodicals held their "publication meeting," when a report of the income and expenditure was read over, as furnished by the superintendent, and from which it appeared that there were a few shillings in hand, and thus that all was going on pretty well. On these occasions, a sort of auction also is held, should it happen that any of the publications are to be given up by parties who previously had them knocked down to them and paid for them.

Now, who among the fund-finders and otherwise zealous friends of the Model Lodging-house, Model Family Dwelling, Model Wash-house, Model Soup Kitchen, &c.,—who among these well-meaning parties but—most pleased to have a faithful relation of the kind of daily doings carried on within walls which, perhaps, they have never seen but as mere walls; and this, too, even at times of a purposeful inspection—times when all, as if by magic, becomes so changed at the hearing of the first footfall of the painstaking stranger, who, stepping forward, staidly looks about him from floor to ceiling, at the tables, at those who thereat have their seats—either with breakfast-cup, or dinner-plate, or newspaper before them—and then, exchanging a few words in a satisfied undertone with the superintendent who accompanies him, thinks and says "Very, very comfortable," turns his back, and departs.

These latter remarks naturally lead to others of a kindred bearing, and which may be opened with the question, But is everything here so really comfortable? All necessary cleanliness enforced or practised, nor any evil-engendering remissness or as gravely honest answers. Get, then, into a quiet, earnest talk on such matters with some of the oldest and most sedate of the lodgers, and you will soon hear, "No, all is not yet with the place as it should be, and as easily might be; and this although many good changes have recently been effected—effected, it is true, without the willing concurrence of the chief house-official, or that of either of his subordinates; but still the thing has been done, and so far to satisfy."

"Well, but what was the motive or motives to the difficulty so experienced?"

"This can be explained readily if you will hear—hear a rapid history of the thing. Hear how in Byrom's superintending time, now some twelve years ago, there were great complaints on many heads,—of negligence in the bed-making, the bed-clothes changing, the closet cleaning, as also of much undue favouritism; a young Scotch 'doctor,' as he was called, being almost in the constant habit of coming in late at night and drunk, and when he would commence to the sure disturbance of all who slept in the same ward in which he had his bed, an almost incessant flow of ribald chatter, or to sing, or to smoke, and yet was he allowed to remain for week after week."

Relations like these you will hear enough about. You will hear, too, of many petty thefts which were committed at that period; as also of the pigsty-like condition in which the kitchen was kept, and of the foul encrustations which were permitted to gather about the insides of the cooking-pots, and over every other article necessary for the preparation and the serving up of a decent-looking dinner. Again you will be told that although the house's then most unworthy superintendent had his discharge at last, and one of better promise was put in his place, yet that latterly this very successor of the party which had been so discharged has had himself complained against, inasmuch as the culpability of those who are immediately under his authority reverts in some degree to himself, and hence his due share of the blame.

You will learn from these talkings, that the grey, square, tile-paved floor of the reading-room, which now looks somewhat seemly, because

scrubbed over and washed and cleaned every two weeks, had been allowed not many months back, or scarcely a year ago, to become as black as the blackest parts of the street, faced thickly over with those accumulations which may be expected to find lodgment on such a surface, when continually shoe-broken upon and shoe dirtied, and dirtied, too, with grease and the peelings of boiled potatoes, and the careless spittings of many of the inmates; dirtied, indeed, in a great variety of ways, and that dirt hardened by the heavy pressure of repeated footfalls, into a substance of immovable position and ugliest hue.

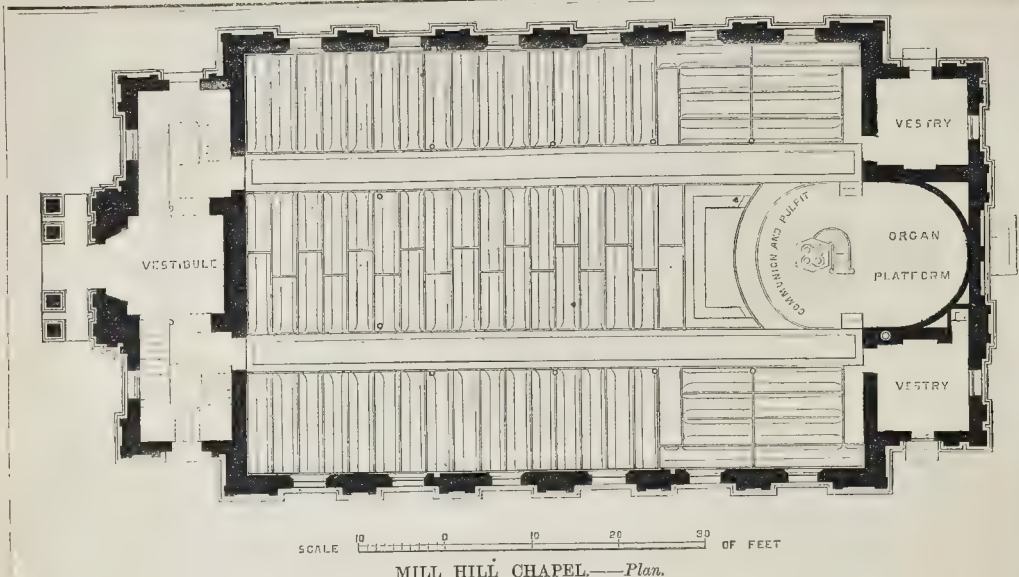
And even now there are smotherings of complaint creeping about in respect to unclean sheets, and as ill-savouring insinuations as to the cause; the regular payments, as it is assumed, for the reputed regular sheet washing being made, although the work is not actually accomplished.

How well or ill-founded these suspicions may be, one thing is certain, which is, that in a matter which lately engrossed so much attention from the inmates of the house, it is not unlikely that it should do so to some degree still; and hence this sheet affair may be expected to long receive a close watching, as also that of the drying towels in the up-stairs washing-places. Mr. Taylor should bethink him that those who are under his orders,—as are the two men who have the joint care between them of the kettle-boiling, the bed-making, the room-sweeping, and the stair-sweeping, as also the changing of the sheets and pillow-cases, and many of the smaller *et ceteras*,—require the vigilant eye-watching of the master, as most people would do were they placed in a like situation; and this he but rarely or never is known to trouble himself in doing.

The social experiment involved in the expectancy which gave rise to these "models," is of a class too valuable to be consigned to the chance of an eye-shutting perilling. The rude but guileless Simon Flustrums of the hamlet have had a kindly eye cast upon them in their native positions, by the wise and generous of even this so-much censured London; ermined peers and other personages of high names or wealthy repute being solicitous that each of the Flustrum brotherhood, on arriving in London, should find such sheltering places as might be requisite for the better and longer conservatism of that pure relish for the pure in appearance which they had hitherto been accustomed to feel. Nor this alone; but to lure on the Londoner as well, or other city or large town-reared toiler—to lure all on alike to the love of the pure, and so to think more truthfully of the value of the clean bed to lie upon, a careful and constant clean-keeping of the hands and face, and other parts of the frame. Who can deny the thorough excellence of these objects? And therefore is it that the model lodging-house, and all similarly-purposed establishments, are not to be supposed to be able, as the phrase is, to go safely alone when once they are fairly put on their feet, but such earnestly watchful supervision be kept over them as never to allow the risk of their lapsing into anything but the best of "models."

And this one of George-street is, in the main, of such character; and is proving itself altogether solvent, the income of last year over the expenditure having amounted to the respectable sum of 330*l.* 10*s.* 7*d.*; and this, notwithstanding there has been double the towel washing, perhaps more sheet and blanket washing, and certainly far more closets and corridor, and stair and reading-room cleansing than at any antecedent twelve months since the house has been opened, which was in 1847. Now, reading-room, stairs, washing-closets and sleeping-closets, and corridors are put in a course of a regular fortnightly cleaning and sweetening by a strong-armed charwoman, employing water-pail, soap, stout scrubbing-brush, and rough woollen cloth; whereas a long brush in the hands of a careless man, was formerly the chief instrument in use, and water but rarely applied, the male sex being either too stiff-kneed or stubborn-purposed to do as a woman will do in the matter of floor-scrubbing.

Praise, then, be to those "uneasy grumblers" (as such, doubtless, was the name given) who, some twelve or fifteen months ago, carrying the stories of their grievances to the Exeter Hall committee, found that they had grumbled so effectually that Lord Shaftesbury and his consorting colleagues felt they had a strong cause on their side, and so enforced a remedy, as well by enjoining a stricter care on the part of the superintendent and his assistants, as by affording the means to bargain with a poor hard-working woman for her services as "char" to the house; for, after all, this woman is only occasionally engaged, and yet the benefits have become most notable.



The superintendent's salary, as is understood, is £27. per year, without rent and coal charges; and that of the men bed-makers, a free lodging with 10s. 6d. each per week; to which such additions are made as arise from a small charge for the letting in of lodgers after the door-closing hour of night, or from twelve o'clock to one; no admittance being permitted at any subsequent hour until house-opening time, at five o'clock in the morning; the other source of perquisite being the calling up of such lodgers as may wish to be waked at a certain hour in the morning,—as, for instance, at five, half-past five, six, or a quarter past six, it being quite common to see these instructions chalked over the kitchen mantel-piece, thus:—No. 9, 5½; No. 21, 5½; No. 99, 6; and so on; so that the particular assistant to whom this office belongs, on getting from his own bed in the early morning, learns at once what he has to do, and acts accordingly. Through such means, then,—and no doubt some others,—these men considerably help out their more regular income; and when the plain character of the whole of the duties they have to perform is considered, in conjunction with the willingness of many even of the lodgers to be so *berthed*, there seems to be no reason whatever but that both the parties so engaged as bed-makers, &c., as well as the superintendent himself, should be made to keep the place up to its proper position as a "model."

"But," there are those who will say, "but, is not the place already too good for many who come to it?" Why, no; it cannot be this; for although there may be a few of rude manners and disagreeable habits, yet in such a lodging something of improvement will insensibly creep over even these very parties; their coarseness of expression and piggishness of conduct cannot but fall into the *incline* groove, and so causing them to become somewhat less and less offensive the longer they remain in the house. Indeed, the great value of every such establishment is *curative*; the cultivation of a better perception of one's own self-deservance—that sort of esteem which is not of the haughty nor of the fribbling cast, but has its just balance between what is our own proper due and the due of others. And a clean face is a help in this way, a clean bed to lie on, a clean table to sit at, and a cleanly dished-up dinner to eat. The newspaper, also, is a help, and a great help in the miscellaneous information we get from it; and so, in like manner, are our gettings from the different other issues of the press, a great help,—these ranging from the cheapest of the "periodical" progeny to the cheapest of our "volume" venturings,—as in the "House Library," "Parlour Library," "Popular Library," "Penny Library," and many other of these book-births. And in these several particulars the George-street lodgers, as those in other "models," derive advantages not to be had in the less cared about poor men's lodgings; and are benefited and raised by these advantages.

LAMBETH BRIDGE.

The directors announce that, having obtained subscriptions for the greater part of the capital, they have made contracts with Messrs. W. S. Newell & Co., as to the cables, and with Messrs. J. H. Porter & Co., as to the residue of the works, at prices which will complete the works for less than 28,000*l.*, the contractor taking payment of 12,000*l.* of this amount in paid-up shares. They have, further, entered into arrangements for the purchase of nearly the whole of the land required, and are able to state "that the capital of 40,000*l.* will be more than sufficient to meet every contingency."

Mr. F. W. Barlow, the engineer, says the bridge will have three equal spans of wire cables, made with charcoal iron, each 280 feet wide, supporting a wrought-iron platform, with rigid lattice sides, similar to a girder; and thus differs from suspension bridges hitherto constructed, which support a wooden platform by small round vertical rods, without any other means of insuring rigidity and preventing oscillation. The river piers will consist each of two cast-iron cylinders, 12 feet in diameter, driven 25 feet into the bed of the river, and filled with concrete and brickwork, in the same manner as those now in course of erection for the new Hungerford Railway Bridge. The bridge will have a double carriage-way and two foot-ways, the total width being 32 feet. This is so very narrow that it is satisfactory to hear further, that the bridge is so designed that an additional width for two lines of carriages may be added without interfering with the traffic.

WALL LININGS FOR COTTAGES.

In reply to "Agent," Mr. Bridell, of the Patent Marble Works, suggests that he could produce a lining that would answer the purpose.

On the same subject Mr. Casentini, of the Westminster-road, says:—"I have devoted several years to this object, and have succeeded in producing the "Patent Hydroboron," which, when mixed with sulphate of lime, forms a cement as hard as marble. It will take a polish, and may be washed with soap and water (hot or cold) at any time, removing all corrosion without destroying the brightness. Any colour may be produced if mixed with the plaster before gauging with the hydroboron. This material may be painted or papered upon at any time, if not polished. The cost per foot super. is 3d.

Mr. Szecelmeijer also asserts that he has a material "that will prevent the necessity of coating the walls with colour, wash, or paper; that is strictly anti-contagious; that effectually resists the introduction of damp and wet; that bears a vitreous glaze capable of being washed with soap and water; that admits of ornamental colouring; and that is *cheaper* than the processes "Agent" is desirous to get rid of, and a great deal more

durable." Of this, however, we know nothing personally.

Two or three other gentlemen simply state that they know how to make such a material as is sought for; but the mere assertion, of course, goes for nothing.

MILL HILL CHAPEL.

The exterior of the chapel which has been built at Mill Hill consists almost wholly of decorative brickwork. Stone is used only in the portico, base course, main cornices, and window sills. Panels of Maw's tiles divide the windows into two heights at the level of the galleries. The remaining portion of the walls, with the mouldings, panellings, string courses, cantilevers, ornamental tile panels, &c., are in brick; supplied from the works of the late Mr. Joseph Eccles, of Mill Hill, to whom the erection and defrayal of the cost of the chapel are mainly attributable. His recent decease is a great loss to the locality.

Some of the mouldings most exposed to the weather, executed in the "bastard" fire clay of the district, succumbed to the frost and snow of winter. These have been cemented over. The mouldings, executed in the common clay, remain, however, permanent.

The spire is constructed of wood, and covered with lead. Its height is 130 feet from the ground.

The chapel will accommodate nearly 1,000 persons, inclusive of Sunday scholars. The internal fittings are of pitch pine, stained and varnished. The ceiling is a tripartite cove, pierced ornamentally for ventilation. The tower is to answer as a shaft for extraction of the vitiated air.

The communion, pulpit, and organ are important internal features. The last is placed in an elliptical alcove in the centre of the end wall behind the pulpit, with a domed ceiling over. The organ front is in keeping with the general style of the edifice.

The windows are glazed, with figured enamelled glass, in quarries 9 inches by 6 inches. Including the boundary walls, palisading, gates, heating, and lighting, the entire cost of the building was 4,500*l.*

The contractors are Marsden & Charnley (brickwork); Joseph Isherwood (mason); H. Fletcher (slater); Henry Aspden (joiner and carpenter); Park & Co. (plumbing, glazing, and staining); J. Whitehead (heating and palisading); C. Seward (gas fittings). Mr. James Hibbert, of Preston, is the architect.

The design, we may add, was selected from a competition limited as to the number of competitors.

COMPETITION: GUISEBOROUGH.—The premium of 10*l.* offered by the building committee for the Guisborough Mechanics' Institute has been awarded to Mr. John Moginie, of Grove-terrace, Kentish-town.



MILL HILL CHAPEL.—MR. JAMES HIBBERT, ARCHITECT.

HALIFAX TOWN HALL.

At a meeting of the Town Council on the 7th instant, certain additions to the design now in progress were considered. The extra works were suggested by the architect, Mr. Edward Barry, with a view to carry out as far as possible the spirit of the design of the late Sir Charles Barry, which had been cut down from want of funds to the extent of nearly 7,000*l*. The income of the borough having greatly improved since the commencement of the works, their architect suggested the following additional works:—1. A more ornamental completion of the interior. 2. The restoration of the tower and spire to the height originally contemplated. 3. The completion of the carving throughout, instead of deferring this work until a future period. 4. The substitution of a visible roof of high pitch for the flat roof in the present contract. It was moved by Mr. Councillor Gaukroger, and seconded by Mr. Councillor Blakey, that the suggested works be carried out, at a cost not exceeding 2,300*l*.; and, after some discussion, the motion was carried by nineteen against eight votes. The borough will have reason to rejoice at the decision for many years. The walls are now nearly ready for the roof.

A WORKMAN'S VIEW OF PAYMENT BY THE HOUR;—ITS ADVANTAGES AND ADAPTATION TO PRESENT CIRCUMSTANCES.

SIR,—The dispute on the hour system still rages. Master-builders have written largely in its favour: the O. S. M. Societies have written much against it. Even barriesters have given their mite of information, and also a professor of political economy; but there is one class of men that have been altogether silent on the subject; viz., those working men who have accepted and are now working under it. I belong to that class; and, as we have met to exchange our views on the subject, we deem it right that our views should be made public. As we have been designated "unskilled workmen," the refusal of the labour market," our defence might be considered as of little worth; still, as the worst of criminals are allowed an opportunity to make a defence, we deem it quite just that we should be allowed the same privilege.

First, then, the hour system is dreaded by some, as it revives the practice of overtime. We first inquire why men are to be prevented from working overtime. Is it that the workers of overtime injure themselves, or those who refuse to work overtime? We conclude that the opponents of overtime deem themselves injured by those who work overtime. Let us just look at the subject fairly.

The resources from which wealth is drawn are inexhaustible, but that wealth, or capital, cannot be drawn without labour. It is quite true that capital is wholly dependent on labour; but let us not forget that labour is equally dependent on capital: without capital, labour is impotent; therefore, it is very evident, whoever is usefully employed if his labour be productive of wealth, he increases the capital of his country, which gives a better chance to give employment to others. A man may injure himself by over-exertion; but, if he avoids this, it would be difficult to prove that by any excess of labour he could possibly injure others. It may easily be observed, where a nation is naturally indolent, poverty is sure to accompany it. Some working men might entertain the idea that, by voluntary idleness this year, they would have abundance of labour in the next; but let it be fairly understood, that voluntary idleness is the destruction of capital, and a destruction of capital diminishes the chances of labour. He, then, who labours much, is not the real enemy to society; but he who labours little, or not at all.

Secondly, "The hour system has been objected to on the ground that it gives employers an opportunity to shorten the hours of labour during winter. We do not advocate the shortening of working hours during winter as a rule; but there may occur exceptions to this rule; and those hours might be shortened to the advantage of working men. Ocular proof exists, almost every winter, that a very great evil prevails; viz., that a great number of working men are wholly destitute of food and labour. The question is,—What is the cause of this evil? There may be various causes, but here is one very prominent. Many working men insist on working full time in winter as well as summer. One thing is generally overlooked, viz.—that workmen cannot insist that an employer shall employ any given number; the consequences are, if workmen will insist on work-

ing full time to the disadvantage of the employer, one-third or one-half get discharged in the very worst season of the year. Here then is one of the causes of that evil that is so prevalent in the winter time. It is urged that working men want as much wages in winter as in summer. This is quite true; but we ask, would it not be better to take such steps as would secure about four-fifths of our usual wages, than to run such a risk of having none at all. These two objections are the most prominent against the hour system. The others might be refuted in a few words.

The hour system has been objected to for the reason that masters will have an opportunity to discharge men at an hour's notice. This is to suppose the masters to be so profoundly stupid to their own interest, that for the mere wanton display of power, they will discharge men suitable for their services, and replace them with men who often prove strangers to the duties required of them. We do not believe employers generally so vicious on the one hand or stupid on the other.

The hour system has been objected to for the foolish reason that it reduces men to the condition of slaves. Slaves did you say? Slaves are under the control of others during life. We for an hour: we are free in proportion to the shortness of the period we are under the control of others. An hour is shorter than a day; consequently we take a step in the right direction. We do not perceive any just grounds to resist the adoption of the hour system; at the same time we see, among others, two strong reasons why it should be adopted.

1st. It would for ever settle that long and tedious dispute of the nine-hours movement. If masters are justified in resisting the nine-hours movement they are fully justified in the adoption of the hour system.

2nd. The hour system would remove those barriers and restrictions on trade, that misguided men, with shallow brains and contracted minds, have raised to obstruct its free progress.

3rd. The hour system is suitable for summer, and enables working men to improve. It is equally suitable for winter, if necessity occur, to contract the hours of labour and enjoy the surplus of their summer earnings. Shall we men, endowed with the power of reason and intelligence, stand reproved by insects that act more prudently than we by mere instinct? If masters labour under the conviction that the adoption of the hour system is just and equal between man and master, let them act with firmness—no wavering: to yield now would be weakness and folly. Firmness will ensure speedy success.

ONE OF KELLY'S MASONS; or, if you prefer the name,

JOHN GRIFFIN.

"RECOLLECTIONS OF PUGIN."

AUTHOR'S REPLY.

It is not my intention to enter into any controversy with Mr. T. Bury as to the statements in my "Recollections of Welby Pugin." When he has the effrontery to say that I did not see Pugin for twenty years, he is deserving of no credit.

I have reliable authority for everything I have mentioned which did not come within my own personal knowledge. It is not to be supposed that my biography was ever written in which some of the incidents might not be open to a different version; but I could not, sir, believe that any man would be so wanting in gentlemanly feeling as to put forward a number of contradictory assertions without any proof, merely, if possible, to damage the character of a once fellow-pupil. If I were to engage in controversy with Mr. Bury I could state some facts which might disturb his merry mood. While writing these lines I have received a communication from Mr. Weale, in which he entirely confirms one of my statements, as follows:—

"The late Mr. Welby Pugin's plates of 'The Apology' were engraved by him while at sea, when in partnership in a small vessel with another; so he told me when he brought the plates into my house on his return, dressed in his sailor-partner's clothes."

Once for all, I repeat that there is no statement in my book for which there is not the best obtainable authority: I shall therefore treat with contempt any threatened future observations in which Mr. Bury thinks it becoming to indulge. The arrogant manner in which he claims all knowledge of the late Mr. Welby Pugin is not to be tolerated. I have not attacked Mr. Bury in any way; but he has made the most unwarrantable assertions, as devoid of truth as they are of good taste.

I am content to let the merits or demerits of "The Recollections of Pugin" be judged by the notices in the *Builder*, *Saturday Review*, *Examiner*, *Observer*, *Literary Gazette*, *Athenaeum*, *Manchester Guardian*, &c.; and do not quarrel under Mr. Bury's puny lash.

BENJ. FERRY.

"RECOLLECTIONS OF A. N. W. PUGIN."

In one only of the many desultory remarks so profusely scattered by Mr. Bury, through the columns of the last number of the *Builder*, am I disposed to coincide. I am afraid it is true, as he asserts, that "many men exhibit a difference of character on different occasions, and under a varied influence." Under ordinary circumstances I can well conceive that Mr. Bury would be good humoured and liberal, if not very profound, in his judgment on the literary merits of his professional rivals; but under an adverse "influence" it is possible, as his recent letters on "Recollections of A. W. Pugin" have too painfully shown, for the writer to indulge in petty and captious criticisms which are inoffensive only because they are feeble. As far as I am concerned, I make him quite beyond his comprehension. No one has a right to require Mr. Bury to be either original or independent in his judgment: he is therefore welcome to borrow second-hand his opinion as to style from the "ingenious Tractarian writer," commented on in page 561 of the "Appendix" and who, in the *Saturday Review*, of August 3rd, returns again to his original but improved insinuation concerning Pugin's "moralisation" in matters of faith. During the preparation of the "Recollections," Mr. Bury had ample opportunity to show his zeal on his "old friend's" behalf,—a zeal which then would have been out of place, nor wanting in modesty, for the author of that work had too real a regard for, and took too deep an interest in, the subject of his memoir, not to have accepted in the most handsome manner assistance and counsel in his arduous undertaking. If Mr. Bury be indeed inclined to do real service to the memory of his "old friend," let him leave to others more candid and dispassionate than himself the onerous task of picking small holes in a performance which, whatever its defects may be, has at least the honest aim of putting Mr. Pugin's character and life in a true light before the public. But, since Mr. Bury has rather ostentatiously announced that he intends to continue his comments, which seemed last week to come to an end for lack of matter than of will; and since he prides himself on the statement of accurate facts; I will also give a few facts, for the accuracy of which I can vouch, and which may, perhaps, go far in accounting for Mr. Bury's carping and paltry remarks on the writer of the "Recollections." It is a fact, then, that Mr. Bury was the ambitious of being the biographer of Pugin, but his dilatory efforts met no encouragement. Again, it is a fact that not only did Mr. Bury refuse all assistance which his business connection with Pugin might, perhaps, have enabled him to afford; but he actually had the effrontery to brow beat all the family documents and letters should be withheld from Mr. Ferrey, in order that he might belied interior, and write a tissue of lies, which then this doughty champion of truth and accuracy might have the supreme pleasure of demolishing. What will the lovers of fair play—and they abound even in the literary world—say to such trickery? What delicate honour to set a trap for a literary rival! What want of manliness to come out, armed cap-a-pie with accurate facts, withheld for a malicious purpose! To what deaths will not wounded vanity drag its disconsolate victim? But I have not yet done with my string of facts. Before a single line of "Recollections," good, bad, or indifferent, was printed, Mr. Bury declared that he would attack its author in every periodical open to his influence, and do his little utmost to damage the biography of the man whom he is so fond of calling his "old friend." Fortunately, Mr. Bury is no literary gorilla. He may, perhaps, have the unpleasant snarl, but he sadly lacks the strength of that far-famed imp. He is to be pitied; especially if he fancy that he possesses the biographical powers of a Boswell; and has been balked in his desire of making Pugin's memory a pedestal to his own fame. Had he remained silent under his disappointment he might have had the sympathy,—had he assisted in the work he certainly would have earned the gratitude,—of Pugin's friends: as it is he merits only contempt. Whatever his qualifications as a biographer may be, his personal attacks on, and his discreditable manoeuvres against, Mr. Ferrey, show that generosity and a gentlemanly tone and feeling,—qualities which honourably distinguish the author of "Recollections,"—are in Mr. Bury "conspicuous by their absence." Mr. Bury boasts that he sails under no false colours: I am afraid it is but too transparent that the flag under which he has embarked in his present cruise is the yellow flag of jealousy and disappointed authorship. I trust that on reflection he will strike his flag and return to his old good-humoured craft, and crack, for the future in private only, his harmless jokes at the expense of the successful author of "Recollections of A. W. Pugin."

EDMUND SHERRIDAN PURCELL.

RHYMES FROM READERS.

CERTAIN observations in our last have set some of our readers rhyming; and, as the warm weather is unfavourable for severe studies, we insert the result:—

A Catch.

A note! a note! haste to the Ferry!
In heat 'twas writ by Talbot Bury;
Who hints that he's not seldom merry.
(N.B.) He don't then drink South-Africanerry.

To Recollectors and Correctors.

With Welby Pugin, our Augustus,
By writing too much, don't disgust us.
His pilot-coat remain with Ferrey:
His tralities all,—let's send to Bury.
Your humble servants, friends precarious!
For self and Scorpio.

SACITTAIRUS.

THE DOVER SURVEYORSHIP.

HERE is the sequel of the Dover surveyorship. On Tuesday, the 6th instant, the Town Council met for the purpose (among other business) of selecting a surveyor from three names, selected and given in by the managing committee of the Local Board of Health, as reported in the last number of the *Builder*. After some preliminary discussion, in which the whole question of the dismissal of the present surveyor was ripped up, with a broad accusation against the majority of the Town Council that he was discharged from party motives; it was ultimately agreed that any member might propose a candidate for election; the three previously selected being then and there in attendance at the desire of the Council. Mr. Hanvey, of Gloucester, one of the selected, was thereupon proposed and seconded; and then Mr. George Jarrett, not one of the selected, was put by way of amendment. On these two motions the election proceeded; and the votes being in favour of Mr. Hanvey, he was declared duly elected. The other two selected candidates, — Mr. Benest, of Norwich, and Mr. Latig, of Hastings, — had not even a chance given them: they seem to have had "no friends" in the council. It does not appear, from the *Dover Express*, which gives a very full report of the proceedings in other particulars, that a word was said by any one as to the qualifications of the candidates; or any reason given, any more than on the former occasion, why one candidate should be preferred to another; or that the testimonials of any of them were ever openly produced or referred to. In conclusion, the Council refused the two gentlemen who had, at their desire, attended, — one from Norwich, and the other from Hastings, — any compensation for their time, but decreed to them first-class railway fare and a guinea each for their expenses. These remarks can convey no reflection on Mr. Hanvey, nor are the proceedings of the Town Council of Dover more unjust than what architects commonly submit to; but in their shamelessness they will hardly be paralleled; and it is this which entitles them to special public notice.

MONUMENTAL REMAINS IN PETERBOROUGH CATHEDRAL.

At the recent meeting of the Archaeological Institute, Mr. M. H. Bloxam read a communication upon "The Monumental Remains in Peterborough Cathedral." The writer said that the cathedral was never remarkable for the number or the statelyness of the sepulchral monuments it contained. The memorials now existing were confined, with one exception, to a few ancient recumbent effigies of abbots, not one of which occupied its original position, or bore any inscription to inform us what abbot it represented. The effigies are six in number: the most ancient belongs to the latter part of the twelfth century; four to different periods of the thirteenth century; and the remaining one to the early part of the sixteenth century. A full description of the respective effigies followed, and dates were assigned to each. The most ancient effigy, at the back of the high altar, ascribed to Abbot Benedict, who died in 1193, or to Andreas, who died in 1199. The second effigy, from the west end of the south aisle, ascribed to Abbot Robert de Lyndeseye, who is said to have erected the west front, and to have died in 1222. Gough assigns this to Abbot Martin, who died in 1155. The third from the west end ascribed to Walter de St. Edmund, who died in 1245, or to De Hotot, his successor, in 1249. Gough sets it down to John of Salisbury, who died in 1225. The first effigy at the west end Gough assigns to Andreas, who died in 1199; but the writer ascribed it to John de Caletto, who died in 1262. The most eastward of the series, under the wall of the south aisle, is of a later date than the four others; better in workmanship, and of a more advanced period in art. Gough assigns it to Abbot de Vectis, who died in 1155; the writer, however, ascribed it to Richard de London, who died in 1295. These effigies differ from other early episcopal effigies in not having the fingers of the hand raised in the act of giving a blessing; and in the absence of a mitre, not yet granted to these abbots; but they form perhaps the most interesting series of recumbent effigies of ecclesiastics of abbatial rank anywhere to be found in this country. The sixth effigy is on the floor of the south aisle of the choir: it is much mutilated from the material being of clunch or chalk-stone, and is of much later date than the others, and is ascribed by the writer to Robert de Kinton, who died in 1528. In 1643 the monument of Bishop Dove, who died in 1630, and those in brass, were demolished or torn away by the Parliamentarian

troops. Some of the slabs now form part of the pavement of the vestibule of the west entrance. Since this devastation but one monument of note has been set up, and this one is that of Thomas Deacon, esq., who died in 1721. It is of common-place design, but fairly executed, and marks the period in which the ordinary costume of the day is adhered to, though some persons of the same date are represented in the costume of Roman warriors, as he had seen that day in one of the Burleigh family at Stamford. The monument of Hedda and his monks, slaughtered by the Danes in 870, spoken of by Mr. James as the most ancient sepulchral monument in the kingdom, was next treated of by the writer; who, we may as well say, is the best authority upon the subject now living. The account of the slaughter was given in the *Saxon Chronicle*, and in the history of Ingulf, Abbot of Croyland, who died 1109. The authenticity of this work of Ingulf was, however, questioned; and as no early MSS. of this history are known to exist, it is supposed to have been produced in the fourteenth century, and a work of fiction rather than history. After a careful examination of the stone, the writer's opinion was that it is of a date, at least, two centuries later than 870, as the sculpture and detail are of a more advanced period; and that the figures on the side do not represent monks, but our Lord and eleven of his apostles. The work rather agrees with other ancient Norman work than with Saxon; and the probability is that it belonged to the close of the eleventh century, and was originally a Norman shrine, or part of a Norman shrine. It may have been fixed over some of the relics with which the monastery was enriched; and the work was probably of the same age and by the same hand as the sculptured stones now to be seen in the wall of Fletton Church. The writer then proceeded to notice the statue of a monk in the monastic costume of the Benedictine order, which occupies a niche in the gateway of the Bishop's Palace. It is a good specimen of art of the thirteenth century, and was noticed by Flaxman. Why a cast of it should appear in the Crystal Palace, at Sydenham, under the name of "St. Luke," the writer knew not.

The Rev. T. James remarked that in architecture, as in economics, a change of opinion was not uncommon. He had claimed credit for the monument spoken of as the oldest in the country, and had done so on the authority of Mr. Bloxam himself. On examination, however, he was inclined to think the work was Norman, and must give up that claim. He suggested, however, that the pseudo Ingulf was not likely to represent a shrine as a sepulchral monument.

The Rev. Mr. Venables said that he had examined the stone along with Mr. Sharpe; and the latter was decidedly of opinion that it was a shrine and not a monument, and that the figures were our Lord and eleven of his apostles.

FURTHER DISCOVERIES IN ORKNEY.

At Ness, in Shapinsbury, a tumulus, such as that at Maeshow or Stennis, has been examined by Mr. Balfour. The tumulus is surrounded by a broad fosse or ditch. The cells, which were reached from the top of the tumulus, are still more curiously arranged than those of Stennis. As described in the *Orkadian*, they appear to consist of a main oval chamber, with tiers of exterior crescent-shaped compartments, with communications by narrow passages, a new feature in such buildings. The dimensions of the main chamber may be from 30 to 35 feet broad, and 17 feet to the top of the standing wall, from the original floor. The entrance, which has not yet been distinctly traced all the way, appears to have been a very ingenious labyrinthine contrivance, evidently by its windings and crossings intended to bewilder strangers or intruders.

In one place there is what the *Orkadian* described as something like "a clumsy meal girdle," but which seems to be a covered sarcophagus, not yet examined. In the main cell or chamber, there is a deep pit dug down to the rock, and roughly built round with stones, with step-holes for descent or ascent: there is no water in the pit or well.

Of the Stennis tumulus, the *Orkney Herald* states that Mr. Petrie has examined and described the cellular interior. In his account of it he says:—"The roofs, floors, and back walls of the cells are each formed by a single slab of stone, and the blocks of stone corresponding in size and figure to the openings were found on the floor in front of them. These have been to close the entrances of the cells. The four walls of the chamber converge towards the top by the suc-

cessive projection of each course of the masonry, commencing about 6 feet above the level of the floor, in a manner exactly similar to the so-called Picts' houses of Quanterness and Widesford-hill. Its original height has been probably 19 or 20 feet, and the clay has then been piled above the roof to a height of several feet."

All over the building are scattered rustic crosses, small but perfectly distinct. On the slab, which forms the pillar of the inner angle on the right side there are devices of various creatures, very beautifully carved on the edge of the slab which had previously been rubbed or cut very smooth. The finest of them seems intended to represent a dragon. Underneath this are other figures, one of which resembles a serpent twisted round a pole. The tumulus and cells (though not the runes) are believed to belong to a period anterior to the peopling of the Orkney Isles by the Norsemen.

CHURCH-BUILDING NEWS.

Louth.—The completion of the works connected with the restoration of the chancel of the church of St. James, at Louth, having been effected, it has been re-opened. Mr. Christian was the architect employed by the Ecclesiastical Commissioners. Mr. Lee, of Retford, executed the designs of the commissioners' architect, and Mr. Maxey those of Mr. Fowler, of Louth, to whom the committee entrusted their share of the work. The commissioners confined themselves to scraping the whitewash and dirt from the stonework in the chancel proper; replacing decayed stone where necessary, and filling the clerestory windows of the chancel with tinted glass. The parishioners have done the rest. The east window has been partially filled with stained glass. The style of the window is the Late Perpendicular, and in arrangement is divided into seven lights, or fourteen compartments, separated by a transom: to fill it completely with stained glass will cost about 900*l*. The lower central compartment is occupied with the scene of the Crucifixion. In the upper compartment the Ascension is shown. The subject of the lower right hand compartment is our Lord before Pilate, and above this the Transfiguration is given. The upper left hand compartment is filled with the representation of Mary Magdalene washing our Lord's feet. The central light forming the cross in the window is filled with stained glass. Over the Ascension is the Agnus Dei, and in the spandrels above this are the sacred monograms. In the remaining part of the cross are ten angels bearing shields containing symbols of our Lord's passion. In the two upper compartments are the figures of St. Peter and St. Paul. The rest of the tracery is occupied with angels bearing ribands with texts, the Alpha and Omega, Seraphim and Cherubim, &c. The complete exposure of the whole of the east window has necessitated the removal of the old paintings which at one time formed a feature of the east end of the chancel, and laid the lower portions of the window.

Heigham.—Trinity Church, Heigham, has been consecrated. The building is a chapel of ease, and a poor man's church; of the 1,150 sittings which it contains, 638 being free. The building and site have cost nearly 7,000*l*, of which about 6,150*l* have been raised. The building consists of a nave, 104-9 long by 43 feet wide, containing 700 sittings in front of the pulpit, without pillars to break the view or sound. There are two transepts, 21 feet by 31 feet; a chancel 18 feet wide, and including an apse, 30 feet long. There are also two chancel transepts, each about 16 feet by 10 feet. The total length of the church is 138 feet, and the height, from nave floor to ridge, 50 feet. The church is of flint, with stone dressings and tracery to the windows, having a string course of red brick running round it. The roof is constructed of laminated arched ribs. The church has a tower and spire, but not high enough for the building; the latter is constructed of wood. The style of the structure is Decorated. The church has been objected to because it does not stand east and west; the chancel being N.E., and the opposite end of course S.S.W. The object of the architect and the committee was to place the church in the centre of the piece of land they bought, so as to leave room to build a parsonage house, and to be at right angles with the proposed new streets now in progress.

Romford.—The first stone of a new church at Romford has been laid. The plans were prepared by Mr. J. Johnson, of the Adelphi, the architect of the mother church; and Mr. Hammond, of Romford, is the contractor. The contract for the new building was taken at 3,300*l*, but it is estimated the total cost will be 4,000*l*, of which 3,000*l* have been already raised; one-third, we understand,

being contributed by Mr. O. E. Coope, of Rochetts. The building will be in the Gothic style, and in exact imitation of the mother church. It is to be dedicated to St. Andrew, and will have a nave, chancel, and south aisle, and a gallery at the west end, to be approached by a spiral stone staircase. There will also be an octagonal vestry, a porch and lobby with screen. The building will be of Kentish rag, with Bath stone dressings. The roof will be of open deal, stained and panelled, and will be slated over; and at the west end there will be a bell-turret in ornamental oak. The external dimensions of the building will be 75 feet by 33 feet: the south aisle will be 10 feet wide, and the chancel 35 feet by 30 feet; and, including the free sittings, there will be accommodation for 550 worshippers.

Stratford (E. sex).—The iron church in the New Town is very shortly to be superseded by the ultimate or permanent structure. The designs of Mr. Bassett Keeling have been chosen by the committee in a select competition; and the church will be erected under the superintendence of the architect. It will seat 1,000 on the ground, and 250 in a west gallery.

Linton.—The parish church, during the past year, has been undergoing a complete restoration; nearly the whole having been rebuilt, considerably enlarged, and beautified. The new works include a prolongation of the building towards the west, the rebuilding of the porch and south aisle on an enlarged plan, an addition to the length of the chancel, the erection of a vestry on the north side of the chancel, a new tower with a stone spire at the west end of the north aisle, and the introduction of two arches between the nave and the north aisle. The ceilings also have been renewed, and arched, and decorated with wood ribs and ornaments. The whole of the new works are in the Perpendicular style, except the additional arch on the south side of the nave, which is of a decorated character like the two old arches with which it is connected. The windows in the south chancel, which were greatly decayed, have been restored, and the other windows and doorways have been, as far as possible, copied from the old work. The whole of the interior building has been refitted. The old high pews have given way to parallel sittings, and the gallery has disappeared from the west end. The seats, screens, reredos, communion rails, &c. in the chancel, as well as the pulpit and reading-desk, are of carved oak; the other sittings are of deal, stained and varnished. The south chancel, of which part was formerly used as a vestry, has been formed into a music-chamber. It is further contemplated to remove a large four-light window in the north aisle, and insert two windows of three lights each, similar to those in the south aisle. The north chancel, also, which has been used as a monumental chapel, and contains the monument to Lord Broome, son of the late Earl Cornwallis, and the family vaults of the owners of Linton Park, is about to be restored by the trustees of the Lady Julia Cornwallis, so as to harmonize with the rest of the church. The architect employed is Mr. R. C. Hussey, of London, whose plans have been carried out by Messrs. (Sutton & Vaughan, of Maidstone, builders. The whole expense has been defrayed by the Ladies Louisa and Elizabeth Cornwallis, of Linton Park.

Pershore.—The inhabitants of Pershore have held a public meeting, "to take into consideration the restoration of the Abbey Church, and to determine the course to be taken thereon." There was a numerous attendance, and Mr. Scott reported on the state of the church. He proposed, he said, simply to put the fabric in proper repair, and to make it more convenient for the purposes of worship. The walls in many places were giving way, and the foundations should be properly examined, strengthened, and thoroughly drained. The south-eastern angle was in a very dangerous state, and must be taken down and rebuilt. The chapel at the east end should also be taken down and rebuilt according to its original style. The roofs required repairing: the plastering and whitewashing in the interior ought to be removed; the south transept required to be thoroughly repaired; the north transept was nearly all gone; the tower was also in a bad state, being cracked in several places; which he attributed, in the first place, to the removal of the nave; and, later, to the removal of the north transept. This he proposed to remedy by cramping. The roof of the tower was also in a very bad state of repair, which must be remedied at once. Resolutions promissive of the object in view were unanimously passed.

The Brewers.—Dr. Wolf's new church has been consecrated. The edifice is built in the style of the first half of the fourteenth century, from a design by Mr. C. E. Giles, of London, architect,

and consists of a nave, having a tower forming an entrance porch attached to the second bay from the west or southern side, and a chancel with vestry and heating chamber on the north. The tower is square at the base, but passes into an octagon at the belfry stage, which contains four bells, and is surmounted by a wooden spire covered with Bridgewater tiles, in bands of red and brown colour. Blue flint forms the principal material of the walls, but the windows and dressings are Ham-hill freestone. The roofs are of deal stained, open to the ridge, and covered with tiles; and the seats in the nave are open benches of the same character; while those in the chancel are of oak; there being altogether accommodation for about 170. On the north of the chancel arch there is a pulpit of freestone, with carving in the cornice and panels; and the chancel floor is paved with ornamental tiles from the Poole Pottery Company. The edifice is heated and ventilated by Messrs. Haden, of Trowbridge. Owing to the limited nature of the funds, the ornamental features are few, but an eastern window in the chancel has been filled with painted glass, representing "the pearls" of St. Peter, designed and presented by Mrs. Mills, of Bingham Rectory, Notts. The reredos consists of a bold cross, floriated in relief, on a diapered ground, having the sacred monograms in the centre, and small shafts at the angles; and there are a lamb and flag carved in relief over the west window outside. Mr. J. Spiller, of Taunton, was the builder of the church. The amount of the contract was 1,034*l.*, not including fences and other special works, which will raise the cost, exclusive of architect's and other expenses, to above 1,200*l.* Towards this sum the Diocesan Board has granted 100*l.*, and the Incorporated Church Building Society 100*l.*, the remaining portion having been collected or provided by Dr. Wolf.

West Hatch (Taunton).—The church of West Hatch, which for the last twelve months has been undergoing a process of restoration and enlargement, has been opened for divine service. In the rebuilding of the tower the original design has been closely observed, and the turret has been capped with a small spire and a finial. The cost of this work has been entirely defrayed by W. H. P. Gore Langton, esq., whose coat of arms, at the request of the parishioners, has been inserted in the exterior of its western end. The old roof of the nave has been retained, but the walls by which it was supported have been rebuilt from the foundation. The church has been enlarged by the erection of a north aisle, the north wall having been replaced by an arcade of Ham-hill stone; and a chancel aisle and a vestry have also been added. The old gallery at the western end of the nave, in which was formerly placed the organ, has been cleared away, displaying to view from the interior of the church the old panelled tower arch, which has been cleaned down, and the western window. The old high-backed double seats have been taken away and replaced with low open seats of deal, slightly stained and varnished, which provide accommodation for three hundred persons. The chancel decorations are the commandments, &c., which have been painted by Mr. Stansell, of Taunton, with a stained glass window, by Powell, the gift of Mr. Gore Langton. The old bosses of the roof have been restored and repiged. The restoration and enlargement of the church have cost 1,300*l.*, of which there remains about 100*l.* to be provided for. It was entrusted to Mr. Davis, of this town, builder; the architect being Mr. Ferrey, of the diocesan architect.

Landaff.—The following is from a report which has just been issued by the Dean and Chapter:—Four years have now elapsed since the partial re-opening of the Cathedral, on the 16th of April, 1857, and it seems but right to state the results of the movement then inaugurated. The once ruined section of the nave has been thoroughly restored, its windows glazed, and a new roof thrown over its whole span. The partition wall has been removed. The roof of the side aisles of the eastern end has also been restored, with the exception of the two bays. The Bishop's throne is nearly completed, and a portion of the stalls with the screen on one side has been erected, while contracts have been entered into for another section of the work. Much still remains to be done. An organ is being constructed by Messrs. Gray & Davison, at a cost of 1,000*l.*, 900*l.* of which have been already subscribed.

Burbage, near Buxton.—The church which has been recently erected at Burbage, close by the turnpike-road from Maclesfield to Buxton, and distant about a mile from the latter, has been consecrated by the Bishop of Lichfield. This church is built in the Norman style, and is cruciform in plan: it contains a nave with aisles, north and

south transepts, and an apsidal chancel. The tower at the south-west angle of the nave is constructed to contain five bells, which are being cast by the Taylors, of Loughborough. There is a peculiarity internally, which consists of the division between nave and aisle being formed of timber pillars with wood framing over, in lieu of the usual stone pillars and arches. It was thought that in this cold district the timber would be warmer, and it occupies less space. The intersection of the nave and aisles is marked by timber semi-circular moulded ribs. The chancel arch and piers are of stone. The roof, which is in three spans, is formed of open timber work, boarded and stained. The sittings, which are all free, with the pulpit and reading-desk, are of pitch pine varnished, and the flooring of aisles, chancel, &c., is paved with tiles. There are five windows in the apse, three of which are filled with painted glass by Mr. Wilmhurst, of London. The centre window represents our Lord, and the windows on either side St. Matthew and St. Luke respectively. They are three memorial windows; one erected by Bishop Spencer to the memory of his son; and the others by the family of E. W. Wilmot, esq., in memory of Sir F. S. Darwin and Mrs. Soulsby. It is intended to fill the remaining two windows with the figures of St. Mark and St. John, and also to introduce painted glass into the circular windows in the gables. The walls are finished externally with the local grit stone, as the quoins to door, windows, &c., and for the strings and other moulded portions; the intermediate spaces being faced with Reeve Edge stone. The warming apparatus was supplied by Haden, of Trowbridge. The church has been erected by Messrs. Vickers & Turner, from the designs of Mr. Henry Currey, and under the superintendence of Mr. W. R. Dick.

Stretford.—The foundation-stone of a new Wesleyan chapel has been laid at Stretford, Lancashire. The new chapel will be capable, when completed, of seating 820 adults, the estimated cost of the part of the work now in progress being 2,500*l.*—3,000*l.* The architect is Mr. Henry Fuller, of Manchester. The chapel will be built in the Gothic style of architecture. From the position of the site access to the building may be obtained on either of two levels, one 12 feet above the other. Taking advantage of this, the chapel will be approached by a few steps from Edge-lane; and a school-room, 14 feet in height, will be placed on the basement, and entered from the back-road. The principal entrance will be in the eastern front, which will be set back from Edge-lane about 12 yards; so as to provide a court for the use of the congregation in assembling and dispersing. Admission to the interior will be through a porch placed in the centre of the court, with staircases right and left of it, for the galleries hereafter to be erected at the front end and the two sides and in the transepts near the western end. The north-eastern staircase will be in a small tower at that angle, which will support a spire 82 feet high. The dressings to windows, buttresses, and tower will be of Hollington stone: the walls of the main building will be faced on three sides with Yorkshire purpint.

STAINED GLASS.

All Saints', Colchester.—This edifice has had five new stained-glass windows put up in the northern side fronting the High-street, by the artisans of Messrs. Ward & Hughes, of London. The central one of the three memorial windows contains an illustration of the Good Samaritan. The subjects of the other side memorial windows are, Christ's charge to Peter, "Feed my Sheep," and the miraculous draught of fishes. The window furthest eastward, supplied by private subscriptions, contains the figure of an angel, holding a scroll inscribed, "Blessed are the poor in heart, for they shall see God." Adjoining is another memorial window, the gift of the Rev. Henry Arnold Oliver, M.A., representing Christ as the Good Shepherd. The total cost of the five windows, including the wire fixed externally to protect them from injury, is, we understand, 150*l.* Smaller stained-glass windows decorate other parts of the church; and it is proposed to place a new window in the tower, above the organ.

Cherbury.—The chancel of the church in this parish has just been enriched by two stained-glass windows and tablets, with the decalogue, &c.; the whole executed by Mr. Alexander Gibbs, of London. The one at the east end is a memorial window to Mr. Frederick Perkins, late of Chipstead-place, in this parish; and the other, on the north side, as well as the tablets, &c., are presented by the vicar. That at the east end represents the

four evangelists in the upper compartment, with four medallions below, figurative of the life of our blessed Lord, and containing the Nativity, Baptism, Lord's Supper, and Ascension, the remainder being filled up with tracery, emblems, &c. The window on the north side is in three compartments, and the subjects chosen are full-length figures of St. Paul and St. Peter, with the figure of our Saviour, bearing the cross, in the centre light. They are represented as standing in canopied niches, at the back of which is diaper work. The monumental work of Chantrey, in the Stanhope Chapel, adjoining the chancel, to the memory of Lady Frederica Louisa Stanhope, in addition to the two stained-glass windows recently executed by Lady Stanhope, with the restoration and decoration which the church has lately undergone, make it one of special local interest.

Draycot Church.—Messrs. Lavers & Barrard request us to state that the painted windows put up in this church were executed by them.

PROVINCIAL NEWS.

Puckchurch.—At a colliery at Puckchurch, a chimney-stack in the course of erection, about 80 feet high, has fallen on the engine-house, doing serious injury to the machinery, and throwing many hands out of employ for some time. It appeared that the foundation was dug about 12 feet deep on the clay, and it gave way. It was observed to be falling gradually for some time before it fell. The men had not come down from off the stack but about five minutes before the disaster. It is said that if the foundation had been dug about 4 feet deeper, the accident would not have occurred.

Worcester.—The contract of Messrs. Wood & Son, of Worcester, builders, for the erection of a new wing to the Worcester Lunatic Asylum, to accommodate 100 patients, has been accepted by the Committee of Visitors. The contract is £4,854.

Wrexham.—The Wrexham Town Council have come to the unanimous decision to have the town thoroughly sewered, under the superintendence of Mr. Rawlinson. The estimated cost is 6,000*l.*, the money to be borrowed from Government, the repayment to extend over a period of thirty years, which can be accomplished, it is said, by a rate of sixpence in the pound.

Edinburgh.—A large cross is about to be erected on the Esplanade of Edinburgh Castle, in memory of the 78th Highlanders who fell in India during the mutiny.

Inverury.—The burgesses and electors of the burgh of Inverury have held a meeting and resolved to approve of the magistrates building a new one; and a council meeting has since been held, when a committee was appointed to procure plans, &c., and it was decided to proceed with the building forthwith, and to get it finished, if practicable, by Martinmas, 1862.

Banff.—The Town and County Banking Company, at Banff, are about to erect a new building for their agency. The site is on the north side of the house belonging to, and occupied by, Mr. Conits, the agent. The contractors, who are all of Banff, are Messrs. A. Morrison, mason; George Reid, wright; John Innes, plasterer; Alexander Walker, slater; and Duthie, plumber.

PROPOSED CHAMBERS IN WESTMINSTER.

A COMPANY is being formed to erect a large block of professional and residential chambers on a triangular plot of land in Victoria-street, Westminster, opposite the Westminster Palace Hotel, and bounded by Dean-street and Orchard-street. The plans have been prepared by Messrs. Banks & Barry. It is proposed to erect, to the depth of 90 feet, a main building divided into seven sections, each distinct in itself but forming one continuous whole. Three of these sections will contain fourteen suites of chambers each; three twenty-eight suites each; and the remaining section, twenty-one suites. There will be entrances in Victoria-street. Each suite will include four or five rooms, and be so constructed that two or more suites may be united to form a larger establishment if required. In the rear of the main building it is proposed to erect a range of fourteen shops, two stories in height. The shops will be divided from the main building by a wall designed as an ornamental arcade; a garden and carriage drive being reserved for the occupiers of the chambers. The main buildings appear overcrowded, abutting on yards about 20 feet wide; and the assumed average rent of 170*l.* for suites of four rooms, some of them five, if not six stories above the ground, seems large. These points should be considered in time, and the expenditure limited accordingly.

LIGHTING STREET LAMPS.

I HAVE often wondered why the old-fashioned mode of lighting the street lamps should still be persisted in in London: it is both inconvenient and dangerous, and ought at once to be abandoned for the much better method now in use in most of the towns in Lancashire.

A light rod, about 6 feet long, with a small lamp at the top, inclosed in a perforated tin case, is all the apparatus required; and the lighting is done in a much more certain, expeditious, and economical manner. It seems to me that any simple and inexpensive means by which the dangerous practice of carrying ladders, and placing them against the lamps in the crowded thoroughfares of the metropolis could be avoided would be a great advantage. The new mode is exceedingly simple, has been in successful operation for some time in many towns in the country, and answers well. Why not adopt it in London?

A BOROUGH SURVEYOR.

METROPOLITAN BOARD OF WORKS.

At the meeting of the Board held last week the following tenders were received for new street and subway, High-street, Borough:—

Pearson	£10,195 0 0
Moxon	10,665 0 0
Sawyer	9,884 0 0
Myers	9,286 0 0
Dehuck	8,319 0 0
Webster	8,100 0 0
Thirst	8,379 0 0
Lavers	8,120 0 0
Hill & Co.	8,194 0 0
Walker	7,956 0 0
Downs (accepted)	7,983 0 0

Tenders were also opened for constructing a sewer and making up a road along the Victoria Park approaches:—

Moxon & Co.	£3,840 0 0
Abbott & Hopwood	3,341 0 0
Hill & Co.	2,845 0 0
Pound	2,905 0 0
Thirst	2,714 0 0
Dethick	2,500 0 0
Pearson (accepted)	2,461 0 0
Cole	2,698 19 0

A report was brought up from the superintendent architect, in which he proposes that the whole of the houses on the west side of Great Turnstile, and two printing warehouses in Tichborne-court, should be removed. The width of the new street would be 47 feet 6 inches at the northern end, gradually increasing to 50 feet in the centre. He also stated that on the west side of the new street, and south end of the Robin Hood public-house, there will be a piece of building land with a frontage of 81 feet, and an average depth of 36 feet, and this he arranges into plots for five houses for a set of offices, suitable for solicitors and barristers. He considers that the cost, together with the expense of forming carriage and footways, and lamps, will be 28,080*l.*, which sum would include the return which might be obtained from the sale of vacant building ground and old materials. He further considered that a more complete improvement would be effected by clearing away the five houses and two shops on the west side of Newman's-row, by doing which the width of the new street would be equal along its whole length.

A motion was made and agreed to that the superintendent architect's report and plan be referred to the Works and Improvements Committee for consideration and report.

THE "BUILDER'S" LAW NOTES.

Railway Company.—In a case where a railway company had power to borrow money upon mortgage, money so borrowed was held not to be payable out of the surplus profits of the concern in priority to debts contracted by the company in working out their scheme.—*Corry v. Londonderry and Enniskillen Railway Company.*

Life Insurance.—**Swindle.**—Where there was no provision in a policy that it should be void if the insured party should die by his own hands, the Court of Chancery refused to declare such policy void, the insured having committed suicide.—*Horne v. The Anglo-Australian Insurance Company.*

Wills: Railway Company.—A person devised his freehold houses to certain persons, and his personal estate to others. Shortly before his death a railway company served upon him a notice to treat for the purchase of several of the freehold houses, but no agreement was come to, and nothing further was done during testator's life. Subsequently the company had these houses assessed by a jury, and paid the amount into court. A question arose as to whether or not the notice given by the railway company had the effect of converting the freehold houses into personal estate. It was decided that the notice to treat did not operate as a conversion, and that the devisees of the freeholds were entitled to the houses.—*Haynes v. Haynes.*

Friendly Society.—In a suit by a creditor of a benefit society, the certificate of the society, duly made under the Friendly Societies Acts, was held to be conclusive as to the character of the society. Although at the time of the loan to the society all the formalities were not complied with, it was decided that, as the society had the benefit of the loan, its managers could not object to the claim on the ground of informality.—*Pare v. Clegg.*

Insolvency.—Where a creditor has been served with a notice of the order for hearing with a date subsequent to the real day, and the insolvent is discharged in the mean time, a re-hearing will be granted at the instance of such creditor, although there has not been any intentional fraud. No other creditor will be allowed to oppose at such re-hearing. A debt contracted when a trader is embarrassed will not be a ground of remand if there be no misrepresentation, although the debtor is arrested a fortnight after the delivery of the goods, the arrest not being collusive.—*Re Robinson.*

Joint-stock Company.—Any creditor or contributory may take advantage of a demand served by another creditor requiring payment of his debt. The neglect of the company to pay, secure, or compound for same within the prescribed time, after such demand, may be taken advantage of by such first-mentioned creditor as a foundation for a petition to wind up the company.—*Owen v. Anglesea Coal Company.*

ARCHITECTS' ACTIONS.

Hey v. Kitchin.—This case, which was one of disputed charges, was tried and decided at the Southwark County Court on Monday, the 5th inst. The circumstances connected with it are briefly as follow:—The defendant, Mr. Kitchin, a wealthy hop-grower, engaged Mr. Hey, architect, to prepare plans and specifications, and obtain estimates, for certain farm buildings, which were accordingly done; but in the progress of the operations, Mr. Kitchin thought fit to stop the works, and ultimately refused to pay the plaintiff for his services in having prepared his plans and specification, &c. The matter having been argued on both sides, the judge gave his verdict in favour of the plaintiff, with costs. The defence was that Mr. Hey had, at defendant's request, written him a letter on the 8th June, 1860, stating that his charge for the services would be the usual commission of 5 per cent. upon the amount of the outlay or value of the works done; and he considered that, although Mr. Hey had prepared the drawings and specification; and the estimate, 1,693*l.*, had been argued on both sides, the judge gave his verdict in favour of the plaintiff, with costs. The defence was that Mr. Hey was entitled to nothing; as, in his opinion, the letter above referred to was a binding contract on Mr. Hey to charge nothing unless the works were carried into execution. Plaintiff contended that he ought not to be debared from the value of his services because of Mr. Kitchin's change of mind, and which was a circumstance over which he had no control. The commission of 5 per cent. on the estimate was charged. It must be said that the judge did not recognize this mode of charging, but considered the services rendered were equivalent to the amount of the bill.

GODOLPHIN SCHOOLS, HAMMERSMITH.

The following references show the appropriation of the rooms set forth by the plan given in our last, p. 548:—

Master's Residence.	
A. Hall.	D. Dining-room.
B. Drawing-room.	E. Butler's Pantry.
C. Study.	F. Housekeeper's Room.
School Building.	
G. Dining Hall.	Q. Passage.
H. Lavatory.	R. Corridor.
I. Kitchen.	S. Boarders' Entrance.
K. Scullery.	T. Master's Sitting-room.
L. Butts.	U. Boys' Room.
M. Pantry.	V. Class-room.
N. Larder.	W. School-room.
O. Beer.	X. Porch.
P. Coals.	Y. Covered Play-shed.

FIRE ESCAPE.

HAVING read in the last number of the *Builder* the remarks of "M. M." in reference to a means of assisting escape from fire, and for the extinguishment thereof, I am induced to offer a few observations upon a contrivance to effect the first named object. I would propose to place between the windows of any two houses in line, and on the second floor, a "fire balcony," projecting from the face of wall about 2 feet 6 inches, and in length the distance between the windows of each house which, in ordinary cases, is not more than 5 feet. It should be constructed with a 1½-inch slat bottom, pinned into the wall, and supported by stone or iron corbels, surmounted by a light frame work of wrought iron, and provided with an inner or shifting balcony, with a plate-iron bottom and strong wire sides, the full height of the outer one. It should be in the form of two quadrants, working upon a pivot hinge inserted in the slate bottom and provided also with running wheels traversing a groove cut in the slate. When required for use it is easily extended by drawing out the inner quadrants on each side, which take their bearing on the sills of the adjoining windows, covering more than one half of each, and affording a safe retreat to the next house. Independently of such facility, it will enable six or seven persons to stand clear of the flames until rescued from the street. A balcony similar to the one described was invented by me some years ago, but has never been introduced. The cost would not be very great, and might equally be borne by the tenants for their mutual benefit. J. E. R.

THE CLIMATE OF ENGLAND.

SIR,—I trust to your courtesy to permit me to make one or two observations in reference to your remarks on my work, "The Climate of England," which appeared in your last impression. You state, "Mr. Shepherd has put the predictive powers of his new scheme boldly to the test by saying, a few days since, in the *Times*, 'the weather will only be unsettled until the 6th instant, after which date we shall have fine weather throughout the month with only very trifling exceptions.' " Now, sir, notwithstanding your "sneer" as far as the month has proceeded, the weather has been in strict accordance with my predictive powers. This you will also admit, I think.

But, if you will favour me by referring to my work, and to Table 1., year 1861, you will observe I put my new scheme to the test on a far more bold and comprehensive scale than I did on the 6th instant. You will find there recorded the character of each season for the present year; and, although that table was compiled in January last, as far as the year has advanced, it is exactly in unison with the predictive powers of my new scheme.

GEOFFREY SHEPHERD, N.C.E. are far more extended than at present known. I foretold the approach of the late comet full six weeks before it was discovered, and even the constellations it would pass through. The following gentlemen will confirm this—Mr. Hind, F.R.A.S.; Mr. Farey, Nautical Almanac; Mr. Ross, 69, Lombard-street; Mr. Bunsen, C.E., Kelly, Wellington; and numerous others; but there is no astrology in it. G. S.

RECENT PATENTS CONNECTED WITH BUILDING.*

A COMBINED HEATING AND VENTILATING PIPE. *W. Taylor*, Nursing, near Southampton. Dated 9th January, 1861.—This invention consists of a pipe, having in it at least two compartments, so as to contain in one part hot water, steam, gas, or any other heating medium; and the other is an air chamber or compartment.

STOVES AND RANGES. *N. Ager*, Upper Ebury-street, Fimlico. Dated 11th January, 1861.—The lower part of the chimney or flue is caused to descend behind the back of the basket, and to the bottom thereof. The back of the basket is made with bars or otherwise with passages through it, so that the draught may pass from front to back of the fire in the basket; the products of the fuel passing through the back of the basket into the flue or chimney. It is preferred that the sides or cheeks of the basket should be hollow, and form hot air chambers communicating with the lower part of the flue. The back of the stove or range above the basket is closed, or only has a comparatively small opening above the back into the flue. The ordinary register of a stove is kept closed, and is only required to be opened when sweeping the chimney. In order to regulate the quantity of opening above the back of the basket, a slide is used, which may be raised or lowered so as to enlarge or close the opening into the flue or chimney above the back of the basket.

APPARATUS FOR SASH-WINDOWS, &c. *R. Smellie*, West Merrieston, Lanarkshire. Dated 11th January, 1861.—According to one modification, the apparatus consists of a horizontal bracket or holding frame screwed or attached to the case or guide portion of the framing in which the sash traverses. This bracket carries a spring box working upon a horizontal centre. This box carries within it a coiled or convoluted spring of flat steel; or the spring may be made of wire or other material. On the exterior of the spring box is coiled a strap, cord, or other connecting detail; and the upper end is attached to the spring case, which acts on a pulley; whilst the lower end is fastened to the bottom of the sash. The consequence of this arrangement is, that, when the sash is pulled down, the tensional action of the strap or cord operates so as to turn round the box and wind up the spring. When the sash is pulled up, the reverse action takes place. In this way the sash is supported by the spring. To stop the sash at any particular part, a spring detent is fitted upon the spring box to work a stop pin, which gears with holes in the edge of the sash. Instead of this the spring may operate through a fuse, so as to equalise the spring action, and enable the window to remain at any desired level. Both the upper and lower sashes may be worked by this spring movement; one spring being fitted to each; whilst, to ease the action, the opposite side of the sash has a spring pulley.

WINDOW FASTENINGS.—*H. Weaver*, New Maldon, Surrey. Dated 14th January, 1861.—This invention is intended to prevent the fastening from being opened from the outside, and consists in fitting, in the bed of the catch, a spring, having on it a projection inclined on one side, and on the further side of the catch a knob or pin. On bringing forward the bar it rises over the inclined projection; which, as soon as the bar has passed, rises and prevents the bar being forced back, and

the fastening opened, until the spring on which the projection is fixed has been depressed by the pin or knob at the further side of the catch.

CHIMNEY AND VENTILATING COWLS.—*G. Levington*, Bridport, Dorset. Dated 17th January, 1861.—The lower part is fixed, and the upper part is free to revolve round a pin or stud supported by the lower part. On the lower part the patentee fits a conical ring or collar, with apertures leading from the bottom of the collar into the inside of the channel in communication with, or in continuation of, the chimney or shaft on which the cowl is placed. The movable part is formed at top with a lobster back, and carries near the top and across the interior a shaft with two or more fan blades, which are made to revolve by a screw-wheel fixed on the same shaft, and on the outside of the cowl; which wheel is made to revolve by the wind. Just below the fan-shaft he places a guard which extends across about one-half of the interior of this upper part of the cowl.

STOVE GRATES.—*J. Johnson*, Derby. Dated 18th January, 1861.—The object of the first part of the invention is to obtain a better reflection and diffusion of the rays of heat from the head or arch of the grate, and to cause those rays to be diffused at a lower elevation. For these purposes the patentee makes the radiating head or top plate of a stove arched, and of a concave, or domical, or partially concave or domical figure, merging into, and combined with, plain, splayed, or bevelled side reflecting plate (generally called cheeks) of an ordinary description. Secondly, the invention consists of improvements in the construction of the smoke-door or flap, also termed the smoke-valve or register of a stove-grate, in order that the size of the opening for admitting the smoke to the flue or chimney may be varied or regulated.

Books Received.

VARIORUM.

"THE Family Save-All: a System of Secondary Cookery; with Hints for Economy in Household Consumption. By the Editor of 'Inquire Within.' London: Kent & Co., Paternoster-row. 1861." The editor of "Inquire Within" must have opened a rich mine of coin if he has sold, as is here stated, half a million of his various useful volumes in this country, and quite as many in the American States. The present book is likely to have its full share of so extraordinary a run of good fortune. It really contains a great deal of useful as well as entertaining matter. To each new dish of secondary cookery is added a sprinkling of condiment in the shape of a joke or an axiom,—not always new, certainly, but ever sufficient to excite a pleasant tone of mind and a desire to dip a little deeper in amongst the second day's dinner dishes. Some of the hints, however, are not very intelligible. Thus, "Sitting to sew by candle-light before a table with a black cloth on it, is injurious to the eyes. When such work must be done, lay a black cloth before you." Others require a little touch of editorial grammar. Thus,—"Eel-skins, well cleansed, for clarify coffee, &c." Sole-skins, well cleansed, for clarify coffee, &c." Surely, "ing" would be satisfied with a very little space, and is especially entitled to respect where there is room at the end of the line for half a dozen of them.—"London Sewage and the Thames Embankment: a Plan for Carrying off the London Sewage without Pumping, and without Low-level Sewers through the City and Southwark; and for a Thames Embankment unencumbered by a Sewer passing through it. By Telford Macneill, C.E. London: Weale, High Holborn, 1861." Mr. Macneill's plan, it seems, was too late in being brought forward while the commission was sitting, and however sensible the scheme may be, we do not think it sufficiently promising to induce a desire that delay should be now incurred for its consideration. Mr. Macneill is of opinion that a Thames Embankment ought to stand on its own merits; and it is a main object of his proposal to show that a low-level sewer is unnecessary; thus disencumbering the question of embankment from that of sewage. He proposes to make a straight cut through the Isle of Dogs and across Greenwich Marshes, and another channel cutting off the elbow in the river opposite Erith. The object is to give the river as near an approach to a continuous stream in one direction as possible; and so to permit the discharge of the sewage at low instead of at high water, and prevent it from flowing up and down with the tide, as at present.—"The Seventeenth Annual Report of the Society for Improving the Condition of the Working Classes. 1861." This Report shows that

the aggregate improvement for 1860 on the Society's various properties in Wild-court, Tyndal's-buildings, Hatton-garden, &c., in increased rents and diminished expenses, has been 289*l.* 16*s.* 4*d.* The balance-sheet shows a sum total of assets of 35,497*l.* 4*s.* 9*d.*, and a surplus over liabilities (assets taken at cost) of 20,343*l.* 14*s.* 5*d.*; so that the Society is not only in a solvent, but in a comparatively prosperous condition.

Miscellaneous.

BUILDERS' BENEVOLENT INSTITUTION.—A correspondent writes,—"I am glad to find, by your publication, that Mr. Robert Forest, late of Brunswick-wharf, Vauxhall, has left the handsome donation of 1,000*l.* to the Builders' Benevolent Institution. He was a liberal contributor, and firm friend of the society from its commencement. Will you allow me to urge some of the successful men of the day to follow his example? then will the society become what it should be,—one of the best in the country."

ENGLISH SCULPTORS IN ROME.—A letter from Rome, in the *London Review*, states that the English artists in that city are preparing for the Exhibition of 1862:—"Mr. Gibson is at work at a statue of Diana, and also on a statue of Pandora, in which he has freely indulged his predilection for colour. The flesh represents ivory, the hair gold, with a wreath of white flowers encircling the head, and the eyes are coloured a delicate blue. Her under-dress is not coloured excepting a narrow blue border, which contrasts well with the purity of the marble, and the box which she holds is relieved with gold and colour. Mr. Cardwell has also a figure of Diana reposing after the fatigues of the chase. Mr. Gatlief is engaged on two colossal reliefs, 16 feet by 8 feet, which will form the two panels of a tomb to be erected in Edinburgh. The subjects are the Overthrow of Pharaoh and his Host in the Red Sea, and the Song of Miriam and Moses. Mr. Adams is working at a very pleasing subject, taken directly from nature—a youth playing at 'castelotti,' a game much in favour with the Roman boys."

SALE OF THE LATE OFFICES OF THE METROPOLITAN BOARD OF WORKS, GREEK-STREET, SOHO.—By order of the Metropolitan Board of Works, the freehold property situate at the corner of Greek-street, Soho-square, which was formerly the office of the Westminster Commissioners of Sewers, and latterly of the Metropolitan Board of Works, has been sold by auction. The premises contain about forty rooms, including a spacious board-room, 28 feet by 21 feet, with an enriched ceiling, numerous offices, and other departments; with also a large plot of ground in the rear, occupying upwards of 10,000 square feet. There was an active competition for the property, which was put up in one lot; when, after some brisk bidding, it was knocked down for 6,400*l.*, and was declared bought by the trustees of the establishment called "The Sisters of Charity."

MR. ALFRED MELLON'S CONCERTS.—Mr. Mellon is giving his promenade concerts this year in the Opera House, Covent Garden. With a band of rare excellence, a very large chorus, and some first-rate solo singers, he has made a commencement of more than usual brilliancy.

Kew Gardens.—A fine plant of the Victoria Regia, or Royal Lily, is now producing a succession of its blossoms, of marvellous and gorgeous beauty, in the water garden of the original Tropical Aquarium, or Stove No. 6: the leaves of this novelty are 3 feet in diameter. In the *parterre* of the Dutch or Geometrical garden, in front of the old Museum, the outer bed, or open border, has been planted with variegated and mixed flowers, as a design and pattern for a Coventry ribbon. A drinking-fountain has been erected near a venerable walnut-tree (said to be the oldest in England), and will shortly be at the service of the public.

BARRACKS AND HUTS.—Within the last twenty years there have been expended on barracks, huts, &c.;—At Colchester, 117,757*l.*; at Pembroke, 61,241*l.*; at Shoeburyness, 84,927*l.*; at Shorncliffe, 210,292*l.*; at Hythe, 26,864*l.*; at Fleetwood, 18,380*l.* Much further expenditure is proposed, and has been approved by the Government—50,000*l.* for cavalry barracks at Colchester; 27,000*l.* for additional accommodation and works and a church at Shoeburyness; 4,000*l.* at Shorncliffe, and about the same sum at Hythe; and at Fleetwood 10,000*l.* for purchase and alteration of bath-house, &c., nearly 10,000*l.* more for hut encampment, and in a future year 18,000*l.* for permanent barracks and hospital.

* Selected from the lists in the *Engineer*.

NEW BUILDING FOR AN INSURANCE OFFICE IN EDINBURGH.—The Scottish Provident Insurance Company are about to erect a new office in St. Andrew's square, Edinburgh, in place of their present building at the north-west corner of the square. The directors have purchased the premises formerly occupied by the Scottish Widows' Fund Office on the south side, and are about to pull down the tenement and erect a new office from designs by Messrs. Peddie & Kinnear.

TURNING GOTHIC ARCHES.—Sir: Passing through the lower part of the Crescent-road, Plumstead, I noticed yesterday, in the front wall of what I understand is to be a school-house, three Gothic arches with the arch bricks radiating in each case from the centre of the opening, as if the arches were semicircular, instead of from the point from which the Gothic curve is struck. I think this work is in charge of an architect, nevertheless. Is not this method of turning Gothic arches an architectural impropriety? Certainly it presents to my sight the appearance of weakness and ugliness.—C. F.

BORING THROUGH MOUNT CENIS.—A communication from an engineer, addressed to the *Perseveranza* of Milan, gives some details respecting the cutting of the tunnel through Mount Cenis:—"M. Peruzzi, one of the ministers, some deputies, several scientific men, and M. Somiller, a French engineer, went, a few days back, to Bardonecchia, and for some hours witnessed the working of the machines for cutting the rock. The opinion of the scientific men who were present at the experiment is, that the mechanical difficulties of the cutting will be fully overcome. The perforating machines, in somewhat less than an hour, made seventy holes in the mountain at the end of the opening. The holes which were made in the centre, in order to permit a breach to be effected by blasting, were three centimetres (rather more than 14 inch) in diameter: the others made round it for the same purpose were two centimetres. The depth of the holes was from 60 to 90 centimetres (rather more than 23 inches to about 35 inches). From repeated experiments made in masses of schist with a single perforating instrument, it was proved that ten minutes' labour was sufficient to make a hole of 60 centimetres; whereas, by the ordinary means, three workmen would be occupied for an hour in effecting one. The machine cuts simultaneously twenty to thirty holes in a space of four square metres,—that is, one in which it would not be easy to employ three or four men. The machine, however, must be dragged back to a distance of 100 metres, or more, whenever blasting has to be resorted to, and it cannot be worked again until after the ground is cleared of the fragments of rock, and until the front of the mountain is made tolerably smooth. It is estimated that the cutting of the tunnel can be terminated in 1864.

THE CITY CENSUS: DR. LETHBRIDGE'S REPORT.

The quarterly report of the officer of health to the City Sewers Commission remarks that while the population of the City has diminished to the extent of only 9 per cent., houses have been demolished to the extent of 15 per cent.; so that the crowding is on the increase. In the eastern and western unions there are now from nine to ten persons per house, and from 200 to 300 persons per acre,—the densest population in England, or even in Europe. The death rate is high, being 24.5 per 1,000; while that of all England is but 22, and that of its chief towns but 23.5. Of the deaths, 40 per cent. were of children under five years of age. The water supplied from the City pumps is said to contain 20 to 127 grains of solid matter per gallon; while that of the New River contains only 19 grains. The foulest pump water was that from Bishopsgate-street Without (127.3 grains per gallon), and the next that from Aldgate pump (109.5); yet the water is deceivingly bright and sparkling, cool and refreshing in draught.

NORTH LONDON RAILWAY.—The half-yearly report of the directors states that the traffic of this railway for the past half-year has been satisfactory. The receipts, compared with those of the corresponding period of 1860, show an increase, as follows:—Passengers, 1,582; goods, 708; coals, 106. Total increase, 2,396. The balance available for dividend, after providing for interest on the debenture debt, is 26,718. 6s. 11d. The directors recommend the declaration of a dividend at the rate of 5 per cent. per annum, for the six months ending 30th June. The bills promoted by the company in Parliament, for the construction of a branch railway from Kingsland to Broad-street in the City, and for widening, if found necessary, a portion of the existing railway, have both received the royal assent.

STATUE OF AMERICA BY MR. KUNTZE.—The sketch-model of America, by Mr. Edward Kuntze, of which we spoke some time ago, has become a statue, and is a very charming work. Represented as a young woman, fresh and beautiful, crowned with a diadem of stars, and resting the shield of the United States on the stem of a tree,—fruit and flowers lying at her feet,—America holds out the hand to all nations. The face is beautiful, and has in it a touch of sadness, the effect of late events on the sculptor, though probably the result was unintentional. Things have greatly changed in America since Mr. Kuntze began his work. It is to be hoped, however, that some of the wealthy Americans in London will make him secure, and that the statue will hereafter find permanence in marble. It may be seen at No. 23, Newman-street.

GAS.—The Banbury Gas Company have declared a dividend of 7½ per cent. per annum, free of income tax; the Portsea Island, one of 6 per cent.; and the Willenhall, one of 10 per cent. The Willenhall have reduced their price to 4s. 6d. and 4s., according to quantity consumed.—It has been ascertained, it is said, that by placing near the flame of ordinary gas-burners a receptacle containing coal naphtha, the brilliancy of the light is much increased. An invention based upon this principle is already the subject of a patent invested in a public company. The patentees state, that by the use of their process a saving of one-half may be made in the expense of lighting by gas. To test the accuracy of this assertion, experiments have just been made in London, under the authority of the Commissioners of Sewers. Mr. Heywood, the engineer of the commissioners, who principally conducted the experiments, states that three cubic feet of gas, carburetted by means of the naphtha, are equal to five cubic feet of gas not carburetted. On this assumption he shows that by the adoption of the new process the reduction of the cost of each lamp a year would be 20s., and that, there being 2,825 lamps in the city, an annual saving of 2,825l. might be effected.

TENDERS

For Portland Stone Porch, for Mr. Nicholson. Mr. Rawlings, architect:—
Coles £113 0 0
Webster 135 0 0

For additions and alterations to Thorpe Lodge, for Dr. Donald Dalrymple, Sheriff of Norfolk. Messrs. Benett & Newson, Norwich, architects. Quantities supplied by Mr. E. E. Benett:—

Brown & Bailey £1,198 5 0
Gilbert 998 14 0
Brooke 984 1 0
Chapman 948 14 1
Greengrass 925 15 1
Moore (accepted) 867 5 3

For new Parsonage at Drayton, Oxfordshire. Mr. J. Billing, architect. Quantities supplied by Mr. T. W. Goodman and Mr. J. A. Baker:—

Walters £1,519 10 0
Roberts 1,540 0 0
Dove, Brothers 1,325 0 0

For new Warehouse, 101, Upper Thames-street. Mr. T. Chatefield Clarke, architect:—

	In Portland Stone.	Deduction if in Portland Stone.	Cert.
Patman & Fotheringham	£2,321 0 0	£160 0 0	
Lawrence & Sons	2,170 0 0	194 0 0	
Ashby & Sons	2,134 0 0	112 0 0	
Asford & Co.	2,096 0 0	105 0 0	
Brass	2,155 0 0	116 0 0	
Browne & Robinson	2,039 0 0	116 0 0	

For rebuilding the Lamb and Flag Ragged Schools, Clerkenwell. Mr. W. P. Griffith, architect:—

Sewell £698 0 0
Brass 674 0 0
Fowler 347 10 0
Brake 345 10 0
Ebbage (accepted) 499 0 0

For Labourers' Cottages at Cuxwell Hall, Lincolnshire, for Mr. Thorold. Mr. James K. Colling, architect:—

Walls £415 0 0
Button 440 0 0
Young (accepted) 490 0 0
Hollingsworth 365 0 0

For alterations, additions, &c., to premises Nos. 1, 2, and 3, Portland-place, St. John's-wood, for Messrs. Green, Brothers. Messrs. Tiltott & Chamberlain, architects:—

Fish £488 0 0
Cannon 395 0 0
Heath 245 0 0
Wills 310 0 0

For the Agricultural Hall, Islington. Messrs. Peck & Stephens, architects:—

Wilton £26,778 0 0
Lucas, Brothers 26,540 0 0
Perry 25,750 0 0
Mansfield & Son 25,300 0 0
Hill, Kettle, & Robinson 24,980 0 0
Holland & Hannen 14,995 0 0

* Portion of works only.

For the conversion of a Chapel into Police Residences, and the erection of a Fire Engine Depot, Kent-street, Nottingham, for the Corporation. M. O. Tarbotton, Corporation surveyor. Quantities not supplied:—

Smith £213 0 0
Hollingsworth 521 0 0
H & W. Pitt 585 0 0
May 573 16 0
Carrington 571 0 0
Marriott 570 0 0
Bell & Wood 570 0 0
Middleton 570 0 0
Hall 565 15 7
Biddle 561 10 0
Smith (accepted) 559 0 0
Claricoat (received too late) 556 13 0
Haw & Wool (received too late) 528 0 0
490 0 0

All the above Tenders are nets, after deducting for old materials.

For alterations to two houses in Tottenham-court-road:—

Matthews £985 0 0
Patman 945 0 0
Sawyer 943 0 0
Batterbury 937 0 0

For new Steam Flour Mill and Residence at Woolwich, Kent, for Mr. Thomas P. Birks. Mr. Charles Bowes, architect. Quantities furnished:—

Howard £2,250 0 0
Collins 1,593 0 0
Kirk & Parry 1,987 0 0
Johnson 1,908 10 0
Nicholson & Sons 1,948 0 0
Corbett 1,839 0 0
Easton 1,912 12 0
Vaughan 1,900 0 0
Adams & Sons 1,879 0 0
J. & C. W. Todd 1,869 0 0
Tongard 1,892 14 0
Sawyer (accepted) 1,695 0 0

For alterations to No. 15, Charles-street, Middlesex Hospital, for Messrs. Garrett, Whitaker & Co.:—
Harvey £272 0 0
Jeffs, Brothers 269 0 0

For additions and alterations to the Blackfriars Monastery, Norwich (lastly used as the City Workhouse), for the establishment of a Commercial School for the Governors and Trustees of King Edward VI.'s Grammar Schools. Messrs. Benett & Newson, Norwich, architects. Quantities supplied by Mr. E. E. Benett:—

Lacey £1,298 0 0
Ling & Ball (accepted) 1,466 0 0

For Farm Buildings to be erected at Kidderpore Hall, Hampshire, for Mr. C. Cannon; also for repairs, &c., Mr. Henry McCallis, architect:—

Palmer £6,367 0 0
Sawyer 5,994 0 0
Watts (arrived too late) 5,259 0 0
London Building Company 4,867 0 0
James & Ashton 4,615 0 0
Mann 4,387 0 0
Sharpington & Cole 4,329 0 0
Stevenson (arrived too late) 4,220 0 0
Grey 4,187 0 0
Cushing (accepted, afterwards declined by him) 4,099 0 0

For Newland Church Restoration. Mr. William White, architect. Quantities by Mr. Trego:—

Sharpington & Cole £3,809 0 0
Walker 3,530 0 0
Jones 3,348 0 0
Dunk 2,855 0 0

For building a Wheelwright's Shop and Smithery at Baltic Wharf, Kingsland road, for Messrs. Ricketts, Smith, & Co. Messrs. Tiltott & Chamberlain, architects. Quantities not supplied:—

Lyon £535 0 0
Lloyd 529 0 0
Cannon 516 0 0
Heath 500 0 0
Wills 493 0 0
Conder 483 0 0

For a House for Mr. Gips, at St. Leonard's-on-Sea. Mr. E. C. Robins, architect. Quantities supplied by Mr. T. M. Rickman:—

	For the Main Building.	Additional Cost of Rag Facing.	For Stable Building.
Piper & Wheeler	£3,074 0 0	Nil.	£475 0 0
Newman & Mann	2,748 0 0	£83 0 0	455 0 0
Marshall & Son	2,780 0 0	20 0 0	395 0 0
Hovell	2,710 0 0	12 0 0	587 0 0
Hughes	2,713 0 0	Nil.	368 0 0
Kenwood	2,693 0 0	Nil.	373 0 0
Brass	2,578 0 0	Nil.	358 0 0

TO CORRESPONDENTS.

E. A.—Two Citizens (if you are another) is no argument.—E. A.—W. B. J. F. R. T. W. X. (ask to any price-book). Argument wrongly speaking, all necessary.—Lady I reply to a correspondent, architect.—W. R. J. S. O. J. C. R.—J. P. (points shall be tried). M. (distill.—O. (distill).—Messrs. J. & O.—M. T.—J. H.—E. S. R.—W. T. C. B.—B. (should think of the builder's character before he writes into to him, not after).—B. P. S.—F. H. G. (shall appear).

NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the Builder," No. 1, York-street, Covent-garden. All other Communications should be addressed to the "Editor," and NOT to the "Publisher."

Advertisements cannot be received for the current week's issue, later than FIVE O'CLOCK, p.m. on Thursday.

The Builder.

VOL. XIX.—No. 968.

Artistic Congress in Antwerp.



ANTWERP has been downright mad for three days, and is only now getting gradually steady. The streets of the quaint old town have been filled with people, the houses covered with flags, and an amount of music has been made, which, from the waves of sound produced,—never ending, still beginning,—will, probably, influence the thoughts and impressions, and so affect the destinies, of the whole human race. And, while this has been going on outside; within walls and pleasant gardens delegated artists

from Germany, France, Holland, Denmark, Spain, Italy, Switzerland, England, and parts of Belgium have been entertained by the artists and corporation of Antwerp. Antwerp,—*alma mater* of Rubens and Vandeyck,—has been always famous for her love and encouragement of the fine arts; and maintains the old reputation. The attempts that are made to centralise in Brussels Belgian art, amongst other things, are a mistake; and Antwerp has nobly rebuked it. The number of English artists present at the Congress was not very great, but the list includes some known names. Mr. David Roberts, Mr. E. M. Ward, Mr. Doo, and Mr. J. P. Knight represented the Royal Academy; Mr. Hurlstone, president, and Mr. Salter, the Society of British Artists. Professor Donaldson, Mr. Digby Wyatt, Mr. James Fergusson, and Mr. Godwin were there from the Royal Institute of British Architects; and the first and last of these gentlemen, with Mr. Edmund Antrobus, represented the Art-Union of London. From the New Society of Painters in Water-Colours came Mr. Henry Warren, president, Mr. Louis Haghe, Mr. Wehnert, and Mr. Fahey: the Old Society sent no one. Mr. W. Cave Thomas, whose excellent paper we published last week, and Mr. Henry Otley, would probably complete the account. The total number of "adherents," according to the printed list, was more than 1,000.

The first re-union on the evening of the 17th, at the "Cercle Artistique," was crowded: two or three energetic speeches of welcome were delivered, and then the whole assembly marched out; were met by a body of torch-bearers; and thus proceeded, the streets lined with the population of Antwerp, to the Hôtel de Ville. As the procession marched hundreds fell in; and the result was that the rooms in the Town Hall were soon filled, and large numbers of the invited guests never entered them. If a little more vigilance as to the admission of the right people had been exercised here, it would have been advantageous. However, the Burgomaster, Mr. Loos, welcomed those who could hear, and Mr. Cave Thomas and Professor Donaldson replied on the part of the English. The effect of the torches on the multitude in the *Grande Place*, with its flourishing

"tree of liberty" and its ancient architecture, including the marvellous spire of the cathedral, seen by the light of a brilliant moon, was remarkably striking. The cathedral has been undergoing restoration during several years; but the north tower and spire are completed, and the works are now going on at the east end. The variety, in both plan and detail, of the spire, is very notable, and produces a result which is unique. In the pavement at the foot of the tower, there is a small stone studded with twenty-nine little morsels of brass, oddly disposed. If any of the people about be asked as to its origin, they will say that in time gone by a man fell from the spire, and that the stone, with its morsels of brass, recorded the number of pieces into which he was broken! One who is well acquainted with the archives of Antwerp informs us, what is apparently not generally known, that he has himself seen a record proving this memorial to be the gravestone of the designer of the tower,—of Appelmans, "*Architectus hujus turris*."

The well-known ironwork by Quintin Matsys, close to the tower, has been freshly painted of an ugly colour. This canopy is certainly a wonderfully free piece of hand-work; most cleverly designed: and if, as the inscription in the cathedral tells us, in other words,—

"Twas love conchabial taught the smith to paint,"

we should be glad to know what it was that taught the smith to forge, so that we might recommend the same course to some of our art-workmen.

If, however, we would give any notion of what has been done during the week, we must not loiter just now in the streets, full of interest though they be. An ecclesiastical ceremony,—the *procession de Notre Dame*, opened the morning of the 18th; an imposing spectacle, including embroidered banners worth, some of them, from 1,200l. to 1,500l. each; and a figure of the Virgin, blazing with diamonds and cloth of gold; the outline of which figure, by the way, is supremely ugly. When the Dean, in the *Grande Place*, left his canopy, and, surrounded by his clergy, gave a benediction to the military post at the Hôtel de Ville,—a dozen boys swinging censers and an enormous crowd around,—an artistic scene was produced. At one o'clock a formal visit was paid to the Exhibition of Modern Art, opened by the "*Société Royale pour l'Encouragement des Beaux Arts*;" a very interesting collection of 1,331 works, mostly paintings, several of them possessing extraordinary merit. We would especially point to pictures by Mr. de Keyser, the accomplished president of the Academy, Mr. H. Lys, Mr. Cermak, Mr. de Braekeleer, Mr. Lies, Mr. Panwels, and others. We must endeavour, however, to speak of the exhibition more fully hereafter.

A banquet was given in the afternoon, to the visitors, by the inhabitants of the city, in the *Théâtre des Variétés*, including the stage and a ball-room at the back of it,—all charmingly fitted up for the occasion. The chairman (the burgomaster), the minister Mr. Rogier, and a selection of the guests sat in the first balcony, our dress circle; and thence "*les toasts*" were given,—two only, "*The King*" and "*The Foreign Artists*." "*Welkom alle in Rubens Stad*" was a prominent inscription. "The second toast," said the chairman, "which I have to give, and for which I ask the triple huzza, is to the foreigners, our guests, artists, men of letters, and friends of the fine arts of different countries, who have kindly responded to our appeal, and have come amongst us to fraternise with our artists, and deliberate on questions, the happy solution of which must contribute to the progress of the arts, and the welfare and dignity of those who consecrate themselves to the pursuit of them." Mr. Hugelman, in replying for the French artists, maintained loudly the supremacy of the idea over matter. The dinner was admirably well served; and, when we say it was hot, and that 1,250 persons dined, it will be seen that this was no small undertaking. The greatest enthu-

siasm prevailed: art was everywhere in the ascendant; and the hosts sang, together with various other *chansons* written for the occasion, in French, German, and Flemish,—

"Dans la ville antique où nos pères
Ont reçu les biens d'autrefois,
Où de vains peuples, tous nos frères,
Aujourd'hui résonnent les voix;
Dans ce foyer d'art splendide
Que l'univers a reconnu,
Où l'hospitalité précède,
Artiste, sois le bienvenu!"

After the dinner came a *fête champêtre*, given by the *Société Royale d'Harmonie d'Anvers* in their gardens just outside the ramparts, where the decorations were very appropriate and charming. Here, too, all took the same tone and colour: a cantata, written for the purpose, awarded "glory to the soldiers of thought,—to the pioneers of the future." In one part of the grounds a large transparency showed the genius of immortality inscribing, on a marble slab, the names of artists belonging to the various countries represented at the Congress; for Italy, Raffaele and Michelangelo; for Belgium, J. Van Eyck and Rubens; for Germany, Albert Durer and Holbein; for Holland, Lucas Van Leyden and Rembrandt; for France, Poussin and Leueur; for Spain, Murillo and Velasquez; and for England, Hogarth and Reynolds. It was difficult to realize the fact, amidst the bustle and excitement of the moment,—excitement which, throughout the town, was positively terrific,—that the day was Sunday; but on this head we are not called to speak.

Early in the morning of the 19th, after the inauguration of some mural paintings in St. George's Church, the members of the Academy of Antwerp held a solemn sitting in the Museum, at which many of the leading strangers were present; including Mr. Von Klenze, of Munich; Mr. Roelandt, of Ghent; and Mr. Robert Fleury, of Paris. Mr. de Keyser, the President, read an interesting address. The Academy then attended divine service in the cathedral; where, on their entrance, the dean and his clergy advanced to meet them; bowed, and headed them to the place appointed. On our way back to the opening of the Congress we saw, with a select few, by special kindness, the *Chapelle Bourgogne*, in the house of Madame Dhanis, in *Longue Rue Neuve*, a most interesting little apartment, built and decorated, probably, for the marriage of Philip le Bel and Isabel. Its groined ceiling, displaying the date 1494, and the motto "*Qui vouldra*," is exquisitely painted. The walls have scroll foliage with shields, the royal arms, and birds, of great freedom and beauty, coloured and gilt. It seems not unlikely that it is executed partly in fresco, partly in oil, or it may possibly be all in oil. The scroll-work, which is gilt, and in a remarkably good state of preservation, is etched over in black, perhaps with a reed. The windows are filled with stained glass, part of which displays a portrait of Philip.

And then came the opening of the Congress in the great *salon* at the *Cité*. The Burgomaster presided, and the Duke de Brabant showed his interest in the proceedings by sending a letter. The bureau was formed, and a vice-president was elected for each country, Mr. Donaldson being appointed for England. Some warm oratory was wasted on an attempt to change the order in which the questions stood on the programme, where questions of material interest were put before those of philosophical interest—the ideal after the real. It was explained, however, that both would be discussed simultaneously in the sections. The members then elected in which section they should work, and proceeded to business. The great point referred to the "material" section was that of copyright; and the discussion of this on the first day took the shape of settling whether or not the question of *perpetuity* of right, on the part of one who has created a work of art, might be discussed. This was settled in the affirmative. The day was closed with a concert

of considerable excellence; wherein sixty of the ladies of Antwerp, elegantly dressed, as nearly alike as might be, with three times as many of the gentlemen, sang as chorus, with Madlle. Artot and other professional soloists.

During Tuesday, the Congress continued its sittings: the result we will speak of another time. A large amount of oratory was expended;—part of it of a remarkable kind, in two applications of the word. Some of our foreign friends are peculiar in their manner: they shout, they gesticulate, point, sneer, shriek, and almost cry;—all, perhaps, to show that No. 2 motion should be taken before No. 1; or that 3 and 3, by some possibility, are 7. Let it suffice, as to the discussion on hand, that a broad principle, enunciated by the Baron Taylor, that "the idea belongs to the author of it in perpetuity," was negatived. We must hasten now to close. The well-known cavalcade of Cars and Giants (of a coarser aspect than we anticipated) went round the town, to the great delight of the thousands who filled it: the spire of the cathedral was illuminated with Bengal lights; and a great ball in the theatre closed the *fêtes*, though not the Congress. All the arrangements were admirable and liberal in the extreme. Several of the English visitors are specially indebted to Mr. Kreglinger, who has been unremitting in his endeavours to make their visit satisfactory. Where, however, so many have exerted themselves, it is invidious to select: let them all accept our thanks, for they all deserve them.

Glory to Antwerp! the ancient asylum of arts, and the birthplace of Rubens!—to Antwerp, who appreciates and rejoices in the genius of her children, and knows how to honour the artists of other countries.

RESIDENCES, AND THE INDUSTRIOUS CLASSES, IN PARIS.

THE question of cause of the rise of rents in Paris, is becoming more than ever discussed in the French journals and society. We continue to think this question so important in the consideration of what should be done towards the removal of particular evils in London, that we shall here present at length what is the existing state of affairs, as we have arrived at it by long and patient investigation.

In our article in April last, on Population, Houses, and Improvements in Paris, as often previously, we mentioned that towards the end of last year, it had been found that rents of particular "*appartements*" had doubled or trebled within a short period, and we quoted statements which went to show that property in the centre of Paris bought between 1841 and 1855, would now be bringing in 20 to 100 per cent. interest. We also gave results of our analysis of the census tables of 1851 and 1856, which proved there had been a considerable increase in the density of the population at the latter date. From subsequent observation, we do not hesitate to say that the rent of an "*appartement*," or suite of rooms and kitchen, in a good street in one of the fashionable quarters of Paris, may be estimated as double or nearer treble what the rent would be in London,—the light and air for some of the rooms being moreover very inferior; whilst for business premises in centres of chief resort, such as the Boulevard des Italiens, and the quarter of the new Opera-house, scarcely any limit would be safely named. Expenditure in decoration is equally illimitable; and articles of food and drink, "*objets de consommation*," are from all causes dear, dearer than in other quarters of Paris. In certain districts, however, such as those to the east, and even in or adjacent to the fashionable Faubourg St. Germain, south, charges are very different; indeed, where the streets and houses are not new, rents at least are, we believe, as favourable as in London for a class of tenants requiring similar accommodation. All "*appartements*" have certain obvious and considerable advantages over the accommodation now available in London; and they have some serious defects.

The municipality and the Government, though admitting (somewhat slowly perhaps), the fact of the dearness, have always contended that the rise in rents is due to other influences than the pull-

ing-down and new-building; which measures, they have given figures with a view to show, must have operated in mitigation, rather than as causes of the grievance. Most recently, Mr. Granier de Cassagnac, in *Le Constitutionnel*, has put forth some important statements in answer to such complaints as he finds expressed by Mr. A. Weil, Mr. A. Guérout, Mr. F. de Laeteyrie, and others, in pamphlets and articles to which we have referred on previous occasions. The last-named of these writers has just published a small volume. We believe it embodies his articles in *L'Opinion Nationale*, which certainly as they went on, were weighted by an amount of bias not favourable to the pursuit of the truth. Mr. de Cassagnac shows by figures, that viewing the whole of Paris, more *logements* have been created than have been destroyed in the year 1860. He ought to have taken his inquiry over a longer period. He repeats the assertion that the dearness is due mainly to the extraordinary increase in the population of the French metropolis. He says in his first letter, printed the 3rd of this August,—

"It results from the examination of the facts and figures, that, far from having diminished the number of the houses or the *logements*, the works in Paris have enormously increased them. By consequence, far from having contributed to the dearness of the rents, the works having contributed to the dearness of the rents, the works, and without the energy which has pursued them, the rents would have attained a level that the imagination could not view without terror."

And he continues:—

"In fact, how many houses and how many *logements* did the existing administration find, at the outset of its works, in Paris, and how many of these does it offer to the population to day?—Voilà la question."

The honourable deputy, however, has here spoken, triumphantly, only to what is not the question,—though he makes a considerable step, farther on. He states that in 1860, in the whole of Paris, there were demolished 1,171 houses, containing 7,715 *logements*; but that there were built 3,986 houses containing 22,040 *logements*; which would give 14,325 *logements* more than in 1859. Still, so far, it might be that the locality, the price, and the character of the new *logements* were such, that the numerical gain would be, or ought to be estimated, as, a decrease. Mr. de Cassagnac refers to the fact that whilst there has been a diminution in some *arrondissements*; in others, those to which he says families of moderate means attach themselves, the houses and *logements* have multiplied. The first *arrondissement* (*le Louvre*), has lost forty-eight houses, or 886 *logements*; the second *arrondissement* (*la Bourse*), nine houses, or 201 *logements*; and the eighth *arrondissement* (*l'Elysée*), 548 *logements*, although the latter with a gain of 8 houses. But, though the latter on the right bank of the Seine, the looking first on the left bank of the Seine, the eighteenth *arrondissement* (*la Butte-Montmartre*) has gained 140 houses, or 2,846 *logements*; the seventeenth *arrondissement* (*Butte-aux-Cailles*), 222 houses, or 1,625 *logements*; the tenth *arrondissement* (*Enclos Saint-Louis*), 200 houses, or 1,516 *logements*; and the twentieth *arrondissement* (*Ménilmontant*), 312 houses, or 1,199 *logements*. On the left bank: the thirteenth *arrondissement* (*les Gobelins*) has gained 173 houses, or 710 *logements*; the fourteenth (*l'Observatoire*), 419 houses, or 1,772 *logements*; and the fifteenth (*l'Agricard*), 319 houses, or 1,763 *logements*. There is a result to be deduced from his first-quoted figures, which he has not mentioned, namely, that in all Paris, as well as in the old quarters, the proportion of *logements* per house is less than it was. This result surprises us, since the apparent tendency is in every district, towards increased height of houses; and it is doubtful whether such height is not often as disproportionate to the width of streets, in the new as in the other quarters, and in excess of what should be desired on considerations of health. We apprehend also that the proportion of rooms in roofs is too great everywhere. It is to be regretted that he has not given the figures for 1851, for the now-annexed districts. Continuing to speak of these, he says:—

"One sees then, it is principally in the quarters inhabited by the *petits rentiers* and the *familles ouvrières* that the works of Paris have multiplied the new houses and the *logements*."

This is just what is the charge against those who have devised or brought about the new works. New *logements* are provided; but there are not the same number of such as were formerly available for those who cannot at present, or for some time forward, separate themselves from the central quarters. In these, the *logements* destroyed, first, are replaced by a smaller number; secondly, the new buildings are of more expensive charac-

ter than the old; thirdly, it is not clear that the lowest-priced rooms in them, as those in the roofs, are much better than rooms in the old buildings.

All the instances of extended area of choice, given by Mr. de Cassagnac, except the tenth *arrondissement*, are in the recently-annexed *banlieue*, which requires considerable improvement, in return for what it is now made to contribute to the municipal funds. The distance may be nothing like that from the centre to the suburbs of London: nevertheless, the question remains to be discussed, whether it is really artisans, and their class, who have accepted the accommodation provided for them; or whether the distance be an objection. It appears from the house-assessment in Paris, that there has really been a decline in the mean of the price of "*locations*," though a very slight one: and it is found that the "*appartements*" at 250 francs to 500 francs have increased from 125,434 in 1860, to 129,439 in 1861. The municipality itself pays the impost pertaining to the "*appartements*" of 250 francs, and two-thirds of those belonging to those of 250 to 500 francs; and the charge on this head which was 1,400,000 francs in 1860 will be 1,633,000 francs in the present year. Mr. de Cassagnac concludes therefore, as already said, that the great works in Paris, far from having contributed to elevate rents, have acted in the contrary direction. Our readers know that it is affirmed there is an improvement in health. There has been an increase of the inhabitants of Paris, in ten years, of 21 per cent. in the area within the old barriers, and 114 per cent. in the districts now annexed; or 469,079 persons in all. At the rate annexed, or 469,079 persons in all, this *excedant* of three persons per *logement*, this *excedant* would have required more than 15,000 new buildings. We do not see that the municipality could have a better defence. Yet there is something more to be said. There are some assumptions which we have hinted at, in this reasoning. It is assumed that the French artisan, the labourer of the lower class, and the girls employed in shops, can pay a rent of 250 francs *minimum*; secondly, it is not stated whether the new *logements* are sufficiently commodious for a family; and thirdly, the question of distance is not touched. Now, on the first point, we will merely observe, that we have some time since expressed doubts; and article by Mr. Delamarre in *La Patrie* of two days later than the number of *La Constitutionnel*. Mr. Delamarre, who does not mention the other writer, thinks it necessary to treat the question, viewing a scale of rents extending as low as 200 francs, as we suppose, for an "*appartement*" of two or three "*pièces*," and even to 25 or 30 francs for a single chamber; though anything of the latter kind is not to be found at present. But we will examine only the third bearing of the question as that which is especially important in what would have to be considered in improving our own metropolis.

Modes of providing the industrious classes of our metropolis with commodious and healthy habitations have been presented in model form: improvement has gone little further; it has however been shown that, by a certain amount of such skill as an architect ought to have, habitations may be provided in the centre of a capital which will afford with every requisite of convenience, and health, accommodation at a lower rate of cost, and for even an increased number of persons, as compared with the existing provision in London. As we said before the first model dwellings were built, it is only necessary that houses should be planned for the description of occupancy or tenancy which will inevitably establish itself in them. Our inquiries in Paris have not as yet extended to the inspection of any of the new buildings for workmen. Perhaps Mr. Lazard, who recently made some allusion to these buildings, was better informed than we are. But very little had been done up to the end of last year; and some of the first attempts were failures. There has been the fear on the part of the authorities, of the formation of new establishments, in the system of dividing buildings, in the course of planning them, into apartments, which exists; the ingenuity of an architect could scarcely get more out of space; the limit has been passed and the condition is reached in which light and air are dispossessed, and health at least suffers. This is the eventual result in capitals like London and Paris; we might add several others, in places, to form a list: the grievance varies in its intensity; but the subject for consideration

substantially the same. It is from viewing the question of habitations in the light we have put it, that we have so constantly advocated the formation of new through-roads and bridges in London, or, as we have very recently repeated, because they are not only needed for the other objects of traffic, but as part of the means of the provision of habitations. There are a considerable number of persons who can live in the suburbs of a town, or in the country, if there be direct routes and conveyances; and this number can be yearly increased, whilst more of open space can be provided in central quarters. On such grounds, we have given an approval to what is being done in Paris, less restrained than that of the French themselves. The points in question are whether the works have been planned and executed too rapidly for the Parisian population to accommodate themselves to a change of abode; whether the financial calculations are correct; and whether in such a case, the authorities do wisely in permitting the opportunity for great gains which make the sufferings of the people. The pulling-down work is indeed immense. The expropriations extend frequently to properties at some distance from the actual line of street, but which are regarded as attached. The required authority to this extent, is given by imperial decree.

Though the pleading before the jury is conducted by the advocate of the municipality, the immediate interests defended, are, as just alluded to, often those of a company, to which the municipality has transferred the property for what, comparatively, sometimes turns out to have been a moderate sum. This transference, by which the companies have been enriched and rents are raised, forms then the *gravamen* of the imputations against the municipality, who it has been urged should themselves have done the work of the new building, or kept control so far as to prevent the speculation asserted to be the chief cause of the rise. The reply to the suggestion of construction of buildings by the municipality, has hitherto been, that private speculation would immediately stop; that the city would have to undertake every thing. Its resources would not suffice, either in money or capacity of management, for such an illustration of the doctrines of Fourier, attended with the destruction of commerce and industry in the building trades.

The reason, no doubt, for the rapid execution of the works, would be found in the necessity for providing against revolutions. With such communications as Paris will shortly possess, every part of the capital will be of ready access from every other; cannon-shot could traverse, on several of the new lines of street, a considerable portion of the length or breadth of the capital; and it would be difficult for the usual tactics of a Parisian mob to be again brought into play with a chance of success. Many who are impressed with the lesson of the evil consequences which revolutions have brought upon France, are therefore adherents of the Emperor's policy in regard to Paris, who might otherwise have swelled the number of the objectors. There are amongst the staunch supporters of the Government in all its measures, many Bourbonists; who say that the present ruler is the only man able to fill the position exacted by circumstances and by the character of the nation, or a section of it. We are giving almost the words of one of them in a private conversation some days since. It is hard to believe that the same industrious classes in Paris, who are so remarkable for amenity of manners, for skill, and taste, should be capable of the excesses which are feared; though something was lately stated by a member of one of the legislative bodies, implying such belief. It seems more reasonable to suppose, what is in fact seen in all *émutes*, from the revolution at Naples with which the name of Masaniello is associated, to what has been in our own metropolis, and what was indeed the case in 1848 in Paris, that it is the otherwise industrious, but often thoughtless, classes, who take up the game commenced, sometimes by boys or women, or else by the very worst characters, and who carry it on with no particular object at first, until such time as a leader, patriot, or tyrant, appears. Were we to pursue this subject to its limits, or passing those which these pages afford, we could show beyond the power of contradiction, that there is a source of danger,—that there are in fact *les classes dangereuses*,—in every capital where nests and corners exist, around or by which the great force of observant and industrial life, passes, and does not penetrate. But, it is a subject so ever present to us that we have probably said all we could say about it, in previous volumes. The reader will, however, be quite ready to see with us, that it is scarcely possible to fix a limit to the improvement,

be it in matters pertaining to morals alone, of a people, which may be effected by such works as are in progress in Paris. Hitherto, the contrasts between quarters have been great: in few places in the world are there such contrasts in the social scale; and it will be one result of the measures for the improvement of the town, that what will conduce to one description of objects, will permit the good qualities of the better portion of Parisian society to extend to another. In whatsoever light the French example be viewed, London is deeply interested.

Right in principle, however, as may be the ultimate aim of the works in Paris, it is of some importance to know how the hardship which exists is to be alleviated, and how long it may continue. The cessation of it cannot be exactly estimated from the time allowed for the completion of the new streets. In London, we are more likely to be too long in any new work, than to cause suffering by mere rapidity. It must be confessed, the question is surrounded with difficulty. Buildings have been projected, and will be no doubt speedily commenced near the Pantheon and the Luxembourg, which it is said will be suited to the means of those who find the existing "*appartements*" too dear. They may assist one class who are aggrieved; but we hardly think they will suit the means of many workmen. Schemes have been on foot, for the erection of residences beyond the fortifications. But, this again requires the answer to the question of distance and means of communication.

In several recent conversations with men of the artisan class, the arguments, sanitary and economical, in favour of residences at the outskirts of a town, were put forward on our part. The answer was not encouraging. The greater number of the French artisans, and women generally, who have occupations, work in *ateliers* in the centre of Paris, or are almost compelled to be within a short distance of the *magasins* where the produce of their labour is sold. There are some exceptions to this at present, as in the districts of the Batignolles, La Villette, and Grenelle, which extend to the fortifications. In those localities there are many workmen employed, especially in Grenelle, which is almost as much characterized by tall chimneys as the town of Manchester. This district lies beyond the Champ de Mars. Near to it is Vaugirard, where large numbers of workmen reside. Even in such localities it is difficult now to find *logements*. To the suggestion of a residence beyond the fortifications, where it might be supposed provisions would be cheaper, the answer was that there are no omnibuses at the early hour required in the morning; and that so long as employment lies in Paris, the workman must get his *nourriture* there, and if there and not at home, his expenses would come to the same as before. Of home-comfort there would be less than at present; and the decadence of "life in the family," a subject to which some of the best men in France are giving their attention, would still go on amongst the class where it too truly exists, and where it is said to have been attendant upon the growth unwatched of manufactures and modern industry. The brighter colours in this latter picture were presented in our pages lately in a report of something that has been effected at Mulhausen, and some other places; but much more must be done, both in Paris and the chief towns of France; we might say the same thing of England; the same evils have resulted in both countries; and our short-comings are named with those of France, in no captious spirit towards England, and with truth, by the author of the volume in which the article in the *Revue des Deux Mondes* is republished, a volume which has had an immense circulation. As time progresses, however, the proprietors of large undertakings will find it their interest to establish their workshops outside Paris, repeating what led to the formation of such districts as Grenelle; they will feel it to be their interest and of their duty to keep their workmen near them, and to build residences, after the example of some of the French *patrons* now, and of certain worthy masters in the manufacturing districts of England. We have alluded, however, to the facts that there are some means for the improvement of the condition of workpeople in Paris; and that there are some features of the Parisian "*appartements*," which could be usefully imitated by us. We may pursue the subject in another article. Meanwhile, if we may say anything to the opponents of the existing policy of the Emperor and the municipality in the matter of rents and habitations, we would suggest to them not to forget the principle of what is done, and those results which there are even now of good.

A FRENCH ESSAY UPON PAINTING AND ARCHITECTURE.*

NATURE makes no mistakes. Every form, whether beautiful or ugly, has its cause, and of all existing things there is nothing which is not as it should be.

Observe this woman who lost her sight in childhood. The eyelids have not enlarged with the successive growth of the socket: they have sunk into the cavity caused by the absence of the organ. The upper lids have carried away with them the lashes: the lower ones have caused a slight mounting up of the cheeks: the upper lip has been affected by the movement, and is also drawn up. The alteration has influenced all the parts of the face as they have happened to be more or less near the seat of the accident.

But do you fancy that the deformity has not extended beyond the face? Do you think the neck has escaped, or the shoulders, or bosom? Yes, for your sight and mine. But ask Nature. Show her this neck, these shoulders, that bosom, and she will say, "This is the neck, these the shoulders, that the bosom of a woman who lost her eyes in childhood."

Look at this man with the bowed back and chest. While the anterior cartilages of the neck have lengthened, the posterior vertebrae have shrunk. The head shrinks on one side: the hands have a peculiar union with the joints of the wrist: the elbows lean back: all the members have sought that centre of a common gravity which best suited the abnormal system; and finally, the face has assumed an expression of pain and constraint.

Cover this figure. Show but the feet to Nature, and she will say to you, without hesitation, "These are the feet of a hunchback."

If causes and effects were self-evident, we could do nothing better than represent things as they are. The more perfect our imitation and the more in keeping with the causes, the more should we be satisfied with it.

Despite our ignorance of cause and effect, and of the conventional rules which have sprung out of it, I can hardly doubt that an artist courageous enough to neglect these rules, in order to address himself to a rigorous imitation of Nature, would often be justified for having the feet over large, the limbs short, the knees thick, the head heavy and clumsy, by that delicate tact which we owe to our incessant observation of the phenomena of Nature, and which would make us sensible of a secret accord, an inevitable relation among these various deformities.

A crooked nose in nature is not necessarily repulsive, because all is in keeping. We are led up to the deformity by certain gentle neighbouring alterations which escort and palliate it. Bend the nose of an Antinous, leaving all else as before, and the nose will be intolerable. Why? Because the Antinous will have its nose not crooked, but broken.

We say of a man who passes in the street he is ill made. Yes, according to our rules; but how according to Nature? Perhaps quite the contrary. We say of a statue, "its proportions are perfect." True, again, according to our poor rules; but what might Nature say?

Let me be permitted to transfer the veil from my hunchback to the Venus de Medicis, and allow nothing to peep out but the extremity of her foot. Now, on this extremity, if Nature were to consent to re-establish the figure, you would probably be surprised to see that her pencil gave you but a hideous malformation. For my part, if anything could surprise me in the matter, it would be that she could have given you anything else.

A human form is too composite a system to permit that the results of a break, though imperceptible in its origin, should not remove the most perfect production of art a thousand leagues away from the work of nature.

Were I initiated in the mysteries of art, I should probably know how far the artist ought to bow to the received "proportions," and should make known my opinion. But what I do know is, that they cannot hold their ground against the despotism of nature; and that age and social condition require their sacrifice in a hundred different manners. I have never heard a figure accused of being ill-drawn when it showed in its external organization the age, the habit, and the facility of fulfilling its daily avocations. These avocations determine for us the size of the figure, the true proportion of each member, and general characteristics: thence come the infant, the adult, the old man, the savage, the member of a civil society, the magistrate, the soldier, and the street porter.

* Translated from the French of Mr. Diderot, Membre de l'Académie Royale.

If there be a figure difficult to portray, it is that of a man some twenty-five years of age, just made out of the lime of the earth, and who has as yet never exercised a limb; but this man is, in art, a chimera.

Infancy is almost a caricature: I might say as much of old age. The infant is a fluid, shapeless mass striving to develop itself: the old man is another shapeless mass, but dry, which is shrinking into itself, and tends hourly to be a void. It is only in the interval of these two ages, from the commencement of perfect adolescence up to the entry on senility, that the artist can assure himself of a purity and vigorous precision of touch, and that the *poco più*, or the *poco meno*, the touch in or out, makes all the difference of defect or beauty.

You will say,—"Whatever be the age or avocations, they may alter the form, but they cannot annihilate the organs."—True. "We must, therefore, know them."—Admitted. Here lies the argument for studying the *écorché*.

The study of the *écorché* has undoubtedly its advantages; but it is not to be feared that the *écorché* may take permanent possession of the artist's imagination, and that he may be led too far by the vain fondness of displaying the new learning? that his perverted vision may no longer be content with presenting to us the surface? that with the skin and cellular tissues he will for ever be penetrating for us to the muscles, their origins, their attachments, their insertions? that he may acquire a mania for making everything stand out too vigorously? that his style may become hard and dry? that we may thus have to see the abominable *écorché*, even in his figures of women? Since, as an artist, I have nothing but the exterior to show, I should be just as content if teachers would accustom me to see it well, and spare me a perfidious knowledge which it behoves me to forget when acquired.

But we study the *écorché*, say they, only to learn to observe Nature. But experience shows, that after this study, it costs a deal of pains not to observe her as she is not.

And those seven years you spend at the Academy, drawing after models,—are they well bestowed, think you? Would you like to know what I think?—That it is exactly there, and during those seven cruel years, that we acquire all our mannerism in drawing. What have all these constrained, fantastic, arranged academical positions; all those actions frigidly imitated by the poor devil (always the same poor devil) who is paid to come three times a week to undress himself and play the "mannequin";—what have all these actions, I say, in common with the positions and actions of nature? What in common is there between the man who draws water from the well in your court, and him on the Academy platform who, without having any weight to raise, uses both hands awkwardly mimicking the operation? What in common is there between the fellow who pretends to die and a man in his death throes, or who is suffering assassination in one of our streets? What is the resemblance between this school wrestler and the *athlète* of the arena? Will you compare this fellow who prays, entreates, sleeps, meditates, and swoons, according to order, with the peasant who rests his weary limbs prone on the earth, or the philosopher who meditates at the corner of his fire, or the man who faints under the pressure of a crowd? Absurd,—absolutely absurd.

It would be as wise (for I must complete the absurdity), to send the students to acquire grace from Marcel or Dupré, or any other dancing-master you may hit upon. But the truth of nature is overlooked; the imagination is filled with actions, positions, and figures alike false, conceited, ridiculous, and frigid, which are thenceforward held in mental stock, and never come out except to fix themselves on the canvas. Whenever the artist takes up his pencil, these wearisome shapes will re-awaken, and make themselves visible: he is unable to escape them, and a miracle indeed it would be if he could. I knew a young man, full of taste, who never touched the canvas without first falling on his knees and saying—"O God, deliver me from the model!" If it be so rare now-a-days to see a picture composed of a certain number of figures without finding here and there some of those academical figures, positions, actions, and attitudes which mortify to death every man of taste, and which can only please those who have no idea of truth, attribute it to the eternal school model.

It is not in the schools that we can acquire the general harmony of movement—a harmony which is felt, which is seen, which extends, which serpentine from the head to the feet. A woman

permits her head to fall forwards,—every member is affected by the weight. Does she raise and hold it erect? There is the same obedience in the rest of the machine.

Yes, I admit it, it is an art and a great art to make the model *pose*: mark how proud of it is the professor. Do not be afraid of his saying to the poor wretch of a model,—"My friend, choose your own *pose*: place yourself exactly as you like." He prefers vastly giving him some out-of-the-way attitude to letting him fall into some simple and natural one. This is, however, what the student must make up his mind for.

A hundred times have I felt tempted to ask the young men I have met making their way to the Louvre, with portfolios under their arms, "How long have you been coming here to learn drawing?"—"Two years!" It is already more than you require. Pray, have done with that warehouse of mannerism. Go to the Cistercians, and there you will find the true attitudes of devotion and repentance. This is a great festival day: go to the parish church: hover round the confessional, and you will meet there the true attitudes of religious grief and pious abstraction. To-morrow visit the wine-gardens, and there you will witness the genuine attitudes of a man in a fit of passion. Frequent the public places: study in the streets, in gardens, market-places, and in private houses, and you will there acquire just ideas of the true movement of the actions of life. For example, your two companions are quarrelling—observe them: see how the business between them unconsciously determines the position of their members. Examine them well, and you will pity the lesson of your insipid professor, and the mimicry of your insipid model. Ah, my friends, how should I feel for you if some day you were obliged to substitute for the falsities you have been learning, the simplicity and truth of Le Sueur. And yet this is what must be done if you are to be anything.

An attitude is one thing, an action is another. Attitudes are all false and petty; actions are true and beautiful.

Contrast, when ill understood, is one of the most fatal causes of mannerism. There is no true contrast except that which arises from the action itself, or from some diversity, either of organs or of interest. Look at Raffaele; look at Le Sueur. They sometimes set three, four, five figures, standing alongside of each other; and the effect is sublime. At mass or vespers, at the Chartreux, you see, in two long parallel files, forty or fifty monks—same stalls, same duty, same dress; and yet no two of these monks resemble each other. Do not look for any contrast but that which distinguishes them. The truth is here: all else is mean, false, contemptible.

If students would listen to my counsels, I should say to them, "You have been long enough seeing nothing but a part of the objects you copy: try and fancy the whole figure transparent, so that placing your eye, as it were, at the centre, you may command a full view of all the exterior action of the machine. You will then see how certain parts distend themselves, while others contract; how those again contract while these swell: and, constantly occupied with the whole, you will succeed in showing, in that part of the object which your drawing presents, all the correspondence it may have with that which you do not see; and though only offering me one aspect, you will necessarily force my imagination to see the others: and then, and then only, will you extort from me the confession that you are a great artist."

But it is not enough to have well established the general effect: you must introduce the details, without destroying the mass. This is a labour of love, of genius, of sentiment—of exquisite sentiment.

Now, this is how I fancy a drawing academy should be managed. When the pupil has learnt to draw with ease after engravings or casts, I should keep him for two years studying the male and female models of the academy. I would place before him infants, adolescents, the mature man, the patriarch, subjects of all ages and sexes taken in every condition of society—in one word, give him natures of every sort. Subjects would present themselves in crowds if only satisfactorily paid for. Among these different models, the professor would show the influences which peculiar avocations, manners of life, age, and other conditions, exercise upon the human form. My pupil should now see the academical models but once a fortnight, and the professor would leave to the model the liberty of choosing his own *poses*. After the drawing lesson, some clever anatomist should demonstrate the muscles

to my pupils, and teach the application of his lessons on the naked and living subjects; but there should be no drawing after the *écorché* more than twelve days in the year. This would be enough to teach him that the flesh covering the bones and the flesh otherwise supported, are not to be drawn after the same manner: that here the trait is round, there more or less angular; and that if he neglect those niceties, the whole will have the air of a distended bladder or a ball of cotton.

There would be no mannerism either in colour or drawing, if we scrupulously imitated nature. Mannerism comes from the master, from the school, from the academy, and even from the antique.

CHAPTER II.

MY LITTLE IDEAS ON COLOUR.

Drawing gives form to beings: colour gives them life. Colour is the divine breath that animates them. It requires a master to be a good judge of drawing: every body is a judge of colour.

There are no lack of excellent designers: there are few great colourists. It is the same in literature: a thousand cold logicians for one great orator; ten great orators for one sublime poet. A high interest will at once bring into play the great orator: whatever Helvetius may say to the contrary, one cannot make ten good verses even under threat of death.

Visit some atelier: observe the artist at work. If he symmetrically arrange his tints and demitints around his palette, or if fifteen minutes' work has not confused them all, you may say at once that the artist is cold, and that he will never do anything worth speaking about. It is the parallel of some heavy, stupid pedant, needing a reference, who mounts his ladder, first takes, then opens his author; returns to his desk, copies the line he needed, reascends his ladder, and restores the book to its place. This is not the style of genius.

He who has a vivid sense of colour has his eyes fastened on the canvas; his mouth is half open; he is out of breath; his palette images chaos. It is in this chaos that he dips his brush, extracting the works of creation: the birds with all the shades that tint their plumage, and the flowers with their rich velvet, and the trees with their varying verdure, and the azure of heaven, and the vaporous clouds that darken it, and the animals with their long hair and varied hides, and the fire that glitters in their eyes. He rises, he steps back, he casts a studious survey over his work. He resects himself; and the flesh, the cloth, the velvet, the damask, the common stuff, the yellow, the coarse linen, the common stuff, the yellow pear,—ripe and yellow as it falls from the tree—and the purple grape as it hangs luscious upon the vine, come forth beneath your eyes at each touch of the pencil.

But why is it that there are so few artists capable of representing to us that of which all of us are judges? Why this variety of colourists, while colour in nature is but one? The character of the organ itself is, without doubt, something. The weak and susceptible eye is not friendly to strong and vivid colours. The painter is unwilling to introduce into his picture colours which displease him in nature. He cannot tolerate brilliant reds or broad whites. Like the tapestry he would choose for his apartment, his canvas will offer colours of a weak, gentle, tender tone; and generally he will make up in harmony what he denies you in vigour. But why shall the susceptibility, the humours even, of a man influence his choice of colours?

If his style of thought be sad, sullen, austere; if night for ever reign in his melancholy brain and his lugubrious atelier; if he shut out the day from his chamber; if he seek solitude and darkness, are you not prepared to expect from him a picture vigorous, perhaps, but still obscure,—all dismal, all laden with shadows? If he be jaundiced, and see all about him yellow, can he avoid giving his composition the colour his diseased organ throws over the objects of nature, and which, as he compares the green tree of his imagination with the yellow tree he has under his eye, must produce in him so painful an impression?

Be assured that the artist is as much in his pictures as an author in his books. It may happen to him on an occasion to conquer the disposition and bias of the organ; but, as with some taciturn individual, who, for once raising his voice, only relapses into deeper silence, the artist subject to dependency or possessing a feeble organ may produce one picture of vigorous colour, but will perform relapse into his natural style.

Again: if the organ be weak, whatever the

nature of the affection, it will tell upon all his labours, and interpose between him and them a vapour which will falsify Nature and damage his imitation of her.

The artist who places colour on his palette does not therefore know what colour it will produce on his picture. In fact, with what can he compare the colour or tint upon his palette? To other isolated tints and to certain primitive colours? He knows better: he looks at the colour at the spot where he has prepared it, and in thought transfers it to the spot where it is to be applied. But how often does he err! In passing from the palette to its place in the entire composition, the colour becomes modified, weakened, intensified, or altogether changes in effect. The artist then gropes about, touches, re-touches, torments his colour. In this labour the tint becomes a mixture of diverse matters which re-act more or less one on another, and sooner or later produce a thorough want of accord.

In general, then, the harmony of a composition will be durable, as the painter is sure of his pencil's effect, using it freely and dashing, less tormenting his colour, and using it more in its simplest forms.

We see modern pictures lose their accord after a very brief period. We see old pictures which are still fresh, harmonious, and vigorous, notwithstanding the lapse of time. The advantage seems to me rather the reward of the "faire," than the effect of the quality of the colours.

Nothing in a picture appeals to us like genuine colour: it speaks to the ignorant as powerfully as to the savant. A semi-connoisseur would pass without stopping before some masterpiece of drawing, expression, and composition. The eye never forgets to follow the colourist.

But what explains the rarity of the colourist is the choice of the master. During an endless period the student copies the paintings of his master, and pays no attention to nature: that is to say, he accustoms himself to see by the eyes of another, and loses the use of his own. By degrees he establishes for himself a technical system which enslaves him, from which he can neither deliver nor estrange himself: it is a chain which he attaches to his eye as the slave to his foot. Here is the origin of so much false colour. He who copies *Le Grand* affects the brilliant and the solid: he who copies *Le Prince* will show a tendency to red and brick colour: the imitator of *Greuse* will be very gray and violet: the student of *Chardin* will be true. And hence the variety of judgments on drawing and colour even among artists. One will tell you that *Poussin*, another, that *Rubens*, is extravagant; and I—well I am the *Lilliputian* who tap them gently on the shoulders, and suggest in their ear that they have been uttering nonsense.

It has been said that the most beautiful colour in the world is the sweet pink with which innocence, youth, health, modesty, and bashfulness tint the cheeks of a girl; and the saying is not only fine, touching, and delicate, but true; for this is the flesh which it is difficult to represent,—this flesh, unctuous, light, and smooth, without being either pale or faded: this mixture of red and blue, which transfigure imperceptibly this blood, this life, which forms the despair of the artist. He who has acquired the sentiment of flesh has made a huge step: the rest in comparison is nothing. A thousand painters have died without reaching this sentiment; a thousand others will die without reaching it either.

The diversity of our cloth-stuffs and draperies has not a little helped to improve the art of the colourist. There is one *prestige* we are unable to resist,—I mean that of a great "harmonist." I hardly know how to make clear my thought. Observe on this canvas the lady dressed in white satin. Cover the rest of the picture, and pay attention only to the dress. Possibly the satin will appear to you dirty, faded, and of doubtful fidelity; but replace the lady in the midst of the objects by which she is surrounded, and at the same instant the satin and its colour will resume their effect. This is so because the tone is too subdued; but let every detail lose proportionally, the defect of each escapes attention: the picture is saved by its harmony. It is nature seen at the close of day.

The general tone of the colouring may be feeble without being false. The general tone of the colouring may be feeble without the loss of harmony. On the contrary, it is the strength of the colours which tasks our effort to ally them with harmony.

The white and luminous "*faïres*" are two things very diverse. All the rest being equal in two compositions, the more luminous will certainly be

the more agreeable to you. It is the difference of day and night.

Who, then, in my opinion, is the great, the true colourist? He who takes his tones from nature and from objects well lit, and who knows how to harmonize the picture.

There are caricatures in colour as in drawing, and every caricature is so much bad taste. They say there are colours friendly and colours hostile; and they say truly, if they mean that there are some which harmonize with so much difficulty, which so much disagree placed side by side, that even light and air, those universal harmonists, cannot make us support their proximity. I am by no means desirous of upsetting in art the order of the rainbow. The rainbow is in painting what the fundamental bass is in music, and I doubt whether any painter understands this matter better than a coquettish woman or a flower-girl who understands her business. But I fear that pusillanimous painters have made this principle a ground for restricting the domain of art, and for giving themselves that petty technical system, at once easy and limited, which we familiarly style among ourselves the "protocole." I know, indeed, a certain "protocole" in painting so enslaved by the rainbow that it will nearly always enable you to detect him. If he have given such or such a colour to one object, you may make sure the neighbouring object will be of such or such a colour. Thus, do you know the colour of one corner of his canvas, you can divine the rest. Throughout their life these people do nothing but transpose the corner. It is a moving point which reaches over the surface, which stops and places itself wherever it pleases, but which has always the same attendance. It is as though some "grand seigneur" should have but one style of dress for himself and servants, and keep all under the same livery. It is not thus, however, that *Vernet* and *Chardin* proceed: their intrepid pencils delight to intermingle all the colours of nature, with all their shades, exemplified in their utmost daring, their greatest variety, and most sustained harmony. They have, doubtless, a "technique" special and limited. I do not contest it, and I should detect it if I took the trouble. Man is not God. The artist's *atelier* is not nature.

You may fancy that a little study of birds and flowers may strengthen you in colour. No; my friend. This imitation will never give you the sentiment of flesh. Observe what *Bachelier* becomes when he loses sight of his rose, his jonquil, and his carnation. Propose to *Madame Vien* to paint a portrait, and then carry the portrait straightway to *La Tour*. But, no; the rogue does not care enough for any of his associates to tell them the truth. Rather propose to him—for he does know how to paint flesh—to paint cloth, the sky, a pink, a plum, or peach, with its bloom, and you will find how happily he will come out of it. And why do *Chardin's* imitations of inanimate nature pass for Nature herself? Because when he likes he can paint flesh.

But what drives the great colourist to distraction are the changes this flesh undergoes: it is that, in the twinkling of an eye, it fades or glows with animation: it is that while the artist leans over his canvas and his pencil is busied in reproducing me, I disappear, and that he has only to turn his head to find a different person. I have thought of the *Abbé Blanc*, and I have yawned with *ennuï*; the *Abbé Trublet* has come before my mind, and my expression has become ironical; my friend *Grimm*, or my own *Sophia* has been present with me, and my heart has palpitated; an expression of tenderness and serenity has come over my countenance; joy has seemed to be oozing from every pore; the heart has dilated; the smaller reservoirs of blood have overflowed, and the imperceptible taint of the fluid which has thus escaped has shed everywhere the hue incarnate of life. Fruits and flowers change under the attentive study of *La Tour* and *Bachelier*. What, then, must be these men's torment before the human face divine?—before this canvas which betrays agitation or emotion, extends, distends, becomes coloured or discoloured according to the infinite multitude of alternatives of that transient ever-moving breathing we call the soul?

But I had almost forgotten to speak to you of the colours of passion; though, indeed, I was stumbling upon it. Has not each passion its own colour? Is it ever the same throughout the few instants it exists? Colour has its shades in anger: if anger inflame the countenance, the eyes sparkle; if it be excessive and contract the heart instead of distending it, the eyes wander, pallor settles on the brow and cheeks, the lips tremble and turn white. Have you observed the changes of colour of a woman in the enjoyment of

expectation or recollection of pleasure? Ah! my friend, what an art, indeed, is that of painting! I accomplish in a line what the artist can scarcely master in a week; and his misfortune is that he knows, sees, and feels like me, and that he cannot transmute or satisfy himself; that while his feelings impatiently carry him onwards, they mislead him as to what he can do and make him spoil a masterpiece; for he may have been on the farthest boundary of art and not have known it.*

THE SOCIAL SCIENCE CONGRESS.

DUBLIN, during the past week, has been a great centre of attraction to all interested in social science. At the inaugural meeting on Wednesday, no less than 1,671 persons had already taken tickets,—255 members and 1,386 associates.

Lord Brougham, the President, made a vigorous speech of two hours' duration at the opening meeting in the Round-room of the Mansion-house; reviewing social science in many of its aspects. After some appropriate and polite compliments to Ireland, his lordship expatiated on the slow progress of true science and of political truth; on safe progress and true progress; on reforms in jurisprudence, and consolidation of laws; on the paper duty; popular education; sanitary reform, and reformatory measures; co-operative societies; temperance; the employment of women; the National Book Union; international affairs; and the social condition of neighbouring nations, some of which, he remarked, were making considerable progress in social science.

In the Sanitary department, he said, considerable progress has been made. The quarantine committee has brought their labours to a close, and presented an elaborate report. It has been communicated to the Board of Trade, who has laid it before Parliament, which has ordered it to be printed. The information collected, and the suggestions made, are admitted to have essentially improved the sanitary condition of our mercantile marine. The diffusion of sanitary knowledge is a most important part of the duties of this department; and as the association had from the first desired and accepted the co-operation of women, the council has had no hesitation in affiliating the Ladies' Sanitary Society, which acts under the highest patronage, and spreads among the poor a knowledge of the laws of health; it being now admitted that much of debility, disease, and premature mortality in this country results from ignorance and error, and might be prevented. The society circulates many tracts upon the subject, has lectures delivered in the poorer districts of London, and engages in district visitings, besides instructing the parochial clergy in the work, and in many cases holding meetings in their vestries, where poor women are familiarly instructed on matters connected with health.

His lordship spoke strongly of the good that co-operative societies were capable of doing for behoof of the working classes, particularly in the prevention of strikes. Above fifty companies for manufacture, he stated, had been established since last congress, besides many of mere stores. In these last a capital of 500,000*l.* was invested; but in the former the manufacturing concerns represented a capital of nearly 2,000,000*l.*, exclusive of the Manchester Cotton Company, Limited, whose capital was 1,000,000*l.* The returns of Mr. Tidd Pratt showed the creation of above 250 co-operative societies within the last twelve months, all enrolled under the Friendly Society Act.

At the close of the address, the Lord Lieutenant moved, and the Duke of Wellington seconded, a vote of thanks to Lord Brougham, which was passed with acclamation.

The various departments of the Association were opened on Thursday morning at the Four Courts. Of the voluminous proceeding we cannot attempt to give even an abstract. We shall, therefore, restrict ourselves to a few of the more salient points in those departments with which we are more interested.

In the department of Public Health, Dr. Moore read a paper "On the more Prominent Causes of an Excessive Mortality in Early Life." He summed up the most prevalent causes of the excessive mortality amongst infants as follows:—First—Defective vitality at birth, transmitted from either or both parents. Second—The mismanagement of parents by nurses with regard to food, dress, cleanliness, &c. Third—The deficiency of light, air, ventilation, to which might be added an ignorance of physiological principles, and of the pathology and therapeutics of many of the diseases incidental to early life.

* To be continued.

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Dr. Lankester suggested that as they had all experience of families not wealthy in the country, who brought up children without any death at all, there was no absolute necessity for death. As far as we could see, there was no cause why children should die. The Creator never seemed to have intended that they should die. All those deaths mentioned by Dr. Moore were cases of preventable mortality. Infant mortality, however, was the index of what were the causes of death in all classes of society. Remove the cause of the mortality amongst infants, and immediately adult life was liberated from thousands of diseases which oppressed it. In the same department, Dr. Lankester read a paper by John Beddoe, M.D., on the "Physical Degeneration of Town Populations." The paper went to show that degeneration of good air and proper food tended to the degeneration of the human race. Dr. Lyons read a paper by Miss Florence Nightingale, entitled "Hospital Statistics and Hospital Plans." It gave an excellent and comprehensive exposition of the requirements of a proper hospital, the necessity for thorough ventilation, and for avoidance of over-crowding. We regret that the great pressure on our space prevents us at present from saying more as to this admirable paper or the discussion which took place upon it.

In the department of Social Economy, the secretary read a paper by Mr. H. S. Reid, on the building strike of the present year at Edinburgh, and also a paper by Mr. Frederick Harrison, M.A., on the building strike of the present year in London. An interesting discussion followed, which was taken part in by Dr. Hancock, who considered that as regards working men as intelligent classes, overwork by long hours was morally and physically injurious, inasmuch as it shortened life, and left a greater number of widows and children on the community to be maintained. He considered nine hours were sufficient for any working man, and it was injurious to the best interests of the men and the employer to insist on more. Mr. Randall McDonnell, Mr. Cookson, of London, and Mr. Lefevre, and Dr. Shaw, Mr. Lushington, and Mr. Scott, of Belfast, took part in the discussion, and the general opinion was in favour of a diminished amount of labour. Dr. Shaw said he considered it was the tendency of employers of the present day to degrade the workmen to the position of horses, by increasing the hours of labour. Mr. Wright, of Birmingham, an extensive employer in that town, said it was his experience that it was the tendency of employers everywhere to diminish the amount of labour by lessening the hours. Mr. Polard Urquhart, M.P., said the demand of the Unionists, in 1859, was a reduction from ten hours to nine, the masters at the same time paying the same wages as before. The men denied that this was equivalent, as was alleged, to raising the wages 10 per cent., and they insisted that it would not amount to more than an increase of 2½ per cent. Mr. W. N. Hancock, LL.D., read an interesting paper on the journeymen bakers' case; and Mr. William Newton, of London, one on the Amalgamated Society of Engineers. Mr. Mark O'Shaughnessy, barrister, read a paper on the general aversion of employers to treat with the representatives of their workers on matters in dispute. Mr. John Scott also read a paper on the logic of the labour problem, or the production, distribution, and exchange of wealth upon equitable principles. Mr. T. J. Dunning read a paper on labour in connection with trade and unions; and Mr. Godfrey Lushington one in reference to apprenticeships. Lord Brougham was present in this section for a considerable time.

On the same day (Thursday) the Lord Mayor entertained Lord Brougham and other members at a grand banquet in the Mansion House.

On Friday, the Social Economy department was chiefly occupied with a series of remarkable papers by ladies, of whom there was a very large attendance. Miss Bessie Parkes read a paper "On the Condition of the Working Women of England and France;" Miss Emily Faithful one "On Women Compositors;" and another, communicated by Miss Jessie Bouchere, on "Local Societies for promoting the Employment of Women." Miss Parkes read a report of the Societies for the Employment of Women, communicated by Miss Jane Crowe, the secretary of those societies. Another paper, communicated by Mrs. Bayley, "On the Employment of Women," was read; and Mrs. Overend read one "On Remunerative Employment for educated Women." Miss Parkes then read one, communicated by Maria S. Rye, "On the Emigration of educated Women;" Mr. M. O. Shaughnessy one, communicated by Mrs. Jellicoe, "On the Condition and Prospects of Girls, employed in Manufactories in Dublin."

At the Mansion House, in the evening, a meeting of the members of the Young Men's Societies of Dublin, Catholic and Protestant, was held for the purpose of hearing an exposition of the objects and proceedings of the Social Science Congress. The attendance was exceedingly numerous, and included a large proportion of ladies. The chair was taken by Lord Brougham.

On Saturday, the fourth day, M. Michel Chevalier delivered an address in the department of Trade and International Law, to a crowded meeting; after which the several departments met as before.

In the department of Social Economy, Mr. Lefevre read a paper on "Labour in connexion with Trades' Unions," communicated by Mr. Dunning. The paper stated that many employers were averse to trades' unions; but that they should exist when labour was considered as a property held by free men; and as trades' unions gave power to the free workman to accede or not to the terms of his employer, such aversion was easily understood. Mr. Lushington then read "A Report by the 'Condition of Labour Committee' upon the Progress of their Inquiry into Apprenticeship;" and another paper by himself, entitled, "Should an Apprenticeship under Indenture be compulsory?"

In the department of Public Health, Mrs. Fison read a paper on "Practical Sanitary Work in Town and Country," in which she strongly advocated the necessity of helping forward the temperance movement, the establishment of penny banks, and free public libraries, the necessity for courses of popular lectures for the working classes on the worth of fresh air and use of pure water, the value of good food, the influence of wholesome drink, the advantage of warm clothing, and the good resulting from cleanliness.

On the fifth day of the Congress Punishment and Reformation appear to have been the main subjects of interest in the sections, an address on them having been delivered by the Attorney-general, president of the third department. Lord Brougham was in the chair. In the department of Health, besides some other procedure, Miss Corbett read a paper on "The Turkish Bath, as a Curative Agent in Scrofula and Insanity." In that of Social Economy the same lady read a paper "On Homes for Female Servants;" and there were other papers on workpeople's questions.

On the sixth day, Lord Talbot de Malahide, President of the Department of Public Health, delivered an address, after which the departments assembled in the different courts appropriated to them.

In the department of Social Economy, a paper was read by Miss Mary Carpenter, of Bristol, on the question, "What shall we do with our Pauper Children?" and Mrs. Atkinson one by Mrs. Woodlock and herself, on "The Irish in Workhouses." Various other papers were read in this and other departments, which we have not space even to name.

A Ladies' Sanitary Association has been set agoing in Dublin by members and friends of the Social Science Association.

MANCHESTER ARCHITECTURAL ASSOCIATION.

THIS association made its first annual excursion on Saturday, August 10th. Whalley was selected as its destination, being a locality rich in objects of interest to the architect and antiquary, and one which nature has with no niggard hand adorned.

Shortly after its arrival, the party was joined by the vicar, the Rev. R. Nowell Whitaker, M.A., and proceeded to the Abbey; which, by the kind permission of Captain White, was thrown open to them. After tracing as far as possible the original extent and arrangement of the buildings; carefully examining the existing remains; and endeavouring, aided by the information furnished by Mr. Whitaker, to form some idea of its original construction and beauty; the church was visited, and found to contain much which merited careful investigation.

Having dined together at the Whalley Arms, Mr. Jos. Chatwood (in the absence of the president) was called to the chair. He said it was his agreeable duty, as chairman, to inform the Rev. R. N. Whitaker that he had been unanimously elected an honorary life member of the association, as an acknowledgment, on the part of the members, of the courtesy and kindness which he had shown towards them on the occasion of this, their first visit to Whalley.

Mr. Whitaker said he was both surprised and pleased by the honour which he felt the association had done him in electing him a member. He could assure them he felt proud of the position in which they had placed him. What he had done for the association he had done willingly.

The chairman, after various other toasts, proposed the Manchester Architectural Association; and took the opportunity of connecting with it the name of its honorary secretary, Mr. R. Knill Freeman, to whose endeavours on behalf of the association they were much indebted for its past success.

Mr. Freeman acknowledged the recognition of his services by the members of the association. His endeavours on its behalf had been made from a sense of duty; and it had been his pleasure to observe, in his official capacity, a like spirit animating the other members,—a thorough working on the part of every one for the common good, and an absence of anything like that party spirit which had been the ruin of many societies. The progress of the association had been most encouraging: the papers and discussions had been both interesting and beneficial, the number of members had steadily increased, and there was every reason to look hopefully to the future.

In the afternoon the party (with the exception of several of the members who remained in Whalley taking photographs and sketches in the neighbourhood), proceeded, by the recommendation of Mr. Whitaker, to Mitten, and concluded the day's researches by an investigation of the Hall and of the interior of the church, which contained several ancient and interesting monuments of the Sherburne family.

THE ACOUSTIC PROPERTIES OF ROOMS.

In the *Builder* of July 6, p. 469, your correspondent, "T. B.," under the above heading, gives the following dimensions of the concert-room of the Cheltenham pump-room, Harrogate, the form of which, he states, is "as near perfection as possible, and the best public room for hearing:—"

	Feet.	Inch.
Length, inside.....	85	6
Width.....	33	0
Height of ceiling.....	22	7
Ditto to centre.....	24	2

Ceiling a segment of a circle, rising 1 foot 7 inches. General appearance too low in height for the length and breadth. Query. If raised 4 or 5 feet only, would the sound be as good?"

Without answering that question fully; which might, probably, like other useful inquiries, be best done by calculations tested by experiments; it may be stated that if sound were horizontally propagated from one end of the room in an axis equidistant from the side walls, and parallel with those and the floor, at the several heights of 5, 6, 7, 8, 9, and 10 feet above the floor; then for the reflected sound from the ceiling to descend, as a stream, in vertical parallel lines, the rise of the ceiling and the radius of the circle would be respectively as follows:—

Height of Sound above the Floor.		Rise of the Ceiling.		Radius of the Circle.	
Feet.	Inch.	Feet.	Inch.	Feet.	Inch.
5	0	3	4½	41	11
6	0	3	6½	40	2½
7	0	3	8½	38	7
8	0	3	10½	36	11½
9	0	4	1	35	4
10	0	4	3½	33	9½
— 10	2½	1	7	86	9
below the floor.					

Taking the room, as it now is, at the dimensions first above given; if the sound were propagated horizontally 9 feet above the floor, then at 1 foot 7 inches, the present rise, the reflected sound from the ceiling would, at the middle, be vertical as above, at 4 feet 1 inch in rise; but at the wall line of the ceiling the reflected sound would form an angle, outside the building, of 29 degrees with the vertical wall; and if the ceiling rose 6 feet in the middle, the sound being 9 feet high above the floor, the reflected sound, at the same line, would form an angle of 29 degrees with the vertical wall inside the building; whereas in the first six cases all the sound from the ceiling would be reflected vertically, or nearly so, even at the wall line.

Sound, as well known, travels at the rate of 1,142 feet per second in spring and autumn; faster, by rarefaction, in summer; slower, by condensation, in winter.

If a pipe gives a sound of the same tone with a viol-string that vibrates 100 times in a second, there are 100 pulses in 1,142 feet, and therefore one pulse fills up a space of about 11·42 feet. Sir

Isaac Newton remarks,—"It is probable that the breadths of the pulses in all sounds made in open pipes are equal to about twice the lengths of the pipes."

The following formulae may be useful—

Let a = height of the side walls from the floor to the ceiling line.

b = height of the sound above the floor.

c = one half the width of the room.

$d = a - b$.

x = rise of the ceiling in the middle.

R = radius of the circle.

Then we have,—

Rise of the ceiling,

$$x = \frac{1}{2} \{ \sqrt{3c^2 + 4d^2} - 2d \}$$

Radius of the circle,—

$$R = 2(x + d).$$

Example.—Let $a = 22$ feet 7 inches = 271 inches; $b = 9$ feet = 108 inches; $c = 16$ feet 6 inches = 198 inches; $d = a - b = 163$ inches: then we have

Rise of the ceiling,—

$$x = \frac{1}{2} \{ \sqrt{3 \times 198^2 + 4 \times 163^2} - 2 \times 163 \} = 49 \text{ inches} = 4 \text{ feet } 1 \text{ inch.}$$

Radius of the circle,—

$$R = 2(x + d) = 2(49 + 163) = 424 \text{ inches} = 35 \text{ feet } 4 \text{ inches.}$$

In like manner, if light were propagated from an axis 9 feet above the floor, the rise of the ceiling being 4 feet 1 inch, all the light reflected from the ceiling would fall in vertical parallel rays, or very nearly so.

If the axis be above the floor, as in the example, then all the sound and light emanating from an orchestra, a congregation in singing, and from the scattered gas-light illuminating the building, would, conversely, be reflected from the ceiling to the imaginary axis above the floor.

At 1 foot 7 inches rise, the axis is 19 feet 2½ inches, or 230½ inches below the floor, in which case all such reflected sound and light are manifestly intercepted at the floor. The proper position of the axis for sound and light, not necessarily the same axis, being determined by experiment or otherwise, the above equations may then be readily applied to find the form of the ceiling or ceilings as in the following examples:—

1. Suppose the axis to which the sound and rays of light converge to be, as stated, 19 feet 2½ inches or 230½ inches below the floor: then we have,—
 $a = 271$; $b = -230\frac{1}{2}$; $c = 198$; $d = a - b = 501\frac{1}{2}$;

which being substituted in the above equations, we have,—

$$x = 19 \text{ inches; } R = 1041 \text{ inches} = 86 \text{ ft. } 9 \text{ in.}$$

2. Suppose the axis to be at an infinite distance above or below the floor, the sound and light in that case not converging, then we have,—

$$a = 271$$
; $b = \pm \infty$; $c = 198$; $d = a \pm b = \infty$

$$x = \infty - \infty = 0$$
; $R = \infty$.

That is, the curve is a straight line, and the ceiling a plane, as it manifestly ought to be.

3. Suppose the axis of light, extending the length of the building to be in the middle, at the level of the ceiling line, then we have,—

$$a = b$$
; $d = 0$;

Rise of the ceiling, or reflector,—

$$x = \frac{c}{\sqrt{3}} = .5773 \times c = 9.53 \text{ feet;}$$

Radius of the circle,—

$$R = 2x = 19.06 \text{ feet.}$$

With a horizontal ceiling under, the axis of sound would be at an infinite distance.

The above reasoning is true as to light, but it may be liable to some modification as to sound, as the motions of light and sound, the pulsations of the air, are not in both cases the same. Moreover, from the aberration, a circle does not truly reflect the light in parallel lines. If the width, AB , of a room be the parameter of a parabola, and the height = one-fourth of the width, then AB being bisected in C ; CD being the height, and ADB being a parabola, focus C , all the rays from a light at C would be reflected from the ceiling in vertical parallel lines: height = one-fourth of the width; 33 feet wide, rise 8 feet 3 inches; 60 feet wide, rise 15 feet: hence a way of lighting a public building, or even a passage, through a wholly or partially glazed ceiling, or by a metal tube and ornamental lights, an open parabolic ceiling.

If, instead of a parabola, ADB be a segment of a circle, the segmental arc will coincide, nearly, with the parabolic curve, and reflect, much nearer than the before-described segment, 53 feet rise, vertical parallel light.

Let AB be the chord; CD the versed sine; D I , in DC produced, the radius of the segmental arc ADB : then we have,—

$$\text{Radius } ID = \frac{1}{2} \times AB.$$

$$\text{Cosine } IC = \frac{1}{2} \times AB.$$

Sine of angle DIA or $DIB = .8 = \text{sine of } 53 \text{ deg. } 8 \text{ min.}$

Arc ADB , or angle $AIB = 106 \text{ deg. } 16 \text{ min.}$

The height CD , being one-fourth of the width AB , then CD and the three sides of the triangle ICA or ICB are as the numbers 2, 3, 4, and 5, respectively. Angle of reflected ray with the wall line at the springing, namely, at A and B , = 16 deg. 16 min., instead of = 0, as in the parabolic curve.

If a tremulous body were placed at the centre of a hollow sphere, then all the vibrations of the air would arrive at the surface of the sphere in the same time; so, likewise, if the same tremulous body were equidistant from the side walls and ceiling of a room, the pulses would reach similar parts of the walls and ceiling, at the same time, transverse section, in the same time; and the waves, from the resistances of the same side walls and ceiling, would flow together. On this supposition, therefore, the height of a room should be equal to the height of the sound, plus one half the width of the room. Width, 33 feet; sound, 6 feet high; height of room, 22 feet 6 inches; sound, 9 feet high; height, 25 feet 6 inches.

Information is to be gained from works that fail, as well as from those that do not fail,—from the Corn Exchange at Northampton, as from the Concert Room at Harrogate. If the dimensions of the principal public buildings were given, stating wherein, as to sound and light, they fail, or otherwise, much practical information might be gained by applying and comparing the best theory with the practice.

The rays of light diverge and flow from every point of a luminous object everywhere in right lines through the same medium. The proper forms for reflectors of light are given in most of the works on optics.

Sounds, as well known, are pulses of the air propagated, in an elastic medium, on every side, right forward, by the motion of tremulous bodies, the pulses alternately going and returning, advancing and receding, in compression and in expansion, by turns, at given intervals, according to the vibrations per second of the tremulous fluid. The subject of "Motion propagated through fluids," and the principal phenomena of sounds are given in Sir Isaac Newton's "Principia," book ii., section 8.

WILLIAM LEB, Surveyor.

Birmingham.

FIRE-PROOF WAREHOUSES.

MAY I, through the medium of your valuable journal, be allowed to throw in a few general remarks on the subject of warehouse building, which will bear more directly upon those of Mr. Pulham's, inserted on the 27th July last, simply because they assimilate most to my own ideas, though I have read all the various suggestions on the subject, from week to week, with interest. I quite agree with him, "that large warehouses can be erected entirely of brick, but not necessarily cement (by which I understand Roman or Portland), as it increases the expense. My plan would be a simple repetition of piers, attached to the walls, and isolated between them, supporting arches so balanced that there would be no risk of thrust on the outer walls.

I submit that a cheaper article might be found than terra cotta tiles, 4 inches thick for the floors (say 2½-in. quarry worked York paving), unless they were made to form part of the arch, as well as the floor, whereby thickness would be saved, and height gained.

The mode of arching I should propose would not require any iron ties. The only iron I should use would be hoop iron in the walls. The arches would carry the floors, or the material forming them; and would also, with a slight modification, carry the roof, which would be formed of brick and slate, with either slate or lead gutters. My plan would accommodate itself to the staircase; being either in or outside, in front or rear of the building, as circumstances pointed out as most eligible. In each case I should propose to have it within walls, as I know they are done at St. Katharine Docks, and I believe also at the London Docks, and as Mr. Hesketh suggests. It would also admit of any arrangement of water supply that might be thought desirable (even though the main construction of the building is formed of one material—brickwork,—and that inexpensive and indestructible), to meet the contingency of spon-

tanous combustion. It would also admit of double doors, of large or small windows as approved, the larger sub-divided by brick piers, and fitted in with strong rough plate-glass. F. H. G.

TWO NEW MANSIONS IN NORTHUMBERLAND.

Cheswick House, the residence of Robert Crossman, Esq., is situate on the eastern sea-coast, about five miles below Berwick-upon-Tweed. It is built of a beautiful purple-tinted free-stone, from the quarry of Alderman Ramsay, of Tweedmouth, and from the Ord quarry. It has a double entrance-hall, with a handsome suite of reception-chambers on the ground-floor; and large light bedchambers, with bath-rooms and dressing-rooms on the first floor. The ceilings of the reception-rooms are in harmony with the style of the exterior: they are formed of pine-wood, coffered and panelled; the ornament having been produced by machine-moulding, at a cost not exceeding that of plaster. The upper chamber in the prospect-tower is set apart as a billiard and lounging-room, whence there is a magnificent sea-view of the Farne Islands and Holy Island, and a varied inland view bounded in the extreme distance by the Cheviot Hills. The balconies also afford a wide prospect of sea and hills, and overlook the well-stocked and well-kept gardens and grounds of the house. The kitchens and offices are in a rear wing. The building, together with the lodge and boundary-wall, have been erected by Messrs. Russell & Fairbairn, Berwick, from the designs of Mr. F. R. Wilson, architect, Alnwick. The glazing, plumbing, and smith's work, including a large wrought-iron water-tank and elaborate entrance-gates, were executed by Messrs. Wilkin & Dickman, Alnwick. The joinery was executed by Mr. Fizeckerly, Berwick; and the plastering by Mr. Weatherstone, Berwick.

Cheswick is especially interesting as having once formed part of the possessions of the monks of Lindisfarne. It is mentioned annually in their rent-roll from A.D. 1328 down to the dissolution of monasteries, sometimes as yielding no rent at all, as all the country round had been laid waste by the Scots; at others, as being in the prior's own hands; and at others as producing various rentals. There is an ancient rhyme which indicates the kind of celebrity Cheswick once enjoyed in monkish estimation:—

"From Goswick we've geese, from Cheswick we've cheese;
From Bukton we've venison in store;
From Swinhoe we've bacon, but the Scots have it taken,
And the prior is longing for more."

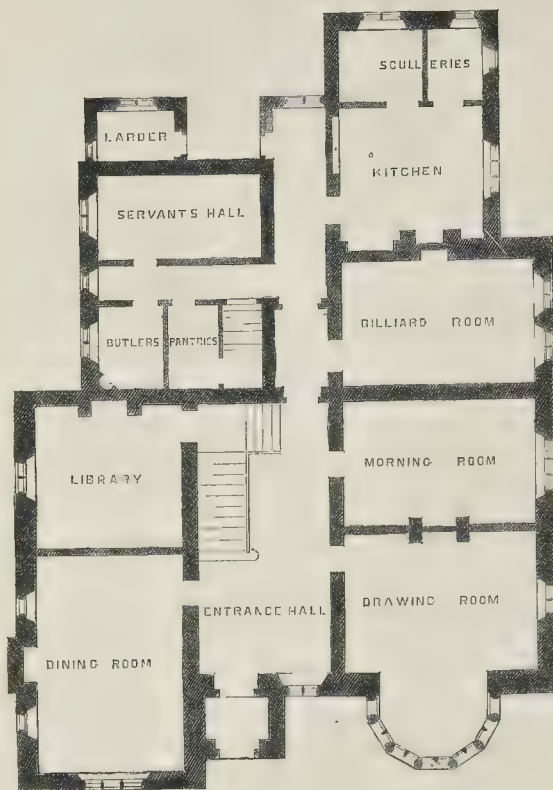
The red sandstone of which Lindisfarne Priory was built was taken from Cheswick beach, and thence conveyed, at low tide, in wains and carts, across the sands to Holy Island. A more recent interest is attached to Cheswick from the circumstance of Oliver Cromwell having chosen it for head-quarters on his road to Scotland. Mr. Carlyle publishes a letter from the Protector to the Earl of London which is dated thence, September 18th, 1648.

Eastfield House, near Warkworth, the residence of Anthony Strotters, Esq., we described in a recent number. It is built on the east coast of Northumberland, and enjoys a wide sea-prospect. It is particularly noticeable as being the design of an amateur architect, known in the literary world,—the Rev. C. F. Hingeston. Messrs. Clayton & Bell are preparing heraldic glass for the artistic decorations.

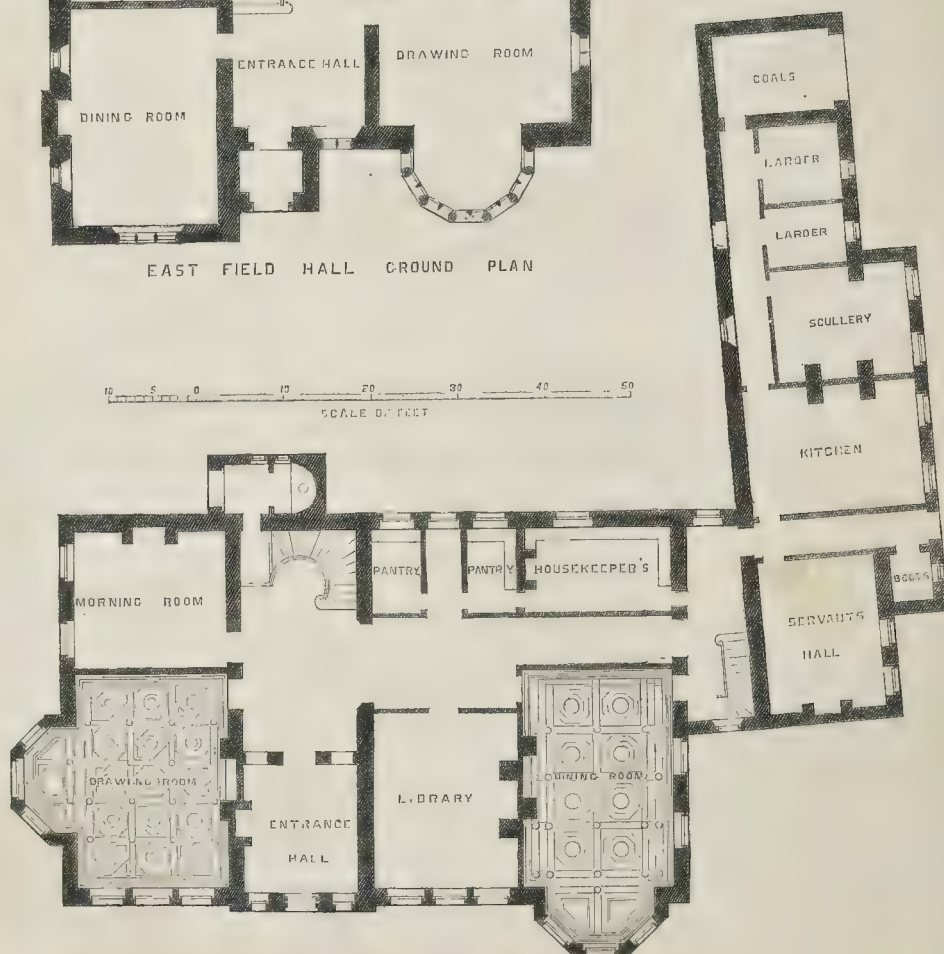
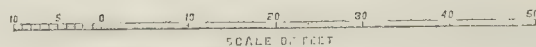
There are three stained glass windows in the hall. The large window, looking north, contains three shields of arms; the upper window, facing the south, the arms of the archbishopric of York and bishopric of Durham; the lower, the old arms of England, with France subjugated, and the arms of Queen Victoria. The hall is furnished with a hooded fireplace of the thirteenth century style: there are two serpentine marble pillars in front of the jambs, with stone caps and bases. The stone fender is inlaid with Minton's encaustic tiles. Messrs. Hardman, of Birmingham, furnished the andirons. The dining-room fireplace is so constructed as to admit of the combustion of coal in the ordinary mode, or the burning of wood on dog-irons. The drawing-room chimney-piece is of pure white marble, with two pillars of green serpentine marble in front of each jamb, and with a marble fender inlaid with Minton's tiles.

BUCKINGHAM PALACE.—The chapel is to be pulled down and entirely re-constructed on a larger scale.

NEW MANSIONS RECENTLY COMPLETED IN NORTHUMBERLAND.



EAST FIELD HALL GROUND PLAN



CHESWICK HOUSE, NEAR BERWICK-UPON-TWEED.—Plan of Ground Floor.

NEW MANSIONS IN NORTHUMBERLAND.



CHESWICK HOUSE, NEAR BERWICK-UPON-TWEED.

EASTFIELD HOUSE, NEAR WARKWORTH.

BRITISH ARCHEOLOGICAL ASSOCIATION.

THE eighteenth annual congress has been inaugurated in weather which is possibly the envy of all societies who have met this year and last. Even in this proverbially wet county the time is remarkably propitious; and the sun and dry atmosphere make up for the absence of the one and the humidity of the other of last year's meeting. On Monday, the 19th instant, the congress was opened at Exeter, under the presidency of Sir Stafford H. Northcott, bart., M.P. There was the usual reception of the committee and officers by the mayor and corporation at the Guildhall, with the unusual adjunct of a refreshing fruit-luncheon; the mayor, as Sir Stafford afterwards said, giving the Association their *deserts* before they had earned them. The corporation also presented to the Association an elegantly-bound volume of the history of the Guildhall. This over, the party proceeded to the public rooms, where the general body of the members had assembled, and where the remainder of the evening meetings will be held.

Sir Stafford, in the course of his inaugural address, touched upon the leading features of antiquity in Devon; and, while repeatedly disclaiming any intimate acquaintance with the study of archaeology, succeeded in giving a very critical, learned, and lucid outline of the duties of the Association; but warned the members against being withdrawn from the drier subjects by the beauties of nature. He humorously referred to the desirableness of the Association making itself acquainted with the clotted cream, whether it were an object of antiquity or not; but it was curious to observe that it was made nowhere but in this part of England and in Tyre. He drew a sketch of the application of the science of archaeology, as it would be necessary in countries retrograding, stationary, or progressive, as exemplified by Nineveh and Babylon, China, and our own country, where we neither blush for our ancestors nor for ourselves. Dartmoor, he said, was a scene of speculation; and he entered into the various theories appertaining to it, and rejoiced that a paper from Sir Gardner Wilkinson was part of the programme. He laid particular stress upon the early habitation of Devon, to which country we must look for the evidences of the earliest inhabitants. Long, very long, before the Roman conquest there were communications between the "Tin Islands" and the Phœnicians—those islands undoubtedly meaning the Scilly group. Polwhele, who is the only one of the county writers whose work approaches the nature of a history, was, so to say, mad upon the Phœnician theory of our origin, and instances numerous names of places derived from eastern germs. It would be by comparing the various theories that some good will be elicited by this visit, and the peculiar qualities of archaeologists will be brought to bear upon them. Archaeology requires several distinct kinds of minds, all needing great knowledge and industry; one should be all zeal, poetry, and imagination; another, critical and sceptical; the one balancing the other; and they may be said to be the positive and the negative. He closed an address of an hour and a quarter, by urging his townspeople to form a Museum; and said, with regret, that any objects of antiquity had been suffered to be taken away to a distance never to be regained.

Thanks were voted to the president by acclamation; and the business of the Congress commenced in earnest by a visit to several objects of interest under the guidance of Lieut.-col. Hardinge, who explained, amongst other things, that ancient Castle was first traceable to Athelstan. Recently an excavation has been made, which displays some arches attributed to the Norman period.

The evening meeting was in the nature of a *soirée*, at the Exeter and Devon Institution, Lord Alfred, the president of that institution, in the air. Mr. E. C. Davis, F.S.A., read a minutely particular account of Exeter Cathedral.

LOCAL NOMENCLATURE OF NORTH-AMPTONSHIRE.

At the recent Peterborough Congress the Rev. Earle, late professor of Anglo-Saxon, at Oxford, drew a paper on "The Local Nomenclature of the county." Local names are to be studied in their etymological distinctions and chronological successions. He had treated several counties in this way, but the principle was not applicable to Northamptonshire. They stood here on the edge of the sea, and on the inland side the mass of the sea corresponded with other counties in the *ke* and *lyes* left behind by the Danes. But on

the fen or sea side they had a number of extraordinary names not founded upon ethnological distinction, but with characters purely novel. A few words were of high antiquity. The name of the river "Ivel," a tributary of the Ouse, was one of these. It was found in Ilminster and Yeovil, and was derived like "Ouse" itself from the ancient British word for water. It was the same word as Gwash or "Wash." In the Highlands it appeared in *whis* key and also in *W's* bech. "Nen" was no doubt an ancient word, but he could find no other explanation than that it was a form of "nine" from the number of sources of the river, to which explanation he did not give credit. The first syllable of "Guyhirn" was, no doubt, ancient British, and the same as *Wye*, *Wey*, or *Guy* in Welch. With regard to Roman names there were hardly one on the map with the exception of the common form seen in "Caster." The Roman work, however, had left its mark on the language; for the Saxons, finding the great roads, had called one "Ermine-street," which was "strange work," or similarly "Devil's dyke." At Erit they had the "Balwarks"—that was "an obstacle" to block, to keep out. Cardyke had also a Roman connection. One of the most ancient names in the locality was the old name of Peterborough, "Meding hamptede." Another name of high antiquity was Croyland, which had been explained as "Crow-land," but to this he did not commit himself. Danish names were almost unknown in the Fens, which had curious names of their own. Among them were "Droves," being drives for cattle; "Dykes" meaning a mound, and seldom a ditch, as elsewhere. The ancient formative for water, *ea*, was seen in Mantua, Eastrea. In some cases it was altered into the French form *eau*, which was attributed to the influence of the French refugees, who came into these parts after St. Bartholomew, and the persecutions of the Duke D'Alma. He was told that at Thorney there was a large proportion of French words among the Family names. Corruptions of French words were possibly seen in "Powder Blue Farm" and "Whip-chicken Farm." He did not dispute that Ely came from eels, but "island" was seen in Eye, Thorney, and Ramsey. Eye was here identical with the word signifying water, and the eye of the head doubtless got its name from its insular position. The orthography of island was objectionable as the *s* was not wanted, and it ought to be written "Eyeland." Emmeth, the name of a place near Wisbech, was a most interesting word. He should like to know the date of the introduction of the word "level," as applied to districts, for it probably owed *emmeth*, which is old English for level, derived from even—even-eth. "Fleet," in German "fluth," from the verb "to flow," was identical with our "flood." It was seen in Wainfleet, and shortened in "Fletton," which was "the town on the fleet." The Saxons settled the country in scattered places or farms; and wherever we found this word, we might rest satisfied that the settlement was by squatters. There were compounds of this word with "ing," "ton," and "stead," as Falkingham, Berkhamstead, Northampton, Southampton; and in Medinghamstede, the very ancient name of Peterborough, signifying the little capital, village, or town in the centre of a patch of hams or settlements. Just as Longfellow sang,—

"There, in the midst of its farms, reposed the Acadian village."

Ham and stead, showed a village, ham and ton a larger place. "Ings" signified a moist meadow. There was a touch of "eye" in it as there was in "innis," island, "inch" and "Ince." Connington was a town on the "ing." He could offer no explanation of "leam" as in "Morton's leam," unless it was imported from Holland. "Lode" came from the Saxon "to lead," a conduit. On the Continent "see" was used to signify an inland lake, and it was found in Whittlesea, Soham—Seeham. "Set," a settlement, as Farcet. "Toft" or "tuft," a little hill," seen in Langtoft, Tout Hill. Names from trees were here rare, but there were a few, as in Sawtry and Barnack—Barnock. A false classical taste had changed "delf" from "delve," into delph. It was a question whether the ph ought to remain in the language; but if it did it should be confined to words of pure Greek origin. Curious local terms, such as "Boatgate," "Soc," "Severalls" "outrages (outrage) of water," were referred to, and it was remarked that a permanent occupation was required to give names; and that, tried by this test, the locality appeared to have been primarily occupied by the Britons and afterwards by the race which re-drained the land and gave it names.

THE FIRST TRADES' UNION DIRECTORY.

THE yearly production of the Directory order of books already established, along with those occasional new ventures in this way which appear, afford, perhaps, as pregnant a proof as could be adduced of the trading activities of the period in which we live. There is, in the first place, the huge Post-Office Directory of London; then we have Thom's volume of the same class, considered with respect to Dublin; an excellent Directory of Edinburgh; another of Glasgow; and so on, through most of the cities and towns of any note in these three united kingdoms of our own. Nor is this all; as London, too, has even its several suburban Directories,—Islington having one of some seven or eight years' standing; Clerkenwell another, though but of late growth. Different interests and class-books have also their aid-books of the like character, as the Churches of England and Scotland, the Roman Catholics, the two chief bodies of the Methodists, the Nonconformists, and so through the rest; while it is the same with the professions of law and of medicine; and now there has been put forth, in this summer of 1861, a yet more noticeable book of the kind than all, because of its novelty,—a Trades' Union Directory.

Certain short documents, bearing upon the present disputes between the building operatives and their employers, have recently appeared in some of the journals, as emanating from the Trades' Council. And now, what is this London Trades' Council? It is a body that had its germination from those meetings of the various trades' delegates of the metropolis which took place at Shaftesbury Hall during the greater part of the builders' strike of 1859. The parties who had there for so long assembled merged themselves, at the time when the strife was ended, into a provisional council or committee, on whom the joint duty was to devolve of furnishing a code of rules whereby any such council was to be guided in future; and also to prepare and have printed as correct and full a list of such trades as were united among themselves—their places of meeting, and the names of their secretaries,—as was possible; and which at length has been accomplished under the title of "The United Kingdom's First Annual Trades' Union Directory." Its publisher is Mr. Thomas Jones, of Great Chapel-street, Soho; and whose name also appears among the seven attached to an address on the 104th page; these parties making their statement at this concluding part of the work, in lieu of the usual preface matter to be found at the commencement of books.

It is the "first" thing of the sort which has been consigned to the long-living operations of the printer's skill. From the index, we gather that there are 405 cities and towns in which are to be found those now widely-spread and thickly-clustered confederacies of workmen with workmen, of which we have lately heard so much, and are likely to hear more,—for "better or worse," as is the case in our matrimonial obligations,—those social amalgamations of the builders of our houses, the makers of our boots and shoes, of our coats, vests and trousers, of our hats; of all the manifold furnishings of our home interiors; and, likewise, of the fabricators of the boat which graces our rivers, and the great ship which carries our persons and our commercial riches from shore to shore, in friendly intercourse with our nearest neighbours, as also to the furthest quarters of the globe. These, and all the rest—a very multitude of multitudes—appear now to be constantly striving for the possession of some presumably needful right or advantage; and as, in their aimings and strugglings, they believe that the position or good they are in quest of is not attainable by any individual exertion which they can make, hence they clasp hands together in one uniform chain, as it were, of mutual purpose, and so become Trades' Unionists.

But now for a specimen, and here it is—one of the most convenient kind, as taken from the second heading to be found on the opening page of the Directory list:—

ABERDEEN (SCOTLAND).

Trades.	Club-houses, &c.
Boller-makers	16, Castle-street.
Boot and Shoe makers	5, Flour-Mill-lane.
Corkcutters	Wallace - tower, Kirk-gate.
Compositors and Printers	155, George-street.
Engineers, Amalgamated	Lemon Tree, Hunter-road.
Shipwrights	49, Wellington-st.
	Geo. Henry, Sec.
	G. H. Knox, Sec.
	John Smart, Sec.

Thus, from this extract, it will be gathered, that there are six trades' unions in Aberdeen, the

club-houses of all of which are known, as these are specified in the centre column, though not so with the secretaries, the names of only three being ungiven; but whether purposely, or because unattainable at the time of preparing the copy for the printer, must be a cause of guess. And so, too, is it with regard to the times of meeting. There is no information on this head here, though it is different generally throughout the book—particulars of this kind being of the utmost importance in the sending of deputations from trade to trade, or giving the dates at which answers are to be expected to any inquiry by letter.

In this way, then, the whole production proceeds, the B.s following the A.s, the C.s the D.s, and so on till the long classification ends at the city of York,—Yeovil longly classifying going before, but which small Somersetshire town, as we learn, has only one trade society, that of stonemasons; while York has eight, namely, bookbinders, boiler-makers, cork-cutters, compositors and printers, engineers, iron-moulders, stone-masons, and tailors; it being rather strange that there are no fraternising shoemakers, or exactly the found in that ancient city; and especially as the words "Boot and Shoemakers" almost invariably begin the city or town lists to be found on the first column of every page; and especially, too, as York had once considerable renown for its guild of the Crispin craft; the cup from which the "brotherhood" took their convivial potations being one of rich material and artistic ornamentation, and still preserved.

Let us now take a peep at Edinburgh; and here the trades' unions number nearly twice as many as in York, which has but eight in all, while the metropolis of Scotland can count seventeen. But Dublin counts still more, for there they make nearly threefold seventeen, or exactly threefold sixteen, while in London the muster is even like its ownself in bulk—extraordinary, having close upon or full 300 societies; the Directory giving the particulars of 290; and no doubt the compilation is not yet complete in this respect. In London alone the enumeration of these trades, trade branches, or trade houses of call, exhausts sixteen pages of the Directory; and as many of our readers, in consequence of the great builders' strike of 1859, and likewise that of the same class which is just now at its height, may wish to become somewhat better acquainted than they are with the associative ramifications of these workmen, we have been at the pains of giving carefully over those eight leaves of the book before us, and therefrom noting down the number of lodges and days of assembling of the several branches of the bricklayers, carpenters, plasterers, and stone-masons, so particularized, leaving out both the house-painters and the plumbers, though these workmen have likewise their due places in the Directory.

The bricklayers' lodges, Nos. 2, 3, 4, and 12, meet on Mondays; on Thursdays one lodge, no number given; and on Saturdays, 1, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, and 18; the places of meeting being scattered nearly over the whole of London and its suburbs, and further,—one being at Sydenham and another at New Brentford. The carpenters do not spread to the like extent, although they have more society haunts than the bricklayers,—one, the farthest east, being at Stepney, one in Camden Town, one at Notting-hill, one in Finsbury, one in Chelsea, one in Lambeth, one in Southwark, one in Newington-butts, and the rest more in the heart-districts of the metropolis. Twelve of these lodges, meeting on Mondays, are of carpenters alone, while seventeen are named as "carpenters and joiners," and who also meet on the Monday. Then there are six carpenters' unions, which are denominated as "local," but wherefore is not to be learned from these pages. Another "local" section—"The South London," meets on Tuesdays, and three others—"Carpenters," "Carpenters' Perseverance," and "Carpenters' Amalgamated," while in another place we find "Carpenters and Joiners' Amalgamated," or "Carpenters' Progressive," amalgamation, persevering and progressing, being, no doubt, all good things in their way and season. Wednesday brings "Carpenters" once more, one body; "Carpenters' local," one; and ditto, No. 4 Lodge, one. On the Thursday of every week a "Carpenters' delegate meeting" is held, at the Mitre Tavern, St. Martin's-lane; and now, lastly, the "Carpenters' Protective Society," come together on the Saturday of every week, at a certain "Inn," in the Cambridge-road, Mile-end,—"protective," we may well be assured, of what the members name and consider as the "rights of labour."

The Monday meeting plasterers are these: two "local," and two of the "General Society," lodges

No. 3 and 10; while on Tuesdays another "local Society" holds its parliament, and likewise lodges 5 and 15, push into business. Then Wednesdays draw together the members of the 18th lodge of the "General Society;" Fridays the "Plasterers' Executive Committee;" also at the "Mitre Tavern, St. Martin's-lane," and Saturday, a "King's Arms, Aldersgate, City," concourse of the "General Society," and "Plasterers' local," at the "Adam and Eve, Old St. Pancras-road, King's-cross."

We now search for the stonemasons, when the first society of this class which turns up is one meeting at the "Sun Tavern, Mason-street, Westminster-bridge-road," the members taking their consultative seats together, on the "alternate Mondays" of each month, at the said "tavern" in "Mason-street." On Thursdays these meetings thicken, five public being then filled with the throngings of the craft; and thence out for the remaining days of the week there is a complete quiet; so that, in all, the stonemason has only six places of meeting in London,—a very inconsiderable number as compared with either the bricklayers or carpenters, and being even outvalued by those of the plasterer. Still, as we hear, the masons are a really powerful body; are in the best financial credit with the majority of trades; have, generally, a goodly fund at their ready command; and possess extensive ramifications in the provinces.

Another noticeable phalanx of Unionists we find in a supplementary part of the book. These are the coal-getting classes, called the "South Yorkshire Miners," their general secretary being a Mr. Richard Mitchell, residing in Pitt-street, Barnsley, who has to carry on the correspondence of thirty-four united branches or sections; twenty-three of these having their *locale* "near" Barnsley; four "near" Rotherham; five "near" Sheffield; and one,—the Stanley colliery,—"near" Wakefield. Then, besides this South Yorkshire federation, there is a "West Yorkshire,"—one of the same calling; another, the "North of England," having its head quarters "near" Gateshead; one going by the name of the "Lancashire and Cheshire," a "Churwell district, near Leeds;" while Scotland has, in like manner, its miners' association, the seat of rule being at Holytown.

Of tobaccoists there are thirty-one unions to be found in this supplement; Alnwick heading the list, and Wigan making the close; and astounding is the evidence thus obtained of the smoking propensity of our age.

In the supplement our attention is attracted to another somewhat noticeable fact, and that is concerning the rather ancient trade of the slater; for, after over-seeing pretty closely the "S" namings in the book, we detect but few places in which a slaters' society is mentioned; one of these being in Newcastle-on-Tyne, and the other in Dublin; while in Scotland alone we find four, as described in this supplement,—Ayr, Glasgow, Greenock, and Paisley being the towns named.

We cannot, however, pursue the subject further. We point to the book as a sign of the times not to be overlooked or thought lightly of.

PAYMENT BY THE HOUR.

SIR, In your impression of the 17th inst., appears a letter from one of Mr. Kell's masons, working under the hour system. In justice, I hope you will publish a few remarks from one who refuses to adopt it. The writer endeavours to justify its introduction, and makes an effort to prove its adaptability to present circumstances. I am not surprised at Mr. Griffin's using his pen in support of the master builders, and their system, when I read in the newspapers that a regiment of Negro Volunteers was present at the late great battle in America, and assisting with the bayonet point to establish the rule of their masters, and perpetuate the slavery of the race. He complains very much of certain epithets by which those working under the hour system have been designated, overlooking the fact of their originating with the master builders, and are still in common use, when speaking with reference to their masons. He undertakes to enlighten the public, by stating that labour is the source of wealth, and is dependent on capital; and whoever contributes to increase it is useful to society; though it may be through a system which induces overwork. But let me ask, would it not be more consistent that our country's capital should be increased by systematic industry, rather than by the spasmodic action of overtime; particularly in a trade like ours, the unhealthy nature of which cannot be denied when the fact is borne in mind, that 75 per cent. at least of those who follow it die of consumption before they arrive at the age of forty years? The industrious population of a country being the great source of its wealth, and stability, whatever system tends to cut them off prematurely must be alike unchristian and destructive to the best interests of society. Another circumstance he alludes to, which, unfortunately, exists to a great extent in our trade, namely, the great number of men unemployed during the winter months; and recommends, as a mitigation of that evil, a reduction of the number of hours worked by those who are fortunate enough to obtain employment, and consequently, a reduction in their wages at a time of the year when they require more of the necessities of life; the evil in a great measure arising from the practice of working systematically over time in summer months. The hour system, he considers, will extend the measure of a working-man's freedom, by shortening the

time of his employment, and severing that good feeling which a longer engagement is calculated to create between employer and employed, and which is so much to the interest of each to cultivate. It is true it will extend to him the liberty to starve, or submit to any terms an employer may wish to impose upon him. He further recommends the hour system, considering it will have the effect of settling the agitation for the nine hours. How can he be reconciled to it with the masons of Edinburgh, who are working under the hour system, have succeeded in reducing their working time from ten to nine hours per day, after a strike this year of fourteen weeks' duration? If the masters wish the agitation to subside, the only effectual course for them to adopt is at once to concede the terms of the compromise, or submit to the arbitration of the Royal Institute of British Architects, as has been proposed by the masons, who the object of settling the question. He again states, the hour system would remove those barriers and restrictions on trade that misguided men with shallow brains and contracted minds have raised to obstruct it,—meaning thereby the O.S.M., which comprises 12,000 of the most skilful and intelligent of that class of operatives, and which has been founded for our mutual benefit by some of the wisest and best men our trade could boast of, many of whom are now moving in the highest circles of society. Examine its results within the last few years: it has raised the wages of masons in the provinces 10 per cent.; it has paid within the last seven years, to members in search of employment, £3,800; for a funeral, £5,052; and has contributed likewise to many public charities. Are they calculated to obstruct trade? In conclusion, he states, the hour system is suitable for summer. It is not, however, working-man to improve by overtaxing his physical strength and depriving him of that time so essential to his mental culture, and by a reduction of his wages in the winter to a minimum, with a recommendation to imitate the prudence of a certain insect, the decay of the class of masons who have adopted the hour system act with that prudence, the want of which has compelled them to accept employment under a system at variance with their best interests.

THOS. CONOLLY, MASON.

SEWER DEODORIZATION BY CHARCOAL FILTERS.

A PAPER on this important subject was not long since read at the Society of Arts, by Professor Stenhouse, F.R.S., who may be said to have at least matured the idea; although, in his account of those who had previously investigated the subject, he should have named Mr. Jasper Rogers as a precursor, if not the original inventor of deodorization of foul gases by means of charcoal.

The following is condensed from Dr. Stenhouse's interesting paper, which was printed in the Journal of the Society of Arts for 14th June last:—

Towards the close of 1863, my attention was first directed to the deodorizing and disinfecting properties of charcoal; and I was not long in discovering that the view which had been previously entertained regarding the action of charcoal were exceedingly erroneous; for, instead of acting as an antiseptic, and thereby retarding the decay of putrefying substances, with which it was in contact, as had been previously supposed, its action was the very reverse of this. Charcoal, therefore, from the considerable amount of condensed oxygen contained within its pores, and the intimate contact between the volumes (and which, it might have been added, appeared to be continually renewed of itself, unless the pores be allowed to be filled with water,—or the charcoal, in other words, to become wet), not only absorbs, but rapidly oxidizes the effluvia and miasmata emitted by decaying substances, and resolves them into the simplest combinations they are capable of forming.

Porous substances, such as platinum black, pumice stone, &c., possess the power of condensing gas within their pores.

The charcoal air-filter consists of a layer of charcoal of coarse powder, varying in size, according to circumstances, between small bean and a fibret. The charcoal is placed between two sheets of wire gauze fixed in a frame, and can be readily applied to buildings, to ships, to the air-shafts of sewers, to water-closets, to respirators, and various other purposes. All the impurities in the air are absorbed by the charcoal; so that a current of pure air alone passes through the filter; and in this way pure air may be obtained from exceedingly impure sources. It is plain that perforated zinc, or a framework of coarse wire filled with larger pieces, and a greater thickness of charcoal, may be also employed, whenever the amount of effluvia evolved is very considerable.

Before the close of the year 1864, air-filters or charcoal ventilators were fitted up, both at the Mansion House and Guildhall. They are each of them several feet in diameter, the layer of charcoal being about 1½ inch thickness. Although six years have elapsed since the charcoal was first used, it has never required to be renewed, owing to its oxidizing power being practically unlimited. Air-filters were soon afterwards largely employed in private houses, in connection with drains and water-closets particularly, and they have been very successfully applied to the construction of respirators, many thousands of which have ever since been annually manufactured.

Mr. Rawlinson, during the last four years, has applied charcoal air-filters to the ventilation of sewers on a large scale, at West Ham, near London; at Swansea, Wrexham, and Buxton, the entire towns; at Brighton, partially; at Bowdoy, the seat of Lord Lansdowne; and at various other places.

In 1859, Dr. Letheby strongly recommended the employment of charcoal air-filters, as infinitely cheaper and most effective of all the plans which had been proposed. About a year ago, therefore, under Dr. Letheby's directions, Mr. Haywood, the engineer to the City Commissioners of Sewers, commenced applying the charcoal filters to the ventilation of the sewers in Shoreditch, and to make the adjoining streets healthier, and to save the expense of the adjoining streets, which were well known to suffer more from the sewer exhalations than almost any of the other districts of London. The results have been perfectly satisfactory, the sewer gases are as effectually destroyed by being subjected to a species of low combustion, as if they had passed through a red-hot furnace. In this process the charcoal is not acted upon by the gases, but acts up

as, as before stated, causing them to combine the condensation of the charcoal. The efficiency of the charcoal never to diminish, if it is kept dry and its pores are not choked up by dust.

The expense of applying charcoal to the disinfection of sewers is by no means considerable, as the first outlay is all that is required. The only precautions to be observed are, that while the filters shall be sheltered from rain and moisture, free access shall be given to the

In conclusion I may state, that for the last six years I have strongly recommended that charcoal air-filters should be applied to all house-drains, sinks, and water-closets. Every water-closet, in my opinion, ought to be furnished with a subsidiary pipe branching off from the main pipe, a little below the valve of the closet. This subsidiary pipe should be carried a few feet above the seat of the closet, and its extremity, which should be open, in the exception of a few wires stretched across it, rely to prevent the charcoal falling into it,—should terminate in a charcoal filter 6 or 8 inches thick, into which it should penetrate to the depth of 2 or 3 inches, so that it may be enclosed by a good body of charcoal. Under such an arrangement as this, no foul gases can penetrate into the closet.

From the preceding statements it is plain, that the system contained in the air of the atmosphere is by far the cheapest and most effective deodorizing and disinfecting agent with which we are acquainted, and that the usefulness of the charcoal air-filter consists in its affording a safe and advantageous means of applying atmospheric air to disinfecting purposes.

I think it but justice to myself to state that I have no pecuniary interest in the charcoal air-filter. Though I might be tempted to do so, I refrained from securing it by patent, on the ground that inventions for the prevention of disease and death ought to be sold at the lowest possible price; and should not, therefore, be encumbered with the expense and restrictions attendant upon patent rights.

Dr. Letheby, Mr. Haywood, and Mr. Rawlinson have all recently expressed to Dr. Stenhouse their unqualified confidence in the deodorizing powers of arcolar filters.

COMPETITIONS.

Hull Town-hall.—The competitive designs for its building (thirty-eight in number), have been considered by the committee; and the first prize, of 100*l.*, has been awarded to the design marked *Prodesse quam conspici*, by Mr. R. G. Smith, J. Hull, architect; and the second prize, of 50*l.*, that marked *Experientia docet*, by Messrs. Arkwood, Mawson, & Mawson, of Leeds, architects. Amongst the competitors were Mr. Brodbeck, of Leeds, the architect for the Town-hall; Mr. Ellison, of Liverpool; and Messrs. Alamy & Hardy, of Lincoln. Many of the designs, we hear, were very good.

Westleyan Chapel, Smith.—In a limited competition for the erection of a new Wesleyan chapel, at Smith, the design submitted by Messrs. Arkwood, Mawson, & Mawson, architects, has been selected by the trustees.

THE LABOUR QUESTION.

WHILE the differences between men and masters again in an unsatisfactory state in the metropolis, about much of any great importance to report either hand; the labour question is still also in an unsettled state in some parts of the country.

At Liverpool the operative plumbers have held a meeting with reference to the hour system, and have passed resolutions condemning the introduction of this system, and pledging the meeting, individually and collectively, to support all men who "came out" in resisting it to the utmost.

At a meeting of working men, held at Blackpool, it has been resolved to take steps for the formation of a National Association for the prevention of strikes, and for friendly and voluntary mediation between employers and employed.

We understand that it is the intention of the operative masons of Dundee immediately to commence agitating for a nine-hours movement.

About 250 of the 300 masons employed there have drawn a memorial to the masters, signifying their intention to request the change. Six months' notice is to be given to the masters for consideration.

IRISH BUILDING NEWS.

MESSRS. MOORE & BROTHERS, the railway contractors, have been appointed by the authorities to erect the new land front about to be formed at Fife Fort, commanding the mouth of Cork Harbour.

At an adjourned meeting of the Royal Hibernian Academy, Abbey-street, held on the 1st inst., the following gentlemen were elected members of the body:—Messrs. W. Dillon, J. B. Brennan, Marquis B. Walsingham, Thomas Newenham Dean, architect; John Lawlor, sculptor.

The new church of Ballintemple, Dundrum, Tipperary, built by the Ecclesiastical Commissioners, was lately consecrated by the bishop of the diocese. The plan of the church is a cruciform; consisting of nave, 59 feet by 27 feet; chancel, 18 feet by 11 feet; transepts, 16 feet by

10 feet 6 inches. The north transept is shut off from the church by a screen wall, and is divided into a porch and vestry-room. The height of the nave from the floor level to wall-plate is 17 feet, and height to ridge, 37 feet; height of chancel to ridge, 33 feet; height of transepts to ridge, 31 feet 6 inches. A tower, 14 feet square—external dimensions—stands at the south-west angle; is 30 feet to bed moulding of spire, which is 32 feet high; the total height of tower and spire from the ground being 62 feet. The church accommodates 240 worshippers. The amount of contract was 1,600*l.* The late Mr. Joseph Wellam was the architect; Mr. Thomas Waldron Abbey-leix, Queen's County, contractor.

The report of the directors of the Museum of Irish Industry has been issued. It states that several additions have been made to the museum; amongst these are a series of glass enamels and porcelain; also some specimens of foreign woods, used in buildings and cabinet-making. The total number of visitors for the year ending Dec. 31st, was 32,999. The number of students who attended the lectures during the year was 8,377; 67 of whom competed for prizes.

Engineers are now engaged in making out and investigating the ground for a short line of railway, to run from the wooden bridge, Avoca, for about twelve miles in the direction of Coolhatten, through the estate of Earl Fitzwilliam.

A new convent has just been opened at Letterkenny. The building consists of a spacious and extensive facade of Gothic character; lofty halls, dormitories, refectory, cells, and chapel on the western side, flanked by a tower. There is a stained-glass window over the altar, containing representations of Our Lord, the Virgin Mary, and St. Joseph, from Messrs. Barf & Co., Dublin. The architects were Messrs. Hadfield & Goldie.

The two houses, Nos. 40 and 41, Dame-street, which have been lately purchased by the Life Association of Scotland Assurance Company, are about to be taken down and rebuilt. The plans show a frontage of 43 feet in Dame-street, and 44 feet in Trinity-street, the house No. 40, being a corner house. The elevation, which is Italian in character, is divided into two principal stories, by a cornice, supported on rusticated piers, forming a "basement" for pilasters of the Ionic order which decorate the upper story. The main cornice has enriched panels in the frieze. The whole is surmounted with a balustrade, to the top of which, from the flagging, is 45 feet. The basement is sub-divided into two floors by cornices, running between the rusticated piers: the upper story is also subdivided into floors by cornices, running horizontally between the pilasters. The entire front will be of cut stone. Mr. Chas. Geoghegan is the architect.

A new cut-stone front, of Italian character, is about to be erected to Messrs. Browne & Nolan's premises, Nassau-street; Mr. J. McCurdy, architect. Messrs. W. H. Beardwood & Son are the contractors.

SCOTLAND.

Edinburgh.—A considerable body of workmen have been engaged for some time at the new works at Holyrood. The alterations and improvements within the palace have for their object the adaptation of the apartments lately ceded to her Majesty by the Duke of Argyll and the Marquis of Breadalbane, by connecting them with the range of royal apartments on the south and east sides. The requirements of modern ideas of convenience and comfort have led to the introduction of central corridors, from which the other apartments will be entered separately. These alterations, with a slight exception, according to the *Scotsman*, do not affect the ancient ornamental ceilings or the carved oak finishings, nor interfere with the external appearance of the palace, except as regards the substitution of plate-glass windows for the present large barred and small panes. The new works, however, properly speaking, are opposite the chief gateway of the palace. The old brewery and red-tiled tenements in front of the quadrangle were recently purchased by Government; and on their site are a series of structures, far advanced towards completion, for the military guard; and, in addition and in connection with these, a building for the accommodation of the royal stud, containing stalls for about twenty horses, with coachhouses, &c. Towards the palace quadrangle the elevation is baronial in character, having a broad centre gateway, flanked by towers.

Glasgow.—Workmen have commenced to finish the Free College Church, Glasgow, according to the architect's original design. From regard to economy the two towers, which the design embraced, were left unfinished when the church

was opened for public worship, fully three years ago. The want of these towers disfigured, to some extent, not only the church itself, but the adjacent college; as its lofty campanile, and the smaller towers of the church, were designed to harmonize; the whole device being architecturally one. Towards the completion of the church towers, the late Dr. Clark, of Wester-Moffat, the founder of the college, left 400*l.* The cost, however, will be about 1,200*l.*, and the 800*l.* required have been recently subscribed.

Aberlour (Banffshire).—The rebuilding of the church of Aberlour, which was burned down in the month of January last, is being proceeded with. The foundation-stone was laid a few weeks ago, and the walls are now 6 to 8 feet in height. It is to be in the Norman style, in order to be in keeping with the tower; and will be considerably shorter, broader, and higher than the old church. The building is to be 66 feet by 47 feet, and the height of the side walls 24 feet, while the roof is to be as high as it can possibly be made, without interfering with the dials of the clock. The architect is Mr. Petrie, of Elgin.

Linlithgow.—A special meeting of the Commissioners of Supply of the county of Linlithgow has been held, to consider the plans and specifications of the new Court-house and police buildings for the county, the proposal to convert any part of the ancient palace of Linlithgow into a court-house having been abandoned. The plans were submitted by Mr. Brown, of Messrs. Brown & Wardrop, architects, Edinburgh. The site proposed for the new structure is on the south side of the High-street, immediately to the west of the gate leading to the prison. Among several old buildings which will require to be removed (should the proposed site be acquired), in order to open the ground, is the house from the window of which, as is popularly believed, the Regent Murray was shot on passing through the town in 1570. The new court-house will stand at a considerable distance back from the street, and will be surrounded by an open space or court-yard, about 180 feet long by 120 broad. The building itself, as exhibited in the plans, will be somewhat in the Elizabethan style, 90 feet in length, and having at the west end a tower about 66 feet high. The north front facing the street will have the roof-line broken up by three small gables. There will be two principal floors, besides a sunk story and attics, containing, in addition to the court-room, 44½ feet by 26½, offices and rooms for the sheriff, sheriff-clerk, procurator-fiscal, superintendent of police, constables, &c., with retiring-rooms for jurors, witnesses, &c., and police cells. The present prison will adjoin the new court-house on the east, and the buildings will be surrounded by an ornamental railing. The total cost, including site and removal of old buildings, is estimated at 5,000*l.* The plans, having been examined, were generally approved of, and ordered for public inspection previous to being transmitted to the Secretary of State for his approval.

Dundee.—The working plans for the laying out of the Baxter Park have been in Dundee for some time, and a considerable force of workmen has been engaged in the preliminary operations.

Elgin.—At the harbour works, lately, the tide carried away a cofferdam erected by Mr. Adamson, for keeping it back, that he might get on more rapidly with his excavations. Another was erected and puddled inside with clay, and the cutting of the rocks on the side of the entrance to the basin was resumed. The rock is exceedingly hard.

Perthshire.—The contracts for the erection of the Perthshire District Lunatic Asylum have been taken;—the mason work by Alexander Cunningham, Dundee; the joiner work by Clark & Cable, Dundee; slater work by Robert Jack, Dunkeld; plumber work and gasfitting, Middleton & Son, Montrose; smith work by Gourlay, Brothers, Dundee; plaster work by J. Adam, Dundee; painter work by Robert Douglas, Perth; the whole amount of the contracts being 15,000*l.* The building will be capable of containing 222 patients, and this sum includes governor's house, farm steading, gas work, lodge, and gateway. Messrs. Edwards & Robertson, Dundee, are the architects.

CHURCH-BUILDING NEWS.

Northampton.—The restoration of St. Sepulchre's Church, Northampton, which is one of the only four round churches in England, is progressing. The enlarged nave, to which the celebration of divine service is to be transferred, and which occupies the site of the former chancel, together with the new chancel and aisles, is nearly com-

pleted. The funds, however, are not sufficient to carry out Mr. Scott's design entirely. Upon the work already done there has been expended a sum of 3,100*l.*; but, in order to connect the new roof with the old one, it will be necessary to expend 250*l.* in repairing the old roof over the former chancel. The architect would, however, prefer to construct an entirely new roof, to harmonize in style and appearance with the new buildings; and to do this would cost about 1,000*l.* If the seating and many other details are carried out according to the designs, a further outlay of 1,500*l.* will be required. It is intended that the round church, when restored, shall serve as a vestibule to the new buildings. A meeting will be held on the 7th of September, on the subject of means for carrying out the restorations.

Worcester.—On the north side of the cathedral, from the east to the west transept, the work of restoration is now being carried on by Mr. Bennett, of Birmingham. At the angle of the west transept, as the workmen were engaged in ascertaining the safety of the foundation, they came upon a series of early Norman arches and pillars, corresponding with those of the crypt, from which a doorway communicated to the portion just discovered, proving that St. Wulstan's crypt must have extended further towards the north than it does at present. The vaulting of the roof was gone, but fragments of it were left at one point or two where it sprang from the shafts. Another discovery has been made at the east transept, on the south side of the cathedral. The steps which led down from the aisle, at the rear of Prince Arthur's tomb, were being carried further back, in order to show the bases of the columns at the angle of the transept, when the workmen found the ancient steps beneath the modern ones; and immediately under one of the steps was a Purbeck marble slab or coffin-lid, representing some distinguished person, the style of whose drapery, and general appearance of the carving, indicate the workmanship of probably the early part of the thirteenth century. Care will be taken of the slab by Mr. Perkins, the architect.

Cheldon Fitzpaine (Somerset).—The village church here has been enlarged and restored, and was re-opened on the 13th by the Bishop of Bath and Wells. The additions are a new north aisle and a new vestry, the latter supplying the place of a tall ill-contrived transept. The small early west tower, which does not stand in a line with the centre of the nave, or square to it, has been improved by a new parapet and gurgoyles. A new roof has been put on the chancel, and both this and the repaired nave roof have had carved bosses supplied, and all the white ceilings done away with. The east window has been renewed and filled with painted glass by Mr. Bell, of Bristol. The subjects are from Matthew xxv. 35; and the window is a memorial to the late Mr. Ashley Moore, whose tenants have provided another window in the south aisle, also as a memorial. The old bench ends have been repaired and fitted to the new seating, the pulpit and font of Ham stone restored, &c. The woodwork and roofing have been executed by Mr. E. Jeboult, and the stonework by Mr. Storg, both of Taunton. The architect is Mr. E. Ashworth, of Exeter, and the work has been carried out through the exertions of the Rev. S. H. Unwin, the rector, and under his supervision. The outlay is about 1,000*l.*

Gilmorton (Leicestershire).—The parish church here has been re-opened. The church has been entirely rebuilt, with the exception of the tower and spire. The north aisle has been lengthened towards the east, and a new south aisle added; and the arch of the tower has been thrown open. The architect, under whose direction the works were executed, is Mr. W. Smith, of London. The church is in the style of the fourteenth century. The external walls are of granite rubble, with dressings of Ancaster and Attleborough stone, and the roof is covered with Welsh green slates. Internally the nave is separated from the aisles by plain arcades of three arches each; and the aisles extend towards the east, so as to form chapels on each side of the chancel. In the arches of the nave and chapels are the contrasting colours of the Ancaster and Attleborough stones, which are placed in alternate blocks. The capitals of the piers were carved by Mr. Poole, of London, who has also executed the font and all the stone carving throughout the building. The floor of the church is paved with stone, banded with encaustic tiles; those in the chancel being glazed. The chancel is lighted by one window, and there is a sedilia on the south side. The clerestory contains two windows on each side, and the roof is of varnished deal. The pulpit is of unvarnished oak,

on a stone base, and was carved by Mr. Forsyth, of London, who has also been employed to execute the remainder of the wood carving in the church. The lectern, which has been presented by the architect, the chancel stalls, and the altar rails, are all of unvarnished oak. The organ was built by Lane & Sons, of Stony Stanton. The seats throughout the church are of oak. There is now accommodation for about 450 persons. The builder was Mr. J. Law, of Lutterworth. The cost of the restoration was upwards of 2,000*l.*

Moseley.—The foundation stone of a new Congregational chapel has been laid. The site is close to St. Paul's Church, Balsall-heath. The design furnished by Mr. B. Holmes, among several applied for by the committee, has been adopted, the estimated cost of which is 2,200*l.* The ground plan is in form of a parallelogram, being 77 feet long and 45 feet 6 inches wide. The sittings will be in four widths and divided by two passages, each 4 feet 9 inches wide, communicating with the main principal central entrance, which will front the Alcester turnpike road. It will consist of a double doorway, supported on coupled stone columns with ornamental carved caps. Galleries are also to be placed on either side and at the west end of the chapel, and will be approached by stone stairs with separate lobbies at the front. The front of the chapel will be recessed back from the turrets and principal entrance; the space between the turrets being filled up with a range of double lancet windows. The side elevations will be divided into seven bays by buttresses; each bay giving light to the chapel by two tiers of double-pointed windows. There will be a large oval window at the east end over some enriched panelling at the rear of the pulpit. The style is Early English, and the materials used in the erection will be red bricks for the walls, with blue and white bricks worked in patterns in strings, bands, and arches; and Bath stone for dressings. The total amount of accommodation provided for is 1,024 sittings, 860 of which are for adults, and the remainder for children.

York.—The plans for the warming of the Minster are now complete, according to the local *Herald*; the London Warming Company having contracted, for the sum of 645*l.*, to furnish and erect twelve stoves, four of which are to be in the crypt, two in each of the choir aisles, and two in each of the side aisles of the nave. With these the company guarantees to maintain a uniform heat of fifty degrees; the power, however, being reserved to the contractors, if it be found necessary, to furnish and fix four extra stoves, at a cost of 30*l.* each. If at the end of a year there should be a failure of the agreed temperature, the contractors are bound to remove the whole of the stoves, and the Dean and Chapter are to pay to them 145*l.* for the expenses incurred in the attempt to warm the edifice. Little doubt, however, rests in the minds of the contractors as to the successful carrying out of the scheme; even though there are difficulties to surmount in connection with the minster which have not been met with in other buildings, from the large amount of window surface which that edifice contains. The invention (Mr. Goldsworthy Gurney's) is that which has already been applied in St. Paul's Cathedral (where a temperature of 60 degrees is guaranteed), the Houses of Parliament, the Cathedrals of Limerick and Llandaff, the whole of the government schools of design, and some three or four hundred churches in and around the metropolis. The stoves for the minster each weigh about a ton and a half; but are, nevertheless, portable; so that they can be removed without difficulty, should it be deemed necessary, during the summer months. They are constructed to hold five bushels of coke (though coal may also be used); which quantity, it is said, will work well for forty-eight hours without any attention. Several of the stoves have already been fixed.

Leeds.—A new synagogue, erected in Belgrave-street, for the Leeds Hebrew congregation, has been consecrated. The new edifice will accommodate about 250 persons. It is a brick building, erected from designs by Messrs. Perkins & Backhouse, of this town, architects, and has cost about 1,200*l.* The funds have been raised by subscriptions amongst the Jews in London, Leeds, and other places, aided, according to the *Leeds Intelligence*, by contributions from a number of Christians.

Ryton.—The foundation stone of a new Congregational church has been laid by Mr. William Nesham, of Newcastle, near the village of Ryton. The church is of Gothic architecture, and will be made to accommodate 300 people. It is situate midway between Ryton and Crawcrook, and is 50 feet from the road. The front will look to the south, and the roof will be an open timber one.

The site commands an extensive view of some of the finest scenery in the vale of Tyne. There also provision made for building schools capable of holding 200 scholars. The architect is Mr. John Tillman; and the builder is Mr. John Leboth of Sunderland.

Holy Island.—The chancel of the interesting church of Holy Island having been completely restored, and a new roof added to it, the incumbent and churchwardens have put forth an appeal for the restoration of the nave and reseating the church, which they say may be considered the mother church of the diocese of Durham.

Guernsey.—On the 29th ultimo, there was laid at the Lower Rohais, the foundation-stone of Wesleyan Chapel. It will contain 100 persons and is to be built in six months, by Mr. Duchemin senior, of red Guernsey granite. Its style will be Gothic, with a portico 6 feet by 8 feet, and to cost about 300*l.* The dimensions are, 36 feet long by 28 feet in width; height from the ground to the ridge, 23 feet; from the floor to the ceiling, 20 feet; side walls, 12 feet.

STAINED GLASS.

St. John's, Leicester.—The north window in the chancel of St. John's Church has recently been filled with stained glass, the gift of Mr. E. Latton, of this town. The window forms the first of a series of five, which light the apsidal end of the chancel, and contain representations of some of the principal acts of our Saviour during the latter part of his life on earth. Each window has ten lights, and each light contains two subjects,—a type and its antitype. The window recently inserted completes the series. In the right-hand light is the Last Supper, with its type, the Jewish passover; and in that on the left hand, the Agony in the Garden, with Moses, after descending from Mount Sinai, as its type. In the background of the picture of Moses is the Golden Calf and a scroll. The groundwork is of grisaille; and in a triangular apex of the arch is an angel, bearing a scroll inscribed with the legend, "Perfect through suffering." The window has been designed and executed by Mr. Wailes, of Newcastle, at whose manufactory the rest of the stained glass in the church has been produced.

St. Andrew's, Watford.—This church has recently been ornamented with a new stained glass window. The subject is, "Our Saviour the Temple," when found by Joseph and Mary reasoning with the doctors. The lower portion of the window is divided into three compartments, each of which contains its own portion of the subject;—the first, Mary and Joseph; the second, Our Saviour (at 12 years of age); and the last, the Doctors, Scribes, and High Priest. The window is the work of Messrs. Heaton & Butler, Hampstead-road.

Miscellaneous.—The painted windows of Blakenhall Church were from the establishment of Messrs. Lavers & Barrard, who have recently sent two more painted windows to Bombay Cathedral. The great west window for Ashford, Kent, was also by the same firm; and they have now ready a series of windows for Tottenham Palace Church, Wilts, presented by Lord Ailesbury, Dowager-Countess of Ailesbury, the late Lord Herbert, Lady Dunmore, &c.

SCHOOL-BUILDING NEWS.

Handsworth.—The first stone of the Midland School, about to be erected in Grove-lane, Handsworth, out of the funds of the Bridge Trust, has been laid by the Rev. R. H. Peel, M.A. The style of the building is Geometric Gothic; and the arrangement of the plan provides for a school-room (65 feet by 30 feet); and two class-rooms, each 19 feet by 18 feet; a board-room, for the use of the trustees, 19 feet by 18 feet, with ante-room attached; and a boys' hat and cloak room, lavatory. The school is placed lengthwise to front, and the elevation is divided into four bays by buttresses; the roofing being gabled over three-light traceried-headed window in each bay. The class-rooms form a projecting wing on south side, with two double-light windows, divided by a buttress; and the board-room forms a compensating wing on the north side. (Crouped under the gable of this wing is a turret, 65 feet high over the principal entrance. The material used is red brick, with bands and arches of blue brick and Bath-stone dressings. Ample playgrounds are left at the rear of the schools, and the whole of the site will be inclosed. Near to the entrance-gates is a lodge for the school-beadle. The architect is Mr. Bidlake, of Wolverhampton, under whose superintendence the works are being carried out by Mr. Burkitt, builder, at a cost of 2,150*l.*

Miscellaneous.

THE LONDON AND MIDDLESEX ARCHÆOLOGICAL SOCIETY.—A general meeting of this Society was to be held on this Friday, August 23, at Uxbridge; the chair to be taken by the Rev. C. Parker Price, M.A., at twelve o'clock noon, in the Market-room, where papers were to be read on "The Treaty at Uxbridge," and on "The History and Antiquities of the Town;" after which the company were to proceed to Denham, Harefield, and Ruislip Churches, on which papers would be read from members of the Society; thence returning by Swateleys, the seat of Mr. T. T. Clarke, to Uxbridge, to dinner in the Market-room, at six p.m.

ALLEGED EXPLOSION OF A "PARAFFINE" LAMP.—A coroner's jury in West Middlesex has returned a verdict of "death from burns caused by the accidental bursting of a paraffine lamp." It is said to have been "shown from the evidence of several witnesses that on the 26th ult. deceased, while in the act of trimming a paraffine lamp, accidentally dropped a lighted lucifer match into the fluid, by which it was ignited, and an explosion followed." Two deaths occurred in this one case; and since, another death has taken place in a similar way. Having doubts as to the accuracy of the allegation that *paraffine* oil was explosive, we tried experimentally to explode some of this oil, but found that it would not explode. Half filling an egg-cup with the oil, a match was applied; and, after some little trouble, the oil was lit and quietly burned away till the oil was consumed. The lamp may have been for paraffine, but assuredly the oil used must have been either naphtha or adulterated with naphtha, which is explosive, and a dangerous article to use in lamps; whereas good paraffine, kerosene, and some other forms of mineral oil now getting into extensive use for lamps, are not so; although, of course, everything combustible may, by carelessness, lead to accidental death by burning, as even a drop of blazing wax lately did. That an adulterated or bad and explosive kind of oil is being substituted for good paraffine oil, in some such cases as the above, is but too likely. At the inquest in the second case, Dr. Odling, F.R.S., professor of practical chemistry at Guy's Hospital, and officer of health to the parish of Lambeth, was examined with reference to the oil or spirit used in the lamp. He said he had tested Young's patent paraffine oil, and found nothing in it calculated to explode or of an explosive character. A light might be held in it, but no explosion would take place. Some oil, which was sold as Young's, was of a dark colour, and possessed an explosive character, and as he had possessed himself of some of that which was remaining at the house after the unfortunate and fatal event, he was enabled to show the jury the effect of the two. The professor then showed, by bottles containing each, that by Young's a light could be put into the oil or spirit without an explosion, but when a match was introduced to the dark-coloured oil a sort of explosion did take place. We regret that so useful an article as paraffine oil should thus be likely to suffer a diminution of its utility from the unprincipled substitution of a dangerous article like this; the sale of it for household purposes ought to be punishable.

CONNECTION OF THE TRIANGULATION OF GREAT BRITAIN WITH THAT OF FRANCE AND BELGIUM.—Lieut. the Hon. Delaporte French, with a party of one corporal and six sappers of the Royal Engineers (Ordnance Survey Department), have crossed from Folkestone to Boulogne, for the purpose of connecting the triangulation of Great Britain with that of France and Belgium, in co-operation with a commission appointed by the Minister of War of France. The ultimate result to be obtained is the substitution of one meridional line for the three lines of Greenwich, Paris, and St. Petersburg, that are at present in use in different countries, and thus to harmonize the maps of all countries. The connection of the French and Russian systems will be carried out by the officers of those countries.

THE GLOUCESTER SURVEYORSHIP.—Mr. Hanvey, the Board of Health Surveyor to the Town Council of Gloucester, has resigned his office, having been appointed surveyor at Dover, as intimated in our columns on 10th inst.

SCHOOL OF ART FOR JERSEY.—At a public meeting recently held in the Lyric Hall, St. Helier's, it was resolved to establish a school of art in Jersey. The meeting was presided over by Dr. Henderson of the College; and Mr. Sparkes, head master of the Lambeth school, explained the objects of the movement.

SURREY ARCHÆOLOGICAL SOCIETY.—The members of this Society have held their eighth annual meeting, visiting various places in the neighbourhood of Godalming. The weather was all that could be desired; the company was numerous; and the proceedings throughout were of an interesting character. Loseley was the centre of operations. The visitors met at St. Nicholas's Church, Guildford, and proceeded to inspect the More monuments in the Loseley Chapel. The monuments were described by Mr. W. H. Hart, F.S.A. The ruins of St. Catherine's Chapel were next inspected, and Mr. H. W. Sass (hon. sec.) read a paper "On the Chapel." The visitors then proceeded to Loseley House, where a large number of ladies and gentlemen assembled to inspect the antiquities collected there. Previously to the commencement of business, the company sat down to a luncheon. After luncheon, the party proceeded to the great hall, where the annual business, which proved of a routine character, was transacted. Mr. J. Evans afterwards made a few remarks respecting a collection of flint implements (from a drift) found in the neighbourhood, which were exhibited on the table. A paper on the Loseley manuscripts was then read by Mr. Hart. Mr. Evans read a paper on Godalming in 1640. The company next proceeded to Compton Church, but the paper which was to be read there by Mr. C. Baily was postponed in consequence of the lateness of the hour. The next place on the programme was Godalming, where, about five o'clock, more than a hundred ladies and gentlemen sat down to a cold collation, which was laid out in the Public Hall.

ESSEX ARCHÆOLOGICAL SOCIETY.—The general annual meeting of this society was held this year at the Shire-hall, Chelmsford. The meeting was held in the Grand Jury Room, and was well attended, the assembly including a number of ladies. The report and statement of accounts having been read, showing a balance in hand of 84*l.* odds, the Bishop of Rochester proposed the election of Mr. T. Burch Western as president, and the reelection of the vice-presidents, council, secretaries, treasurer, and other officers of the association. The propositions were agreed to, and Archdeacon Midway then read a paper on an old Chelmsford account-book, and Mr. F. Chancellor one on the architecture of Chelmsford Church. The Rev. E. L. Curtis next read a paper on anchorholds and anchorites, referring to many buildings connected with churches in the county of Essex, which were supposed to have been dwellings of these recluses. Mr. A. C. Veley read a paper on "The Shakespeares of Essex," reading, in the course of the same, some curious wills, and amongst them several of a Shakespeare family which had lived at Havering, Hornchurch, and Rawreth, the first being that of John Shakespeare, a priest, of the date of 1557, and who, he thought, might have been a descendant of the father of William Shakespeare, though he gave no very strong opinion on it. At five o'clock about thirty gentlemen sat down to a cold collation at the Saracen's Head.

ALLEGED OCCURRENCE OF VIRULENT CHOLERA IN NOTTINGHAM.—Two cases of disease alleged to have been Asiatic cholera have occurred at Nottingham workhouse. Sanitary precautions at this season more than at any other requisite, whether cholera be pending or not; and although the present summer has been far too open and abounding with wholesome lightning storms which ozone the air and promote its scavenging and freshening powers, to be likely to usher in a cholera season, the reminder is a salutary one and may do good. Efforts should now be made to clear out overcrowded rooms in the low-lying portions of every town. Water-closets and sewers should be carefully flushed and deodorized; stench-traps affixed to sewers; and, if possible, owners of property in back slums, which are frightful nurseries of fever and other diseases, should be compelled to give their tenements a thorough coating of quicklime wash. Nor should the advantage of an abundant supply of pure water be overlooked.

A LIBEL ON ST. SWITHIN.—Truth, it is used to be said, is a libel. The venerable saint who is believed to rule the rain can no longer be regarded as the right rain doctor, if it be the fact, as now stated, that the Greenwich observations for the last twenty years prove rain to have fallen upon the largest number of days when St. Swithin's day was dry.

PAUL OF A BRIDGE AT READING.—The bridge which crosses the stream on the south side of the Great Western Railway arches, and leads from the Forbury to the King's Meadow, has fallen in. The bridge has long been in a rickety and unsafe condition: it is now in course of repair.

ST. PETER'S CHURCH, WESTMINSTER.—Allow me to correct a slight inaccuracy that occurs in your otherwise careful description of the above-named church. The area within the walls is about 2,930 square feet: of this the space for seats occupies about 1,952 feet, and the lobbies, &c. 978 feet.—RAFAEL BRANDON.

MONUMENTAL.—The Nelson Column at Yarmouth is now surrounded by a fence, composed of stone and iron, the latter material being used for tridents placed crossways, and connected by a wreath of laurel. It is the wish of the committee to plant some laurels within the enclosure, and to provide proper seats instead of the present unseemly benches; but, with the singular ill fortune which befalls all the Nelson monuments, soon after the repairs were completed, the column was struck by lightning (as the Glasgow one lately was), and the figure of Britannia injured. To repair these damages and to put up a lightning conductor, about 40*l.* were expended, which unexpected demand has exhausted the funds of the committee. We learn that Mr. John Barnes, of Norwich, contracted for the ironwork, and Mr. E. O. Johnson, of Yarmouth, for the stonework.—The Birmingham Town Council have granted a site for the erection of a statue to the late Joseph Sturge.—In the churchyard of Kilmuir, Isle of Skye, are the remains of Flora Macdonald, of "Princess Charlie" memory, with a memento of "Here lies," &c.; but her great-grandson, Captain John Macdonald, of Her Majesty's Bengal Staff, has now given instructions to Mr. D. Davidson, monumental stone engraver, Inverness, to execute a tomb and slab-stone of fine Italian marble, to mark the last resting-place of the devoted Flora. The tombstone is 4 or 5 feet by 2 feet 6 inches, and is to be encased in a framework of Gothic structure. The slabstone is 5 feet by 2 feet. On the perpendicular stone, at the head of the grave, the inscription states that "In Flora Macdonald were united the calm heroic fortitude of a man, together with the unselfish devotion of a woman. Under Providence she saved Prince Charles Edward Stuart from death on a scaffold, thus preventing the House of Hanover incurring the blame of an impolitic judicial murder."

EXHIBITION OF ART AND INDUSTRY AT FLORENCE.—The Italian Government have resolved to hold an Exhibition of Art and Industry at Florence, in the ensuing months of September and October. Italy will see for the first time the works of her artists and the products of her industry collected together under the roof of a crystal palace. The exhibition will be divided into three departments,—agricultural, industrial, and artistic. It is intended that Rome and Venice shall both be represented. In the artistic department, the works of artists deceased during the last twenty years will be exhibited, as well as those of living artists. 2,000 workmen are now engaged upon that part of the Palace of Industry which is to hold the works of painters and sculptors. The cousin of the King, Prince Carignano, has accepted the presidency of the Royal Commission for the Exhibition, assisted by the Marquis Ridolfi as acting president, and Professor Carcea as secretary. The King will open the exhibition in person. At the same time a meeting of the Italian savans will be held, which has not taken place for fifteen years. Manufacturers of agricultural implements, both English and others, are specially invited.

LEICESTERSHIRE ARCHÆOLOGICAL SOCIETY.—The last bi-monthly meeting of this society was held in the town library, the Rev. R. Burnaby in the chair. Various objects of interest were exhibited, and Mr. W. Jackson, architect, read a paper "On the Architectural History of St. Margaret's Church, Leicester" and the Rev. J. H. Hill, some observations on the Transactions of the Society, the publication of which was arranged for. It was reported that the annual meeting for the exhibition of antiquities and reading of papers would take place at Lutterworth, on Wednesday, the 13th, and Thursday, the 19th, of September next, when the Rev. Thos. James, of Theddington, and Mr. M. H. Bloxam, of Rugby, would read papers. Mr. Bloxam, it was stated, had promised also to attend at the church at Lutterworth, on the Wednesday, and explain its architectural peculiarities, and also describe the Wickliffe relics. The subject of Mr. James's paper is to be the "Battle of Naseby." The second day's excursion will be to Naseby. The Roman remains near Lilbourne, Theddington church (lately restored), Stamford, and Misterton, were all stated to be down on the route proposed to be taken by the excursionists. It was resolved to take into consideration, at the next meeting, the propriety of subscribing to the Pugin testimonial fund.

ELECTRO-TELEGRAPHIC PROGRESS.—According to the *Rangoon Times* of the 8th ult.,—"It is currently rumoured at the Burmese capital that the king shortly intends to connect Mandalay with the British province of Pegu by telegraph. A line of posts is to be constructed, during the next dry season, for suspending the wire; and when the boundary is nearly reached, his Majesty will apply to be allowed the privilege of joining the telegraph system of India. Already there are two or three short telegraph lines in operation in the royal city. One line stretches between the palace and the mansion of the prince or royal brother; another extends to the 'Lhau-tan,' or Court of Queen's Bench, which is within the precincts of the palace; and the third connects the monastery of the Buddhist high priest with the royal residence. A telegraph establishment has been organised, and a number of Burmese youths are being instructed in the manipulation of electrical instruments, and in understanding the messages despatched and received."

OPENING OF NEW DOCKS AT NEATH.—Such has been the rapid increase of the Glamorganshire staple trade of coal, iron, and copper, that the trustees of the Neath harbour found themselves compelled to construct new floating docks at Briton Ferry, two miles and a half from the borough. The new works were contracted for by Mr. Wm. Ritson, and give twenty-seven acres of floating and tidal accommodation, with about 7,300 feet of water-frontage. The machinery has been erected by the Newcastle-upon-Tyne firm of which Sir William Armstrong is or was the head. The formal induction of these new docks was to be celebrated at Briton Ferry this Thursday, by a grand public demonstration.

GAS.—The Gravesend and Milton Gas-light Company have declared a dividend of $\frac{7}{8}$ per cent., and the Cheshire Gas Company one of 6 per cent. —At the annual meeting of the Newark Gas Company, just held, a most satisfactory report was given by the directors; and it was determined, notwithstanding the increase in the price of coals, and other expenses, that the price of gas in future should be reduced from 6s. to 4s. 2d. per 1,000 feet to all consumers; and the charge for public lamps should be reduced from 50s. to 44s. each. —At the half-yearly meeting of the Andover Gas and Coke Company, it was stated that the consumption of gas had increased since the price was reduced, and that no doubt was entertained but that, by the end of the year, an improved balance-sheet would be forthcoming.

DRINKING-FOUNTAIN MOVEMENT.—A new fountain has been erected on Douglas pier, Isle of Man, by Mr. W. Livesey, late proprietor of the *Preston Guardian*. The cost is about 20l. —There is a fault in not a few of the metropolitan fountains which really ought to be amended; namely, the spurting of water from the streamlet all over the structure and around it, so that no one can obtain a cupful of water without going into the midst of the mess. The fountain opposite Somerset House may be adduced as an example. It is the flat grating on which the water falls that seems to be in fault, at least in some cases.

SOUTH KENSINGTON MUSEUM.—During the week ending 17th August, 1861, the visitors were as follows:—On Monday, Tuesday, and Saturday (free days), 4,784; on Monday and Tuesday (free evenings), 3,045; on the three students' days (admission to the public 6d.), 1,043; one student's evening, Wednesday, 147. Total, 9,019. From the opening of the Museum, 2,203,505.

BURSTING OF A CANAL, NEAR BARNESLEY.—The embankment of the canal at Royston has given way. A sloop was close to the spot, and fell down a depth of nearly 12 feet, and was floated along the fields a distance of 400 yards, where it became embedded amongst the standing corn, and was afterwards drawn to the canal by horses. Not far from the embankment there was, fortunately, a culvert, which took a good deal of the water. Considerable damage has been done, and the canal has been drained for a distance of nearly eleven miles.

A CONTINENTAL BLOCK OF STONE.—A block of stone, 26 feet long, 9 feet wide, and 6 inches thick, was lately, says *Galvani*, extracted from the quarries of Heisenhof, in Prussia, and despatched to Brussels. It weighs 303,500 lbs., and was drawn by 18 horses. The man charged with the conveyance was obliged to give security to repair any damage which might be occasioned by bridges by the excessive weight of the stone.

THE METROPOLITAN STREET TRAMWAY SYSTEM. Another tramway has been opened in London. The line runs from Westminster-road to Kennington Park.

RAILWAY MATTERS.—The works upon the new branch railway to Sutton Coldfield, to connect Birmingham with Erdington and Sutton, long required by the public, are progressing rapidly, and will, it is expected, be complete before the close of the year. The line in course of formation belongs to the London and North-Western Company, and branches out from the Old Grand Junction Railway, close to the Aston station, and, at a distance of 300 yards, crosses the river Tame on a viaduct consisting of six arches. The low land to Copley-hill will be traversed by means of a heavy embankment; and further on the Tame Valley Canal is crossed by a structure of 55 feet span. Passing through a deep cutting at Copley-hill, and over a high embankment at Slade Farm, the line enters into the heavy cutting at Gravelly-hill, where there will be a station. This great cutting will not terminate until the line reaches the brickyards at Erdington. At Sutton there is a heavy embankment, 40 feet in height. The whole of the bridges on the line are of brick, faced with Staffordshire blue bricks. The contractors are Messrs. Eckersley & Reace, of Gravelly-hill. Mr. Baker, of Euston Station, London, and Mr. Angell, are the engineers of the line, the latter gentleman having the immediate superintendence of the work.

NORTHERN ARCHITECTURAL ASSOCIATION.—A quarterly meeting of this association was held last week, Mr. Moore, vice-president, in the chair. A letter was read from the Royal Institute of British Architects, intimating that at a meeting of the Representative Committee for the Exhibition of 1862, Mr. Dobson and Mr. Moore were unanimously elected members of that committee, as representatives of the Northern Architectural Association. The communication went on to say that the labours of the representative committee had hitherto been turned to endeavouring to obtain, among other things, at least 200 feet by 50 feet of space for drawings, and 100 feet by 50 feet for art manufactures. It had been intimated, that the space contemplated to be allowed for drawings was only 100 feet by 50 feet, and the committee requested the co-operation of provincial associations in endeavouring to obtain a larger allowance. The letter was referred to the president and vice-president, with instructions to take such steps as they might deem fit for supporting the application for additional space. Various elections were made.

ATTEMPT TO REMOVE A MARKET CROSS.—At Crocombe, near Wells, we are told, stands an old grey stone market-cross, which the local wardens, thinking it an incumbrance and a hindrance to the public way, endeavoured to remove. The removal proved a graver and more serious matter than the wardens were aware of. The masons of Crocombe refused to loosen a stone. When masons had been procured from the neighbouring city, the inhabitants gathered round the old cross, but the shaft had been hurled to the ground, and its final broken in twain. The demolishing party having been driven off, a flag was hoisted by the villagers, bearing upon it the legend "Be faithful." This was struck down during the night, but as quickly re-raised, and thirty young men bivouacked on the spot by night to guard the relic. 150 ratepayers have signed their names in testimony of their desire to retain this relic of olden time, and the waywardens have been served with a notice by the vicar and overseer to make good and repair the damage done to the cross within a given time, otherwise legal proceedings will be instituted against them.

TENDERS

For repairs to seven houses, Goswell-road. Mr. James Tolley, architect.—

Nalder	£248 0 0
Cutler	199 13 0
Newitt (accepted)	176 10 0
Carter	147 0 0

For alterations to Messrs. Noake's premises, Borough. Mr. P. Anson, architect.—

Wood	£3,010 0 0
Nicholson	2,985 0 0
Ashby & Horner	2,763 0 0
Gammoun	2,739 0 0
Lucas	2,610 0 0
Brown & Robinson	2,548 0 0
Downs	2,490 0 0
Macey	2,459 0 0
Wills	2,450 0 0
Coleman	2,439 0 0
Rider	2,369 0 0

For the Galford County Halls and Assize Courts. Seven tenders were delivered, each including a sum of 420l. for lighting, warming, and assize fittings: That of Mr. Swayne, at 3,500l., was accepted. Mr. T. Goodchild, architect.

For the erection of the Zetland Hotel, at Saltburn-by-the-Sea, for the Stockton and Darlington Railway Company. Mr. Peachy, architect, Darlington.—

For Entire Works.

W. Robson	£12,541 4 3
Elwin	12,498 0 0
Bulmer	12,026 5 0
T. Robson	11,519 0 0
France	11,399 17 0
Pearson	10,977 14 0
Chapman	10,916 0 0
Marren	10,397 8 5

For Excavator's, Bricklayer's, Mason's, and Plasterer's Work.

France	6,655 17 7
Marren (accepted)	5,293 10 0

For Slater's Work.

Preston	326 18 0
Ord & Sanderson	310 0 0
Bulmer	285 5 0
Pattison (accepted)	262 0 0

For Carpenter's and Joiner's Work.

Smith	2,680 0 0
Cockburn & Bridges	2,643 12 3
Wilkinson	2,650 0 0
Armitage	2,577 4 3
Chapman (accepted)	2,565 0 0

For Plumber's, Glazier's, and Gas and Water Fitter's Work.

Hind	1,370 0 0
Laidler	1,262 0 0
Morris & Son	128 4 0
Russell & Sons	1,016 0 0
Hudson (accepted)	997 6 0

For Bell-hanging.

Noad & Son	146 8 0
Wilson	126 0 0
Cadle	105 0 0
Close, Ayre, & Nicholson*	60 0 0

For Smith's and Ironfounder's Work.

Close, Ayre, & Nicholson*	849 14 0
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* Accepted.

For first portion of works in additions to a house at Langley. Mr. S. C. Rogers, architect. Quantities not supplied.—

Lloyd	£274 0 0
Macey	549 0 0
Snowball	626 0 0
Cooper & Hacon	632 10 0
Smith	580 0 0

For sundry alterations and repairs, 2, Queen-street, Westminster, for Mr. Calcutt. Mr. Henry M'Calla, architect.—

Nutt	316 0 0
Sargent	245 0 0
Morris & Son	196 17 0
Minty	153 9 0
Dover	150 0 0
London Building Company*	143 0 0

* Accepted.

For alterations to Dulwich Wood Cottage, for Mr. George Widdowson. Quantities supplied, for Mr. Jennings, by Mr. J. M. Bryson:—

Leahan	349 0 0
Jennings	338 0 0
Robinson	293 0 0
Robinson (accepted)	254 0 0

For new premises for Messrs. Wright & Co., No. 11, Old Fish-street, New Cannon-street. Messrs. John Young & Son, architects. Quantities supplied by Mr. Shoppee:—

	No. 1.	No. 2.
Ashby & Sons	£1,363 0 0	£2,900 0 0
Mansfield & Son	1,350 0 0	2,950 0 0
Conder	1,259 0 0	2,850 0 0
Axford & Co.	1,299 0 0	2,830 0 0
Patman	1,489 0 0	2,835 0 0
Lawrence & Sons	1,282 0 0	2,780 0 0
Little & Son*	1,275 0 0	2,715 0 0

* Accepted.

For alterations and additions to the Suffolk General Hospital, Bury St. Edmunds. Mr. T. H. Hakewell, architect. Quantities by Mr. Northcroft:—

Luff	£7,154 0 0
Andrews	7,077 0 0
Frost	6,984 0 0
Huddleston	6,787 0 0
Radston	6,692 0 0
Rednal (accepted)	6,350 0 0

For rebuilding No. 13, Lamb's Conduit-street, W.C., for Mr. Giles Yarde. Mr. Herbert Williams, architect. Quantities supplied by Mr. James Dudley:—

Ashby & Horner	£1,891 0 0
Piper & Wheeler	1,863 0 0
Chesnut	1,850 0 0
Wagstaff & Sons	1,793 0 0
Turner & Sons	1,641 0 0
Mansfield & Son	1,587 0 0
Partridge & Crutch	1,559 0 0

For Palace Rooms, Kensington, adjoining King's Arms Tavern, for Mr. Hellwell. Quantities supplied. Mr. Withers, architect:—

Watkins & Bottom	£1,893 0 0
J. & W. Saunders	1,770 0 0
Macey	1,651 0 0
Perry	1,650 0 0
Sharpling & Cole (accepted)	1,523 0 0

For partial rebuilding, restoration, and reseating the parish church of Tetney, Lincolnshire. Mr. Withers, architect:—

	Nave and Aisles.	Chancel.	Heating Chamber.	Total.
Peart	1,157 5 4	335 15 6	37 4 0	1,530 4 10
Maxey	1,145 0 0	235 0 0	39 0 0	1,419 0 0
Clarke*	874 0 0	224 0 0	61 10 0	1,159 10 0

* Accepted.

The Builder.

VOL. XIX.—No. 969.

Antwerp and Art.

BELGIUM, said Mr. Rogier, the minister, in speaking at the Antwerp Congress last week, "is peculiarly well situated to discuss pacifically the great questions which agitate the world. Already, at different epochs, Belgium has had the good fortune to open Congresses where questions of general interest have been debated. In these debates, in which a crowd of distinguished men from all parts of the world have taken part, questions relative to agriculture, commerce, industry, public health, and artistic property have been examined. The questions have received solutions which legislators have transformed into laws. Let us hope that the same result will attend the Congress of Antwerp." We hope so too: but, as he went on to say, these reunions have another result which is equally important: they serve to bring together the intelligences and the hearts devoted to humanity of all countries: they establish relationships binding together people of all parts of Europe in good, useful, and beautiful traditions of hospitality. Pointing, then, to the two sentiments entertained by peoples, that of nationality and the willingness to be cosmopolitan, he said,—each country has a right to be proud of the illustrious men it produces. But great men, Rubens, Raffaele, Michelangelo, Albert Durer, Beethoven, to what country do they especially belong? Are they not the apostles, the precursors of this great movement, which leads the people to become brothers,—to exclude from society the odious word enemies, and substitute for it that other and more noble word, with which he would finish his discourse,—the word *brothers*?

If the first result should not be obtained on the present occasion, in any great degree, we may look hopefully for the second. But even as to the first, something was done. Upon questions of material interest, the Congress voted,—

1st. That the artist who has created a work of art, whatever it may be, has the exclusive right of authorizing its reproduction, either by a similar process to that he has employed, or by a different process. Unless other stipulations have been agreed upon, he preserves this right, even after the sale of his work.

2. That the law should declare the fraudulent reproduction of a work of art a crime. That crime, however, should not be prosecuted, except upon the complaint of the injured party.

3. That the placing on a work of art a false signature ought to be viewed as an offence as great as that of the forgery of private writing; and,

4. That the laws intended to repress violations of artistic property ought to be applicable to the means which industry makes to art.

Then, upon the proposition of M. Vervoort, the Congress assented to the following resolutions, which were voted by the Congress of 1859, held in Brussels, on the subject of literary and artistic property:—

1. The Congress is of opinion that the principle of the international recognition of the property of literary and artistic works in favour of

their authors ought to be carried out in the legislation of all civilized countries.

2. This principle ought to be admitted by a country, even in the absence of reciprocity; and,

3. The assimilation of the rights of foreign authors to those of national authors ought to be absolute and complete.

The only resolution adopted as to the questions of artistic and philosophic interest was a general declaration that the alliance of sculpture, architecture, and painting is indispensable; and that the system of instruction in art should in future be framed accordingly. Afterwards, a resolution was passed, declaring that, during the exercise of public worship, and as long as the churches are open to visitors, the paintings within them should remain uncovered.

Let us go back a little to the meeting of the Academy of Arts and the address delivered by Mr. de Keyser, the President, as mentioned in our last. After referring to the death of various colleagues, including Mr. Suys, architect, whose monograph on the *Palais Massimi*, in Rome, and drawings of the Pantheon of Agrippa, deserve to be known, Mr. Keyser dwelt on the extent to which it was proposed by the Government and the Municipality to increase the collection of modern works in the museum, making it to represent not merely different schools, but the particular characteristics of masters in different branches. It was necessary to make known to students everything which went to form a solid education, in an intellectual as well as technical point of view. One of the most vital and indispensable conditions of every work of art is the union of the thought and the form that realizes it. It is by study alone—long and serious study—that this can be effected. If the works of ancient art, and those of the illustrious masters of the Renaissance are eminently distinguished by this supreme quality, it is because the artists who produced them did not shun science, and thought lent wings to the vast knowledge they possessed.

Without speaking of the artists of Greece, we need only recall that Giotto, Raffaele, and his pupil Giulio Romano; Leonardo da Vinci, Michelangelo, Rubens, and others, possessed a profound knowledge of Science. Several of them, indeed, were at the same time sculptors, architects, musicians, and even poets. Is it not, probably, to these essentials that we must attribute that marvellous ensemble, that poetic harmony, the depth, grandeur, and characteristic unity of the works these masters have left us, and which are the admiration of the world? Urging, then, that the artist should never cease to strive for that ideal which, since Plato, men have sought vainly to formulise, he lamented the influences that had at times led art from its true end, which is to elevate the soul, enlarge the mind, to glorify noble sentiments,—in one word to *civilize*: for if the artist should devote himself only to the apotheosis of the ugly, physical and moral, the term *Beau-Arts* would be but a lie, and would no longer have a signification for intelligence. Earnestly, then, Mr. De Keyser called upon students to strive for the highest. He urged, justly, that insufficiency of education on the part of artists, and the want of hard and resolute study, led necessarily to the decay and abandonment of high painting and monumental sculpture; and it is because we think the advice is equally needed amongst ourselves, that we have recalled at some length his eloquent and sensible words.

The Exhibition of Works of Modern Art, now open in Antwerp, contains many excellent pictures. The President of the Academy, beside a full-length portrait of a lady, wherein the black dress and lace are painted with marvellous skill, and some others, exhibits a seated figure of Charlemagne, grieved by the sight of Norman vessels near his shores, wherein the expression is forcible and noble. Mr. Henry Leys, some of whose works are known in England, has four pictures illustrative of the early history of Flanders,

marred to a certain extent by mannerism, but so full of thought and story, displaying so much careful study, knowledge, and power of expression as to enforce attention from all. The interior of a Conventicle, in the alley of the Pelican, an episode of the Reformation, being less mannered than usual, may be regarded as the most excellent.

Mr. Lies, pupil of the last-named artist, has a picture of great merit, entitled "Justice for the Weak," wherein Baudouin VII. is doing justice on one of his nobles, who has carried off the cows of a poor widow. The picture, however, which most forcibly attracted the English connoisseurs, was one by Mr. Cermak, a young Bohemian, pupil, we believe, of a leading French painter. It represents a Razia of Bashi-Bazouks, in a Christian village in Turkey. A stalwart Bashi, seated, holds by the middle a nude female, who strives for her life and more, while a second man is endeavouring to tie her hands. The whole are of the largest life-size. The seated man is too patriarchal in aspect, but as a piece of flesh painting, it is long since the picture has been equalled.

Mr. Ferdinand Pauwels is another artist, who has this year created a sensation. His "Widow of Van Artevelde," and "The Proscribed of the Duke of Alva," are excellent works. "Bouderie et Reconciliation," an old man and his wife who have quarrelled at cards (by De Braekeleer); "La Veuve," by De Bruycker; "Le Bénédicité," by De Groux; "Pillage par Cosaques," by Hahn; "Nouvelle Orpheline," by Louis Somers; "La Charité au 17^e Siècle," by Van Hove, and many others might be mentioned. The only English pictures we observed were Mr. J. P. Knight's excellent portrait of Mr. Lane, and Mr. Tidey's water-colour drawing from Shelley's "Queen Mab," exhibited a season ago in the New Water Colour Society's Gallery.

Amongst the architectural drawings, a design for the Absis and High Altar for the Church of Notre Dame at Vechel, Brabant, set forth in an excellent drawing about 12 feet by 6 feet, is prominent. The crowned design for an Hotel de Ville, Gothic in design, has no remarkable merit. We will not omit notice of two large and clever works in Mosaic, executed at the establishment in the Vatican. Pictures to the amount of about 2,500*l.* will be purchased from the collection, and distributed by lot to subscribers. The Exhibition, we may add, affords a strong additional inducement for a journey to Antwerp. As to the travelling in Belgium, by the way, it is very much like playing at railways. The trains stop at all sorts of places for all sorts of time. No one seems to be in a hurry, and everything goes pretty smoothly, if not very rapidly.

During the Congressional week several new works of art were inaugurated; particularly the painted decorations of St. George's, a new Gothic church of some pretensions. These decorations include some large figures of the Apostles (too large) on each side wall of the choir, above a dado, and a large picture of St. George slaying the dragon over the altar at the east end. The figures of the Apostles, in fresco, are grandly treated, and the whole effect is good, notwithstanding the ugly glass in the windows, and the gloomy colour (a dirty sage green) of the clustered columns.

Various new houses, showing the influence of the modern French taste, are being erected in Antwerp; effacing, it is to be regretted, the step-gables which characterize the city. Some of the latter are remarkably striking and picturesque. There is a famous group, for example, in the *Grande Place*, including one six stories in height, formerly belonging to the St. George's Guild of Archers.

We may not, however, longer tarry in Antwerp, and will simply add that at the close of the Congress every invited guest received a well-executed medal by Wiener, prepared for the occasion, recording, in enduring bronze, the "*Welkom*," which had been offered them on entering the city.

THE LATE THOMAS WITLAM ATKINSON. ARCHITECTURAL HISTORY.

We have heard with regret of the death of the enterprising traveller in the Russian territories in Asia, Thomas Witlam Atkinson, who has a claim to notice in these pages, as formerly an architect, and one whose influence should be credited with the first initiative of the architectural taste for which the town of Manchester has since become remarkable. The story of Atkinson's life will probably never be precisely told; the little that has appeared in print is incomplete, or inaccurate; but could the biography be written, it would be found one of the most curious and thought-suggesting. We have not the materials now at hand for more than a few statements derived from recollections of Atkinson's professional career, and from lately-revived knowledge of him; but some of those particulars may be worth handing over to our literary contemporaries.

Thomas Witlam Atkinson was born about the year 1799, but in what part of England we cannot say. He was, we believe, not related to those of the same name in London, and the north of England, one of whom was architect of one of the earliest-erected of the churches of Manchester in the revived-Gothic character, as the subject of our notice was the architect of a later-built and better-known church in the same district.

Our first traces of Atkinson point to a very humble origin. He appears to have been either an ordinary mason, or a carver, employed on the churches of the north, such as those which William Goodwin designed. When, years afterwards, Atkinson was himself an architect, or about the year 1836, he has more than once, in driving by the New Church of Ashton-under-Lyne, pointed with his whip to certain corbels, as carved by his hand, to illustrate some account of his course in life. In the earlier period alluded to, he had been resident in the town of Ashton, where he taught drawing, and got the nucleus of what, when his occupation changed, turned into a professional connection. No man was ever more successful in making friends; with no particular manner, or quality, that this fortune could be traceable to, and amidst frequent reverses, he continued to experience the favourable animus of those whom he encountered, from Lancashire cotton-spinners to the Emperor Nicholas of Russia. Early also in his life, Atkinson devoted great attention to the study of Gothic architecture. He visited a large number of the churches of Lincolnshire; and he obtained a collection of casts of ornament, of considerable value, with the intention of producing a book of lithographed illustrations, little in this path having been then attempted, except by Cottingham in his collection, and by Holford in his book illustrative of York Cathedral. This object, subsequently, he partially carried into effect, in combination with another architect of the same name, not related to him. The publication appeared in small folio, as "Gothic Ornaments" by Thomas and Charles Atkinson, or similarly entitled, the drawings on stone being by his own hand,—with slight aid, as from one of his pupils. Pugin's Gothic Ornaments, however, gave more matter, though on a smaller scale; and it met with greater success. At this time he had settled in London, in Upper Stamford-street, Blackfriars, where he was employed as architect of the New Church, Lower Tooting; but this building is not a favourable specimen of his abilities. In the interval he had acted as a clerk of works, under Mr. Kendall, for a well-known church at Rainsgate; and in some similar capacity, we believe, for Mr. Basevi, who was the architect of a Grecian-Doric porticoed church at Stockport. In the resemblance of the church first-named to the church of Boston, there are traces of Atkinson's Lincolnshire recollections. About the same time, he added to his studies of ornament, from the churches of Kent. He subsequently was employed as architect for the building of the Manchester and Liverpool District Bank in Spring-gardens, Manchester; and having at the same time some works in progress at Ashton, he transferred his sphere to Manchester, where, about the year 1831 or 1835, the bank was in progress, and he was in partnership with Mr. Clayton, an accomplished artist. The latter architect was well known to many of a past generation; and his death was not many years since mentioned by us. The partnership did not continue after the commencement of the year 1836. By various influences and his own exertions, Atkinson had now become greatly in advance of the pseudo-Greek and carpenter's Gothic which were the stock-in-trade of many provincial architects five and twenty years ago; and he had acquired a

power of expressing his ideas with the pencil, which was at the same time equally unusual. Harrison, "of Chester," had been in advance of his time, later architects were not equal to him; and Goodwin had been employed only in one or two important works, such as the Town Hall, and St. George's Church, Hulme. Barry had built the Royal Institution; which like the Town Hall, is of Greco-Roman character, with columns as the main feature. The building of the District Bank was as important an event in the architectural history of Manchester, as that of the Travellers' Club was in London; since it showed the local public that effect was not dependent on mere "orders," that there was something more than these in the matter of architecture. The epoch of the acquirement of this insight by the public cannot be too highly estimated. Subsequently the same architect opened out in like manner another avenue to taste, by the adaptation of the central lantern-lighted staircase-hall for which Barry is to be credited as regards the Royal Institution, but which with the surrounding arcades which Atkinson added, was a novelty in private houses. During the few years in which Atkinson practised in Manchester, taste certainly improved by his example. In his Italian villas, bold cantilever cornices, and more effective porches and chimneys; and in his Gothic designs, the features which are now well known, but were then habitually caricatured, were introduced: indeed his Gothic was considerably in advance of that practised by London architects. To show the change that has taken place, it may be well to mention, that at Atkinson's arrival in Manchester, the architects of the town had their assistants for nearly everything beyond surveying, from London. Most of these assistants had been indebted for what they could do, to one master, the now deceased and too-much forgotten George Maddox of Funnival's Inn: they had not rested long enough in his school to acquire his unquestionable taste; and they were generally deficient in such matters as Gothic mouldings and tracery, to an extent which now seems a deficiency in the power to produce no matter what character of good architecture. By all these gentlemen, some of whom have since deservedly attained a good position, and were then sufficiently qualified to judge, Atkinson was pointed to as a rare bird, a man veritably who made his own designs and was an artist.

In 1835 or 1836, was commenced Atkinson's principal work, the church of Cheetham Hill, a building in a modified Perpendicular style, with a western tower and crocketed spire, and considerable enrichment, and very meritorious considering the time in which it was produced. He built also a small church at Openshaw, in the plain Early English manner of the day, but better than was then common. Up to the year 1840, he had built houses at Ashton and Staleybridge, for Messrs. Swire, Lees, and Harrison, the last red-brick-and-stone Gothic; near Stockport for Mr. Walmesley; and at Manchester for Messrs. Hodgson, Heelis, Slater, Bradshaw and others.

In 1840, after some reverses, owing perhaps to a too liberal expenditure on works of art, he was induced to quit Manchester. Arrived in London, he was not more fortunate; and he eventually got to Hamburg, where his design for the church which Mr. Scott was afterwards appointed to build, stood a good chance from the clever execution of the large perspective views. He here made some progress in a work illustrative of his church at Cheetham Hill, which was announced by London publishers; but, if regularly published, it does not seem to have got into circulation. The Cheetham Hill church is shown in plan and elevation in Tress's Modern Churches, but not well shown. From Hamburg Atkinson got to Berlin, and lastly to St. Petersburg, where he abandoned architecture as a profession for the pursuits of a traveller and artist. He was furnished with every facility by the Russian Government; even during the time of the war; and was thus able to produce the two interesting works which have been published by Messrs. Hurst & Blackett, and a most extraordinary collection of water-colour drawings, many hundreds, executed amidst the scenes themselves, some of them of 6 or 6 feet square, and most valuable as representations of districts before unknown for the most part to Europeans. He contributed from the same sources, many papers to the British Association and the London scientific societies.

To those who were acquainted with him in former years, nothing is more noticeable in his books and contributed papers, than the evidence of Atkinson's qualifications for observing and recording matters such as those of geography and

geology, which ought to be found in books of travel, but not always are. Though not previously remarkable for the constitutional and mental gifts which are demanded of a traveller, Atkinson displayed in the course of his wanderings great power of endurance, and much address; so that his works have added important particulars to the knowledge of Russia in Asia, including the river Amoor and the confines of Chinese Tartary. The distances which he occasionally traversed in a single day across the *steppes* where delay was death, or by the Asiatic method of leading the relays of horses, and changing from one to another, were extraordinary; and during the whole of his travels he seems to have never lost a chance of recording what he saw, with pencil, colours, and note-book. He must have left somewhere, an amount of materials even much beyond what would be supposed from the illustrated volumes which have been published. No Englishman was better acquainted than he was with the fact of the progress made by the Russians in the direction of India, or more competent to give an opinion on questions which have been much discussed, connected with that subject. During the period of his life which we have here spoken of, so little was known in England of his fate, that in the Dictionary of the Architectural Publication Society, the compiler of a biographical notice, which generally is in the same publication, accuracy found usually in the same publication, supposes him to have died; and great indeed was the astonishment to some old acquaintances when he came again to England; and a rank was accorded to him coequal with such men as Livingstone and similar explorers. He became a fellow of the Geographical and Geological Societies; but whether from previous discouragement, or not, he gave little further observation to architecture. He died on the 13th of August at Lower Walmesley, in Kent, aged sixty-two. One of his two surviving children Miss Emma Wilshire Atkinson is not unknown in the literary world, having written *The Lives of the Queens of Prussia*, and a recent novel. Atkinson had few pupils, those of his Manchester period, Mr. F. T. Bellhouse, and Mr. Edward Hall, F.S.A., both now of London,—and those whose names we recollect; but Mr. F. H. Groves, Mr. R. B. Critchlow, of Southampton, and the late Mr. J. E. Grogan, Mr. Cuffey, and the late Mr. J. W. Hance, founder and secretary, in 1836, of an Architectural Society, of Manchester were in some way connected with him, and probably, with after-advantage to themselves. Atkinson does not fill a high place in the roll of heroes of our more especial field; but as having performed a march, slight but necessary, to the progress of what has now, in other hands, become architecturally speaking, a most remarkable town, his name may deserve so much as we have imprinted of record; and others must "point the moral" where there be one, in the links of his life. Alas! who will there ever be to photograph the lights and shadows of the most ordinary career; to hold up to those who have their course to run, the lesson or who to appreciate the good which there is in many a man even who may have erred, and upon whom the world charges at least the sin of its success.

A FRENCH ESSAY UPON PAINTING AND ARCHITECTURE.*

CHAPTER III.

ALL THAT I COULD EVER UNDERSTAND ABOUT THE CLARE-OBSCURE.

"How calmly gliding through the dark blue sky
The midnight moon ascends! her placid beams,
Through dimly scattered leaves and boughs
grotesque,
Mottle, with hazy shades, the orchard slope:
Here o'er the chestnut's fretted foliage, gray
And massy, motionless they spread: here shine
Upon the crags, deepening with blacker night
Their chasms; and there the glittering argent
Ripples and glances on the confluent stream."
Southey, in "Roderick, the Last of the Goths."

THE clare-obscure is the just distribution of shadows and lights: a simple and easy problem where there is but one regular object, or only luminous point; but a problem which increases difficulty in proportion as the forms of the objects are various,—in proportion as the scene extends as the objects multiply, as the light reaches from various quarters, and as the lights are diverse. Ah, my friends, how many false shadows and lights are there in any complicated composition! How many liberties taken! In how many places sacrificed for effect! An effect of light in painting is what you will see in the picture of Coréus, a mixture of lights and shadows at once true

* Translated from the French of Mr. Diderot, *Mémoires de l'Académie Royale*. See ante, page 577.

powerful, and piquant;—a poetic moment which arrests your progress and astonishes you. A thing difficult enough beyond doubt, but less so, perhaps, than a gradual distribution, which would light up the picture after a large and diffusive manner; and where the quantity of colour given to every part of the canvas is in keeping with its true exposition and with its exact distance from the luminous body, a quantity which the surrounding objects vary in a hundred different manners, more or less sensible according to the gains or losses occasioned by them.

Nothing is rarer in a composition than unity of light, especially among landscape painters. Here we have the sun, there the moon, elsewhere a lamp, a torch, or some other luminous body; a common error, but difficult of discrimination.

There are, also, caricatures of light and shadow, and every caricature is evidence of bad taste.

When we find in a picture the truth of light joined to that of colour, we pardon everything else. At all events, for the first minute, inaccuracies of drawing, want of expression, poverty of character, defects of composition,—all pass; we are in an ecstasy, surprised, enchained, enchanted.

In taking a walk in the Tuilleries, the Bois de Boulogne, or some other sequestered part of the Champs-Élysées, under some of those old trees spared out of the many sacrificed for the pleasure-grounds and prospects of the Hôtel de Pompadour, at the close of a fine day, or the moment when the sun plunges his oblique rays across the tufted mass of these trees, whose interlaced branches arrest them, reflect them, shatter them, break them, disperse them upon the trunks, upon the earth, among the leaves, and produce about us an infinite variety of strong shadows, of shadows less strong, of obscure points, points less obscure, lit, better lit, altogether brilliant, the transitions from obscurity to shade, from shade to light, from light to striking brilliancy, are so sweet, so touching, so marvellous, that the aspect of one branch, one leaf, arrests the eye and suspends conversation at its most interesting moment. Our walk ceases as though involuntarily, our looks revel over the magic canvas, and we exclaim to ourselves, "What a picture! How beautiful!" It seems as though we regarded nature as the result of art; and, reciprocally, if some painter repeats the same enchantment upon the canvas, we feel as though we looked upon the work of art as that of nature. It is not in "the salon," but in the recesses of the forest, among mountains over-shadowed or lit up by the sun, that Louthenberg and Vernet are great.

The sky sheds a general tint upon objects. The vapour of the atmosphere is discernible at a distance: near us this effect is less sensible; near us every object will retain all the force and variety of its colours: they are less affected by the hues of the atmosphere and sky; at a distance they become effaced, extinguished: all their colours grow confused, and the distance which produces this confusion, this monotony, shows them all grey, greyish, of a faded white, or more or less lit up, according to the situation of the light, and the effect of the sun.

It has the same effect as the speed with which we turn a globe marked by different colours, when the speed is sufficiently great to connect all the hues, and reduce their special sensations of red, of white, of black, of blue, of green, to one unique and simultaneous sensation.

He who has not studied and felt the effects of light and shadow in the country, in the depth of forests, over the rustic cottage, on the roofs of a city, during the day, during the night, will do well to throw down his pencil; above all, let him not think of becoming a painter of landscapes. It is not in nature only, but upon the trees, and waters of Vernet, and the hillsides of Louthenberg, that moonlight is beautiful. A situation may undoubtedly be much. It is certain that high mountains, that ancient forests, that immense rivers have an imposing effect. The associations they awaken are great. I can people them at pleasure with a Moses or a Numa. The view of torrents which fall noisily down rocks, which they whiten with their spray, makes me thrill. If I cannot see them, I hear their war at a distance, and say to myself: "So have passed the famous scourges of history: the world remains; while their exploits are but a vain and perished sound which amuses me." If I see a green lawn or meadow, the grass soft and tender, a brook to water it, a corner of a sequestered forest which promises me silence, freshness, and solitude, my heart softens: I recall her whom I love. "Where is she?" I ask: "Why am I here alone." But it is the varied distribution of light and shade which gives the scene, or withdraws from it, all its charms.

Let a mist arise to sadden the heavens, and to shed around its grey and monotonous tones, all grows silent, nothing inspires me, nothing detains me, and I direct my steps homewards.

I know a portrait by Le Sueur: you would swear that the right hand stood out of the canvas and rested on the frame. People praise extravagantly the miraculous effect visible in the leg and foot of Raphael's St. John the Baptist in the Palais Royal. These "tours de l'art" are common in all ages and among all nations. I have seen a harlequin or a scaramouch of Gillot where the lantern was not half a foot from the body. Where is there a head by La Tour where the eye does not follow you? Where is there a bit by Chardin, or even by Roland, or La Porte, where the atmosphere is not circulating between the glasses, the fruit, the bottles? The arms of Apelles' Jupiter Tonans started out of the canvas, threatening the impious. It probably will be the distinction of some great master to break through the mist which enveloped Aeneas, and to present him to me as he appeared to the soft and credulous queen of Carthage:—

"Circumfusa repente

Scindit se nubes, et in æthera purgat apertum."

With all that, this is not the great part, the difficult part of the clare-obscure.

Fancy, as in Cavalier's "Geometry of Indivisibles," all the depth of the canvas, cut, no matter in what direction, by an infinity of infinitely fine planes. The difficulty is in a just dispensation of the lights and shades, both upon each of these planes, and upon each infinitely little slice of the objects occupying it; and in the echoes, the reflections, of all these lights one upon the other. When this effect is produced (but where and when is it?) the eye is caught; it reposes. Everywhere satisfied, it reposes everywhere: it approaches, it dives into it: it is absorbed in tracing it. All is connected—all in keeping. The art and the artist are forgotten. It is not a canvas, it is Nature: it is a part of the universe we have before us.

The first step to the understanding of clare-obscure is the study of the laws of perspective. Perspective brings together the parts of the body, or makes them recede, by a diminution of size, by the projection of their parts, as seen across a plan interposed between the eye and the object, and which belongs either to the same plan or to a plan supposed to be beyond the object.

Painters! give a few instants to the study of perspective. You will be amply repaid by the ease and certainty that you will find in the practice of your art. Reflect upon it for an instant, and you will see that the body of a prophet, amply bearded, robed in flowing drapery, his hair falling about his temples, with that picturesque linen which gives so divine a character to his head, is subject to the same principles, in every point, as the polyhedron. In the end, one will cost you no more difficulty than the other. The more you multiply the ideal number of your planes, the more true and correct you will be; and do not think that you will become cold by a condition more or less added to the technique of your art.

Just as the general colour of a painting, so the general light has a tone. The more this happens to be strong and vivid, the more definite, decisive, and dark are the shadows. Move away gradually the light from a body, and you weaken correspondingly its brilliancy and shade. Move it still further, and you will see the colour of a body assume a monotonous tone, and its shadow diminish, so to say, to the point where you will no longer distinguish its limits. Approximate the candle, the body is lit, and the shadow disappears. In the twilight there is scarcely any effect of light sensible, and scarcely any particular shadow discernible. Compare one of Nature's scenes under a brilliant sun with the same scene under an overcast sky. In the one case the lights and shades are strong; in the other grey and feeble. But you have seen a hundred times these two scenes succeed in the twinkling of an eye, when, in the middle of an immense prospect, some thick cloud, hurried along by winds prevailing in the upper regions of the atmosphere, while the part surrounding you was calm and motionless, was about interposing itself without your knowledge between the star of day and the earth. Everything suddenly loses its brightness. A tint, a sad veil, obscure and monotonous, has fallen rapidly upon the scene. The very birds are surprised by it, and break off song. The cloud passes; everything resumes its beauty, and the birds recommence their concert.

It is the instant of the day, the season, the climate, the situation, the state of the sky, the situation of the light, which causes the general tone to be weak or strong, sad or piquant. He who

extinguishes the light imposes upon himself the necessity of giving body to the air itself and to teach my eye to measure vacant space by the objects interspersed and gradually softened down. What a man is he who can dispense with this great agent, and produce a great effect without it!

Despise the clumsy accessories (*repossoirs*), so coarsely and stupidly introduced, that it is impossible to misunderstand their purpose. It has been said that in architecture it is necessary that the principal parts should take the shape of ornaments: it is necessary in painting that the essential points of the picture should be made its "*repossoirs*." All the figures in a composition should harmonize, should stand out or recede, without the aid of these wretched expedients, which I call dummies or hole stoppers. Teniers had another sort of magic.

My friends, shadows have also their colours. Observe attentively the outlines, and even the mass of the shadow of a white body, and you will discern an infinity of black and white points interspersed. The shadow of a red body has a red tint; it seems as though the light in striking scarlet, detaches and carries with it certain molecules. The shadow of a body composed of flesh, blood, and skin, presents a feeble yellow tint. The shadow of a blue body takes a blue shade, and both shadows and bodies reflect back upon one another. It is the infinite reflections of shadow and of bodies which produce the harmony you observe upon your library table, where labour and genius have cast the pamphlet beside the book, the book beside the ear-trumpet, the ear-trumpet in the midst of fifty other objects, varying in nature, colour, and form. Who is there who observes? who is there who knows? who is there who executes? who is there who harmonizes all these effects together? who is there who fore-knows the necessary result? The law is, nevertheless, very simple; and the first dyer to whom you carry a sample of shaded stuff, will throw it into his cauldron, with the certainty of knowing how and when to withdraw it, dyed to the tint you required. But the painter observes this law himself on his pallet when he mixes his colours. There is not one law for colour, another law for light, another for shadow—everywhere it is the same.

And woe to painters when he who traverses a gallery shall carry with him these principles. Happy the time, however, when they shall be popular. It is the general enlightenment of the nation which prevents the sovereign, the ministers, and the artist from committing follies. (*O, sacra reverentia plebis!*) There is not one of the three who is not ready to exclaim, "Rabble, what pains undergo I to win your applause!"

There is no artist who will not tell you that he knows all this better than I. Say to him from me, that his figures cry out that he lies.

There are some objects which shadows give a value to; others which become more interesting in the light. The heads of brunettes become handsome in a demi-tint; those of blondes in the light.

There is an art in painting a background, especially of portraits. One law, which is tolerably general, is, that there must never be in the background a tint which, compared with any other tint in the subject, is sufficiently strong to smother it, or catch the eye.

Examination of the Clare-obscure.

If a figure is in shade, it is too much or too little so, if, when comparing it with figures more in the light, it do not inspire a lively and assured conviction that it would be quite as much in the light as they, if in our thought we could advance it to their place. Take the instance of two persons who ascend from a cellar, one carrying the light, and the other following. If the latter figure have the amount of light or shade which befits it, you feel that, if you placed the second on the same step, it would become gradually lit; so that, by the time it had ascended, the two would be in the same amount of light.

A technical method of ascertaining if the figures are shadowed upon the picture as they would be in nature is, to trace upon a plan the plan of the picture: to dispose upon it the objects of the picture, either at the same distance as those of the picture, or at corresponding distances, and to compare the light of the objects on the plan with the light of the objects in the picture. They ought to be alike in reference to each other, or to be in the same relations.

A painter's scene may be as extensive as he pleases; nevertheless, he is not permitted to place objects everywhere. There are backgrounds where the form of these objects not being discernible, it

would be ridiculous to paint them; since our aim in painting is, that the subjects it presents should be seen and distinguished. Thus, when the distance is so great that the characters which individualize beings are no longer distinguishable,—a wolf, for example, being as likely to be a dog, or a dog to be a wolf,—they should be omitted. This is, then, one of the cases where we must not paint nature.

All that is possible will not appear in good painting, more than in good literature, for there are certain conjunctions of events whose possibility cannot be denied, but which present such difficulties in the combination that we feel they never have occurred, and probably never will. Only possibilities we can employ are the probable, the likely; and these belong to the class in reference to which there is more to wager for than against their passing into the state of existence within a certain time, limited by that of the action of the painting. For example: it is quite possible that a woman may be surprised by the pains of labour out in the country; it might happen to her to find there a crib, and to have the crib resting against some ancient monuments. But the relation is not great, and is unworthy the painter's selection, unless history record the circumstance as connected with the incident. It is otherwise of shepherds, of dogs, of rustic abodes, of flocks, of travellers, of trees, of brooks, of mountains, and of all the other objects dispersed through a country, and which, indeed, form it. Why may we put them in the picture in question, and even in its foreground? Because they are to be found offener in the nature we propose to imitate than not. The proximity of an ancient monument is as ridiculous as the passage of an emperor at the moment of the birth. The thing is possible, but of too rare occurrence to be selected. The passage of a traveller is also possible, but of a possibility so common that it is in keeping with nature. We want for the passage of an emperor, or the presence of a column, the warrant of history.

Two sorts of painting: the one which, when we place our eye as near as possible to the picture, without losing the faculty of seeing distinctly, renders objects in all the detail perceptible at such distance in the originals, and renders them with the same exactness as the spectator backs from the picture, he loses the details, until he arrive at a point where they all disappear; so that when again approximating from this point where all is confounded, the forms begin by degrees to be discernible, and the details successively to be again recovered, until the eye, replaced in its first position of nearness, discovers in the various subjects of the picture, the most minute and delicate of their fidelities. This is fine painting—the true imitation of nature.

But there is another style which is not less after nature, but which only imitates it at a certain distance. It is nature's imitator only in a single point. I mean that when the painter has vividly and powerfully represented the details he gives of his object only from the single point which he has chosen for it. Outside this point we see nothing: within, it is still worse. His picture is not a picture: from its canvas to his point of view we cannot say what it is. We must not, however, blame the style of painting. It is that of the famous Rembrandt. This name suffices alone to be its recommendation.

Whence we see that the law of finishing anything has some restriction. The law is of absolute authority in the former style of painting of which I first spoke: it is not of the same weight in the second. There the painter neglects all the parts of his subject not perceptible except at a point nearer to them than at the point of view he has chosen.

Example of a sublime idea of Rembrandt. Rembrandt has painted a "Resurrection of Lazarus." His Christ has the air of a mourner: he is on his knees on the brink of the sepulchre: as he prays, we see two hands raising themselves from the depths of the sepulchre.

Examples of another kind. There can be nothing more ridiculous than a man painted in a new dress, that has just left his tailor's, though the tailor were the cleverest man of his time. The more closely the garment encircles his limbs, the stiffer will be the portrait, to say nothing of what the artist would lose as regards variety of shapes and lights arising from the folds and forms peculiar to old clothes. There is another reason which influences us without our perceiving it: it is that a garment is new but for a few days, and that it is old a long time, and that we should describe things in the state which is their more durable one.

Besides, there is about an old coat an infinite multitude of little interesting accessories, as hair-powder, missing buttons, and all that follows upon its long use. Where these are all represented, they recall each its idea, and serve to connect together the different parts of the adjustment. Thus the hair-powder will harmonize the wig and coat.

A young man was consulted as to the manner in which he would have his father painted. He was a blacksmith. "Put him in his working dress," he said: "his blacksmith's cap and apron; let me see him at his anvil, with his sledge-hammer in hand; and, above all, don't forget to give him his spectacles." This instruction was not followed: they sent him a correct portrait of his father, full length, with a handsome peruke, a fine coat, rich stockings, and a snuff-box in hand. The young man, who possessed good taste, and a feeling of truth and nature in his character, said to his family, as he thanked them: "All you've done, both you and your painter, is not worth a penny. I wanted my father as he is every day; you have given him to me as he is on Sunday." It is for the same reason that M. La Tour—otherwise so true, so sublime—has made of the portrait of M. Rousseau a fine thing, instead of the masterpiece it might have yielded him. I seek there the Censor of Letters, the Cato, the Brutus of our age: I expected to see Epictetus in undress, in disordered wig, terrifying with his severe aspect our writers, our great men, our fine people, and I see only the author of the "Devin du Village," well dressed, well combed, well powdered, and seated ridiculously on a straw-bottomed chair; albeit we admit that the verse of M. Marmontel tells us very well what M. Rousseau is, and what we ought to find, and what we seek in vain in the portrait of M. La Tour. Somebody has exposed at the Salon a picture of the "Death of Socrates," which possesses every quality of ridicule that this sort of thing can have. The poorest and most austere philosopher of Greece is made to die on a bed luxuriously fitted. It escaped the painter how sublime and pathetic would be the picture of virtue and innocence perishing in the corner of a dungeon, on the straw of an old truckle bedstead.*

SANITARY INSPECTION WANTED IN THE CITY.

JUST opposite the main front of Newgate, stretching to the east side of Farringdon-street, there is a curious locality, consisting of narrow courts and alleys. Most of the houses are let in tenements, and inhabited by numerous families. It was in this block of buildings that Hogarth the painter was born, and Oliver Goldsmith for some time resided. As we have already mentioned, both these houses have now disappeared.

Some of these alleys descend steeply from the Old Bailey towards the dingy Fleet stream, which used to flow along what is now the centre of Farringdon-street.

Green Arbour-court, in which Goldsmith lived, is reached by a steep flight of steps, which, on a small scale, resembles those to be met with in parts of Edinburgh and Newcastle-on-Tyne: along this runs a wall of ancient stonework. It has been supposed that this has been some portion of the old wall of London: it, however, stands too far to the west to have been a portion of the direct line of the City walls. This fragment was mentioned some years since in the *Builder*, in an illustrated article on the City wall and other defences. It was then suggested that this might have formed some outwork. After a very careful examination of this curious looking spot, and of the maps, &c., it seems much more likely to have been some part of the Fleet Prison.

In this neighbourhood there have been buildings since the Anglo-Saxon times; and it is clearly to be seen in "Agass's Map, a View of London in the Reign of Queen Elizabeth," that the space enclosed by the boundary was much greater than the area which is at present enclosed. At the great fire of 1666, the Fleet Prison, shown in the map just mentioned, was destroyed; and, on the rebuilding, some of the ground seems to have been in other ways disposed of. This spot is worth examination by those interested in such matters. In making further investigation in some of the places close by, we found instances of much sanitary neglect: a number of the houses are either without any, or else very small back-yards. In several instances the closets, dust and other refuse, and the water, are in the cellars below the habitable part of the houses: the

general condition of some of these was most unwholesome, and the bad atmosphere could be distinctly smelt in the dwelling-rooms. Complaint was made of the irregular attendance of the dustmen; and as it does not seem to be the business of any one particular tenant to see after this important matter, these cellars are loaded with poisonous matters, the dangerous effect of which is evident in the pale bleached faces of women and children. It is remarkable how little the majority of people living here care for or understand the laws of health.

It is, however, very necessary that the sanitary officers of the city should, with much firmness, do their duty. They should enforce the regular attendance of the dustmen and other scavengers, and also make a careful house-to-house examination of the basement of this description of premises; and, in case it should be necessary, those who receive the rents for the numerous tenements should be obliged to cause the removal of the dust, &c., and to properly ventilate these cellars, trap the sinks, &c.

From the above-named locality it is not a great distance to the famous old church of St. Bartholomew, Smithfield. The antiquarian traveller in this direction will regret to see that the picturesque entrance-gate is still dilapidated and uncared for. The hostelry called the "Coach and Horses," which was, in days past, the hospium of the monastery, looks very smart in its old face. There are other changes which will be noted. The interior of the ancient church still retains its venerable appearance; and it has a magical effect to pass from the bright summer sunset and the heat into those grey, cool, and quiet cloisters. The dampness of this church, which is evidently caused by the want of effective drainage, is to be regretted. In the course of centuries the soil, by the burial of the dead and other accumulations, has risen on all sides 6 feet or so above the original pavement: in some parts it is more. It is necessary that a work of this description should be undertaken for the sake of those who attend here, and also for the preservation of the building. Surely, a sacred edifice which still possesses so many old details, and which is connected with so many important portions of our history, should not be left without the means which would enable those connected with it to put it into good condition. Owing to fires, the south transept, nave, &c., no longer exist; but at no great cost the choir, and the cloisters surrounding it might, in their architectural features, be made to assume their original appearance. The windows at the east end, which so much disfigure this interior, should be altered. There are other changes which will suggest themselves as necessary to all who are acquainted with this church. The Smithfield Gateway should not be neglected.

Leading from St. Bartholomew's close, in the direction of the east end of the church, is a passage, the name of which is lettered "Middlesex-passage;" it is, however, better known as the "Devil's passage," by the boys and others in the neighbourhood, probably from its dark and forbidding aspect, and the Rembrandtish peeps which may be seen through the doorways, opening on each side into the vaults which lead below the immense apartment, formerly used as a refectory by the monks of St. Bartholomew.

From this passage the path goes past a row of small houses, to which we some years ago directed attention. Then the neglected state of the drainage, &c., was abominable; and so much did the people suffer in their health, that the drainage was set right, and other improvements made at a considerable cost. The money has been well invested: the houses look comfortable, and fit to command their rent; and the people report that they have been free from sickness, particularly with epidemic disorders. Running at right angles with these dwellings is another row of houses facing the south side of the church. In some of these the drainage is very imperfect: some of the people have been annoyed by bad smells; and in one house two persons had died of scarlet fever, one of them a child, respecting whom the mother said that it looked so healthy, that you might have taken a lease of its life. The mother mentioned that besides the sad loss, these sudden cases of illness, &c., press very heavily on respectable workmen, who are determined to pay their debts. The doctor's bill and other expenses had cost them not less than 20*l.* of hardly-earned money.

In another house close by, three children, aged one, three, and four years died within a month; also from scarlet fever.

Sanitary improvements are going forward, but a mighty task remains to be done in the metropolis alone.

* To be continued.

GRANITE DRINKING-FOUNTAIN.

SIR,—Observing a letter in a recent number of the *Builder* on the "bad taste" evident, if not given, in allowing the water from drinking-fountains to run out of the mouths of animals; and agreeing entirely with the observation; I beg to send you some designs of the Cheesewring Granite Company, which are all of floral type, and expressly designed to avoid this monstrosity.

JOS. TAYLOR.

* * We give one of them, simply observing that the flowers from which the water runs look too much as if stuck on for the purpose. Two actual "taps," properly ornamented, would be much better.

BRITISH ARCHÆOLOGICAL ASSOCIATION AT EXETER.

IN our last we gave a preliminary notice of this congress. We now resume our account of the active proceedings of the week.

On Tuesday, the 20th, Col. Harding acted as *cicerone* to the company, and several antiquities were examined. There appear to be, as usual, several popular errors, and it is not uncommon for the association to dissipate them. At the Guildhall, for instance, is a sword believed to have been given by Henry VII. The long blade may have been, but the mountings are of Jacobean make. It is singular to notice the disposition to increase the antiquity of objects; and this spirit has certainly been handed down from at least the earliest monkish times.

These preliminary matters having been discussed, the cathedral became the next centre of interest. Mr. Davis conducted the association round the north and east sides, and then through the interior, and thence to the south side. His historical and descriptive account of the previous evening, and his observations of the next day, will be found elsewhere condensed.

The two hours allotted to this, the chief object of the architectural portion of the Congress, having expired, an excursion was made to Crediton; the president providing luncheon *en route*, and permitting the members to wander at pleasure to view his house,—which, he said, is neither itself nor its contents very old,—and the scenery, which, however, is ancient. These received much attention from the visitors,—without, however, entirely forgetting his previous warning; for the train was punctually met, and Crediton attained.

On arriving at the entrance to the churchyard, they were met by the Rev. Prebendary Smith, vicar of Crediton, who led the way into the building, and explained its general features. It is a very fine old cruciform church, but unfortunately is in the Court of Chancery, which allows no more money to be spent than will suffice to put it in a "good and substantial" condition. So far as these terms may be taken in their most literal sense, the trustees have certainly gone as far as their powers permit them. The walls and roof are of the most substantial nature; but a glance at the interior shows that there is much room for improvement. The roof is flat and plastered, depriving the building of its proper proportions, which could easily be restored by substituting an open one of timber. Then the pews are in the old style, while the organ is placed immediately in front of the west window, which it shuts out from the view of the congregation. Mr. Davis gave a brief architectural description of the building. He thought it was remarkable that the freestone work about the windows had only been used in the tracery, and not in the jambs. He had never seen a similar instance before: Mr. Hayward, of Exeter, however, said this was a common practice in Devonshire.

The party then entered a portion of the church behind the choir, until lately used for the Grammar School. Within the last few years large and commodious premises have been built for the school and the masters, and this portion of the church is now in a very disordered state. Here, however, amidst broken masonry and dust, ladies and others assembled to hear Mr. Tuckett's paper on Crediton. In the absence of the author, the paper was read by Mr. Leven. The writer traced the history of the bishops of Crediton from the earliest times down to the removal of the see to Exeter; and then mentioned the most important incidents in the history of Crediton. Among other facts, he stated that, during a period of thirty years in the last century, four great fires destroyed upwards of 700 houses. At one time the town was the only seat of woollen manufacture in the county. The concluding portion of the paper was devoted to architectural observations on the church. Mr. Tuckett attributed much of the work of the Lady

Chapel to the Saxon period, but this opinion was strongly controverted by Mr. Roberts, who expressed his regret that the author of that paper had not given them some account of the building, called the Lady Chapel, which was too lofty, and with too little over it to be a crypt, and too detached and sunk to be a Lady Chapel. It was a beautiful piece of architecture of the fourteenth century, except a kind of chapel or transept, with a much earlier arch and piers, with a corresponding opening opposite, now filled up; and there was not a fragment of either Saxon or Norman work in it.

In the evening Mr. J. R. Planché read a paper "On the Earls of Devon;" Mr. T. Wright one "On Bishop Leofric's Library," given by him to Exeter Cathedral in the eleventh century; and one by Dr. Pring, "On the last Abbot of Ford." On Wednesday, the first place visited was Ford Abbey, where the members were received by Mr. Miles. The remains are not considerable but interesting, and the description was clearly given by Mr. Gordon Hills. The greater part of that which is now to be seen is the work of Dr. Chard, the last abbot. The chapter-house is of transition Norman, and is the oldest portion. Mr. Hills called attention to the recess in which the vaulting shafts were inserted, instead of their projecting as usual.

From Ford the party proceeded to Ottery St. Mary, where they were entertained by Sir John

Coleridge. The church was examined under the guidance of Mr. E. Roberts, F.S.A., who said that the first impression on entering might easily be that it was a very excellent specimen of the work of the eighteenth century, but an examination would soon dispel such a view. It is unique as a parish church, with its transeptal towers; no other buildings having them but the original plan of Winchester and the cathedral at Exeter, from which this church was said to be imitated; and, taking part by part, the church would bear out the tradition. There were the towers, of a century later than those at Exeter, and the other parts (with some exceptions in the lower parts of the external walls and the two other transeptal chapels) of Perpendicular transitional work, founded on the Decorated work of Exeter. But, he stated, that the whole, inside and out, seemed within the last century to have been restored in so ill a manner as to have interfered very materially with the mouldings; the chapels before named having escaped by being the one an engine-house and the other a lumber-room. He praised the work of recent restoration except the sculpture, which he thought should never be restored; and urged further coloured decoration; which, in the case of plain masonry, is much more fit for it than when it is elaborate.

The exterior bears scarcely any resemblance to the original work. All the parapets, crosses, strings, and mouldings, are of fifty years ago; and



GRANITE DRINKING-FOUNTAIN.

the walls are considerably cemented and covered with black cement-pointed joints, even where there are no joints in the masonry. There are many holes in the vaulting of the church, which Mr. Roberts considered were for the escape of accidental water; and he pointed out wet where there was injury of the colour by wet where there were none. Considerable discussion took place on this highly interesting and curious church; Sir John Coleridge and Mr. J. D. Coleridge giving historical information on some doubtful points. Mr. Davis and Mr. Hills assisted in the discussion; all parties agreeing on the desirableness of more colour; while differing in some respects on account of the anomalous nature of the work. There is some good oak carving carefully preserved.

Cadbury House was inspected; but, except some explanation by Mr. Davis of the origin of corridors, all the observations were conversational.

In the evening the president referred to the discussion at Ottery as one worthy to be followed out. The papers read were one by Mr. T. J. Pettigrew, F.R.S., on the Roman antiquities found in Exeter; another by Col. Harding on the cognage of Exeter; and part of another by Mr. Gidley, on the Royal visit to Exeter. This paper was so voluminous that only about half was read. We shall return to the proceedings.

EXETER CATHEDRAL.

The following is a summary of the paper on Exeter Cathedral, read by Mr. C. E. Davis, at the recent Congress of the British Archaeological Association:

It is on record that on that spot two ecclesiastical edifices, at the least, existed, of which there does not seem to be the smallest trace. The first was founded by Athelstan about the year 932, and was burnt down by Sweyn in August, 1003. Of the building which succeeded it they only knew that it contained seven bells, to which Leofric, upon the see being removed from Crediton to Exeter by Edward the Confessor, in 1050, added six others, and a dozen smaller ones for chiming. This building, which was in all probability the largest in the diocese, was doubtless far inferior to many foreign cathedrals that Warelwast, the bishop, who was consecrated in 1107, had seen whilst occupied in his foreign embassies, in which he was employed by his uncle, William the Conqueror. In 1112 this bishop commenced rebuilding this cathedral on a much grander scale than the previous building; indeed, the two towers that were left in almost their integrity, if they did not display originality of design, or the simplicity that they occasionally saw in that style, were sufficient to show that Warelwast's views were that his cathedral should, at least in size, vie with any other erected. During the progress of the work it was interrupted by a three months' siege of the city, in the summer of 1136, under King Stephen. Warelwast was said to have died the year following, leaving the cathedral still incomplete; and, in 1161, as Exeter suffered much from conflagration, it was probable that the cathedral itself did not entirely escape damage. The towers were remarkably fine, and bore a very great resemblance in design to the western front of Ely. They occupied an unusually large area, and had been obliged to submit to the humiliation of being crowned with pinnacles of the worst description, that would, from their form, give to any less massive tower a positively frivolous character. It was to be regretted that the effect of the massiveness of these towers had been so destroyed by the mortar pointing, which was of recent addition; the stones being set as closely together as they would admit, and the pointing of the mortar being nearly on the surface. It was left for Warelwast's successor to design that very fine decorative church which, as far as the northern side, might be said to have been completed before 1377. The northern façade equalled, if it did not surpass, the effect produced by the northern front of any other cathedral. In viewing the northern front from the Close they had on the right the western entrance flanked by the cemetery chapel, as it was called, of St. Edmund, said to have been an older structure than the rest of the cathedral. The windows of the side aisles were all of good and various designs, principally a combination of purely geometrical forms, with an occasional filling of flowing lines. The porch was enriched with exceedingly low ornamentation that would have been much better omitted. The parapet of the aisles was remarkable as being double the enter, which was simply battlemented with an open space, about 2 feet 6 inches wide, between a second parapet, which was much more lofty, and without battlement, but pierced with

loopholes, of the cuneiform shape usual in fortified buildings, but not to be seen in other churches. The roof of the aisles was raised to the level of the parapet, so as to afford a covered way as a protection to the defender. In the centre of the front towers, up the Norman Tower, a window was inserted in the time of Bishop Quivil, between 1280 and 1291. In the southern tower a similar window was then also inserted, but enlarged in 1427 or 1430. These windows (omitting the transom in one) were decidedly the best-decorated windows in the cathedral, excepting that to the west, of which they appeared to have formed the first idea. The window in the northern tower formed a most capital centre, and the front would lose all point were it omitted. The western front was of as bold a character as the other portions of the building, and was quite unlike any other western front. The window in the centre was perhaps the finest in this country. If its symbolism could be read, he believed a tale would be elicited that would interest even those who were indifferent to the beauties of architecture. The head contained a large wheel, in the centre of which was a five-foiled star, from which sprang five triangular figures, compressed within a circle: round these, but still within the great wheel, were twelve figures, alternately circular and quatrefoil. Supporting the head were nine lights, more or less foliated. Above this was another window, and still higher was a very dilapidated tabernacle, inclosing the very impressive figure of St. Peter, the patron of the cathedral. Supporting the central portion were screens, very poorly executed, built to enclose staircases from the very pretty octagonal turrets which sprang up—the northern from the wall of St. Edmund's Chapel, the southern from a massive buttress that originally formed a part of the enclosing wall of the cloisters. This brought them to the screen that stretched across the whole of the western front; containing two tiers of very rich tabernacle work, inclosing statues, of which the lower ones were supported by angels. The majority of the figures were very well executed, and were mostly posed in much more graceful attitudes than usual. The interior, as seen from the west door on a first view, appeared low, but it was really higher than many cathedrals. Over the arch of the fifth bay from the west was a hanging gallery—the minstrel's gallery, the front of which was beautifully enriched with tabernacle work, enclosing in its twelve recesses a figure playing some instrument. A monument that had lately been erected in bronze and white marble in the nave desecrated the cathedral, and perpetuated an art but a shade better than that of the scribbling schoolboy or a Pagan hieroglyphic. Its erection was not only to be regretted in an archaeological point of view, but also that the names they so much honoured should be associated with anything so contemptible. From a central point in the eastern side of the cloisters was the chapter-house, a parallelogram of four bays divided into three stages. The tomb of Henry Marshall and Simon of Apulia was probably designed by the same hand. The chapter house, whatever it might have been, was removed some time in the fifteenth century, and raised to its present elevation; having perpendicular windows in each bay, with tabernacles between, in tolerably good work, ascribed to Bishop Lacy, who died in 1455. The east window was considered the work of his successor; whilst Bothe, the following bishop, was said to have erected the rich carved and gilt roof. Between the chapter house and the south transept was the chapel of the Holy Ghost. Proceeding by the south aisle of the choir in the first bay was a doorway, now stopped up; whilst three bays further east was the Chapel of St. Joseph, beautifully grained in two bays. The windows were of the simplest form of tracery, of the date of 1280. On the north side of the chapel is the canopy of a tomb of exceedingly good design. The centre division was a two-centred arch, enriched with large open crosses. The tympanum was fitted with a vesica piscis, containing a seated figure of the Saviour, and a panel on each side, containing an angel swinging a censer. In the floor were a few simple eucastic tiles. Above the chapel was a chamber similarly floored, which was entered by turret stairs, approached through a yard that was formerly a chamber of some kind in connection with St. Joseph's Chapel. The crypt beneath, which was approached by a grated window, was probably the priests' prison, as tradition assigned a portion of the building to that use; but whether it was taken down when the palace, which was immediately contiguous to that point, was altered in 1816, he (Mr. Davis) could not say. On the north side was the chapel of St. Andrew, with a similar room over it, but no crypt. One of

the gems of the cathedral was the screen across the entrance to the choir. There were but very few of these remaining in England in their original position; and, considering how many and various had been the injuries inflicted upon the interior of this cathedral, it was gratifying to see that beauty for once had been able to defend itself.

THE SOCIAL SCIENCE CONGRESS.

LORD TALBOT DE MALAHIDE's address, on the sixth day of the Congress, was a very able one. In referring to the Sanitary Department over which his lordship presided he said:—

"We have had a most valuable paper from Mr. Chadwick, the highest living authority, on the drainage of towns. There cannot be a more important sanitary problem than those involved in this question, coupled with the proper application of the sewage, which I trust we shall see directed to increase the wealth and agricultural produce of the country. I shall be ashamed of our distinguished civil engineers if they do not solve this difficult question in our time. I will not enlarge on the importance of securing an abundant supply of wholesome water, or the nature of the most important towns in Dublin and other large towns. There is no dispute as to the advantage of obtaining these objects; but, unfortunately, there is so much difference of opinion on the details that we must better eschew the subject."

In speaking of the amelioration of the dwellings of town and country populations his lordship said:

"The Royal Agricultural Society of Ireland has offered four gold medals for the erection of the greatest number of newly-built labourers' cottages within each province, the same number of gold medals for improved cottages in each province, a gold medal for the greatest number of newly-erected cottages in each county, a silver medal for the greatest number of newly-erected cottages within the district of each local society, and one for the greatest number of improved cottages within each local society. Besides this there is the Leinster Challenge Cup for the person who shall have erected during the year the greatest number of approved labourers' cottages in any part of Ireland. The conditions for the erection of new cottages are well disposed to co-operate as they would wish. 1. They must not be too expensive; for, in so great a work, it is advisable to make the outlay as nearly reproductive as possible; and unless this is done, it will not be in the power of a large number of landowners, however well disposed, to co-operate as they would wish. 2. They must not be too large. If they are so, instead of improving the condition of the inmates, you tempt them to take in lodgers and make them overcrowded. For a married couple, without children, two rooms are sufficient, with the necessary offices. If they have children of both sexes, three are absolutely necessary. 3. They should have all, where it is practicable, a garden, not a large one, or more than a roof. This will enable them to be self-supporting, and be a great source of comfort to the inhabitants. I believe most influential landowners in Ireland are doing something in the way of improvement."

The ladies of the Association were thus complimented:—

"I have listened to the brilliant and truly judicious remarks of some of our ladies' associates, both in the section and in other sections, with intense admiration. The practical sound sense, benevolent feeling, and the earnest and fervent eloquence with which their suggestions were presented, have produced a deep and lasting impression on all their hearers. It is the proud boast of our Association to have secured the co-operation of such recruits. Their assistance cannot fail to smooth the irritation of contending theories, to allay the bitterness of social controversy, and all-injected zeal; and it will be a great epoch in the history of our city, and gratefully to be remembered, if the efforts to establish a powerful combined ladies' visiting association for improving the dwellings and sanitary habits of the Irish poor, irrespective of party contentions, meet with the success they deserve."

The address on the seventh and last day of the Congress (Wednesday the 21st) was delivered by Judge Longfield, as president of the Social Economy Department.

The closing meeting of the association was held in the Solicitor's room. There was a crowded attendance.

The Report was read by Mr. Hastings. It congratulated the association on the complete success of the Dublin meeting. The number of members' tickets issued had been 353; and of associates' 1,347; making a total of 1,700. The report then reviewed the proceedings of the different departments. In the first, that of Jurisprudence, two reports of committees and 25 papers had been read. In the second, that of Education, upwards of 20 papers had been read. In the third, that of Punishment and Reformation, 24 papers had been read. In the fourth, that of Public Health, 24 papers had been read. In the fifth, that of Social Economy, 44 papers were read. The great feature in this department, continued the report, was the number of papers contributed and read by ladies, being no less than 16. The interest and the discussion created by these papers filled the department with crowded audiences during the whole week. The subject of the employment of women, and also the important subject of workhouse management, were most

ably handled by the ladies present. The sixth department, that of Trade and International Law, had been very successful. A discussion, introduced by M. Chevalier, led to the following resolution:—"That we cordially concur with the president in the great advantage that would arise from the adoption of a uniform and decimal system of weights, measures, and coins for all nations;" and another discussion, also introduced by M. Chevalier, led to the following resolution:—"That, in the opinion of this association, the acquisition of land, as well as of all other property, should be freely permitted to foreigners, apart from all question of enjoyment of political rights."

The report recommended the following list of sixty members of council for election:—

T. D. Acland, jun.; Edward Akroyd, Rev. J. H. Barton, Thomas Bazley, M.P.; W. G. Blackie, J. A. Blake, M.P.; Herbert Broom, Stephen Cane, M.P.; Edwin Chadwick, C.B.; Thomas Chambers, William Chambers, Charles Cobbe, Captain Crofton, C.B.; J. T. Dawson, Dr. Farr, F.R.S.; W. J. Garnett, M.P.; J. P. Gassiot, F.R.S.; George Godwin, F.R.S.; Sir F. H. Goldsmid, Bart., M.P.; Dr. Headlam Greenough, Sir Edward Grogan, Bart., M.P.; Rev. Dr. Guthrie, Robert Harbary, M.P.; W. Nelson Hancock, LL.D.; Charles Hawkins, M. D. Hill, Q.C.; P. H. Holland, Rev. J. S. Howson, Anthony Lefroy, M.P.; Sir Baldwin Leighton, Bart., M.P.; John Lemaire, D.L.; J. M. Ludlow, Brenton Lupton, James McCann, M.P.; Horace Mann, James W. Morland, Rev. J. D. Maurice, Rev. David Melville, Samuel Morley, Rev. J. P. Norris, Sir Stafford Northcote, Bart., M.P.; Dr. Lyon Playfair, C.B.; Edmund Porter, F.R.S.; P. H. Rallonge, K. A. Canon Richson, Henry Roberts, F.S.A.; H. W. Ramsey, W. Scholefield, M.P.; John Scott, F.R.S.; R. A. Stanley, M.P.; Dr. Southwood Smith, F.R.S.; Rev. S. A. Stenham, J. Strong, LL.D.; W. Tite, M.P.; Rev. Sydney Turner, W. Pollard-Urquhart, M.P.; Sir Harry Verney, Bart., M.P.; J. F. Waller, LL.D.; and Thomas Webster, F.R.S.

The report was unanimously adopted.

Votes of thanks to Lord Brougham, as President of the Association and as President of the Congress—the first moved by the Lord Justice of Appeal, and the last by Sir Robert Peel, now the Irish secretary—were passed with acclamation; and, after some other formal proceedings, including a vote of thanks to the ladies, the meeting separated.

THE SEWERAGE OF DUBLIN.

At the meeting of the Social Science Association, Mr. Parke Neville, city engineer, read a paper on the "Sewerage of Dublin." He stated that until after the visitation of Asiatic cholera, in 1832, the state of the sewerage did not receive the attention which its great importance demanded. From Government inquiries made in 1832, and subsequently, it was found that the cholera flourished most where the sewerage was neglected, and the supply of water bad and scanty. In the streets situate within the boundary of the ancient city of Dublin, there existed but very few main sewers. The district in which such streets were situate, on the south side of the Liffey, commenced near the west side of the present Richmond Bridge, and thence extended southward nearly along the line of Meeting House-yard to Wormwood Gate, where the Ormond Gate stood; thence to the Corn Market, where the New Gate stood; thence, turning eastward between Back-lane and Francis-street; thence to where Little Ship-street joined Werburgh-street, across Dame-lane, and then to the river a little eastward of Essex Bridge. In 1851 he commenced a survey of the sewers of Dublin, for the purpose of designing a plan for the improvement of the sewerage of the city. In his survey, the sizes and forms of the sewers were found to vary very much, some measuring from three to four feet in width, others from three to four feet high by two to three feet wide. The size generally adopted by the late paving commissioners was six feet high by three feet wide, and they were laid out apparently without any attention to fall. In Blessington-street and Capel-street, near Essex Bridge, they found the sewers of large size. In different parts of the city they found four-inch brick arches used over sewers of from two and a half to three feet wide, in good preservation, showing how well such brickwork would stand, and that there was no novelty in using it. The levels of the sewers he found in general very badly laid out, particularly in the streets running east and west, which cannot have rapid falls; in many cases being almost level, in others full of hollows, up and down; and frequently they could not little better than great cesspools. In some of this class, they found as much as four feet of solid deposit, rendering all house drainage impossible. When he had completed the survey, he laid down a general plan for the improvement and extension of the sewerage of the city, as shown by a map which he now exhibited, and as detailed in the report which he made to the corporation early in the year 1853. The Liffey, flowing from west to east, naturally

formed the outlet for the entire sewage. They had recently constructed important sewers, which discharged into the river at the North-wall. In addition to these, miles of large and small sewers have been laid down in streets which never had sewers before; and considerable lengths of old and decayed sewers have been taken up, and new ones built; and where the old sewers were found sound and their levels such as to permit of their being made available, they have been repaired, underpinned, and had brick inverts placed in them and their levels corrected; thus rendering them thoroughly effective. It is intended that these works should be continued until every street in the city has a really effective main sewer; and it is also proposed to remove all the old stone gulleys, and substitute metal trapped gullies, and to make side entrances into the sewers, so as to facilitate getting into them for examination and repairs, and thus render unnecessary the frequent breaking up of the streets. He calculated that, by the works executed, they had provided means for drainage to at least 6,000 houses, a large proportion of which had no means of drainage before. He might here allude to the fact that it had been found very difficult to get the owners of houses to make house-drains into the new sewers, on account of the trifling cost of putting in the drain. In a great many good streets, and in almost all the poor ones, not one in ten availed themselves of them; and up to within the last few weeks the corporation had no power to compel parties to do so; but this defect had been remedied by an act passed in the last session, as an amendment to the Dublin Improvement Bill, whereby the corporation had now the power to compel all householders to make drains when called on; and in the event of their neglect or refusal, then the corporation could do the work and compel them to pay the cost. He believed that great improvement would be the result of the works he proposed, which were similar in many respects to the low-level sewers designed to relieve the Thames, only of a much simpler and less expensive character. They would cost probably 10,000.

THE BERLIN WATERWORKS.

The eighth half-yearly meeting of the proprietors of the Berlin Waterworks Company has been held at the London Tavern.

The report of the directors stated that, notwithstanding the intense cold experienced at Berlin last winter, in the course of which the thermometer indicated at one time as low a rate of temperature as 45 degrees of frost, the company's pipe-system sustained no injury. The progress of the undertaking, though not so rapid as could be wished, has, nevertheless, been satisfactory.

The Chairman stated that the company had not pressed the question of further concessions, as at present inquiries were being made by a commission as to the establishment of a system of sewerage in Berlin; and as it could not be carried out without the aid of the water supplied by this company it was thought that a better time than the present would arise for them to put forth this question. That the company was appreciated in Berlin was proved by the fact that scarcely a new house was now built to which the water was not laid on. Indeed, the directors had been somewhat amused at reading an account of something like a strike in Berlin amongst the housemaids; they refusing to accept service in houses where the water was not laid on. The Germans were a somewhat slow people, and would not very readily give up their old-fashioned wells and pumps. All, however, looked at present encouraging.

EMIGRATION OF SPITALFIELDS WEAVERS.

We are glad to perceive that the emigration movement amongst the Spitalfields weavers has been commenced with some success; and by this time a number of families are on their way to Queensland, a place of promise.

The distress still continues: several hundred weavers are out of employment, and in a starving and destitute condition. A considerable number of these are willing to follow their brother workmen to the new colony, but want of sufficient funds prevents the carrying out of this most desirable measure.

An influential committee of clergymen and others has been formed for the purpose of collecting subscriptions for the immediate relief of the distress, to assist the weavers to remove to places where they would be likely to obtain some other suitable work, and to assist those who feel so disposed to emigrate.

It is only by personally inquiring in this neighbourhood, that any just idea can be formed of the sad condition to which many honest families are reduced; and much needed is the charity which may flow in this direction. But for help, families must fall into hopeless poverty. Children who would be most useful in the fertile and beautiful Queensland will grow up in hopeless poverty; useless and, perhaps, mischievous wanderers in the streets. Such is the feeling shown in this country in connection with circumstances of real distress, that we think the real condition of the weavers only requires to be generally known, in order that such substantial sums may be forthcoming as would enable the committee to carry out the emigration of the weavers and their children on a large and useful scale.

Miss Burdett Coutts, who has done so much good in this district, has taken an active interest in the movement, and several gentlemen have liberally contributed. We trust that their good example will be followed; and that in a short time we shall have the pleasure of reporting that another body of weavers are sailing away from their great trouble and distress.

THE ROYAL ENGINEERS' DEPARTMENT.

FORGERY AND FRAUD.

A DAREER chapter in the history of the Engineer's Department than any of those we have heretofore given place to in the *Builder* has just occurred at Dublin, where Captain Connolly, who has for many years been chief clerk in the Ordnance Department, has been arrested on a charge of forgery and fraud, in collusion with Mr. John M'Ilwaine, of Naas, county Kildare, builder, and an extensive Government contractor, who is also in the hands of the police authorities on the charge of fraud.

The warrant charges them with having, "on the 26th of March, 1861, and on other days and times, at Lower Castle-yard, wilfully and fraudulently conspired together to defraud her Majesty's principal Secretary of State of the War Department of a large sum of money, of the value of 100,000."

The precise nature of the case against the prisoners will be best gathered, perhaps, from the information sworn against them by the district commanding engineer in Dublin, Colonel E. W. Durnford, who said:—

"I have examined the bills of John M'Ilwaine, triennial contractor for artificers' work at Richmond, Island-bridge, and other barracks in the Dublin district, for the quarter ending 31st December, 1861. The name 'Edward W. Durnford,' at the bottom of that bill, is in my handwriting. At the time I signed the said certificate, the alterations now appearing in the foot of the bill, and in the abstract on the last page, did not exist. When I signed the certificate, the sum was 271. 11s. 5d., and not 576. 18. 5d., as it now appears. The initials 'E. W. D.' set beside the alterations are in the handwriting of, and were never written by my authority, and are not even Connolly's the chief clerk in my department, and has filled such office for many years. After being signed by me, the contractor's bills were taken into the office of the chief clerk, and were despatched from that to the Accountant-General of the War Department, Pall-mall, London, for payment; and, after being certified by me, no person has access to those bills, except the chief clerk who was ever employed in his office. The accounts so certified by me were properly payable to the said John M'Ilwaine; but he has fraudulently received upon foot of said bills a sum of about 51. (?) In addition to the above, there are other bills, with alterations for more than the amount certified in them. Having inspected the figures—576—at the foot of the bill, I am satisfied they are in the handwriting of Connolly. I identify Connolly, but I do not know the other prisoner."

This is only one specific charge out of many, as the defalcations have been going on for some time, and may have been, for many years; to what extent it may be hard to say;—12,000, at least, it is said; but the margin given by a sum such as 100,000, shows the extent of the suspicions of the authorities on this head.

The prisoners were remanded, as requested, by the magistrate of the Head-street office, before whom they were brought; and at a subsequent hearing some documents in Connolly's handwriting were put in; showing that according to his own written evidence he took the lion's share of the plunder. It may be worth while to quote one of these, as it will show the working of the scheme. It was in the shape of a note addressed to M'Ilwaine, and was found in the latter's repositories.

"My dear Sir,—I have to pay 300l. in three weeks from this date, and there is no escaping for it. As I know you cannot help me without I assist you to do so, I have arranged matters according to the enclosed check. When you get the amount of these bills, you can give me 300l. You also owe me a balance of 277. 11s. 5d., I hope, you will soon be able to clear off; and then I promise you there will be no more transactions of this nature—Yours truly, E. W. Durnford."

Other documents contained a variety of calculations with reference to Island Bridge and Rich-

mond Barracks. The first showed as a result a sum of 232*l.*, which was divided into two sums—one of 150*l.*, after which were the words "for me;" and the other, 82*l.* 17*s.* 6*d.*, "for you." Another, containing calculations of a like nature, showed as a result 244*l.* 0*s.* 6*d.*, with the words "150*l.* for me; 71*l.* 0*s.* 6*d.* for you."

The prisoners were fully committed for trial at the next Commission, for conspiracy to defraud, conspiracy to obtain money under false pretences, obtaining money under false pretences, and Mr. Conolly, in addition, for forgery.

THE LATE "SEWERS' OFFICE," GREEK STREET, SOHO.

THE house in Greek-street, with the large open space in Rose-street, of the old commissioners of sewers, and lately occupied by the Board of Works, previously to their removal to Spring-gardens, was purchased at the Auction Mart, on the 7th instant, for the House of Charity in Rose-street, Soho, for the sum of 6,400*l.*, as already mentioned. It is intended to alter the present house, which was the town residence of Mr. Beckford, the father of the famous builder of Fonthill, for the purposes of the charity; and to erect other extensive buildings, consisting of the hall and dormitories, with a chapel, &c., on the vacant site at the rear. The alterations and additions will be carried out under the directions of Mr. Joseph Clarke, architect. The chapel will be commenced at once. One donation of 500*l.* has been made, since the purchase, on this condition: there are also other sums in hand to be specially devoted to the chapel.

The house must be well known to many members of the profession. The decorations internally, such as the principal chimney-pieces, the architraves, the door and window dressings, &c., are well designed, and are bold and characteristic specimens of the carving of the time.

COMPETITION DESIGNS FOR THE IMPROVEMENT OF BATH MARKET.

THE Provision Market Committee having offered 60*l.* and 25*l.* for the best designs for the improvement of the markets in Bath, seven architects sent in drawings. The first premium has been awarded to Messrs. Hickes & Isaacs, of Bath.

The design shows a central dome, of striking architectural effect, used as a fish-market, with a central fountain; the continuation of Market-row into the Orange Grove by a curve, joining the Grove at the point occupied by Withy's premises; the removal of the wholesale vegetable-market to the space occupied by the present slaughter-houses; and the formation of a public abattoir under such road and wholesale market; the space occupied by the present wholesale vegetable-market being either thrown open to Market-row, or let as a site for shops at heavy ground-rents.

To the plans of Mr. Green, of London, the second prize of 25*l.* was awarded. The design—which is shown by ten drawings—proposes to sweep away all the valuable property surrounding the markets, with the exception of the Cross Keys public-house, and the premises occupied by Messrs. Butt & Hales, and make a new street direct from the bottom of Bridge-street, and opening into the Orange-grove, just at the side of the Athenæum. At the back of the Guildhall a large area would be covered with a glass roof, supported on iron pillars and girders, and surrounded by shops, with a gallery over, except on the side nearest the hall: a fountain would adorn the centre, and around would be placed stalls for meat, fish, vegetables, &c.

Mr. Goodridge, of Bath, and Mr. Masters, of Bristol, are mentioned as amongst the other competitors.

PUBLIC BUILDINGS ON THE THAMES EMBANKMENT.

I DARE say many like myself, on looking at the plan of the proposed Thames embankment, will be prepared to offer suggestions. I will make bold to offer one or two. On such a long line of roadway it would add much to the picturesqueness to have some public buildings laid out on a grand scale, and standing out by themselves, instead of being overwhelmed by many-storied houses in juxtaposition. Two buildings occur to my mind to which the reclaimed land would be most suitable. We have been some years in selecting a site for the Royal Academy. Now I venture to think that this proposed embankment offers many advantages. The ground being clear, sufficient space could be obtained to allow this building to stand untouched by any other erection. This

would afford good light and security from the risk of fires in the neighbourhood. Another advantage afforded by this site is, that it will easily be approached from many railway stations, and it is very accessible from all parts of London. I should prefer this site to one that has been often named, viz.—Burlington Gardens. Burlington House is well disposed of: let it be kept as now used,—a home for learned societies. We have open space here: let it not be intruded upon. Every year, as London extends itself, open space in the heart of the metropolis becomes most valuable,—not in money point of view I mean by that term, but as fresh air lung-supplies to the inhabitants.

The other building I wish to see placed on this new site is the New Law Courts. The requisites I conceive for a well-placed building of that character are a thoroughly-isolated building: so much space should be given to it, that no annoyance from the streets should occur. The situation also requires easy access from the lawyers'-chambers, and the road to the Houses of Parliament should be direct. I therefore propose, in lieu of the expensive site in the Strand, to place the Law Courts west of Temple Gardens. The sites, I have no doubt, for the purposes I have named, could be obtained from the Metropolitan Board on easy terms; for, if properly built, they would form handsome additions to the Quay road.

AN OLD SUBSCRIBER.

THE TOWN HALL, DOVER; ANCIENTLY THE MAISON DIEU.

THE Domus Dei, or Maison Dieu, at Dover, otherwise called the Hospital of St. Mary, was a religious house for the entertainment and relief of pilgrims and travellers, founded and endowed in the reign of King John, by Hubert de Burgh, Constable of Dover Castle, and afterwards Earl of Kent and Chief Justiciary of England. The precise date of the foundation is unknown, but Hubert de Burgh was Constable of Dover Castle, A.D. 1201, and King John is stated to have lodged at the Maison Dieu on a visit he made to Dover in 1213. There are numerous and important records concerning this establishment, at various periods, from the time of Henry III. to that of Henry VII.; but as usual, they refer to its property and privileges, and it is in vain to look for information as to its architectural history. Some part of Hubert de Burgh's first buildings may possibly be mixed up with the modern walls occupying their site, and there are certainly remains adjoining the hall, on the north side, as early as the reign of Henry III. The Hall, to which alone the present notice will be confined, appears to be of the time of Edward I., and besides the architectural character of its original remains, there is evidence that some important work was executed at this period, in a royal charter dated 1277, authorizing the extension of the buildings of the hospital 42 feet on the adjoining land.

In the reign of Henry VIII. the Maison Dieu followed the fate of other religious houses. In the twenty-sixth year of his reign, the master and fellows, eight in number, signed the act of the king's supremacy, and the establishment was shortly afterwards suppressed. After its suppression King Henry VIII. retained the site of the hospital, with its appurtenances, in his own hands, as a victualling office, for the use of the Royal Navy; and Queen Elizabeth, in her first year, established it more firmly for that purpose, and it continued to be so used until the year 1830, under the direction of an agent victualler, clerk of the cheque, storekeeper, and other inferior officers. During this period the hall underwent much degradation, and its original features were nearly obliterated. The magnificent range of windows on the south side were still perfect in the year 1735, as they are shown in an engraving by Buck, of that date. The heads of several windows on the north side, which formed an interesting and picturesque object, at the entrance of the town from Canterbury, remained built in with brickwork, until the late repairs, when the stone was found to be so calcined as to render their preservation impossible; they had, however, been previously drawn and measured, and have afforded a key to the details of the new stonework in the restorations. In the year 1830, the victualling establishment was given up, and the Maison Dieu made over to the Ordnance Department. The whole property was sold by the Board of Ordnance, in 1834, and in 1836 the hall and adjoining buildings were acquired by the corporation of Dover, and appropriated to their present purposes.

The buildings on the north side of the hall were then fitted up as a session house, and its appurtenances, and a range of vaulting for a gaol, were constructed within the walls of the hall, thereby raising the floor, and deducting some feet from its original height. But although the hall formed the entrance and vestibule to the public offices adjoining, nothing was done to rescue it from its forlorn condition, and it remained in desolation and darkness, with bare walls and roof, and the lofty arched compartments, once occupied by the windows, filled with a blank of rough brickwork. An attempt was, indeed, made to restore the hall by subscription, which was renewed with better success in 1849; and, in 1852, Mr. Ambrose Poynter presented to the town of Dover, as a contribution towards the work, a report on the condition of the hall, and the design for its restoration which has now been carried out. The subscription proceeded slowly, and it was not until the year 1858 that from this and some other sources the exterior of three windows on the south side, and of the west front and entrance from the street, were gradually provided for; but little as had then been done, it was enough to demonstrate that the full execution of the design would render the Town Hall of Dover one of the noblest rooms of its class; and in the year 1859, the town council applied itself and its resources vigorously to the undertaking. Mr. A. Poynter having before this time retired from professional life, Mr. Wm. Burges was appointed to conduct the work, to its completion.

The interior dimensions of the hall are 127 feet in length, 30 feet in breadth, and 40 feet high from the pavement to the ridge of the roof. The floor is now about 8 feet above the level of the street, and is approached by an external flight of steps 12 feet wide. The entrance is shut off within by a panelled oak screen, extending across the building.

It is a popular error to suppose that this building was ever a church. It was always a hall, and, like other great halls of the Middle Ages, was the general apartment in which the commonalty were received and entertained by day, and littered down at night. Hasted states that a church was consecrated in the Maison Dieu, in 1227, in the presence of Henry III. The present aspect of the hall will be best described by the engraving. The emblazoned shields of arms which ornament the dado are a selection from those of the many distinguished persons who have held the offices of Constable of Dover Castle and Lord Warden of the Cinque Ports, beginning with Hubert de Burgh, and ending with the Marquis of Dalhousie. In the centre, at the upper end, are the arms of Her Majesty, and above are the arms of the Cinque Ports, flanked by two cognizances, borne on the ancient seal of the Town of Dover. The artificial lighting of the hall is provided for by sixteen branches projecting from the hall on each side, and two fine standards placed on the dais,—all executed in brass. A remarkable feature of this hall will be the stained glass. It is intended to fill the six windows on the south side, which measure 10 feet wide and 21 feet high, with historical subjects immediately connected with the town and port of Dover. The subjects selected are the following:—1st, the relief of Dover Castle by John de Penchester when besieged by the dauphin of France and his partisans, 1216; 2nd, Hubert de Burgh receiving from Henry III. the confirmation of the charter of the Maison Dieu, in 1227; 3rd, the embarkation of King Edward III. for the war in France, 1337; 4th, the arrival of the Emperor Sigismund, in 1416, when the citizens of Dover, headed by the Duke of Gloucester, rose in arms and opposed his landing until they were satisfied he came with peaceable intentions; 5th, embarkation of Henry VIII. for the Field of Gold Cloth; 6th, landing of Charles II.

The designs for these subjects have been made by Mr. Edward J. Poynter, who has also some of the cartoons in the course of preparation. The fifth and sixth in the series have already been reproduced by Mr. Wailes, and are in their places. They are pictures in which all the elements of good art are treated under the conditions special to glass painting, and the result is in many respects satisfactory. The first of the series will shortly follow, thus completing one half of what cannot fail to be a remarkable work. The west window over the entrance contains figures representing Hubert de Burgh and four others of the principal benefactors to his establishment. These were designed and executed by Mr. Wailes. The expense of the stained glass, so far as it has proceeded, has been provided for by bequests and subscriptions.



THE MAISON DIEU, DOVER — AS RESTORED BY MR. AMBROSE POYNTER, ARCHT. R. C.

THE WANT OF HOTEL ACCOMMODATION IN THE VICINITY OF THE NORTHERN RAILWAYS.

Sir,—The want of a second-class hotel in the neighbourhood of Euston-square is an evil felt by thousands of travellers on the North-Western and Great Northern Railways.

Now, as the Water Company are pulling down their reservoir in Drummond-street the site will soon be vacant for building purposes. Cannot some of our public companies, then, be induced to erect on this spot an hotel suitable for second and third class passengers?

At present there is no accommodation where country people, farmers, and such like, can make a home at during their visits to London except, on the one hand the hotels already in existence, where country visitors cannot afford to stop, and on the other hand, the little dirty coffee-shops, with their ill-ventilated bed-rooms and their notorious want of cleanliness.

Some time ago I read in the *Builder* that the North-Western Railway Company had suggested the propriety of enlarging their two hotels (the Victoria and Euston), so as to accommodate their more humble travellers; but as that could only be done by pulling down a great number of private houses, at an enormous expenditure of money, I suppose the scheme has been abandoned.

I really think, sir, if an hotel were to be erected on this site in Drummond-street, on a large scale, with a great number of bed-rooms, it would be highly remunerative to the shareholders.

A COUNTRYMAN IN LONDON.

NEWS FROM NEW ZEALAND.

ERECCTIONS: GOVERNMENT OFFICES, NELSON.—The *Colonist* gives the following description of these offices:—The building is in the Elizabethan style of architecture, and was designed by Mr. Maxwell Bury. The entire frontage of the building is 162 feet, with a depth of 87 feet; the shape is that of the letter *Π*. The top and bottom portions of the letter, which form the wings of the building, contain the offices of the various departments; and the centre or vertical portion of the letter forms the Council Chamber, or new Provincial Hall, as it has lately been called: the west wing, or upper portion of the letter, is devoted entirely to the superintendent and the Commissioner of Crown Lands Departments; the east wing, or lower portion of the letter, contains the offices of the registrar, treasurer, resident magistrate, committee, and judge's rooms, &c. The whole of the offices are on a large and handsome scale: they are well lighted, warmed, and ventilated; and the whole of the work has been executed in a strong and substantial manner. The hall, which is the largest room in the colony devoted to provincial purposes, is fitted up in a very superior manner: this room is 70 feet long, 30 feet wide, and 21 feet in height; and in addition contains a reporters' and strangers' gallery. All the material employed in the erection of these buildings, with the exception of some Ashbroath flagging and fire-brick from Europe, was procured in this province. The whole of the interior fittings are of red pine, varnished.

Tenders.—The tender for the Court House at Waipawa has been accepted. Messrs. Holt & Berry are the contractors, for the sum of 1967. 10s. The highest tender was 2607. and 3237. —the first sum with alterations, the latter according to specifications.

In Mr. Gill's report, mention was made of giving the reparation of the road to contractors.

Contracts were invited for repairing the road from the Junction with the Te-Aute-road at Waipawa, to the Waipawa Gorge. Also, for repairing forty-four chains of road (2,901 feet) from the Olive Ferry to Pongere's Hotel, Clive. Also, for the Bridle Track between Tongioia and Mohaka.

Messrs. Triphook & Wright, of Napier, have invited tenders for building a Wesleyan chapel, according to plans, &c. which were to be seen at their office.

Railway in Canterbury Province.—The superintendent of Canterbury says that he "has concluded an agreement with a substantial and capable contracting firm from Melbourne, for constructing the whole of the works on the Lyttelton and Christchurch Railway."

Miscellaneous.—The Provincial Government has let three contracts for making a road to Wangapeka. The roads were to be finished in less than two months. Small quantities of gold are beginning to arrive at Nelson from Wangapeka, which is a place having promising diggings. Hundreds of men are employed, and the number

is daily increasing. In the mean time (owing to this work lasting some time), they are going to improve the road by the Wai-ti Valley and Bindge's Gully, to the head of Ray's Valley. In the province of Otago a fresh discovery of gold is announced.

Gold is being obtained at Lindis. The Lindis river is easy of access from Dunedin and Oamaru, and is about 70 miles from both these ports. Roads are most desirable. Were a road made from Oamaru, it would be useful.

The character of the rock at Lindis is a soft blue slate, intersected with small veins of quartz, evidently the matrix of the gold. The country is about 1,200 feet above the level of the sea. The effect of these diggings has been to increase the rate of wages: most of the men who have gone to the diggings belong to the road parties. The rates, however, may be reduced if the workmen cannot work at Lindis in winter. Again, after winter, the rates will rise. It is said that slate, with veins of quartz, abounds in the Kurov, and rock ranges near the sea-coast; and that traces of copper have been noticed.

The Tarnaki iron-sand is about to be worked. We understand that a company is in the course of formation, and that the managers, Messrs. Martin, Fobler, & Co., are actively engaged in completing arrangements for smelting-works on a large scale in the colony. An efficient staff, with all the necessary appliances, was to leave England about the middle of March last, to commence active operations in the colony. It is said that the conversion of the sand or ore into ingots will not exceed 21. per ton, including all expenses; so that the finest cast-steel can thus be produced at a very moderate price indeed. Thus, Captain Morhead has been making arrangements for turning the sand of the district into all manner of peaceful as well as warlike implements.

AS TO STAINED GLASS.

SINCE my last communication to you on the subject of stained glass, I have had some notes from Mr. Powell, and it appears to me only fair that the readers of the *Builder* should have an opportunity of hearing both sides. Mr. Powell says,—

"You might have given us credit for the expense we have incurred in our wish to encourage the present movement which you and others are helping forward by employing artists and paying them independently of the glass painter. We wish to show that the very best drawing without good glass was of little use for window work (as we hear is exemplified at Glasgow); and we were willing for a time to submit to a loss by allowing our artist to take unlimited time in finding and executing the glass, and seeing each piece cut; and frequently the *streaky* bit was in the middle of a sheet, which caused very great waste. This was done because we did not wish those who had paid for artist's work should be disappointed. It is no use saying that we cannot make enough of the glass; for, as manufacturers, we will meet the demand of our customers, and they can choose anything we have; though I know our artists, when they see a telling bit, pick it up and keep it for their work. But you must tell the world that the glass painter must be paid for the time in selecting the glass, for the waste in cutting, and every piece of glass must be cut under the eye of the glass painter, that the streaky bits should come where most wanted. All this adds to the cost of window work; and if you want to help on the art, the 20s. per foot must not be mentioned again; for one good window is better than four bad ones. It will give more satisfaction, and the money be better spent."

Perhaps you will allow me to say one or two words in explanation of the 20s. per square foot hinted at by Mr. Powell: it ought, by the way, to have been 25s. I believe it is a generally-received rule in the glass-staining profession, when it is a question of rich medallion glass, to put the cost of the cartoon at 15s. per square foot, while the other 25s. goes for the glass. Now, what Mr. Powell proposes to do, and what I believe he has done in the case of the Waltham windows, is this: the coloured cartoons being furnished him, he undertakes to pick out the very best pieces of glass (sometimes, as he says, at the risk of cutting into the middle of a sheet), as near the exact tints of the drawing as possible; and to employ a gentleman to select these tints; the said gentleman having the somewhat rare faculty of actually knowing something of the difference between the different tints of the same colour; for all this Mr. Powell charges 32. per foot, and assures me that it cannot be possibly done for less;

and that the Oxford window (his penultimate work of this kind), which he took at 22. per foot, proved a loss instead of a profit. Now what I have ventured to suggest is this, viz.: if Messrs. Powell were to make all their glass streaky, there would be less necessity to cut up whole sheets of glass to get a particular piece; and even if such a course were occasionally requisite, the remainder, which is now waste, would (being equally streaky) be available in some other portion, and the expense would, consequently, be necessarily lessened.

Perhaps Mr. Powell's letter, being made public through your means, may induce the stained glass manufacturers to declare their wants so clearly, that Mr. Powell may be induced to meet the demand, which I am only too certain does exist. I should not have suggested Mr. Winstou making the results of his inquiries public, if it were not a fact that he has done so with regard to the Munich manufacture, which is now becoming a very serious rival to our own countrymen; and I still venture to adhere to what I said before, viz.; that, under this state of things, it is hardly fair to leave the whole profession at the mercy of one firm.

I have written this simply on public grounds: privately speaking, I may mention that I am perfectly satisfied with the execution of the Waltham windows, and am quite aware how much time and labour it has cost to produce so very satisfactory a result: the only question is, whether the said time and labour might not be lessened.

W. BURGESS.

HILL MONUMENTS.

IN these days when man may be said to be able even to move mountains; when art has materially advanced; when worthies have risen who, though fading personally from view, have effected objects which will be remembered for many generations yet to come; it is odd so little advantage has been taken of occasions and opportunities of combining our memorials of famous events and individuals with striking and suitable situations, in which art, in the shape of either architecture or sculpture, on a grand scale, might be made to form, with the works of nature, solemn and impressive harmonies; and where such works, from substantial and colossal construction, might be expected to remain as records, for many centuries, in defiance of wind and weather.

We remember some memorials excellently well devised and placed; for instance, that of Lord Collingwood, of which we have before spoken, as standing at the mouth of the Tyne, in stately solemnity, not far from the place of his birth; overlooking, like a guardian spirit, the German Ocean, and reminding voyagers and travellers from many quarters of the prowess on the seas of sons of this land.

In the county of Durham, at no great distance off, is a monument to the late Earl of Durham, which looks like the ruin of a Greek temple, placed on an eminence in a portion of a wild and bleak country,—to the eye, at least, which sees it, as we have done, only in passing; several times, either in a glimmering moonlight or a dusky twilight, and unable, from want of opportunity, to form any opinion of the details. This erection is placed in the midst of a neighbourhood abounding in blazing furnaces and coal-pits, from which materials, night and day, are raised from the deep bowels of the earth to add to the stability of the country, and to spread civilization to many and distant places; and strange but good is the contrast between those classic shapes and the machinery of the coal-pits, and between the rattling of the locomotive and the smoke and noise of steam-machinery on the one hand, and this mode of antiquity on the other, erected in honour of a gentleman modern in his ideas, and liberal and useful in his works.

There are, at any rate, in the Rembrandtish light in which we have seen it, poetical ideas to be gleaned from such a monument so situated. In ancient times memorials were erected on the highest hills: rude groups of stones; sometimes massed in a peculiar way; in others formed in man's hands: great must have been the labour, perseverance, and even skill which brought those heavy bodies from the plains.

Although in those bygone ages there was want of the means of giving artistic expression to works, there seems to be a grandeur in the selection of the positions in which those ancient placed the monuments, which man, now that he is more favoured with intelligence and skill, might profit by, and with excellent effect. There are, but few hill monuments in England; and these include certain "follies" which have no peculiar

associations, and are not of the most fit design; but yet the general effect is sometimes grand; and from miles around these objects are constantly before the views of the inhabitants and wayfarers.

The attention of mankind is naturally attracted to and interested by the mountain heights, and also by the wide-spreading plain. In some instances, as at Arthur's Seat, Edinburgh, and on the Cumberland and other British hills, the imagination of man has found forms of lions, and other animals, thrown up by the great worker, nature. Thorswalden has shown, in modern times, how to produce colossal sculpture. Might not the tops of some lofty eminences themselves be fashioned into memorials which would be as lasting as the pyramids of Egypt? Or might not these heights serve as bases of vast architectural or sculptural memorials, somewhat in proportion and harmony with the marvellous movements which are going forward around us?

HOOD'S WATER-BEARING IRON GIRDEERS.

Mr. W. Hood has patented a girder which contains and allows of the escape of water.

The advantages to be derived from using the Patent Improved Girders are claimed to be that, in case of fire, an immediate supply of water is obtainable from the girders over all parts of the room in which they may be; the application of the hose or conducting-pipe to the external walls of the building lessens the chance of danger to the men employed in extinguishing the fire; further, by preventing the girders from getting heated, expansion or any depreciation in their strength is prevented.

AWARD OF PREMIUMS BY THE ART-UNION OF LONDON.

THE Council of the Art-Union of London have made the following award of premiums for works submitted in competition, as mentioned in this journal of the 27th July last:—

To Mr. M. R. Elden, Stoke-upon-Trent School of Art, for a design for a majolica dish, 10l.

To Mr. A. T. Elwes, of the School of Art, South Kensington, and to Miss C. Phillott, of the Female School of Art, Queen-square, for a monochrome painting of animals from life, each 5l.

To Mr. F. Jenks, of the Birmingham School of Art, for a design for a majolica dish, 5l.

SANITARY CONDITION OF SHREWSBURY.

THE *Shrewsbury Chronicle*, after reprinting our article on this town, says:—

"The market having been disposed of *sine die*, the Council seem to be turning their attention to the subject of sewerage and drainage; for they state, in their report, that several communications have been made to them upon the subject, and that the Improvement Committee have shortly to be able to lay a definite proposal before the Council for adoption. That great necessity exists in many parts of the town for improved sewerage no one, we think, will doubt; but unless the plans which have been proposed are considerably modified, we do not think the Council will be justified in authorizing so great an outlay. While on this subject, we may allude to an article in our sixth page, from the columns of the *Builder*, wherein the writer draws the frightful picture of the sanitary state of this town. It is evident he has sought out some of our worst places—which are, however, quite as horrible as he has described them—and, taking them as the most repulsive aspect of the present state of affairs, as ought to induce our Improvement Commissioners to inquire from their Inspector if such things really exist. If they do—and we have no reason to doubt the statements of a competent eye-witness—the question is, have the Inspector or the Commissioners done their duty? People have a dislike to complain of their landlords or their neighbours, and thus nuisances of the worst character are allowed to arise, alike to the detriment of health and of common decency. Such being so, is it not the province of the Inspector to look up and report upon these dangerous places? Now that the attention of the Commissioners has been so pointedly called to the matter, we hope they will not allow these nuisances to continue unabated. It will be useless to attempt to carry out a proper system of sewerage, so long as landlords and tenants are allowed to set all the rules of health at defiance, as the cases pointed out plainly prove they do: the present law is strong enough to deal with them; and if the Commissioners will only act with promptness and decision on many of these scandalous nuisances—which are a lasting disgrace to the town in which we dwell—would bespeditly abated."

IRISH BUILDING NEWS.

AS ornamental fountain is about to be erected at Swords—to supply the central part of the town with water—by the governors of Swords school.

The Infirmary House, Clonmel, is about to be put in repair as an additional lunatic asylum for the county of Tipperary. Four firms sent in tenders, namely, Messrs. Troy, Cosgrave, Ryan, and Tobin. The respective amounts of their tenders were 3,600l., 2,900l., 2,600l., and 2,440l. The tender of Mr. Cosgrave was accepted, and the works are to be completed in six months. Mr. Watkinson (Board of Works), architect.

A company is to be formed in Thurles, county of Tipperary, working under the Town Council, to light the town with gas.

Contracts have been entered into with the Rhymny Iron Company for the rails, and with Messrs. P. P. Corry & Co. for the sleepers, of the intended new line of railway between Banbridge, Lisburn, and Belfast. Stations are to be erected at Hillsborough, Dromore, Mullaghfernaban, and Banbridge, from the designs of Mr. Thos. Jackson.

The new (R.C.) church of St. Mary and St. Peter, Wicklow, was consecrated on the 18th, by the Archbishop of Dublin, Dr. Cullen. The interior of the church is left unfinished at present, owing to a want of funds. The architect was Mr. P. Byrne. One only of the side altars is complete, and is of variegated marble: it was presented to the church by the Hon. Miss Petre.

Mr. Wm. Daniell, gas engineer, Mary-street, has been declared contractor by the Board of Works, for supplying and erecting the necessary gas-fittings for the lighting of the (R.C.) College at Maynooth, where upwards of one thousand lights are to be erected. Tenders were received from extensive gas-fitters in England and Scotland.

The Centenary Methodist Chapel, Stephen's-green, has been closed for the last few months, during which time the interior has been entirely remodelled and fitted up with new seats. The building will be open for divine service on Sunday, September 1. The style of the fittings is Doric.

The new club-house in Kildare-street is all but completed, and it is expected will be fit for occupation in a few months. The plan of the buildings consists of porter's and waiter's apartments, on the right and left of the entrance hall: at an elevation of about 18 inches above those rooms is the great central hall, to the right of which is the coffee-room, 60 feet by 30 feet, and 22 feet high: on the left, facing the College Park, is the morning room, of the same dimensions. Behind the coffee-room are servants' rooms, clerks' rooms, and a private staircase. The principal hall and staircase are lighted from the roof. The floor of the hall is paved with Forest of Dean, Cumberland, and Portland stone, and encaustic tiles. The rear buildings consist of dressing-rooms, water-closets, private dining-room, lavatory, bath-room and two billiard-rooms, 32 feet by 20 feet. There is also a racket-court, which is covered with an iron roof lighted by a central skylight the whole length of the court. The dimensions are 66 feet by 33 feet, by 44 feet. On the first-floor are waiting-rooms; also a drawing-room, writing-room, and card-room. There are fifteen bed-rooms on the upper floor; the average size of them being 14 feet by 21 feet. The basement is vaulted all through, and contains kitchen, wine-cellar, &c., &c. The front is of red brick and Portland stone. The total cost of the building will be about 25,000l. Messrs. Cockburn & Sons are the builders; Messrs. Deane & Woodward the architects.

CHURCH-BUILDING NEWS.

Billesdon.—The vicar and churchwardens of Billesdon, in answer to advertisement for tenders for the taking down and rebuilding the tower and spire, for re-hanging the bells, re-fixing the clock, a new lightning-conductor, new oaken floors, and other necessities for completing the restoration of the parish church, have received the following tenders:—Finn, Leicester, 745l. 16s.; Henson, Kettering, 674l.; Johnson, Leicester (accepted), 669l. Messrs. Kirk & Parry, of Sleaford, Lincolnshire, are the architects employed for carrying out the works.

Maidenhead.—The congregational chapel here, which has been closed during the summer, for the purpose of making several alterations, was opened for public worship on the 22nd instant. The chapel previous to the alteration was very inconvenient and badly ventilated, and the want of more room for Sunday-school operations, and a suitable place for holding the evening services in the week, had been felt for a long time. The old flat ceiling of the chapel has been removed, and a new arched one, with ventilators at the ends, and glass in the centre, has been substituted. The design was by Mr. Poulton, architect, Reading, and the work was executed by Mr. H. Cooper, of Maidenhead. The cost of the alterations will be about 100l. upwards, half of which has been subscribed.

Ansford, Castle Cary.—The series of church re-openings in Somerset, which will render the month of August, 1861, noted in ecclesiastical annals, says the *Taunton Courier*, is drawing to a close, by the re-opening of the parish church of

Ansford, near the town of Castle Cary. The architect was Mr. Giles, of London, and the duty of carrying out his designs was intrusted to Mr. E. O. Francis, of Castle Cary. The church is built of Ham Hill stone, with Bath stone dressings, and the pews are of pitch pine. The reading-desk is of a design by Mr. Giles. The sacarium is paved with Minton tiles and the reredos is carved in Bath stone. A Greek cross with ornamental ends, immediately over the centre of the communion table, occupies a diapered compartment confined by two bands, one of wheat ears, and the other of vine leaves and grapes, carved. On either side of that compartment the blank space of the wall is filled up by the monograms decorated with a ribbon and a group of flowers engraved on the freestone, but which at a little distance has the effect of relief. The ribbons bear the line "He that cometh to me I will in no wise cast out." It was executed by Mr. Seymour, of Taunton. The pulpit has merely been repaired and repolished. Two windows of the old church, which, though square-headed, are considered to be of more ancient date than is usually the case with such forms, have been restored and give a complete appearance to the porch. On the north side of the chancel is a small stained window, which was erected and designed by Alexander John Woodforde, grandson of Colonel Woodforde, in memory of his relations. A large stained window is to be erected, also at the expense of the Woodforde family, in the chancel. The original estimated cost of rebuilding the church was 800l., but the expenses altogether will probably reach 1,000l.

Llando.—The village church of Llando, on the banks of the Wye, has been rebuilt. The nave is divided into three aisles, by three arches on either side. Around these arches a series of chocolate and slate coloured bands is carried, and the pillars and the chancel are decorated with bands of chocolate. The roof is open timber work with carved corbels, and the ceiling which appears between the rafters is slate-coloured. The font and pulpit are carved in stone: the seats are open, varnished, but not painted: an open grating runs up the middle aisle, of intricate pattern; and the tracery of the window over the Communion table was apparently suggested by the east window in Tintern Abbey. The reconstruction of the church entailed an expense of 1,650l. The architects were Messrs. Pritchard & Seddon.

Birmingham.—The foundation stones of the Episcopal and Dissenters' Chapels for the Birmingham Cemetery at Witton have been laid. The plans of the buildings are by Mr. R. Clarke, of Nottingham, architect; and the works are being carried out by Mr. Wright, contractor, of the same place. The chapels are in the Gothic style, with geometric tracery; and the materials employed are Towerhill stone and Bath stone dressings. The Episcopal chapel will have a tower and spire 123 feet in height. The chapel will be 53 feet by 25 feet; and there will be two octagonal waiting-rooms 30 feet 6 inches by 14 feet 6 inches; reception-room 15 feet in diameter; a chancel, vestry, and ornamented porch. The Dissenters' chapel will be nearly of the same dimensions, but the arrangement is somewhat different, a large vestry being added in lieu of the chancel. There will be a house for the superintendent, surmounted by an ornamental tower, and a one-story lodge for the residence of the sexton. The whole will be approached through entrance-gates, having a carriage-entrance in the centre, and two side entrances, the front receding in a circular sweep from two large octagonal piers.

Ilkley.—On August 21st, the parish church was formally re-opened by the Lord Bishop of Ripon. The church has, during the past year, undergone restoration and enlargement, the nave and south aisle having been extended eastward 16 feet, and the north aisle 40 feet, including organ chamber and vestry. The old oak roof of the nave still remains, but has had the plaster ceiling removed, and has been repaired and varnished. A five-light printed glass window has been given by Mr. John Margerison, of Bradford, the glass-work executed by Mr. W. Warrington, of London. The subject is the Crucifixion. The alterations, exclusive of window, have cost upwards of 1,800l., which sum has been subscribed principally by the visitors to this watering-place. The architects are Messrs. Mallinson & Healey, of Bradford; and the contractors, Messrs. Dean, builders, of Ilkley.

Stonehaven.—The foundation stone of a new church for the United Presbyterian congregation has been laid, with masonic honours. The architect is Mr. George Hay, of Edinburgh. The building will include a church, seated for about 350 persons, and a schoolroom to accommodate

nearly 50 pupils, session-house, &c. It is expected that the cost will not exceed 700*l*. The site on which the church will stand is at the corner of Ann-street and Mary-street.

Miscellaneous.—Church-building, remarks a contemporary, seems to be going on apace. Mr. J. W. Brooke, of Sibton, has rebuilt at his own cost a church in Suffolk. A gentleman at Louth has offered 1,000*l*. for a new church in that borough. Mr. O. E. Coope has given a similar sum to a new district church at Romford; and at Norwich an anonymous contributor has handed 500*l*. to the building fund of a church just consecrated in the suburbs of Heigham, in that city. To these records of liberality in church building, one more may be added. The chief stone of a church in Mill-brook, near Stalybridge, has been laid by Mr. John Harrison; his father, Mr. Abel Harrison, the owner of a large cotton-mill in the village, having contributed the sum of 1,200*l*. towards the building. The site, one acre, and 200*l*., are given by the Earl of Stamford, who also gives an acre of ground for a parsonage-house. The church is to seat 500 persons. The architects are Messrs. G. & J. Shaw, of Saddleworth, and the style is Early English.

SCHOOL-BUILDING NEWS.

Purston, near Pontefract.—New schools and master's residence have been commenced here by Mr. Wm. Lindley, the contractor. The designs (domestic Gothic) have been prepared by Mr. Ralph Nicholson, architect, Halifax. The schools, when completed, will accommodate about 200 children; the site being the gift of the Dean and Chapter of Christ Church, Oxford.

Windhill (Leeds).—The Windhill National School and Church-Service Room, which stands on a site in the central part of Windhill, has been opened. The school is in the ornamental Gothic style. The architect was Mr. Samuel Jackson, and the builder Mr. Wm. Ives. It is in the form of the letter T. Its length is 63 feet, and breadth 20 feet, excepting the upper part which is 45 feet. Adjoining the school there is a house for the teacher. The entire cost of the building, including all requisites, is estimated at 1,726*l*. Of this sum 1,548*l*. is already raised. The site is valued at 300*l*., and was the gift of Mr. J. A. Jowett, of Grove House, Bolton.

STAINED GLASS.

Clavering Church.—Two stained-glass windows have been recently executed by the Countess Stanhope (sister of Sir Edward Kerrison), for the Stanhope chapel, adjoining the Church at Clavering, Kent, in which is the monumental work, by Chantrey, to the memory of Lady Frederica Louisa Stanhope.

Swindon Church.—At a cost of some 500*l*., a stained-glass window was erected at the east end of Swindon Church. The donor was Mrs. Grooby, widow of the late vicar. Her niece, Miss Rolleston, has recently added a stained-glass west window. Mr. Cambridge, the organist, has given an organ-chapel window. The large window of the north transept is now being filled with stained glass. The subject is "The Adoration of the Shepherds." This picture, which extends over the greater portion of the four large openings, is surmounted by a canopy, with foliated panels for the base. The Rolleston and the Vilett arms are introduced. Vilett was the maiden name of Mrs. Grooby and Mrs. Rolleston. The whole of the windows came from the establishment of Mr. Wailes, of Newcastle.

PROVINCIAL NEWS.

Orpington (Kent).—Labourers' cottages have been erected in this village, at a cost of 180*l*. the pair. They contain four rooms each. The living-rooms are 14 feet by 12 feet. The scullery of each cottage is fitted with a sink, and pump for the supply of fresh water from a well. The elevations are decorated with coloured brick arches, bays, and various devices. Each of these cottages is let for 6*l*. 10*s*. per annum. Mr. J. G. Stapleton, of London, is the architect; Mr. Wm. Sales the builder.

Suffolk.—The accepted tender for the proposed alteration and enlargement of the Suffolk General Hospital was accepted, says the *Suffolk Chronicle*, subject to certain deductions for alterations in the design; a considerable portion of the proposed ornamental work being directed to be retrenched, although reductions had been previously made from the specifications prepared according to the plans approved by the meeting of governors, to the extent of upwards of 1,000*l*.; yet the lowest

tender is nearly 1,000*l*. above the sum named at a meeting which summarily discharged the governors of all concern about the matter. And this does not include the erection of the laundries and offices, which are to be placed in the field in front of the hospital, to which, we understand, it is found impracticable to obtain a freehold title, but which will be taken on a lease for 99 years.

Reading.—The ceremony of dedicating to public use a recreation-ground and drinking-fountain has taken place at Reading, in the presence of a large assembly. The Mayor, in opening the proceedings, alluded to various public improvements; and, amongst others, alluded to the Abbey Archway, to the state of which we some time since called attention. It is now in course of rapid restoration; and the Mayor remarked that, whatever opinions might have prevailed as to the propriety of its renovation, he was sure that, when completed, it would be the finest of their few architectural ornaments. Mr. William Palmer was the donor of the fountain, which has been erected at a cost of upwards of 100*l*. In continuation the Mayor observed that it was quite unnecessary for him to say a word in defence of those public improvements which had recently been made to the streets, and added to the attractiveness of the important and increasing town of Reading. He was justified in calling it a large and increasing town, since those impressions as to its extent and increase, which were open to the observation of all, had been corroborated by the recent census returns, which showed that, while the neighbouring towns of Wallingford, Abingdon, and Newbury had, during the last ten years, been actually decreasing, Reading had, as it had done in preceding decennial periods, added thousands to its population. It was worthy of remark that many places increased their population without increasing their area; but in Reading new streets and buildings were proportionate to the increase of population. In another month or six weeks they would be in possession of the whole of the remainder of that hideous and abominable stack of buildings known as Middle-row. On the very day the authorities came into full legal possession, the houses would come down to the ground, and one of the finest thoroughfares would then be opened up of which any country town could boast. At Highbridge they were concentrating all the establishments connected with the magisterial business; under that one roof would be their fire-engine house, police-station, detention-cells, bridewell, and magistrates' offices. Six different establishments, now scattered in all directions, would then be brought together.

Bristol.—The Local Improvement Committee have succeeded in purchasing the toll-houses, now occupied for shops, on the east side of Bristol Bridge; and the whole of the footway on that side is to be lowered and thrown into the carriage-way. The balustrades which at present stand will not be interfered with; but a new footway, in lieu of the existing one, will be erected on the outside of the bridge, on the upper or east side, and will be of sufficient width to afford convenient walking to the public.

Blackburn.—The foundations of the Exchange building are making progress; and in a few weeks the erection of the superstructure will be let, and the work proceeded with, with the least possible delay. The area of the large room, which will be used on Wednesdays for Exchange purposes, and for concerts, balls, and public meetings, when required, is 7,290 feet, which is considerably more than the area of the assembly-room in the Town Hall. The enterprise of Blackburn is thus providing for its present population of 63,000 an Exchange building half as large as the Manchester Exchange; and upwards of 3,000 feet longer than Manchester provided in 1809 for the commercial wants of a population of 100,000.

CASES UNDER THE METROPOLITAN BUILDING ACT.

THE METROPOLITAN BOARD OF WORKS CONTRACTORS.

MESSRS. LEE & BOWLES, contractors for the southern high-level sewer works, appeared on a summons before Mr. Traill, Greenwich Police-court, on the information of Mr. Whichcord, district surveyor, for not giving notice of works connected with buildings in Church-street, Deptford, requiring underpinning, on account of sewers passing through the street.

Mr. Whichcord stated that the works in question were being proceeded with through a crowded thoroughfare, the houses on either side requiring underpinning. The work in question had been carried on without the usual notice being given to him, as the district surveyor, as required by the Metropolitan Building Act; and as it was a question of great importance, in the progress of such gigantic works as the main sewerage of the metropolis, he had put himself in communication with the defendants, who had written him a letter setting forth that

as the works in question were being constructed for the Metropolitan Board of Works, and under the supervision of that Board's officers, the works referred to did not come within the operations of the Metropolitan Building Act. He (Mr. Whichcord), as the district surveyor, did not consider himself relieved of the responsibility attaching to him, upon the explanation entered into by the defendants, whom he had written to, to the effect that, as the Act required him to lay an information within one month of the discovery of such work, for which notice should have been given, he should proceed to do so; at the same time advising the defendants to lay the question before the Metropolitan Board of Works, for the opinion of that Board in the matter. This course they had neglected to pursue; and he had now to ask for the decision of his worship; and, upon a conviction, for the imposition of the penalty, which was 20*l*.

Mr. George, the defendants' manager, said he appeared in answer to the summons, and he had to submit that no notice was required, on the grounds mentioned by Mr. Whichcord, as having been communicated to him by the defendants, whose contract, entered into with the Metropolitan Board of Works, required them to perform the work of underpinning buildings in the progress of the sewer works, wherever necessary.

It was not disputed notice had not been given, but the defendants had not acted in any spirit of hostility towards the district surveyor. Mr. Traill remarked that it was not supposed any hostility had been exhibited by defendants; but with such a work as that of the main drainage it was most important that the surveyor's responsibility should be understood. The question to be determined was not whether the defendants were exempted from the provisions of the Metropolitan Building Act; which they did not appear to be; because the Act declared no works to be exempt from its operations excepting those works specially named in the Act (including galls, Government works, piers, jetties, &c.), were thirteen in number; and although the Metropolitan Board of Works had the power of modifying the application of the Act under special circumstances, yet Mr. Traill did not think the Board would exercise that power in the present instance; seeing that the point in question was not one between the contractors and their own officers in respect to the sewerage works, but between a third party whose premises were interfered with. The Act required notice to be given to the surveyor two days previously to the commencement of any such work, in order that the surveyor might attend and inspect the work, and ascertain whether any responsibility attached to him in respect of the same. This notice had not been given; and he (Mr. Traill) felt it his duty, under the circumstances, to impose something more than a nominal penalty; subject to any case which the defendants might deem it necessary to have stated for the decision of a superior court. His worship then imposed a penalty of 5*l*. and costs.

TREATMENT OF BUILDERS.

Sir,—In July, 1860, drawings and quantities were both prepared by Mr. Noble, a surveyor, at Woodford, for building a villa, &c., at Wanstead, for Mr. Lemon Hart, and nine respectable builders were requested to tender from the quantities the surveyor supplied. A competition ensued, which Mr. Holges, of Bow, was acknowledged the lowest tender, and admitted by Mr. Noble, the surveyor (the amount of these will be found below), and Mr. Holges was assured that when the work proceeded he should have the order, and preparations were accordingly made.

The several amounts were handed over to Mr. Lemon Hart, and after twelve months he finds a builder who abates 25*l*.; and thus this second contract with Mr. Arbour costs the *bona fide* contractor, and the builder commences without compensation to the legitimate contractor. What remuneration is he to expect for his services and outlay by way of making his contract? and is it fair pay? F. H.

ENGLISH SUTTEE.

It cannot be too generally known that any of the soda, or potash, or ammonia salts have the property of delaying or arresting the progress of flame. Of course, I except the nitre salts, which promote flame. Dip a cambric handkerchief into common brine, and dry it, and you shall find the utmost difficulty in making it burn. But, as some salts answer the purpose very much better than others, it is preferable to stick by these. A solution of the tungstate of soda answers very well; but the tungstate of soda is rather expensive salt. The salt, then, that I would recommend, answers perfectly well. It is to be had everywhere. It is, further, very cheap. This salt is the *sulphate of ammonia*; it abounds in soil. When a little soil finds its way into the mouth, a peculiar acid flavour is perceptible. This arises from the contained sulphate of ammonia. Mix two pounds, or so, of soil, with a gallon of water: stir it up well: allow it to stand until it settles. The clear supernatant liquor is a solution of the sulphate of ammonia. Muslins, linen paper, curtains, or other inflammable matters when dipped into this mixture and dried, will remain sufficiently unflammable to secure the wearers from the hideous risk of being burned alive. I would recommend its universal adoption.

* Tenders delivered July, 1860, for building a villa, &c., for Mr. Lemon Hart, at Wanstead:—

Piper & Son	£3,125
Ashby & Horner	3,090
Prichard	3,000
Perry	2,995
Dove	2,905
Hill & Son	2,947
Wm. Hill	2,904
Condon	2,899
Hedges	2,856
Arbour (twelve months after competition)	2,504

It should be insisted upon in education: I would have it rendered compulsory by law, by a special enactment in fine, that all washerwomen should employ a solution of the sulphate of ammonia in doing up clothes. Humanity calls loudly for some efficient intervention. A quantity of the solution might be prepared at once, by putting the produce of a chimney-sweeping into one barrel of water, and drawing it off, when clear, by means of a syphon, into another empty barrel. But, in the event of this anticomcombustible solution getting into general use, it will be found generally preferable to buy the sulphate of ammonia ready made. If the solid salt be employed, one pound will be found sufficient for two gallons of water, imperial. Women will dress as they choose; but, for God's sake!—for their sakes,—let us avert from them a horrible death. More persons are probably burnt alive in England in a single year, than in India were burnt in a generation by *suttee*. The sulphate of ammonia is the remedy for English *suttee*.—HENRY MCCORMAC, M.D.

THE "BUILDER'S" LAW NOTES.

Railway Company.—A commercial traveller left a case of patterns in a waiting-room of a railway station, and it was lost. It was decided in an action against the company as warehousemen for negligence that the plaintiff could not recover damages beyond the actual value of the article lost. Warehousemen are not liable to be answerable beyond the actual value of the article lost, except by special contract.—*Anderson v. North-Eastern Railway Company.*

Dismissal of Servant.—A person was hired in April for a year, in the capacity of a clerk, and was dismissed in August, without notice. It was decided that he was entitled to recover compensation for the year, though he was paid monthly, for that this latter arrangement was quite consistent with a hiring for a year, short periodical payments being necessary to many persons.—*Davis v. Marshall.*

Misrepresentation by Agent.—A person, acting as agent for a timber-merchant, sold a log of nabogany as sound which, on being cut up, proved to be unsound. The principal did not authorize the fraud, nor had he any knowledge of it. The purchaser (who had paid the purchase-money) sued the principal in an action for deceit and misrepresentation. Chief Baron Pollock and Baron Wilde held the principal liable, but Barons Martin and Bramwell held him not liable. The court suggested an appeal or a writ of error, the result of which we shall in due course state.—*Udell v. Atherton.*

Surveyor.—Highway Act.—A surveyor of highways made an excavation in the highway for the purpose of erecting a weighing-machine, and left the same by night not fenced off. An accident having occurred, for which an action was required against him without notice of action as required by the Highway Act, it was decided that he was entitled to notice of action, as he had reasonable ground to believe that he had acted under the authority of the Highway Act in what he did.—*Hardwick v. Moss.*

Goods.—Reputed Ownership.—Goods deposited with a trader on terms of sale, or return, and by him exposed in his shop for sale, not distinguished from his own goods, and remaining in his possession at the time of his bankruptcy, pass to his assignees, as being in the reputed ownership of the bankrupt.—*Re Clapham.*

Statute of Limitations.—It has lately been held by the House of Lords that an action for injury to property may be brought at any time within six years after the injury took place, and that a plaintiff is not bound to bring the action within six years after the work was done which led to the accident. In this case a house was injured in consequence of being insufficiently supported; damage had occurred to mines under it; and the value of the consequent injury to the house was the point in question.—*Backhouse v. Bonomi.*

Books Received.

Gas Legislation; Being a Copious Index to the Metropolis Gas Act, 1860; with a Commentary, &c. By SAMUEL HUGHES, C.E. London: Waterlow & Sons, Parliament-street, Westminster, 1861.

THE publication of this useful analysis of the Metropolis Gas Act of 28th August, 1860, has been delayed, it seems, in the vain hope that some vexed questions would ere now have been settled; especially as regards the recent Sale of Gas Act, and the adoption of its provisions for

securing to consumers the use of honest and trustworthy meters,—an article scarcer than consumers have any idea of. So far as the useful adoption of this Act is concerned, however, the matter is still in a very unsatisfactory state; and not much less so is the present position of the metropolis with reference to its own Gas Act; since, out of the whole 39 boards and vestries constituted under the Metropolis Local Management Act, probably not more than two or three are making any use of the Metropolis Gas Act to protect the interests of their ratepayers as consumers of gas. The Act certainly is not all it ought to have been; but still it is capable, even as it is, of being made decidedly useful; and the present exposition of its provisions, it is to be hoped, will assist in rousing the local authorities into action on the subject.

Although the Metropolis Gas Act has been extensively discussed, it does not seem as if its real bearing on the gas supply of the metropolis were as yet understood. We may therefore condense a few of the concluding observations of Mr. Hughes on the subject, which may induce some of those interested to look a little more closely into the matter.

"In some parts of London, as in the districts supplied by the South Metropolitan and the Phoenix gas companies, the advantages of the Act have already been experienced.

At the very next meeting after the passing of the Act, the directors of both these companies announced their intention of reducing the price of gas, namely the South Metropolitan 4d. per 1,000 feet, and the Phoenix 3d. per 1,000 feet.

The aggregate gas rental of these two companies for the year ending June, 1860, when the reductions were announced, was no less than 185,887; and the reduction of price to the consumers effects a saving of more than 11,000l. a year, in addition to which the consumers of these two companies pay no meter-rent, which is equal to a further saving of 16,000l. a year.

When viewed on the broadest and most extensive scale in its application to the whole metropolis, it will scarcely be denied that the Act, when properly worked out, enables the gas consumer to procure, for the same price, gas of two candles higher illuminating power than the companies contended for.

Now, in round numbers, the whole gas rental, paid every year in the metropolis, is a million and a quarter sterling, so that every candle of illuminating power is worth 100,000l. a year to the consumers of gas. Hence, it is impossible to resist the conviction, that the raising of the standard of light from 10 to 12 sperm candles is equivalent to a bonus of 200,000l. a year conferred on the gas consumers of the metropolis.

I look forward with confidence to a general reduction of price from the operation of the dividend clauses, and the facts which will be brought to light by the searching form of accounts devised by the Secretary of State.

At the same time that the prospects of gas consumers are thus bright and cheering throughout the greater part of the metropolis, I am aware that some dissatisfaction prevails in certain parishes which are supplied with canal gas.

The circumstances are quite peculiar to those parishes which have been supplied for a few years with rich canal gas that has been reduced in quality since the combination of the companies. The fact is, they would never have had the rich quality at all, had it not been for the competition of the Western company; and they have themselves chiefly to blame for not making proper terms with the Western company for the continuous supply of the rich gas which that company originally furnished. Such terms could easily have been made at the time the Western company first sought permission to break up the streets of St. James's, Westminster, and other parishes.

There are one or two minor grievances in some of the West End parishes, which may be disposed of in the same way. For instance, in the Albany Chambers it is said the Chartered Gas Company are now making considerable exactions which they did not insist on in the days of competition. In cases of this kind, it will probably be found that the company is only enforcing rights which they could always have insisted on, but which it was their policy to waive when free competition existed."

The local authorities of the metropolis will have to watch narrowly the capital to which the 10 per cent. dividend is made applicable. It is clear it does not apply to borrowed capital in any form, nor to any amount capitalized out of profits, nor to any portion of capital on which a rate of interest has been prescribed by any special Act of the company. Thus certain large sums which were capitalized by the Imperial company in 1854, and by the City of London company in 1859, are not entitled to any higher dividend than the rate prescribed in the respective Acts obtained by these companies in those years.

It is quite clear that Parliament never intended the gas companies to divide 10 per cent. upon any arbitrary amount which the companies themselves might choose to designate as their capital; and hence the stringent and extensive powers given to the Secretary of State to investigate their accounts, and to call for them according to any form which he thinks proper to require. It remains to be seen whether the local authorities of the metropolis will exert themselves in this matter, and claim the attention of the Secretary of State in behalf of a thorough and searching investigation of these mysterious and little understood accounts.

There are no less than nine companies supplying suburban portions of the metropolis who are ex-

empted from the operation of the Act. On referring to the schedule of these excluded companies, it will be seen that there are several supplying very important districts of the metropolis; and it is not improbable that before long some dissatisfaction will be expressed at their exclusion from the operation of the Act. Several of these companies have no limitation of price in their Act of Parliament, or instrument of incorporation, and may consequently charge whatever they please for gas. They are also exempt from the wholesome restrictions with regard to purity, illuminating power, arbitration arrangements, and other matters which are now made applicable to thirteen of the principal metropolitan gas companies. Those who were more immediately acting as promoters of this bill were clearly of opinion that all or most of these excepted companies should have been brought within the operation of the Act; and it is to be hoped that a large portion of the metropolitan public may not have cause to regret the apathy which has been displayed in this matter.

One wholesome provision is that under certain circumstances the Secretary of State may alter the boundaries or limits of the districts supplied by the gas companies; and on proper cause being shown he can admit any new company to supply gas in any part of the metropolis he may think proper.

Miscellaneous.

WINCHESTER COLLEGE CHAPEL THREATENED.—A "Wykehamist" sends the following information and inquiry to the *Athenaeum*.—"The foundation of the beautiful tower of Winchester College Chapel has been for some time exhibiting evidences of insecurity, a crack in the upper part of the structure having, it is said, widened somewhat of late. On investigation, it appears that the piles on which the tower is raised are more or less decayed; and Mr. Batterfield, the architect who has been consulted, advises the *entire rebuilding* of the latter from the ground. I do not pretend to have an opinion on a subject so purely professional; but before such a monument of grace and beauty, which has adorned our land for 430 years, is handed over to the wielders of lever and maul, it would be well to consider whether, in this age of mechanical appliances, nothing can be done to arrest the further tendency to settlement which affects the building, by some plan of underpinning, or the use of concrete, or otherwise. However happily the restoration of a work like this may be effected, there is, if the tower is to be completely rebuilt (to say nothing of the expense), a feeling of non-identity established in one's mind, of which it is impossible to divest it."

BIRMINGHAM SOCIETY OF ARTISTS.—The Exhibition of the Birmingham Society of Artists took place in the Rotunda, the ceiling of which has been decorated under the superintendence of Professor Chamberlain, one of the members of the Society. The collection of works is above the average of provincial displays. Sir Edwin Landseer has sent his "Flood in the Highlands," which appeared on the walls of the Royal Academy during the last season but one. The collection also contains the "Spring Time" of Mr. Millais, A.R.A.; "Christ Teaching Humility," by the late Mr. Leslie, R.A.; a replica by Mr. J. R. Herbert, R.A., of his "Brides of Venice;" a view of "The City of Edinburgh," by Mr. David Roberts, R.A., painted for Mr. Napier, M.P., and never before exhibited; "Bamborough Castle" and "Heidelberg" (engraved), two of the finest productions in water-colours, by the late Mr. J. M. W. Turner, R.A.; Mr. Solomon's "Drowned, drowned;" Mr. Ansell's "Seville" and "La Santé;" Mr. Wallis's "Dead Stonebreaker;" with other pictures by Messrs. Phillip, R.A., A. Cooper, R.A., H. O'Neill, A.R.A., Holman Hunt, Thomas John Gilbert Jutsum, Desanges, Vicat Cole, W. H. Knight, Buckner Rolfe Duffield, J. Wingfield, E. J. Cobbett, J. Syer, Lance, W. Hemsley, W. Hunt, F. W. Hulme, Niemann, H. Weigall, Beckner, and many other well-known artists.

ADVANCE IN THE PRICE OF COPPER.—The price of copper has been advanced one halfpenny per lb. Brass, brass-wire, and tubing have also been advanced one farthing per lb. Tough cake and tile copper is now 98l., best selected 101l. per ton.

AN IRON PALACE.—The Pasha of Egypt is establishing a magnificent palace, built of French cast-iron, for a museum of antiquities, to be filled with relics of antiquity found in Egypt, in the execution of which 2,500 men are now employed, under the direction of Mariette, the French archaeologist,

INAUGURATION OF THE FIRST CHRISTIAN CHURCH.—An extraordinary sight must be the inauguration of the first Christian temples have been, and one the like of which is scarcely to be seen again. On the hill now called the Lateran was a small church (still remaining, under the name of the Baptistery of Constantine); scarcely fifty paces distant was the first and—with the exception of St. Peter's—most magnificent of Christian basilicas, that of St. John, rapidly approaching completion. Stretching far away into the Campagna, along the different roads radiating from the adjacent gate of the city, might be seen long lines of people chanting litanies, and with solemn ceremonies bringing their long-treasured relics, their holy pictures, and the bodies of their martyred and canonized relations, from the secret chambers of the catacombs to the newly consecrated sanctity in the rising cathedral; while within the small Christian chapel was the imperial convert, stepping naked into the baptismal font, humbly to receive the initiatory rite from the hands of those who, but a few short months before, had been proscribed and persecuted outcasts; and, by the side of their master, crowds of stern, grim soldiery and haughty nobles, now, like him, fain to cringe to and adulterate those whom, until then, they had hunted, trodden down, and crushed as the vilest of humanity; and in the surrounding crowd, now, even amongst the officiating priesthood, might be seen many with wounds yet actually fresh from the terrible persecution that had raged with such violence but a few years previously. Some might be seen with the marks of wild animals, of the fire, of the knife, still upon them, some maimed of a limb, some without eyes; while within sight of that multitude was the column but scarcely finished, commemorating this the most bloody persecution the Church had seen, and bearing inscribed on it the vain boast of the extermination of the Christian sect. And he, the builder, the inscriber of that column, the author of that persecution, the abdicated emperor, but a few miles across the narrow sea—at his luxurious retirement in Dalmatia—calmly contemplating from his solitude that tremendous moral revolution which had already sapied the empire to its base, and which, before another century, was to level it in the dust.—*Art-Journal.*

CLAIM BY A MODELLER AT SALTAIRE.—*Nisi Prius Court, Liverpool.*—*Garrett v. Salt.*—The plaintiff in this case was a modeller and designer, and the defendant the well-known Mr. Titus Salt, of Saltaire, near Bradford. The plaintiff was engaged by the defendant to make a model of a portion of the premises at Saltaire. He received sums of money from time to time; but, before the work was completed, Mr. Salt declared he was "tired of modelling," and abruptly dismissed the plaintiff, ordering the room to be locked up in which the plaintiff's models and tools were. The tools were restored, but a large unfinished model of the whole of Saltaire was retained; and it was to recover this model or its value the action was brought. When the case had proceeded some time a letter was produced, in which the plaintiff admitted that the model of Saltaire was a collateral security for money he had overdrawn; and, at the suggestion of the judge, a verdict was entered for the defendant, he agreeing to give up the model and foregoing any claim to the money overdrawn.

GOLD IN STEEL-MAKING. It has been found, says the *Mining Journal*, that the addition of several pounds weight of gold or platinum to the ton of steel "failed in producing any beneficial results," but Mr. Longmaid has discovered that by adding, instead of several pounds, only a few ounces, or even a few dwts., of the precious metal to the ton of steel, the effect is marvellous, and a very excellent quality of metal is produced.

THE LITTLE MARKET AND SANITARY WORKS AT LUDLOW.—A long-contemplated scheme for the erection of these works has at length been commenced. The contractors are Messrs. Brassey & Field. The site for the market is contiguous to the railway station, and easy of access from the various entrances north and south of the town. In digging for the foundations, the workmen have discovered several interesting relics connected with the Friars' Abbey. An octagon-shaped building will be erected in the centre of the market as an Exchange. The market will be served with a supply of pure spring water. The site extends over an area of upwards of four acres; and in the design of the engineer, Mr. Curley, a large tree of uniform foliage, and centrally situate, is retained, which will add to the picturesque appearance of the spot when the works around are complete.

MR. BRAIDWOOD'S SUCCESSOR.—The committee for managing the affairs of the London Fire Brigade have appointed Captain Eyre Massey Shaw, the chief of the Belfast police and fire brigade, the superintendent of the fire establishment, rendered vacant by the death of the late Mr. James Braidwood. The salary is 400*l.* per annum, and a residence at the head station in Watling-street.

LOCOMOTIVES ON COMMON ROADS.—The Bill to regulate the use of locomotives on common roads has now become law, and is expected to lead to important results in cheapening the transit of heavy goods. During the last thirty years great efforts have been made to use steam on common roads; but, as we have before said, they have been perseveringly defeated by the opposition of the local trustees, who have imposed prohibitory tolls. Two years back an experiment to convey coal by a traction engine from Little Hulton to Manchester, a distance of seven miles, is understood to have proved not only that an immense saving could be effected, but that the wear and tear of the road was diminished. Yet the toll charged amounted to 4*s.* per ton, against 3*d.* per ton for coal drawn by horses; and this, of course, effectually prevented the introduction of the system. The new Bill assimilates the tolls to be charged in a great degree to those charged for horse traffic; and, although it comprises various regulations which will probably be found to be more or less needless or vexatious, it seems sufficiently wide to enable the method to have at last a fair field. Already an "Endless Railway Traction Engine Company" is announced, with a capital of 30,000*l.*, in shares of 10*l.* each. Engines and waggons have been ordered for India by the Government, who have also presented an engine and gun-carriage for the endless railway to the Viceroy of Egypt, for the purpose of conveying artillery over the sandy deserts. For agricultural operations the invention is believed to be likely to come into extensive use.

EXTINGUISHING FIRES AND VENTILATING BUILDINGS BY PERFORATED CEILINGS.—Mr. Charles Gilroy, of Southampton, has received a provisional certificate from the Commissioners of Patents, for improved means of effecting the above objects by an introduction of a perforated ceiling of zinc or other suitable material, instead of the ordinary arrangement of lath and plaster. The perforated ceiling is capable of being charged with water, from the exterior of buildings, by attaching the hose of the fire-engine to the outer end of a pipe inserted in the external walls, and communicating with the ceiling; the pipe having upon its outer end a screw to match the union joints of the fire-engine hose. The perforated ceiling, under ordinary circumstances, is also to be regarded as a complete and effectual system of ventilation; the impure air ascending through the perforations of the ceiling, and passing out by communicating pipes in the external wall. How this can be patented, however, we cannot see.

IMPROVEMENTS IN MACHINERY FOR PLANING OR CUTTING WOOD, &c.—A patent for the inventor has been taken out by Mr. Clark, of Chancery-lane, relating to "machinery for planing and finishing wood as perfectly as is now done by hand-labour, and with much greater rapidity." It consists of a planing machine, properly so called, and of a second machine, termed a sharpener, for grinding or setting the cutters of the first-mentioned apparatus. The *Engineer* gives particulars with engravings, from which it appears that the wood to be planed on is placed on a smooth cast-iron table, and fixed at each end by means of two cramps, one fixed and the other movable. The table carrying the wood to be planed is caused to pass under cutting blades, which are mounted helically on a rotating cylinder. This arrangement of the cutters, it is said, produces better work than is obtained with straight blades. The helical blades cut the wood in a continuous manner without any shock, or requiring an excessive speed to be given to the cutters, as is necessary with straight blades: they also absorb much less of the power, and give a finer polish to the wood. When the wood has all passed under the cutters the table on which it is fixed falls a fraction of an inch, when it returns of itself with rapidity to the point of departure. The cutter cylinder may be raised or lowered at will by simply turning a crank, according to the thickness to which the wood is to be reduced. A graduated scale and marker indicate the exact height of the cutters above the table. The cutter cylinder may also be easily removed from its bearings for the purpose of sharpening the blades by means of the sharpening machine which constitutes a portion of the machinery patented.

TELEGRAPHIC PROGRESS.—On Sunday last some telegraphic despatches for the Russian port of Taganrog, in the Sea of Azoff, were sent direct to that city from the Electric Telegraph Company's station in Telegraph-street, behind the Bank of England. This is the longest direct communication by telegraph ever achieved, the distance being above 2,500 miles.

SUBSTITUTE FOR SILVER.—Two French chemists, MM. De Ruolz and De Fontenay, have recently succeeded in obtaining, after several years' experiments, a new alloy, which may be very useful for small coin and for many industrial uses. It is composed, according to the *London Review*, of one-third silver, 25 to 30 per cent. of nickel, and from 37 to 52 per cent. of copper. The inventors propose to call it *tiers-argent*, or tri-silver. Its preparation is said to be a triumph of metallurgical science. The alloy, adds our authority, perfectly resembles a simple metal, and possesses in a very high degree the qualities to which the precious metals owe their superiority. In colour it resembles platinum, and it is susceptible of a very high polish. It possesses extreme hardness and tenacity. It is ductile, malleable, very easily fused, emits when struck a beautiful sound, is not affected by exposure to the atmosphere, or by any but the most powerful re-agents. It is without odour. Its specific gravity is a little less than that of silver. It can be supplied at a price 40 per cent. less cost, and its greater hardness will give it a marked superiority.

LAMBETH.—Sir: As there is a report that the bridge from Lambeth to the Horseferry, Westminster, is to be made, will you allow me to suggest that it would greatly improve and beautify the neighbourhood, if the long dead wall from the Parsonage-house to Lambeth churchyard were removed, and an open railing substituted. Near this spot the cholera was most virulent; therefore the admission of free air to the spot from the river, across the excellent archbishop's grounds, would be very beneficial and preventive. There is, if wanted, a precedent in the parks, where it is incumbent on occupiers of houses to have an open railing, and not a dead wall looking towards the open park.—BARTON.

FOTHERINGHAM CASTLE, FORFARSHIRE.—The youthful proprietor of the Fotheringham estates, T. F. S. Fotheringham, says a Dundee paper, has lately commenced the erection, on his domain, of a splendid mansion-house, which, when completed, will form one of the most prominent ornaments of that district of Forfarshire. The new castle is being built on the site on which formerly stood the old mansion-house, the greater part of which has already been pulled down to make way for it; and the portion still remaining, which is principally occupied as dwelling accommodation for the superintendents of the works, will have to be removed as the new building advances. The designer of this building is Mr. Bryce, architect, Edinburgh. The stone of which it is being built is a fine hard freestone, obtained principally from the quarries near Tealing.

A STIFF DEMAND ON SIR M. PETO.—At a meeting of the assignees and principal creditors of the estate of Mr. W. R. Wagstaff, wharfinger, who failed last January, held at the offices of Messrs. Cooper, Brothers & Co., the accountants, on Wednesday week, a resolution was passed to prosecute the claim of 150,000*l.* against Sir M. Peto, for commission on the contract for the construction of the Sardinian "Littoral" Railway.

INTERNATIONAL EXHIBITION OF 1862.—It has been decided that prizes or rewards of merit, in the form of medals, will be given in sections I., II., III. These medals will be of one class, for merit, without any distinction of degree. No exhibitor will receive more than one medal in any class or sub-class. An international jury will be formed for each class and sub-class of the Exhibition, by whom the medals will be adjudged. Each foreign commission will be at liberty to nominate one member of the jury for each class and sub-class in which staple industries of their country, and its dependencies are represented. The British jurors will be chosen in the following manner:—Every exhibitor will name three persons to act on the jury for each class or sub-class in which he exhibits; and, from the persons so named, Her Majesty's Commissioners will select three members of the jury for each class or sub-class. The awards will be published in the *Exhibition Building*, at a public ceremony, early in the month of June, 1862. They will immediately afterwards be conspicuously attached to the counters of the successful exhibitors, and the grounds of each award will be very briefly stated. The medals will be delivered to the exhibitors on the last day of the Exhibition.

THE NEW POST-OFFICE SAVINGS BANKS.—The "official regulations," in accordance with which the new Government savings banks, to be opened in connexion with the Post-office, are to be conducted, are about to be placed before the public. They have already received the official sanction of the Treasury, and have been certified by Mr. Tidd Pratt. Though only 300 money-order offices will be at first opened (on the 16th of September), yet the banking privileges will be gradually extended to them all. They now number 2,500, and are continually increasing. Deposits of not less than 1s., and not more than 30s., will be taken at all offices open for the purpose, from ten to four, and at many from nine to six daily; and on Saturday evenings till eight o'clock. No more than 30s. in any one year, or 150s. in all, will be taken from any depositor. On the 31st of December in each year the interest at 2½ per cent. (1d. per month for every pound) will be calculated and added to the principal sum, with which it will thenceforth bear interest at the same rate. The depositor will be required to sign a "declaration," that he has no other deposit in that or any other savings bank in Great Britain or Ireland (except as a member of some friendly or other similar society), and if this declaration be found false the deposit is forfeited. The depositor, the moment he possesses his deposit-book, duly filled in with the amount deposited, the dated stamp, and other particulars, possesses the "security of Government," as the Act says, for the "due repayment" of the principal and interest. The regulations are marked by singular simplicity, and a "handy-book," with the "Act," the "official regulations" complete, and full instructions for both postmasters and the public, is already advertised to appear on the 2nd of September.

ALDERNEY.—Seven hundred men, of whom twenty-four are divers, are now daily at work at Alderney. About 500 feet of the west breakwater will be brought above high water this summer. The end of this breakwater will be nearly a mile from the shore. It has been decided to erect another breakwater, 1,000 feet in length, to shelter the anchorage from easterly winds.

ENGLISH CHOLERA AT COLCHESTER: BAD DRAINAGE.—An inquest has been held at the Town-hall, Colchester, on the body of a child, aged four years, son of a porter, living in a court near Culver-street. It seems to have fallen a victim to English cholera, engendered by the foul and unwholesome condition of the drains close to the house in which its parents reside. The evidence showed that these drains had for a long period been in a most offensive condition; but it did not appear that any complaint had been made to the Inspector of Nuisances since last year, although the attention of the owner of the property had been called to them. The coroner said the cottage property in Colchester was in a shameful state with regard to ventilation; and he had in some instances advised the occupiers to knock a hole in the ceiling—a plan, by the bye, first suggested in the *Builder*. The jury found "that the deceased died of cholera, accelerated by the imperfect drainage." The coroner said they must either find that death was produced by the imperfect drainage, or dismiss it entirely from their verdict. The foreman then again consulted his brother-jurymen, and found that death was produced by bad drainage.

PROGRESS IN SOUTH AUSTRALIA.—In reference to a new railway which it is proposed to form between Adelaide and Mount Barker, the *South Australian Register* says:—"In serious earnestness, we would ask if there is no alternative in the south-eastern districts between common roads and railways costing 27,000s. per mile? If locomotive lines cannot be constructed in those localities at a cheaper rate than this, attention must be turned to the question of tramways. In New South Wales the Government recently proposed the expenditure of a large sum of money for carrying tramways into all parts of the colony; the plan being to take the present ordinary roads and to place rails upon them, 'without any attempt to reduce the gradients within the limits prescribed by railway construction.' Four or five thousand pounds per mile was estimated as sufficient for the permanent way of a line like this; and it was urged that the colony generally might be thus supplied with facilities for transit and communication such as could not be expected within any reasonable time from locomotive railways." During 1860 the business transacted at the various telegraph stations in the colony produced the total receipts of 7,444s., which, compared with the previous year, is an increase of 1,216s.

RETURN OF MR. PEPPER TO THE POLYTECHNIC.—The public, no less than ourselves, will be gratified to learn that Mr. Pepper, who was sole lessee before the recent changes, has resumed the management of the Polytechnic, the directors having made arrangements with him for that purpose, and for the continuance of the classes for the study of chemistry. Mr. Pepper's first lecture was on "Ventilation," and was delivered on Monday evening, the 26th instant. We know of no popular lecturer of the day who approaches Mr. Pepper in the rare art of conveying scientific knowledge to a general audience with that lucidity of explanation and familiarity of illustration which reach the mind at once, and, instead of wearying, create a desire to learn more. The geological and chemical transmutations of coal, the process by which a new metal (aluminium) is produced from clay, the pleasing wonders involved in the transmission of musical sounds through wooden rods, and the beautiful effects of the lime light and Duboscq's rainbow-hued cascade, will be remembered by the visitors of the Polytechnic as among the more decided successes of Mr. Pepper's management.

DESIGNS OF THE NEW GRAMMAR SCHOOL, ABERDEEN.—The designs of the new Aberdeen Grammar School, by Mr. Matthews, are now to be seen in the Council Chamber, Aberdeen. The style (says the *Journal*) is old baronial Scottish. The centre of the building, forming the public school, is of one story, flanked at either side by wings of two stories in height. The whole length of the erection is about 230 feet. The outline of the building is varied at each end by towers. The tower at the west end has a square base, which assumes a circular form at the top, finished flat with corbelled cornice and balustrade. This is intended to be used as an observatory, to which there is access by a small turret. The tower at the east end, which is loftier than the other, is carried up square, with a small corner turret for staircase, which may be used for a clock-tower. The centre portion of the building, forming the public school, has lofty windows, corbelled cornice, and embattled parapet. The main entrance to the public school is in a circular projection, which is corbelled out at the level of the main cornice to a square gable, and has also a circular turret staircase leading up to a small gallery in the public school. The gables at each end of the public school are finished with projecting windows and corbelled corner turrets. The accommodation on the ground-floor consists of a public school, 80 feet long by 40 feet wide, and 40 feet high, giving accommodation to about 600 scholars, and having a gallery for visitors. The building occupies a depth of 127 feet.

GAS.—Under the operation of the new Act for regulating the measures used in the sale of gas, inspectors of meters for the purpose are now being appointed in the different districts; under whose authority meters are issued to the consumers stamped under the authority of the Act; each meter having marked upon it the measuring capacity of one action of the meter, with the quantity per hour in cubic feet it is intended to measure; and it is important the public should know that *everyone firing or using an unstamped meter after October 13th will be liable to a penalty of 5s.*—The County and General Gas Consumers' Company (limited) have held their fourth half-yearly meeting, and declared a dividend of 6 per cent. per annum, with a surplus.—The Ashford Gas Company have declared a dividend of 5 per cent., and reduced the price of their gas to 5s. To meet the pressing demand for gas, they are now erecting a large gas holder, 54 feet diameter and 20 feet deep, capacity 46,000 cubic feet.—The Liverpool United Gas-Light Company have held their half-yearly meeting, and declared their usual maximum dividend at the rate of 10 per cent. per annum, besides making "a large payment to the credit of the reserved fund."—The Ossett Gas Company have declared a dividend of 6 per cent.—The Jedburgh Gas Company have resolved, under pressure from without, to reduce the price of their gas from 9s. to 6s. 8d., the latter being the rate charged in Kelso.

THE RUNIC INSCRIPTIONS IN ORKNEY.—An Aberdeen gentleman, Mr. Gibb, of Messrs. Keith & Gibb, has returned from Orkney, where he took drawings of the recently-discovered cells at Meas-howe, near the Stennis circle of standing stones. The drawings consist of plans and sections of this remarkable structure, with copies of the Runic characters, on a large scale. The runes number altogether about 900; being the greatest number hitherto discovered in any British monument. The whole drawings will be published for circulation among antiquaries and others.

THE HARTLEY INSTITUTION, SOUTHAMPTON.—This building, the design for which appeared in our pages, has received the roof. The façade is of Portland-stone. The carving of the heads on the key-stones is executed by Mr. Colley, of London. The museum is a distinct apartment from the front building: it is 50 feet in length, 27 feet wide, and 30 feet high, lighted from roof skylights. The walls will be surrounded by two tiers of projecting galleries, upon the railings of which will be placed lines of glass cases to contain the lighter and finer specimens. The lecture hall is 65 feet long, 57 feet wide, and 44 feet high from the floor line to the vertex of the curved ceiling. The whole area of the hall, including the two lines of galleries, will be 6,506 sq. ft. The orchestra stands in a recess, and will afford sitting accommodation for 100 performers. On the principal floor of the front building is the library and reading-room, 73 feet long, 23 feet wide, and 20 feet high, lighted by seven windows facing the High-street. The upper floor contains several commodious rooms, the principal one over that above described being indicated as likely to be set apart for the accommodation of the School of Art. The museum is nearly completed, and ready for the reception of cases. Messrs. Green & De Ville, of London, are the architects.

CHESWICK HOUSE.—Sir, — In the *Builder* of the 24th instant it is stated that Cheswick House was built "from the quarry of Alderman Ramsay, of Tweedmouth, and from Ord Quarry," thereby making it appear that Ord Quarry only stood second in the erection of Mr. Crossman's house, whereas by far the largest portion of the stone used was from Ord Quarry, and that supplied by Mr. Ramsay was only a small quantity.—Oblige by inserting this in the *Builder*, as I cannot think of yielding the palm to Alderman Ramsay.—EDW. ELLIOTT, Lessee of Ord Quarry.

THE TURNER PICTURES.—The Select Committee of the House of Lords on this subject have given in their report, of which the following is an extract:—"That it is expedient that the finished pictures by Turner should be forthwith deposited and properly hung in one of the rooms of the present National Gallery; according to the plan which Mr. Wornum, the keeper, has stated in his evidence that he is prepared to carry out. But this arrangement, as it will necessarily involve considerable inconvenience in the exhibition of the pictures now in the National Gallery, must be considered as of a strictly temporary character, pending the execution of some more enlarged and comprehensive plan. That, with a view to provide such accommodation, Mr. Pennethorne, the architect, has stated in his evidence that he can undertake to erect rooms fully sufficient for the reception of the Turner pictures at the back of the present National Gallery, within a period of time not exceeding twelve months, and at a cost not to exceed 25,000l."

PROFESSOR FORBES'S PREDICTION AS TO THE DOWNWARD MOVEMENT OF GLACIERS: CURIOS DISCOVERY.—In 1820, three Chamounix guides, among the glaciers of Mont Blanc, were swept from the Grand Plateau by an avalanche and lost, so that no traces of their bodies were ever found till now, when fragments of their limbs, fresh as if life had scarcely left them, have been discovered on the lower part of the Glacier des Bossons, entering the valley; thus curiously confirming the calculations of Professor Forbes as to the annual rate of the downward movement, or flow, if we may so call it, of glaciers, and his confident predictions in this very case; as he repeatedly told the Chamounix guides that they might look out for traces of their deceased comrades in the Lower Bossons in about forty or forty-five years after the catastrophe. May not his calculations prove serviceable yet, in estimating periods of the glacial era in special districts? The general rate of movement in glaciers of a certain incline, breadth, and depth, &c., with the estimated grinding force, and quantity of moraine and other materials carried down, being all once known, some useful calculations and conclusions as to geological time and the length of the glacial era may be deducible.

SCULPTURE.—Last Sunday a granite column, erected at Dives, in Normandy, to commemorate the assembly of the army of William the Conqueror for the invasion of England, was uncovered. There was a large assembly. Part of the inscription is "in memory of the greatest historical event in the annals of Normandy—the departure of Duke William for the conquest of England." It was no conquest at all. William came at the invitation of a certain number of the people, and his success simply represented the triumph of one party in the country over another.

THE GREASE OF THE EARTH'S AXIS.—A gentleman of that country whose go-ahead denizens think nothing of lightning unless it be well greased, lately spent a few days in the region of the oil-wells in Pennsylvania; and it is his deliberate opinion that the Government of the United States, or some other mundane power, ought to interfere at once and put a stop to further boring and pumping for oil on that continent; as he is quite certain that the oil is being drawn through these wells from the bearings of the earth's axis, and that the earth will cease to turn when the lubrication ceases!

TUNBRIDGE WELLS: DRINKING FOUNTAINS.—A public drinking-fountain, in stone, designed by Mr. Bond, is being executed by Mr. Scholes, in the angle on the down side of the railway station. The cost will be met by subscription. The fountain will be about 11 feet high, chiefly of sandstone, with ornamental designs executed in Caen stone. The basin is bronze. The waste water runs into a small trough at the base for dogs. Another fountain, the design of which is by Mr. Fletcher Lutwidge, will be erected as soon as a site has been obtained.

CISTERNS FOR ROOF.—A correspondent, Mr. Toward, proposes a number of iron or galvanised cisterns to form the roofs of houses, manufactories, &c., each cistern weighing from 10 to 20 cwt., according to the size of the roofs. He says,—"They will be useful for several purposes. They will make a good durable roof; and having the whole surface of the building for saving the rainwater, it will always be ready in case of fire, and also for the use of the house. If in a town, and the water should be scarce, there may be a pipe leading from the main pipe in the street to the cistern if required. In any manufactory or building requiring light from above, they can be accommodated by placing the cisterns from 12 to 36 inches apart, and strong glass fixed in between. You can have a handsome flower garden, by placing wood framing on top of the cisterns, with alternate openings for the water to go through. It would be very pleasant to walk on the house-top on a fine summer's morning."

THE LOCK TRADE.—During the past nine months a depression has existed in the staple trades of Willenhall and the adjacent villages, such as has rarely been equalled within the memory of the oldest locksmith. Since the commencement of the present year "short time" has been observed (save in one or two exceptional cases), at all the manufactories, the working days averaging from two to four per week, according to circumstances. The extraordinary events which have within the last few months followed each other in such quick succession have been peculiarly unfortunate for the manufacturers of locks, and, indeed, of builder's ironmongery in general. The disputes among the London builders have very materially interfered with the home trade, while the foreign demand has been checked, if not wholly suspended, by the famine in India, over-speculation in Australia, and disruption in America; these countries being the three great markets for the consumption of the Willenhall branch of hardware manufacture. But while the American war has been attended with such disastrous results to the trade of Willenhall, it has given an extraordinary impetus to that of the neighbouring towns of Darlestone and Wednesbury, where gun locks are chiefly made, the demand for these articles having exceeded the supply. In the Willenhall lock trade, however, certain French merchants, in April last, distributed some fair orders for stamped keys and padlocks, and there is a steady, though limited, demand from Germany. Below we give a tabular statement from a Birmingham journal, showing the number of hands employed in the various branches of Willenhall trade, also the average days of employment per week they have had during the past eight or nine months. The numbers employed are exclusive of women and children.

Articles.	Number of Persons employed.	Average Days per Week.
Padlocks ..	240	24
Rim Locks ..	165	4
Keys ..	170	34
Cabinet Locks ..	110	4
Mortise Locks ..	80	4
Latches ..	60	4
Drawback Locks ..	50	34
Dead Locks ..	35	4
Bolts ..	50	3
Curry Combs ..	50	24
Girdrons ..	35	5

If we add to the above branches of Willenhall manufacture the lesser branches of the trade, we shall have a total of 1,200 or 1,300 artisans, directly engaged in the production of the various articles, and almost as many more indirectly employed in the same manner.

THE CORN EXCHANGE FOR CARLISLE.—At a meeting of the town council last week it was resolved, by a majority of 17 to 13, "that the plans of the proposed corn market submitted to this meeting be approved of, adopted, and carried out, subject to the approval of the Lords Commissioners of her Majesty's Treasury, referred to in the next resolution," which authorized an application to the Treasury as to site and cost. It was also resolved by the meeting, with three dissentients, "that the Corn Market Committee be empowered to pay the premium of 20l. granted by the council, by resolution No. 2,073, to Mr. W. Carter, architect, 9, College-place, Camden Town, London."

SPIRAL FLUTED NAILS.—A company has been formed for bringing into practical use the spiral fluted nails, an invention of Mr. W. Wiggell, of Exeter, before noticed. Mr. Wiggell recently exhibited these nails at Devonport. Mr. John Weary, builder; Mr. Ash, surveyor of the manor, and several other gentlemen, says the *Devonport Independent*, were present. The inventor proved the advantages of the nail in a variety of ways. He first drove one of about 2½ inches long into a piece of 2½ inch deal to within a space little more than the diameter of the nail of the "end-grain," to show that the nail so successfully cleared its way as in no case to cause the wood to split. He next drove a nail into a piece of hard, knotty oak. He nailed two pieces of inch and a half board together by one nail at one end; and, with a leverage of 2 feet, a strong man present had great difficulty in separating the two pieces. With a nail at each end a wedge and several powerful blows with a heavy hammer were necessary to get them asunder. The holding qualities of the nail were exemplified by the several tests. The nails, however large they may be, or however hard the wood on which they may be used, require no holes to be made before driving. The spiral point causes the nail to revolve as it advances. Perhaps the tenacity with which they hold in wood would be one disadvantage against their use in all purposes, especially in the nailing of floors where removal is frequently necessary for laying on gas; but this inconvenience the inventor has obviated by the manufacture of another nail with a slot or screw head by which it can be turned out with a screw-driver even more readily than a screw, whilst it could be driven into the flooring with less than a quarter of the labour caused by the use of screws. All present, adds our authority, seemed to concur in the great superiority of the nails over those ordinarily in use. They can be manufactured as cheaply, if not cheaper than common nails. The nails are manufactured by machines invented by Mr. Wiggell, each of which will twist at least 4,000 per hour; and the plain nails now in use can be twisted by other machines, also invented by Mr. Wiggell, at the rate of 16,000 per hour. Premises have been taken at Topham for the purpose of manufacturing these nails.

TENDERS

For two Houses, with shops, near Victoria Dock entrance, Plastow, E., for Mr. T. Grimes, under the superintendence of Mr. Ough, of Stratford, E. Quantities supplied:—

Hedges ..	£1,198 0 0
Heritage ..	1,169 0 0
Reed ..	1,107 0 0
Rivett ..	1,161 0 0
Cordery (accepted) ..	1,154 0 0

For new Printing-office in Church-passage, Chancery-lane, for Mr. Chettrill. Mr. J. Blyth, architect. Quantities supplied:—

Waggstaffe ..	£1,040 0 0
Prince ..	883 0 0
Gadsby ..	877 0 0
Fowler ..	843 0 0
Plowman ..	840 0 0
Sands ..	761 0 0
Brass ..	752 0 0
Sewell ..	733 0 0
Cannon ..	695 0 0
Heavens ..	660 0 0

For alterations and additions to No. 98, St. John-street-road. Quantities by Mr. W. Stent:—

Turner & Son ..	£159 0 0
Sands ..	154 0 0
Starkes ..	146 18 0
Beeton ..	139 0 0

For additions to the Metropolitan Convalescent Hospital, Walton-on-Thames. Mr. J. Clarke, architect. Quantities by Messrs. Yeldham & Pain:—

Chinnock, Brothers ..	£3,775 0 0
Dove ..	3,425 0 0
Lawrence & Son ..	3,342 0 0
Bowley, Brothers ..	3,300 0 0
Gannon ..	3,150 0 0
Mansfield & Son ..	3,120 0 0
Barnes ..	3,100 0 0
L'Anson ..	3,084 0 0
Foster ..	3,075 0 0
Piper & Wheeler ..	2,963 0 0

For additions to St. Michael's Orphanage, Chislehurst. Mr. J. Clarke, architect. Quantities by Messrs. Yeldham & Pain:—

Chinnock, Brothers ..	£1,250 0 0
Bowley, Brothers ..	775 0 0
Foster ..	754 0 0
Barnes ..	753 0 0
Francis (accepted) ..	733 0 0

For additions to Schools and new mistresses' House at Chislehurst. Mr. J. Clarke, architect:—

Egerton & Son ..	£275 19 0
Francis ..	714 0 0

For Hale's Grammar School, Hertford, for repairs and alterations to the master's dwelling and premises,—second portion. Mr. W. Wilds, architect:—

Collins ..	£366 0 0
Andrews ..	334 10 0
Norris ..	308 9 0
Rayment ..	269 0 0

For House at Curthwaite, Cumberland, for Mr. Daniel Jennings. Mr. Joseph Clarke, architect:—

Black (accepted) ..	£2,033 4 0
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For the Hamilton Memorial Almshouses and Hall, Biddington, Surrey. Mr. Joseph Clarke, architect. Quantities by Messrs. Yeldham & Pain:—

Barnes ..	£1,100 0 0
Buck ..	1,017 0 0

For restoration of Crayford Church, Kent, for the Rev. H. Morland Austen. Mr. J. Clarke, architect:—

Miles (accepted) ..	£1,333 0 0
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For alteration of Bank Premises, Heywood, for Messrs. Fenton. Mr. J. Clarke, architect:—

Ladyman ..	£1,050 0 0
Parker (accepted) ..	936 9 0

For House at Fulwell, for Mr. N. B. Tally. Mr. J. Tiltman, architect, Sunderland:—

Young ..	£727 16 74
Widdowson ..	636 0 0
Thompson ..	626 19 0
Mankin ..	565 0 0
Lee (accepted) ..	558 0 0
Hamilton ..	515 0 0
Hamilton ..	420 0 0

For Plumbers' work, to be done for the executors of the late Mr. James Brake:—

Dove ..	£75 0 0
Palmer ..	69 19 0
Small ..	69 19 0

For the erection of seven Cottages, at Coxstead, Essex. Mr. T. J. Hill, architect:—

Swett ..	£693 0 0
Withers ..	650 0 0
Lamprell ..	630 0 0

For alterations and repairs at the "Ticket Porter" public-house, Arthur-street, City, for the City of London Brewery Company:—

Greenwood ..	£275 0 0
Ellis ..	575 0 0
Wells ..	539 0 0
Sellick ..	516 0 0
Fox ..	470 0 0
Mar ..	425 0 0

For four Houses (being the first portion of nineteen), at Eastbourne, Sussex, for Mr. J. Nugent. Mr. Henry McCalla, architect:—

Sawyer ..	£4,680 0 0
Stevenson ..	4,370 0 0
Palmer ..	4,229 8 0
McLennan (accepted) ..	3,880 0 0

For cleaning and sundry repairs and alterations to St. John's Church, Clerkenwell. Mr. Withers, architect:—

Sharlington & Cole ..	£257 0 0
Goodwin ..	230 0 0
For J. W. Sanders ..	210 0 0
Pritchard & Son (accepted) ..	185 0 0

For building five pairs Cottages for Temperance Permanent Land and Building Society, on their estate at Stratford:—

Tolley (accepted) ..	£1,550 0 0
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For rebuilding a House, No. 92, High-street, for the Whitechapel Charities. Mr. G. H. Simmonds, architect:—

Davis & Co. ..	£989 10 0
Pritchard & Son ..	898 0 0
Wilkins & Bottom ..	897 0 0
Dudley ..	880 0 0
Heath ..	830 0 0
Walker ..	830 0 0
Mundy ..	825 0 0
Guthwaite ..	798 0 0
Wood (Messrs) ..	793 0 0
Jacobs ..	789 0 0
Read & Son ..	796 0 0
Newman & Son ..	770 17 6
Bowman ..	765 0 0
Harrison ..	765 0 0
Greenwood ..	720 0 0
Nish ..	713 0 0
Hal ..	689 0 0
Macers ..	633 0 0

NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the Builder," No. 1, Fork-street, Covent-garden. All other Communications should be addressed to the "Editor," and not to the "Publisher."

Advertisements cannot be received for the current week's issue, later than FIVE o'clock, p.m., on Thursday.

The Builder.

VOL. XIX.—No. 970.

Architecture and the Antwerp Congress.



N the account we have already given of the artistic Congress recently held in Antwerp, we have not spoken of the discussions which took place on the questions relating to architecture, which were proposed for consideration. These, it may be remembered, were three,—

First.—Is the expression of monumental art in harmony with the manifestations of modern ideas?

Second.—Is not the union of architecture, sculpture, and painting, indispensable to monumental art? What reforms should be introduced in the instruction of the fine arts, in order to establish that union? And,

Thirdly.—Is it not in the union of architecture,

painting, and sculpture, that monumental art should find the elements of a new style, which ought to characterize our epoch?

The committee in their programme pointed to the question, why has not our epoch,—superior, in so many respects, to former centuries,—its own particular form of architecture? as one that called loudly for solution.

"Our architects, long before us," said they, "have recognized an evil, the cause of which cannot be attributed to them. Nevertheless, let us consult history. We see in all great epochs a close alliance between the architect, the painter, and the sculptor. Egypt, Greece, and Rome have preserved many proofs of it. The ruins of Karnak at Thebes, those of the Parthenon at Athens, prove the power of that varied art, which called to its aid all the resources of the pencil, chisel, and compass. The civil constructions of Pompeii furnish also a striking example of that harmony between the three great elements of antique art. Afterwards we get by the descriptions of ancient authors the highest idea of those Gallo-Roman habitations wherein all the requirements of comfort were united to the gratification of the most complete artistic taste. The Gothics had a similar aim; we do not speak of their cathedrals; even from the porch, covered with symbolical sculpture, to the choir in which a mystical light descends through a variety of glittering glass windows, all seems vivified; the most obscure recesses are peopled with images; the blue vault covered with stars, gives an idea of the infinite; the pious legends of the Middle Ages are to be seen upon the walls; the smallest object of furniture is a masterpiece, the importance of which is observed in that wonderful ensemble."

Civil architecture was not behind hand; their town-halls confirm it; every-day life itself is surrounded by artistic marvels in which are blended with an admirable harmony, architecture, sculpture, and painting. The Renaissance, which does not separate these essential elements, has, as well as the Middle Ages, its form and its type, that may be traced in the history of architecture. The Decadence itself, the last proof of which is the style *Rocaille*, has produced monuments of indisputable value, wherein art, though degenerated, maintains a special and characteristic form. If at our epoch we want originality, is it not because we have abandoned the ancient alliance of the Fine Arts; is it not because each confines itself to its particular sphere? This was the main question advanced; and they added,—shall we not, when re-establishing the harmony which reigned among them, restore the unity of the original forms we want, and for which we vainly seek in the recollections of the past? In short, will not that question be solved by a reform in artistic instruction, and in that case, what shall that reform be?

Only one actual decision was arrived at, of which

we will speak presently. The first question was discussed and not voted on; the third the meeting would not discuss. As to the first, it stood in French "*L'expression de l'art monumental est-elle en rapport avec les autres manifestations de l'esprit moderne*," and while it was pretty generally admitted that in a certain sense architecture and the other manifestations of our epoch are "*en rapport*," it was shown that these words had different signification to different minds, and some of the speakers read them as "*à la hauteur*,"—equal to, or, on a level with, and maintained that they presupposed that in the other manifestations of modern intelligence progress generally speaking is going on, and this they denied. According to one speaker the tendencies of the present day are uncertainty in philosophical ideas, confusion, independence of opinion, or in other words a facile eclecticism and an indifference opposed to all profound conviction. According to another, Mr. James Weale, humanity has been retrograding since the thirteenth century, and we heard again how that the Renaissance was the triumph of sensualism. According to his view, we find at the present time nothing but disorder, agitation, and confusion; the uncertainty, incoherence, and experimental character of our architecture being but the reflex, the fatal consequence of this confusion and incoherence of ideas. The only cure was to go back, little by little, to the traditions, pure and simple, of the thirteenth century, and we might then hope for a new development of the pointed style! Speakers who followed did not believe a new style of architecture possible,—all combinations of lines had been tried, all forms had been worn threadbare. Modern art, according to their view, must be essentially eclectic; but it was necessary that its eclecticism should be intelligent. The artist should satisfy himself of the end to be attained; and this being well understood, the genius of the architect, guided by history, would soon discover for him the means and the forms which would best serve for the attainment of the end.

Mr. Gife, delegated by the Antwerp Society of Architects, agreed more or less with this view. In all that concerned ecclesiastical architecture he saw no reason to hope that we could do better than our forefathers; but in respect of domestic architecture it was different. The nineteenth century has new wants which demand imperiously a new architecture. If this new art has not yet appeared amongst us, we must seek the cause in various circumstances. Thus, for example, our age is essentially utilitarian: the idea of the beautiful is the least of its considerations; secondly, the division of property, which is a good thing in an economical point of view, confines the architect fatally within strict limits, which suffocate and destroy genius. Moreover, the system of instruction in respect of architecture is for the most part very defective. These are some of the difficulties in the way of the production of that new art which is nevertheless called for by the wants of the nineteenth century. Mr. Reichensperger, a well-known German, was satisfied that monumental art is not in harmony with the other manifestations of the day, and was glad that it was not. He was glad it was not the slave of modern opinions, that is to say, the opinions which animate the masses. The masses should not regulate art, but art the masses. The mission of art is to purify society, and not to fall on its knees before it. History confirms this view. It was by art and its imposing splendour that Christianity had triumphed over barbarians. Would that it might be so in our day! Although proud of our civilization, that civilization was often but a lying varnish, scarcely hiding real grossness and barbarism. True principles should alone govern architecture, he continued. Founded on one simple idea, it develops itself conformably with that idea, in a manner consequent and in every respect organic. Away, then, with eclecticism. As the tree springs complete from one germ, so a

work of architecture proceeds but from one idea. Further, architecture should be sincere. Away, he said, with all substitutions such as zinc, iron, plaster, and whitewash. Architecture should not lie: it should not present itself with a deceitful mask. Further, to possess vitality, it must have its roots fixed in the national soil, and for this reason the Pointed style was the only one that belonged to the Germanic peoples. If they admitted these principles, they would see that in architecture a new style was not possible. At Munich a prize had been offered to him who would produce a new style. The prize remained still unclaimed.

Mr. Wagner, in an able *resumé* of the discussion laid by him before the general meeting, said that doubtless each century had its own tendencies, of which it was necessary to take count; and new wants that required to be satisfied; but this did not show the necessity of a new style. The principles which gave birth to these cathedrals and hotels de ville are still susceptible of a thousand fresh applications. But to make these applications intelligently, it is necessary to study these models not simply in their form, but their spirit. He would not consider the art of the thirteenth century, as the pillars of Hercules, the *ne plus ultra* of architecture. Let us take from the Pointed style what is good and true, but do not condemn ourselves to repeat servilely its forms and models. Architecture should be essentially true. To give the nineteenth century the aspect of the thirteenth is to make it lie. All had agreed that a reform in monumental art was necessary, but while some wished to seek it in the past, others thought it must come from the future. The section being unable to agree as to the precise meaning of the question, no vote was taken upon it.

Touching the second question, it was agreed, on the motion of Mr. Reichensperger, to consider, first, this part of it:—"Is not the alliance of architecture, sculpture, and painting, indispensable in monumental art?" It was, however, strange to say, scarcely discussed: only one member, Mr. Legrand de Renlandt, spoke in the negative; and was of opinion that, not only is the alliance of these arts not indispensable, but that, looked at in a theoretical point of view, it is impossible. Their lines, he said, are entirely different, and are designed on different principles; and he could not imagine the possibility of an alliance between them without the sacrifice of one or other; and, in that case, it should be called a servitude, rather than an alliance. Even if it were possible, the alliance, he maintained, would not produce a new style, characteristic of the age. He did not think that, even in the Middle Ages, this alliance between the three arts had existed, as had been pretended. What connection was there, he would ask, between architecture on the one hand, and painting and sculpture on the other? The last two produced, it might be said, only furniture and fittings, of which the value is independent of the locality in which they find themselves.

Mr. Legrand argued at considerable length, but did not affect the section who were nearly unanimously of a contrary opinion. It was suggested that the word "indispensable" in the question, without any qualification, was perhaps too general, since it would tend to exclude many beautiful constructions; such, for example, as the creations of the Arabian genius, in which true sculpture was systematically omitted. The wording was, accordingly, slightly changed, and it was resolved unanimously, with the exception of one voice, that—

"THE ALLIANCE OF ARCHITECTURE, SCULPTURE, AND PAINTING IS INDISPENSABLE TO THE PERFECTION OF MONUMENTAL ART."

To have this generally understood and admitted is very desirable. This decision, said Mr. Wagner, will mark the triumph of polychrome architecture over architecture uniformly white,—heretofore considered the official colour. Look at our peristyles, our porticoes, our façades, the walls of

our temples, and the interiors of our palaces: white everywhere prevails. We are beginning here and there, it is true, to renounce whitewash, but it is on condition, if the building be of stone, of allowing it to remain its natural colour. With reference to the second part of the question, the section came to the conclusion that henceforward all instruction in the fine arts should have this alliance in view,—an inevitable consequence of the first decision. On the motion of Mr. Weale, it was further resolved unanimously that academical instruction ought to be completed by that of the master and the *atelier*.

Although in this as in other matters the congress was in no degree beyond the vanguard of English thinkers, a consideration of the decisions formally arrived at by the Antwerp Congress cannot be other than useful.

Let the sister arts work hand in hand.

EXETER CONGRESS OF THE BRITISH ARCHEOLOGICAL ASSOCIATION.

THE proceedings on Thursday, the 22nd of August, were rather those of the Exeter Architectural Society; the programme and the descriptions being undertaken by its members; and it may at once be inferred that it was an architectural day. The first place at which a halt was made was Hacombe church or chapel, where Mr. W. R. Crabbe read a paper in which he stated it was founded by Sir John Lerchdeacon, in accordance with the wish of his predecessor, Sir Stephen de Hacombe, in the early part of the fourteenth century. Six priests were attached to it. There are restorations in progress, but the parts untouched show that it was of Early English character in its earlier portions. There are several monuments, amongst which is a diminutive figure in alabaster. Mr. Planché's aid was called in, and he pronounced it to be an effigy of the fourteenth century; and repeated his opinion, given at Salisbury, in reference to the Boy Bishop, that it was an effigy placed where simply the heart was buried, in contradistinction to those covering the place where the body was buried entire.

The highly-interesting and tolerably-perfect Compton Castle next demanded attention; and, having been thoroughly examined, with its curious machicolations, built as screens and not as parapets or galleries, the company assembled in the court-yard to hear Mr. C. Spence's too brief history. He said that this castle must be regarded rather as a manor house, strengthened to resist sudden attacks, but not to sustain a protracted siege, than as a fortified castle. No doubt an outer gateway and wall once existed. On the east was the most picturesque portion of the ruin, a tower containing originally two chambers over a chapel. These are now reached by ladders. The ancient kitchen, with two rooms over it, are in existence behind the modern farm-house.

The castle was standing at the time of the Conquest, and was in the possession of the De la Poles, the Comptons, and the Roles during the twelfth and thirteenth centuries: on the north side of the south-east tower were the arms of the Gilberts, who probably improved the castle. The later parts are of the fifteenth century.

At Torre Abbey the party was met by Mr. E. Ashworth, architect, who had unfortunately met with an accident at Pynes, on Tuesday, and came here at much inconvenience to do his duty. He conducted the Association over the remains of the Abbey, and read an account in the old gateway. He stated that the Abbey was founded by William de Briwere, in 1190, for the Premonstratensian Order, part of whose buildings remain. The cellars are extensive; and, although of later date, are not much so, and exhibit perfect specimens of arrangement. Of the church there are some walls, but the ruins are picturesquely concealed by the growth of trees within them.

Torquay was reached at three o'clock. Much more was in the programme; but, during luncheon at Torquay, the county seemed to have, for once, asserted its rights over the Association, and claimed to weather-bind the members; so instead of Kent's Cavern and the other wonders of Torquay, smaller parties were formed, and we heard of some singing instead of lectures during part of the time at the hotel, much to the amusement of some of the fairer portion of the excursionists. Those who completed the circuit of sights when the rain ceased did not return to Exeter until after the evening meeting, at which Mr. E. Le-

vein, F.S.A., read a paper on the unpublished MSS. in reference to Devonshire in the British Museum. He gave a list of these documents, with a description of their contents; and Mr. P. O. Hutchinson gave a detailed account of Devonshire "Hill Fortresses."

A more brilliant day on Friday induced a larger number to start than on the previous day. Tiverton Church was first on the list, and was examined after two papers had been read in the Town Hall, one by the Rev. J. B. Hughes on the church, which he said was collegiate. It was in existence in 1146, when it was granted to the Priory of St. James, Exeter. The present structure is of the end of the fourteenth century; the tower of the fifteenth. John Greenway's chapel is of the date 1517.

An illuminated prayer book (Mr. Levein said it was not a missal) was examined: it was left by Walter Colles to the church of Tiverton about 1450.

Another paper, by Dr. Paterson, was "On Tiverton Castle." The Castle was said to have been built in 1106, by Richard de Redvers, Earl of Devon; and it is also said to have been the first dwelling in the town that was built of stone, and had glass windows. Dr. Paterson doubted if any part of the present buildings were earlier than the fourteenth century. He detailed the owners in whose hands it had been, and who had been benefactors to the town. It was besieged during the civil wars, after which it was dismantled.

These buildings were then examined. The church has been restored, but the Castle remains a not very picturesque ruin; except that part of the court is converted to a lawn, and a very comfortable looking house is arranged on one side.

Returning through the town, the Rev. Mr. Hughes invited the Association to partake of wine at Blundell's school, of which he is the principal. The ladies took the opportunity of insisting on having their own way, and released some of the college boys whom they found in punishment (it must be admitted they had consent), and obtained a holiday for all.

Next came Cullompton Church. Mr. E. Roberts said there was an earlier church here than the present one. The manor was bequeathed by King Alfred to his son Ethelward. The lord had power over life. The present church is of a very large and good Perpendicular building, recently restored; the gorgeously-coloured rood-screen being almost intact. The waggon-headed ceiling was later than the other part. The Lane Chapel, which was a second aisle on the south side of the nave, was similar in many respects to the one on the north side of St. Mary's Ottery, and apparently by the same hands. It had also been added in a similar manner, and he thought the buttresses on the inside of the first aisle had been subsequently built. The inscription outside was curious, and Mr. E. Smirke had deciphered the latter part to be "with a *Pater Noster* and an *Ave*," abbreviated. It had always been read "Wapentake Custos." The former is undoubtedly correct, and assimilates with coeval inscriptions in the same county.

There had been some alterations in the tower with the view of showing the west window, and he wished that the very ugly modern gallery had at the same time been removed. He expressed great disappointment at not seeing the large number of mural paintings in the spandrels of the nave, of which he had read, and had heard were of the fifteenth century: the whitewash of the last year had quite destroyed them.

There are some large wood carvings lying under the tower, which were said to have been formerly on the rood loft. They might, however, have formed what is called a "sepulchre."

The next visit was to Bradfield House, where a very large party was assembled by the owner, Mr. J. W. Walrond. After wandering through the excellently-restored house, several hundreds of persons sat down to an agreeable repast. Mr. J. Hayward, architect, then described the nature of the old house and the works conducted by him in the restoration.

The earliest part is a fine hall of the end of the fifteenth century; and, with the exception of the roof, has been much altered; for in the course of the repairs jambs of earlier windows were discovered. The roof remains in its integrity. The remainder of the house is of the period of Elizabeth and James I. Every room of the old house has been retained except the kitchen and buttery.

Notwithstanding the attractions of the place and the company, the evening meeting was punctually and fully attended. Mr. T. Wright, F.S.A., read his paper on, and gave a description of, the municipal records of Exeter, with lengthened extracts; showing the pains he had taken

not only to translate, but to compare and classify, and draw valuable conclusions.

This was followed by Sir Gardner Wilkinson's paper "On Dartmoor," part of which only was read for want of time.

Saturday and the following Monday were devoted to excursions, the one down the Dart to Dartmouth, and the other to Dartmoor. These were mainly pleasure trips, and the latter altogether an additional one, but considered necessary to the completeness of the congress. They were both much enjoyed. Thus ended one of the most pleasant of congresses. The objects to be visited may have been fewer and farther between than usual, but they were of great interest. The first few days were devoted most energetically to business; but gradually, and as it appeared, irresistibly the attractiveness of the beauties (and these did not seem to be absolutely confined to scenery), caused the attention of the assembled multitude to be divided. On the other hand, the Exonians went through a large amount of work, and they found, as one was heard to say, that the persons with so many letters after their names were not after all so very formidable, but were a happy and friendly sort of people, more pleased than they expected with the welcome given them.

The travelling arrangements were admirably managed by Mr. G. Wright, F.S.A., curator; and much of the comfort was attributable to his foresight and inexhaustible energy. The railway managers were attentive and courteous; and, what is more, effected their journeys with strict punctuality, and moderate fares: this was in marked contrast with some of the proprietors of other vehicles.

The Association has been happy in its president, who has assiduously attended at the evening meetings as well as at the majority of the daily excursions.

A FRENCH ESSAY UPON PAINTING AND ARCHITECTURE.* CHAPTER IV.

WHAT ALL THE WORLD KNOWS ABOUT EXPRESSION, AND SOMETHING THAT ALL THE WORLD DOES NOT KNOW.

"Sunt lacrymæ rerum, et mentem mortalia tangunt."

Expression is in general the image of a sentiment.

A comedian who is not well up in painting is a poor comedian: a painter who is not a physiognomist is a poor painter.

In every part of the world, every country; in the same country every province; in a province every town; in a town every family; in a family every individual; in an individual every instant—has its physiognomy, its expression.

A man gets into a passion, is attentive, curious, in love, hates, contemns, disdain, admires: every movement of his soul imprints itself upon his face in clear and evident signs, which we can never misunderstand.

Upon his face—what do I say? Upon his mouth, upon his cheeks, in his eyes, in every part of his face. The eye flashes, or fades, or languishes, or becomes fixed; and the admirable imagination of a great painter is an immense collection of all these expressions. Each of us has his little provision of them; and it forms the basis of the judgment we form of ugliness and beauty. Study the matter a moment, my friend; examine yourself on seeing some man or woman: and you will acknowledge that it is the image of some good quality, or the stamp, more or less marked, of a bad one, which attracts or repels you.

Fancy the Antinous before you. His large and full cheeks bespeak health. We love health: it is the corner-stone of happiness. He is calm: we love repose. He has an air of thought and wisdom: I leave the rest of his face to consider merely by his head.

Preserve all the features of this beautiful face as they are; but just raise a corner of the mouth: the expression becomes ironical, and the face less agreeable. Replace the mouth as it was, and raise the eyebrows: the expression becomes that of pride, and again less agreeable. Raise the two corners of the mouth at the same time, and hold the eyes well open: you will have a cynical physiognomy, and if a father you will be alarmed for your daughter. Allow the corners of the mouth to fall, pull down the eyelids, let them cover half the iris, and cut the pupil in two: and you have now the false, stealthy, dissimulating man that you would avoid.

Every age has its tastes. Vermilion lips well

edged, a laughing half-opened mouth, beautiful white teeth, an easy walk, an assured look, a full bosom, large handsome cheeks, a turned-up nose, would have made me go any distance at eighteen. Now that vice is no longer good form, nor for vice, it is a young girl with an air of modesty and propriety, a composed walk, a timid look, who walks silently alongside of her mother, who wins my admiration.

Who had the correct taste? I at eighteen? I at fifty? The question may be soon decided. If any one had said to me at eighteen, "My child, which is the more beautiful, the image of vice or virtue?" "A pretty question," I should have answered: "of course virtue."

To extort the truth from a man we must every instant give the go-by to passion by the use of abstract and general terms. The fact is, that at eighteen it was not the image of beauty, but the physiognomy of pleasure which set me in motion.

Expression is either false or feeble if it leave us in any uncertainty as to sentiment.

Whatever be the character of a man, if his habitual physiognomy is conformable to the idea you have of a virtue it will attract you: if his habitual physiognomy is conformable to the idea you have of a vice, it will estrange you.

Sometimes we make our own physiognomy. The face, accustomed to take the expression of the reigning passion, retains it. Sometimes, also, we receive it from nature: and we must be content to keep it as we get it. It has pleased her to make us good with a wicked countenance, or to make us wicked with an expression of goodness.

I have seen in the centre of the Faubourg St. Marceau, where I lived a long time, children with charming faces. At twelve or thirteen years old, their eyes full of sweetness, were already bold and ardent; the agreeable little mouth had already assumed singular contours; the neck, so round, was showing developed muscles; the large smooth cheeks had, here and there, hard elevations: they had already taken the physiognomy of the marketplace. As the result of quarrels, scoldings, beatings, cryings, and scuffings about a farthing, they had contracted for their whole lives an air of sordid interest, of impudence, and of anger.

If nature or a man's own soul has given to his countenance an expression of benevolence, justice, and liberty, you will feel it, because you carry in yourself the images of these virtues: and you will welcome the man who makes the fact known to you. His face is a letter of recommendation written in a language common to all mankind.

Each situation of life has its own character and expression. The savage has firm, vigorous, and strongly-marked features; bristled hair; a thick beard; the most exact proportion in limb: which of his avocations could have impaired it? He has hunted, run, warred on the wild beast; he has exercised himself, he has taken care of himself: he has produced his like: the only natural occupations. There is nothing in him to evidence either effrontery or shame. He has an air of pride mingled with ferocity. His head is high and erect; his look fixed. He is master in his forest. The more I consider him the more I recall the solitude and frank simplicity of his abode. If he speaks, his gesture is imperious, his expressions short and full of energy. He is without law and without prejudices. He is easily angered. He is in a state of perpetual war. He is supple; he is agile: yet he is strong.

The features of his companion, her look, her bearing, are not those of the civilized woman. She is naked and sees it not: she has followed her husband on the plain, up the mountain, into the forest. She has shared his exercise: she has carried her child in her arms. No garment has supported her breast. Her long hair spreads out abroad: she is well proportioned. The voice of her husband thunders; hers is strong. Her looks are less fixed; she is more open to fear. She is agile.

In society every class of citizen has its character and expression: the mechanic, the nobleman, the middle-class man, the man of letters, the churchman, the lawyer, the soldier.

Among the working class of towns there are habits of body, and physiognomies of shops and workshops. Every society has its government, and each government its predominant quality, real or supposed, which is its soul, support, and motor power.

A republic implies a state of equality. Every subject believes himself a little king. The air of a republican will be high, harsh, and proud.

In a monarchy where people at once command and obey, the character and expression will be that of affability, grace, sweetness, honour, galanterie.

Under a despotism, whatever beauty there is is that of the slave, and the faces you show me must be mild, submissive, timid, circumspect, suppliant, and modest. The slave bends his head as he walks: he seems to be presenting it to the sword that may strike it off.

And what is sympathy? I understand that prompt, sudden, unreflecting impulse which presses and binds together two beings at first sight, in an instant, at the first meeting, for sympathy even in this sense is not a chimera. It is the momentary reciprocal attraction of some virtue. From virtue springs admiration, from admiration esteem; the desire of possessing and love.

So much for character and their diverse physiognomies. But it is not all. We must join to this knowledge a deep experience of the scenes of life. I must explain myself. We ought to have studied the happiness and misery of mankind under all their phases; battles, famines, pests, inundations, storms, tempests, animated nature, and inanimate nature, under convulsion. We ought to have run through histories; filled ourselves with the poets: dwelt upon their images. When the poet says, "*Vera incessu patuit Dea*," we ought to seek in ourselves the image thus pictured. When he says, "*Summa placidum caput extulit unda*," we should model that head; feel what we ought to take of it, what leave; understand passion, weak or strong, and represent it without grimace. The Læocoon suffers—it does not grimace; nevertheless, a fearful torment coils round it from the extremity of the foot to the crown of the head, which affects us deeply yet without inspiring horror. So paint that my eyes can neither pass your picture nor be withdrawn from it.

Do not comprise prettinesses, grimaces, little corners of the mouth lifted up, little pinched-up mouths, and a thousand other puerile affectations, with grace, still less with expression.

First, let your head be of noble character. The passions are more easily painted on a beautiful face. They become hence, even when in excess, the more terrible. The Eumenides of the ancients are handsome, and are hence but the more terrible. It is only when one is at the same time attracted and repelled violently that we experience the most uneasiness; and this is the effect of one of the Eumenides, invested with the most striking features of beauty.

The oval of the face, long in the man, large at the top, and narrowing as it goes down, presents a type of nobility of character.

The oval of the face, rounded in the woman and child, offers a character of youth, a principle of grace.

One trait, if displaced the breadth of a hair, embellishes or deforms.

Learn, then, what is grace, or that rigorous and precise conformity of the parts with the nature of the action. Above all, do not take it for that of the actor or the dancing-master. The grace of action and that of the dancing-master exactly contradict one another. If the latter were to encounter a man placed like the Antinous, he would place one hand under his chin, the other on his shoulder, and say, "Sir, air, is it in this way that a man should hold himself?" And then, stretching out his knees with his own, and raising him from under the arms, he would add,—"People would fancy you made of wax, and that you were about to melt. Come, blockhead, extend this calf; stretch out this face of yours,—your nose a little more in the wind's eye;" and, after making of him the most insipid of *petits maitres*, he would begin to smile upon him, and applaud his own work.

If you lose the sentiment of a man who presents himself in society, and of an interested man in actual action,—of a man alone, and of a man under observation, throw your pencils in the fire. You are academizing: all your figures will be laboured and overdone.

Do you wish to feel, my friend, this difference? You are alone at your own house: you await my manuscripts, which do not come. You think that princes ought to be served at the given instant. You are stretched upon your straw-bottomed chair, your arms resting on your knees: your night-cap comes down over your eyes, or your dishevelled hair in strange undress; your dressing-gown half opened, and falling in long folds here and there: you are altogether picturesque and beautiful. M. le Marquis de Castries is announced; and at once the night-cap is raised, the dressing-gown closed in; yourself erect, every limb carefully arranged, taking fastidious postures; and you become all that is agreeable for your visitor, very insipid for the artist. A minute ago you were his man; you are so no longer.

When we consider certain figures,—certain characters of head, by Raffaele, the Carracci, and others, we ask ourselves where they got them. In a warm imagination, in authors, in the clouds, in accidents by fire, in ruins, in the nation where they found the first traits which poetry has subsequently exaggerated.

These rare men possessed sensibility, originality, humour. They read; particularly the poets. A poet is a man of strong imagination, who melts and terrifies himself at the phantoms he himself draws.

CHAPTER V.

PARAGRAPH ON COMPOSITION, WHEREIN I TRUST TO TALK ABOUT IT.

We have only a limited measure of sagacity. We are capable of only a certain amount of attention. When we compose a poem, a picture, a comedy, a history, a romance, a tragedy, a work for the people, we must not imitate the authors who have written on education. Out of two thousand children, there is scarcely one we could educate on their principles. If they had thought about it, they would have felt that a brilliant genius is not the common model for a general institution. A composition which is to be exhibited to a crowd of all sorts of spectators would be defective if it were not at once intelligible to every man of common sense. It should be simple and clear: hence no idle figure, no superfluous accessory. Let the subject be one. Poussin has shown in the same picture, in the foreground Jupiter and Callisto, and in the background Juno dragging to punishment the seduced nymph;—a fault unworthy of so great an artist.

The painter has only an instant; and he is no more allowed to include two instants than two actions. There are, however, some circumstances where it is neither against truth nor against the interest of the subject to recall the instant which is just past or to commence that which is about to be. A sudden catastrophe surprises a man in the midst of his labours: he is at once in the midst of the catastrophe and his labours.

A singer, straining himself in the execution of a *bravura*, a fiddler torturing himself and his instrument, vex and agonize me. I require from the singer a certain amount of ease and liberty. I ask that the symphonist move his fingers over the cords so easily, so lightly, that I may have no suspicion of the difficulty of the thing. I must have my pleasure pure and without mixture; and I turn my back upon a painter who offers me an emblem, a logogryphe to decipher.

If the scene is one, clear, simple, and in keeping, I seize the whole in a glance: but this is not enough. It must also be varied: and so it will be if the artist be a close observer of nature.

A man is engaged in an interesting reading to another. Without their thinking about it, one or the other, the reader places himself in the position most easy for himself: the hearer does as much. If it be Robbè who reads, he will have the air of one possessed. He will not look at his paper: his eyes wander in the air. If I listen, it is with a serious air: my right hand will seek my chin, and support my head, which sinks; and my left arm will find the elbow of the right one, and support the weight of my head and of the arm. It would not be thus I should listen to Voltaire.

Add a third person to the scene: he will fall under the same law as the other two: it is a combined system of three interests. Let there be a hundred, two hundred, a thousand: it will be the same thing. No doubt there will be noise for a moment, movement, tumult, cries, action, reaction, and undulations: it is a moment when nobody thinks but of himself, and aims at sacrificing to that self the whole republic. But he will not be long before feeling the absurdity of such a pretension, and the uselessness of aiming at it. By degrees each one settles down, on giving up a portion of his self-interest, and the mass becomes composed.

Cast your eyes upon this mass in its moment of tumult: the energy of each individual is developed in all its violence; and as there is no single individual who is provided with it to precisely the same extent, it is as with the leaves of a tree:—as there, not one is of the same green, so here, not one of these persons shows the same action or position.

Now look at the mass in its moment of repose, that when every one has sacrificed the least possible of his advantages: and as the same diversity exists in the sacrifices, there is the same diversity of actions and positions. And the moments of repose and tumult have this in common, that each one shows himself exactly as he is.

Let the artist pay attention to this law of ener-

gies and interests; and however large be his canvas his composition will be true throughout. The only contrast that good taste will approve, that which results from the variety of energies and interests, is there; and there is no need of any other. Our contrast of study, of the academy, of the school, of system, is false. It is not an action which passes in nature: it is an artificial, forced, action which takes effect upon the canvas. The picture is not a street, a public square, a temple: it is a theatrical scene.

A tolerable picture has never yet been painted, and never will, after a theatrical scene: and this, in my opinion, is the severest of satires upon our actors, our decorations, and, it may be, on our dramatists.

Another thing which does not shock us less is the male usages of civilized nations. Politeness, a quality which we find so amiable, so sweet, and so estimable in society, is rapid as a subject in the arts of imitation. A woman cannot bend the knee, nor can a man use his arm, place his hat upon his head, nor withdraw one of his legs backwards but upon the model of a dancing-master. I know very well that I shall have Watteau's pictures flung at me; but I pass them with a laugh, and retain my opinion.

Take from Watteau his sites, his colour, the grace of his figures, and drapery: see only the scene, and then judge. We want in the arts of imitation something of the savage, of the rude, of the striking, of the large. I will permit a Persian to raise his hand slowly to his forehead and to make his low bow: but remark the character of the man so bowing; observe his respect, his adoration; look at the largeness of his drapery, of his movement. Who is he that can merit so profound a homage? Is it his god? No: his father!

Add to the platitude of our salutes that of our garments; our turned up sleeves, our breeches *en fourreau*, our coat-skirts squared out and braided; our garters below the knee, our buckles in their form of love-knots, our pointed shoes: I defy even the genius of painting and sculpture to turn to good account such a system of common-places. A fine thing, truly, is your Frenchman standing in marble or bronze, with his tight coat and his buttons, his sword and his hat!

But let us return to the ordonnance, the complete grouping of the personages. We can and we ought to sacrifice a little to technical art. How much I do not know; but for it must not be at the smallest expense of expression or in the effect of the subject. Touch me, astonish me, torture me, make me thrill, weep, shudder, or feel indignant at first: you may gratify my eyes afterwards if you can. Every action has several instants; but I have said, and now repeat it, the artist has only one, whose duration is that of a single glance of the eye. Nevertheless, as the face which has been showing suffering, followed now by joy, will offer the passion of the present moment mixed with the remains of the passion it has succeeded, there may be also at the moment chosen by the artist, either in attitude, or in character, or in action, traces yet remaining of a preceding moment.

A more or less complicated system of things does not change altogether in an instant; a fact well known to the man who is acquainted with nature, and who has the sentiment of the true: but that which he knows also is that with these mixed figures, these undecided personages, helping only by halves the general effect, that effect loses on the side of interest what it gains on the side of variety. What is it that subjugates my imagination? It is the concurring opinion of the multitude. I cannot hold back when all the world seems inviting me. My eyes, my arms, my soul, direct themselves in spite of myself where I see their eyes, their arms, and their soul. I should be better pleased, therefore, were it possible to recoil at the moment of action; to gather energy, and to make my spring disengaged from all that is unnecessary. And unless the contrast be sublime, a rare work, I will have nothing to do with whatever is superfluous: when the contrast is sublime the scene changes, and the superfluous becomes its principal subject.

I cannot tolerate, unless it be in some apotheosis, or other subject of pure fancy, the mixture of the allegorical and the real. I see, as I write, the admirers of Rubens shudder: but what of it, if good taste and truth smile on me?

This mixture of the allegorical and the real gives to history the air of a romance; and, to speak out, this defect disfigures, as far as I am concerned, most of the compositions of Rubens. I do not understand them. What sort of a figure is it which contains a bird's nest, a Mercury, the rainbow, the Zodiac, Sagittarius in the bed-chamber,

and about the bed of a lying-in woman? There ought to have been attached to each of the persons' mouths, as we see in our tapestries, a legend saying what they mean.

I have already told you my opinion on the monuments at Rheims executed by Pigal; and my subject now recalls me to it. What is the meaning of that woman conducting a lion by his mane, near a street-porter stretched upon bales? The lion and the woman move towards the sleeping porter; and I feel certain that the child will cry "Mamma, the woman will make the beast eat that poor man." I do not say such was Pigal's aim, but that is what would happen if the man awakes and the woman take another step forwards. "Pigal, my friend, take thy hammer: oblige me by breaking this collection of absurd things. You would represent a protecting king: let it be, then, of agriculture, commerce, and population. Thy street-porter asleep on the bales will do well for Commerce. On the other side of the pedestal fell me a bull: let a vigorous peasant rest himself between its horns and we shall have Agriculture. Between the two let me have a truly good-looking country Frenchman who suckles an infant, and I should accept her for Population. Is a felled bull not beautiful? Is a naked peasant reposing himself not beautiful? Is a peasant girl with her large features and generous bosom not beautiful? Would not this composition offer to thy chisel every kind of nature? Would it not touch me, and interest me far more than thy symbolical figures? You would have shown me my sovereign as the protector of humble life,—his true character; for thence comes the flock, thence the nation."

The truth is that we ought to meditate well on our subject. Of great consequence, truly, to furnish our canvas with figures! The point is to place these figures as they are self-placed in nature, that they may all-powerfully, chastely, simply, contribute to a common effect, without which I should say with Fontenelle to the Sonata, "Figure, what do you want of me?"

Painting has this in common with poetry, and it would seem as if nobody ever thought of it, that they ought to be, both equally, *tene morate*. Their moral must be good. Boucher has no suspicion of this: he is always naughty, and never attacks us. Greuse is always honest, and the crowd press round his pictures. I would venture to say to Boucher, "If thou art painting but for rakes of eighteen, thou art right, my friend; continue thy audities; but for respectable people and for me it is in vain they bring thee into the best light of the 'Salon'; we will leave thee there and hunt out, in an obscure corner, this charming Euxine of Le Prince, and this young, honest, innocent godmother standing by his side. Do not be deceived: that face of hers would seduce me of a morning into some weakness sooner than all thy impurities. I do not know where thou goest to find them, but it must be impossible to remain there for a man who values his health."

I am not over nice. I read now and then my Petronius. Horace's satire *Ambagiarum* pleases me at least as much as another. I know three-fourths of the little, infamous madrigals of Catullus by heart. When I am at home with my friends, and my head warms a little under white wine, I cite without a blush an epigram of Perarrand. I pardon the poet, the painter, the sculptor, nay, the philosopher, an instant or so of humour and folly; but I cannot allow the artist to be constantly going there for his tints, and perverting the aim of the arts. One of the most beautiful lines of Virgil, and one of the most beautiful principles of the imitative art is this:—

"Sunt lacrymæ rerum, et mentem mortalibus tangunt."

It ought to be written on the door of every atelier:—

"Here the unfortunate find eyes which weep for them."

It is to render virtue amiable, vice odious, ridiculous striking, that the honest man takes up the pen, the pencil, or the chisel. Is there a rascal in society bearing within the consciousness of some secret infamy? Here he finds his punishment. Without thinking of it genius places him in the pillory. It judges him; places him under his own cross-examination. It is in vain that he is embarrassed, blanches, stammers: he is compelled to subscribe to his own sentence. Should his walk lead him to the Salon, let him fear to look upon the pitiless canvas. It is the privilege of painting also to celebrate, to eternize great and beautiful actions, to honour virtue when unfortunate, and discredited, to stigmatize happy and honoured vice, to alarm tyrants. Show me Commodus given to the beasts; let me see him upon the canvas, torn and crackling in their teeth. Make

me hear the savage joy that wildly triumphs over his corpse. Avenge the good man against the wicked, against the gods, against the fates. Anticipate, if you can, the judgments of posterity; or, if the courage fail you, paint me at least the judgments which she has already given. Reverse against a fanatical people the ignominy with which they have pretended to cover those who have instructed and made known to them the truth. Spread before me the sanguinary scenes of fanaticism. Teach princes and peoples what they are to expect from all such preachers of falsehood. Why shall you also not be among the teachers of mankind, our consolars under the evils of life, the avengers of crime, the rewarders of virtue? Do you not know,—

"Sæmuis irritant animos demissa per aures,
Quam quæ sunt oculis subjecta fidelibus, et quæ
Ipse sibi tradit spectator?"

Your personages are mute, I admit; but they make me speak and converse with myself.

There are two kinds of composition—the picturesque and the expressive. I value little the artist's disposing his figures with the happiest effects of light if they are like individuals who have lost themselves in some public promenade, or like the animals a landscape painter gives at the feet of his mountains.

Every "expressive" composition may be, at the same time, picturesque, and when it has all the expression of which it is susceptible, it is sufficiently picturesque, and I felicitate the artist when he has not sacrificed common sense to the mere pleasure of the organ. When he acts otherwise, I exclaim, as when I hear some eloquent speaker talking nonsense, "You speak well, but don't know what you are saying."

Beyond doubt some subjects are unfruitful; but it is only to the common-place artist that they are common. Everything is unfruitful to the barren head. In your opinion, is a priest dictating a homily to his secretary an interesting subject? Yet look at what Carle Vanloo has made of it! It is beyond all question the simplest and most beautiful of all his sketches.

It has been asserted that the *ordonnance* is inseparable from expression; but it seems to me that we can have disposition without expression, and that nothing, indeed, is so common. Expression, without disposition, I think a rarer thing, particularly when I consider that the smallest superfluous accessory injures expression, be it only a dog, a horse, a corner of a column, or an urn.*

THE CONDITION OF THE POOR IN TOWNS.

The state of our town poor results from the condition in which they are placed, their previous training, opportunities, and temptations. The great power of self-guidance, so slowly perfected in us all, they only possess imperfectly. The culture they receive, the active sympathy manifested for them by classes above their own, does not sufficiently supplement their deficiencies. Looking out, like ourselves, on the great universe of God, they do it under circumstances less favourable—much less favourable than could be desired for appropriating the spiritual, the divine influences ever streaming in upon them as upon us all. The habitations of the town poor are very wretched. Many of those in Belfast and Dublin are old, damp, unclean—in short, utterly unfitted for decent human occupation. The poverty of many of the town poor, leaving no choice of residence, too often brings them into unavoidable contact with the most reckless and degraded of our species. Even where new habitations, or streets of habitations are erected, the cupidity of speculators leaves the room-spaces too narrow, and the provisions for ventilation and cleanliness of the most insufficient description. I have long thought that the erection of dwellings for the poor should be placed under some sort of municipal or other control. Whether houses for the poor be thus seen to or not, it is desirable to prevent persons with accommodations insufficient even for themselves from taking in lodgers. The minimum of house-accommodation for married persons with families should consist of a living-room with three sleeping-chambers,—one for the parents, the other two for the young men and women of the family, severally. It is greatly prejudicial to moral interests and to health when the sexes, without any means of separation or desirable appliance, spend their lives day and night together. For the most part there is no attempt at, because there is no facility for, isolation,—no possible privacy. How can religious or other desirable influences adequately prevail, when the cir-

* To be continued.

circumstances of the people are such as to militate against their introduction? Most certain is it that the condition of the homes of the working classes is often very adverse to all true elevation, the health of body and soul. What disease would be prevented, what crime, what wearing discomfort, what degradation, were the dwellings of the working classes only adequate to the real requirements of the occupants!

I shall not here enlarge on the want of sufficient water, gas, and light supplies, the paucity of space, the insecurity against fire, the various inflections that outrage the sense of purity and order, which, however perverted and defaced, subsist in us all; the imperfect arrangements for heating, for cooking, for washing, for personal and household cleanliness; but shall proceed at once to consider a want that leads to yet greater physical suffering and loss than any other single, or, perchance, collective material influence together. I speak of the absence of ventilation—of night-ventilation in particular—the so pregnant source of disease and death. For I look upon the exclusion of a pure atmosphere by night as the one efficient and acting source of consumption and scrofula. Without a continuous supply of pure oxygen, in the proportion presented by the atmosphere, the effete waste of the body cannot be properly burned off. And if the effete waste be not all burned off, the inevitable sequence, as I conceive, is the deposit of the residue in the guise of tubercle, either internally in the different forms of consumption, or externally in the various aspects of scrofula. Every one knows how the poor are decimated by these maladies. That they are so, arises from the insufficient supply of oxygen whether during working hours, the hours of relaxation, and very especially those devoted to repose. The difficulty of ventilation is enhanced by the evil construction of windows, those in the houses of the town poor in especial. They are made to lift, but, in order to avoid the pitiful outlay of a few shillings for cords, weights, pulleys, they are not made, as they ought all to be made, to pull down. The little wooden wedge inserted on each side, to prevent the upper window-sash from descending, viewing it as an impediment to ventilation, has proved the most lethal instrument of destruction in the world. Every window ought to be made to pull down. Instructions should be issued from masters to their workmen, from parents to their children, from house-owners to their tenants, from doctors to their patients, from divines to their flocks, to pull down the windows of living and sleeping chambers at all convenient hours during the day, and, invariably, winter and summer, during the night. There is no other way than this, by a door, as it were, direct into the ocean of the atmosphere which subsists about us, to secure an ever fresh supply of untainted oxygen, and, as I maintain, a more or less perfect immunity from the ravages of scrofulous and consumptive maladies.

The wretched construction of the houses of the poor, the utter want of conveniences, the absence of the desirable facilities for insuring the requisite interior and exterior cleanliness, all militate extremely against the physical, and, less directly, the moral welfare of the poor. Many of the houses are on a level with—some below—the level of the street. The wretched mode of constructing the public ways—creating a mixture of mud and slush at one time, of dusty impurity at another—both taint and chill the atmosphere. In summer, this dust, co-mingled with the dried-up droppings of animals, finds admission through every crevice. In winter, dark and ill-smelling exhalations are swept into every abode. It would be easy to construct windows to rise as well as to pull down, and, further, to open like French casements, on hinges. This would yield the utmost facility for cleaning glass with ease and safety, now rendered comparatively impervious to light, unless when cleansed a little by wind and rain. I know few things more dreary than windows with pallid children and women inside them; windows obscured by cobwebs, laden with dust and grime, and affording no means for the introduction of an untainted atmosphere. It is almost needless to say that dwellings of this stamp are unprovided with any facilities for the daily bath, even in the simplest form of the tub or basin bath, and none, for next to none, for washing and drying the inner garments of the inmates. Municipalities should everywhere encourage the erection, or even undertake it themselves, of public washhouses, where, by means of wringing and washing machines and warm closets, the labouring poor might leave their garments rendered sweet and pure at

an almost nominal charge; for I do not approve of mothers leaving their houses to the prejudice of their little ones, taxing their too-often enfeebled physical powers, to wash in public washhouses, when it can be so much more cheaply and effectively done for them than by them. As it is, the accumulated foulnesses in and around the houses of the poor are not only hurtful in themselves, but too rapidly exhaust the invaluable agency of ozone or allotropic oxygen, that electrified oxygen supplied by a bounteous nature for the purification of the abodes of man. It is hardly necessary to observe that the sewerage is everywhere deficient about the houses of the poor. Feculent matters, sweepings, animal waste, offensive to the moral and physical sense, lumber in the gutters, or finding their way into the sewers, taint the atmosphere at every turn.

Rivers running through towns, in place of being allowed to flow with the limpid purity bestowed by a beneficent Providence, are converted into mere conduits of feculence, which, when their outlets happen to adjoin, are cast upon the sea-beaches, and there, mingling with the weed and waste, taint the atmosphere, and more or less affect the salubrity of the vicinity. The health of all classes, did we but see it, is bound up in one indissoluble alliance. Whatever injures the moral, social, physical welfare of the poor is injurious, let us be well assured, to the rich also. And whatever benefits the poor man benefits also his wealthy brother. Fortunately, means and appliances, derived or derivable from chemical science and mechanical art, there are at hand enough, and more than enough, to remedy some of the evils here adverted to.

Streets may be constructed of concrete, or stone, or metal tramways. Gas and water may be conveyed above ground, as the telegraphic wires are, and the rainfall may be led away in the surface-gutters, without the necessity of breaking up the pavement for any purpose whatever. Sewers, those pestilent and abominable contrivances for tainting air and water alike, should be abolished. Well-paid scavengers, exercising the functions of the Indian sweepers, might go from house to house, at stated intervals, and remove all and every accumulation.

The waste of every house should be preserved in porcelain vessels in chambers set apart, that is to say, in covered metal vessels, enamelled with porcelain. In similar covered vessels should this waste be received and conveyed away. By employing the permanganate of soda, or potash, or lime, which enjoys the precious property of yielding allotropic oxygen or ozone, all foul taint and offensive emanation is instantly, or almost instantly, removed. This permanganate of soda, itself, is quite cheap, has no foul or trying odour, unlike some other deodorizing substances, is perfectly innocent, and has, further, the infinitely important property of giving out the most powerful and efficient disinfectant, namely ozone, in the known world. By means of this invaluable principle, the abodes of both rich and poor might be freed from physical taints, and the soil, its natural and proper outlet, enriched proportionately. The accession to human health and comfort, with the furtherance of public well-being, thus potentially realizable, is hardly to be told in words.

Very many of our poor have no other clothing than what they habitually wear. They have no change of outer garments, and commonly a scanty supply of inner clothing. Nothing is more frequent than to see poor men or women returning to their exigent home, dripping with rain, and with no prospect of replacing their wet attire. They go out and in, during all weathers, with coverings ill-suited to the ordinary exigencies of physical life. Very rarely has the poor man a great-coat, or the poor woman a cloth pelisse. An umbrella they rarely carry. This deficiency is even observable with artisans whose receipts are comparatively large. They even are wont to say, when pressed to procure little comforts, "we would rather not, for it may not always be in our power to procure them." The fruits of this improvidence, too often the result of necessity, are seen in the frequency of rheumatism, bronchitis, pleurisy, and feverish attacks, accruing more or less directly from inadequate bodily protection. In the youthful poor the consequences are especially disastrous, the majority of children dying in early life, perishing from bronchitis, either as directly superinduced or as occurring in the course of other diseases, owing to inadequate coverings.

The deficiency in night-coverings, in especial, is very great, and very, very injurious. How is night ventilation possible where there are not means to insure adequate bodily warmth? As

many poor women go about without a flannel under-garment, so it too often happens that there are beds without blankets, or such poor, meagre, shrunken, and threadbare things as do not deserve the name. And even of these the supply will too often be found reduced to a single one. However limited the rewards of labour, it is most undoubted that the imperfect culture of the faculties of self-providence and self-restraint lies at the root of very many of the physical distresses of the poor. They know little of the value of sums of money collectively. They pay high for what they procure, and, when it is procured, the slightest exigency, too often a craving for strong drink, leads them to part with it; to say nothing of the injudicious expenditure of money, the sums squandered by the poor in pawnshops, large and small, or public-houses, would not only go far, if so laid out, to place them above immediate destitution, but would furnish large prospective resources in the way of deferred annuities and life assurance.

I cannot but think that public cooking-houses, like public washhouses, would prove a great advantage to the poor. Such establishments subsist in different parts of France, and have proved of much benefit to the people. The French public cooking-houses sell to all comers wholesome viands, well cooked, at cost price—that is to say, at the cost of the materials, plus the cost of cooking. This, however, is reduced to a small tally, by the services of acting committees, who purchase by tender, keep the accounts, and see to the sales and cooking. In Zschokke's admirable tale of the "Goldmaker's Village," there is an account of a cooking-house of the kind which I here recommend. It is obvious enough that the purchase of provisions and fuel on a large scale, and cookery dealing with masses of material, over one large fire, instead of a multitude of small ones, would yield a cheap and superior food supply. In Berlin, some years since, the Government set up cooking-houses, where an excellent soup or stew, made of meat, vegetables, and spice, was sold at three-halfpence the quart. In Paris, a speculator became rich, through his enterprise, selling, as I have heard, an excellent dinner, comprising a stew of meat and vegetables, a haunch of bread, and tumbler of wine for threepence. Three hog-heads of wine are emptied daily. The gains are not, perhaps, more than a farthing per head, but they have sufficed to enrich the speculator. Nor must it be supposed that he furnishes inferior fare. Sound meat purchased by the carcass, wine in the wood, with bread of which the composition is regulated by the Government, and fresh vegetables, are the materials in which he deals. Exclusive of public cooking-houses, however, it is expedient that every woman—every poor man's wife—should understand the efficient, economical preparation of meat, fish, and vegetable stews, so as with bread and pulse and the various grains to secure the two pounds solid daily sustenance essential to efficient life and action, without the risk of entailing disease or weakness for the want of adequate nourishment. The poor do not know how to prepare rice or coffee or chocolate, or rather the cocoa-bean, with other cheap and efficient articles of daily subsistence. The bread supplied to all classes is sadly unfitted for all desirable uses. It contains too much water. It rejects the bran. Bread should be better baked. It ought to contain less water and less salt. It should be made of sound grain. The bran ought not to be rejected. Very many poor working people, of both sexes, now dine, not on meat and vegetables and pulse and grain, washed down by pure water, and perhaps a little good wine or ale, but on a basty, ill-baked, watery white bread and tea. The results of such a regimen, wanting in azote, deficient in the earthy salts, in iron, and, above all, in variety, are soon visible in derangement of general and special function, in the impairment of bodily strength and stamina, and in the pallid, anemic aspect of the persons condemned to such a regimen. How is it possible for persons addicted to white bread and splashing tea, thrice daily, to maintain health and stamina? It is opposed to the requirements of the organism. It is opposed to common sense.

The poor suffer sadly from deficient milk supplies, even in the Irish towns, and in a country above most others fitted to furnish unlimited quantities of milk food. The town cows are fed on chaff, grains, wash of any and all kinds, calculated to yield abundant milk from poor, ill-cared for, and often diseased cows; and even when the milk is yielded by country-fed cows, the pump or the wayside fountain too often,—I do not say always,—supplements the infant's scanty provender, and the nursing mother's watery cup of tea. Is it too much to ask that the materials of the

working man's fare shall prove varied, wholesome, substantial, free from adulteration, and of agreeable savour, adequate, in short, to enable him to perform his work in life without the risk of breaking down from debility or disease?

The great standing evil, I conceive, in the condition of our town poor is, that many of them, if they ever had it, have lost all desire for bettering their condition. The most potent, or among the most potent, of the agencies which raise a man above himself and above his fellows, is the desire for self-improvement,—self-amendment. If a man lose confidence in himself, who or what is to inspire him with it? The isolation in which masses of men now live,—the isolation from what is excellent and what is good,—is hurtful to their every interest. For the poor are, indeed, isolated from the rich, the ignorant from the enlightened, the unrefined from the refined, those who are excluded from goodness and excellence from those who are conspicuous for both. Adequate means are not taken to raise the poor from the slough. First and foremost, the poor man's dwelling, with all its surroundings, should be amended. His household state, his personal belongings, must be seen to; above all, he ought to be brought into intelligent, loving contact with whatever is admirable in nature or art.

There are various measures now before the public, the furtherance of which could not but prove beneficial. There should be free lending-libraries in every locality of, say, a thousand inhabitants. I do not think that there is a free lending-library in all Ireland, while there are few indeed in either England or Scotland. That which subsists through the generous providence of an Irishman, in Liverpool, is one of those few. Is the diffusion of knowledge, indeed, of less moment than gas or water supply? Is there any police equal to that created by goodness and intelligence? Are not rates as justifiable for the furtherance of these as for the direct repression of vice and wickedness? Every town should be provided with its public baths,—warm for winter, cold for summer. Warm-air baths, so beneficial in colds, chills, rheumatism, could be cheaply erected everywhere, as under the able furtherance of Dr. Barter, who already has done so much to promote them. Each city should have its town parks. In Belfast, the whole space from the city to Holywood, now a noisome salt-water marsh, offensive to every sense,—a standing disgrace to the inhabitants,—should be reclaimed, and planted with trees and flowers,—converted into a public park for the solace and recreation of the inhabitants for ever. The slopes of the Black Mountain and of Devis, easily and quickly accessible from the centre of Belfast by the New Crumlin-road, might also, at little expense, be converted into a town park, little, if at all, inferior to the Carlton Hill and Arthur's Seat, in Edinburgh. But museums embodying the wonderful in nature should be constantly open to the working man, his wife, and child, in every town. Galleries replete with artistic copies of sculptured and pictorial excellence, with chromo-lithographs, schools of art, of science, and of industry, ought everywhere to abound. Music is so great a solace that expressment means should be taken at once for the direct cultivation of this art, and for making the people acquainted with the works of the best composers. Why not maintain, at public expense, in every town, a town band, as well as town constables and a town watch? Sunday and week-day every possible facility should subsist for imparting health, recreation, and instruction to the people. The public galleries, the town parks, everywhere open, every day of the seven, on the Continent, to the people,—so gratefully and becomingly made use of there,—afford a standing example to us to go and do likewise; for everything that raises man above himself, that points to the beautiful and the good, that leads the heart and the understanding to the Divine source of all excellence, is the very, the especial instrument for bettering the condition of our kind.*

THAMES EMBANKMENT AND PUBLIC BUILDINGS.

As the era of metropolitan improvements has actually begun, it is most important to note, that, in any change of the width of our noble river, due regard be had to general effect; not only to form a picturesque *coup d'œil* from whichever side viewed; but to preserve, and rather to increase, the healing effects of a wide expanse in that position which is the very best for the aeration of a great city,—the natural course of its fluvial tide.

* By Dr. M'Cormac. Read at the Congress of the Social Science Association.

Talk of the lungs of London!—Lincoln's-inn-fields, the Temple Gardens, and the numerous squares; these are so denominated, and with reason: they are *quantum valet* reserves for volumes of air less contaminated by sewage, and the countless exhaustions of the vital and ethereal principle; but what signifies all our losses and spaces, when contrasted with the majestic expanse stretching from Westminster to London Bridge? What an extent have we here? and from the slimy margins of the flood there may be reserved, without prejudice to the natural waterway, more than all the squares and open spaces of London can now make up, even inclusive of the grave-yards.

Nine principal squares, together with the Temple Gardens, Lincoln's-inn, yards, and closes; the Tower, the Charter House, and Christ's Hospital, containing about 120 acres,—these are so many air cisterns, or reserves, for the relief of breathing mortality. But the majestic river, together with open spaces filled, levelled, and planted, as saved from the now fetid regions, would present an expanse, more varied, healthful, and gorgeous, than any other city so far inland could parallel. The river breeze must impart a vitality, whilst the varied and incessant commercial intercourse on the stream would add an interest to a picture the most glorious and sublime.

An allusion to this subject in last week's *Builder* suggested the propriety of keeping the reserves clear of shops and houses of business, but recommended that the Royal Academy and the New Courts of Law should be built on the newly-created soil. Why, these two structures, if duly carried out to the proper extent, would occupy one full third part of the whole area to be acquired. But only fancy what an obstruction such buildings must interpose to the river, from whatever quarter regarded. These buildings must be not only of great extent, but of imposing altitude; so that if once founded there, it would be of little consequence in what manner the intervals were filled up, whether by shops, private houses, or stores.

The grand desideratum is to keep the acquired space as open as possible, to make it every way tributary to public convenience; but, above all, to make it ornamental, and to plant forest trees (the plane, and such as suit the position), and to interpose verdure wherever a turf will germinate.

We take it for granted that the great arterial sewer will be formed here, for the relief of the Strand and Fleet-street line,—that the quay walls will be of the most ornamental but still simple character,—that a grand caseway will extend from end to end,—and that a railway will contribute also to the relief of our main streets, which are congested with traffic almost to stagnation; but it can tend to no object but that of a hungry thrift to devote the space, which the last resource of ingenuity wrests from the too-long neglected river, to the location of shops, and further rival houses of trade.

Whether tidal docks are necessary is a question to be settled by the value of wharfage claims: those of the Pool and the East and West India Docks are certainly grievous nuisances in their localities; but two docks, for small barges, accessible twice in every tide, might be so constructed as not to be offensive; openings being made at either end to admit the scour of the tide occasionally.

The state of the river for the last two years has been much improved, and the new system of sewage bids fair to restore the stream, if not to a state of actual purity, at least to its former condition of pellucid tolerableness. Those who remember its pollution for several years back may not frequent, as we did of yore, its floating baths; but still, for all purposes of health and recreation, we may fairly expect that the newly-embanked tide, when relieved of London's tributary sewage, will again allow the various funny tribes to re-occupy their long deserted haunts.

What motive could actuate any corporate or governmental body to let out for building in shop sites that common which may be gleaned from the river's natural bed? That common is the people's right: it is nature's reserve, kept as a remedy for redundant population, and sacred at a crisis when the resort became not only expedient but inevitable.

No consideration could justify the further packing and cramming this space with an extension of choked lanes and avenues: the imposition of a single block of towering architecture would be a base perversion of the accident which now presents itself for the public weal and the adornment of the mighty metropolis.

As for site for the law offices, why the very best that could be selected is that choked and funereal quarter already selected, between Chancery-lane, the Strand, and Carey-street; for that would open out and adorn a foul and central blain on London.

The grand occasion for embellishing London is at hand: let it not be marred by littleness of design; but, above all, not by paltriness of purpose.

No commission has ever done anything great yet for the State. The sewage structure, and that alone, is the result of our present representatives; but that was a matter not only of necessity, but of compulsion; for without it the life-breath of the population became extinct. As these architectural tyros have built a palace for themselves, at a cost of some 4,000*l.* a year, it may possibly be inferred that the next exploit may repay the State for the outlay.

In Leicester-square, erst the abode of estrays, children of the most tasteful of empires, we have an example, on a small scale, of outrageous Gothic spoliation: this only relic of George II. was a pleasing wilderness, but is a lumber-yard! Would any legal denizen of Boswell- or Cook's-court desire to assimilate Lincoln's-inn-fields to such a wild scheme of desolation? Then, again, as to the saving of purchase-money for old ruins in Clement-Danes, surely the embellishment of the Strand—the clearing away of obscene courts between that and St. Mary-le-Strand Church, the greater convenience and accessibility of the Law-offices, and the excision of Temple-bar and the straits (of this aneurism from the heart of London), would amply repay the outlay.

The best chance left in this crowded metropolis, to make it healthy, is to expurgate the river, and to open out its margins: at the same time, if the opportunity be lost for giving scenic effect to the colossal works now projected and in progression, the occasion can never recur. QUONDAM.

ST. MARY REDCLIFF, BRISTOL.

THE restoration of this noble church proceeds steadily and satisfactorily, though slowly, and more show is now made by comparatively small expenditure than was at first the case. Amongst those who have interested themselves in distinct portions of the work, the freemasons of the city of Bristol had undertaken the restoration of the north-east corner of the Lady Chapel, and on the 28th ult. a grand assemblage of the brethren took place on the occasion of laying the last stone of the part completed by them. They met, to the number of 500, in the Exchange (Wood's fine building), and marched thence in full dress, with banners and music, to the church, where a choral service was performed, and a sermon was preached by the Rev. Brother Watson, Provincial Grand Chaplain; the church being crowded. The procession was then reformed, and proceeded to the outside of the east end of the church, where the stone was laid with masonic ceremony. In a cavity in the stone an encasement plate was placed, bearing the following inscription, indented:—

"Saint Mary Redcliff"
North East Corner of Lady Chapel.
Restored by the Freemasons of Bristol.
This Stone laid 28th August, 1861.

Henry Shute—Prov. Grand Master.
Wm. Aug. Fred. Powell—Deputy Prov. Grand Master.
James Willway—Prov. Grand Sen. Warden.
John Linter—Prov. Grand Jun. Warden.
Rev. Richard Marsh Watson—Prov. Grand Chaplain.
Samuel E. Taylor—Prov. Grand Treasurer.
Henry Merrick—Prov. Grand Secretary.
James Alan Randall—Prov. Grand Supt. of Works.

Odiarne Coates Lane, Esq.—Mayor of Bristol.
Rev. Canon Madan—Vicar of St. Mary Redcliff.
W. A. F. Powell } Church-
Wm. Proctor } wardens.
T. Proctor, Alderman, Chairman of the Restoration Com.
Geo. Godwin, Architect, F.R.S.
William Rice, Mason.

The official dignitaries having taken up their position, the rifle band played the National Anthem, after which the Rev. Bro. Watson offered up an appropriate prayer. The director of the ceremonies, Bro. C. H. Lowe, then read the inscription on the plate aloud, and it was then adjusted in its place on the stone by the D.P.G.M. Bro. W. A. F. Powell. The P.G.M. was then handed the horn containing the ears of corn, some of which he sprinkled over the stone and plate and afterwards, having received the chalice, poured a libation of wine on it: the D.P.G.M. then added some oil, and the P.G.M. besprinkled the stone with salt. The P.G.M. then tried the stone with the square and level, and said, "I declare this stone to be true, trusty, and perfect." A silver trowel was handed to him, with which he laid some mortar on the top of the stone. The stone

was then raised opposite to its niche in the wall, and adjusted there by Mr. Rice and his assistants. The architect handed the P.G.M. a mahogany mallet, with which the latter struck the stone two or three times, and then declared it properly laid. Another prayer was offered up and the 100th Psalm sung, the rifle band accompanying. The Grand Master then pronounced the benediction, and made a short address. The procession then returned to the Exchange.

Three of the windows in the Lady Chapel have been filled with excellent stained glass,—the great east window, and a window on the north side, both by Wailes, and a window on the south side by O'Connor. The latter, which has for subject "Christ blessing little Children," is the memorial, erected by subscription, of the late Mr. William Hall, of Redcliff parish, who devoted much time during his life to the superintendence of the schools there. The east window, representing the "Offering of the Wise Men," is in memory of the late Alderman Lucas of Bristol. The north window is in memory of Miss Lucas, his daughter, and was set up by her friend, Miss Hobson. These last must be reckoned amongst the most successful works of the artist, and are especially noticeable for expression, brilliancy, and finish. Mr. O'Connor's window has also fine qualities, less observable in the figures of the children than elsewhere.

After the ceremony, there was a dinner at the "White Lion" Hotel, whereat many speeches were made, and much good will was expressed towards the restoration. The Mayor of Bristol, the High Sheriff, the Sheriff of Gloucester, Col. Tynte, M.P., Mr. W. Powell, Mr. W. Proctor, and many others, to the number of 150, were present.

SANITARY PROGRESS IN ISLINGTON.

From the report issued by the vestry for 1860 it appears that the new works constructed throughout the year consist of 178 feet of sewer and 226 feet of 12-inch pipe-sewer; 52 gullies; 355 galvanized shackle flap traps; 9 pipe connections; 65 pipe junctions, and one urinal. This has been done at a cost of 8734. 2s. 6d. Sewers and drains have been repaired at a cost of nearly 4000. The actual cost of clearing sewers, gullies, animals, &c., was 1,505. 10s. 10d. The charge for water supply was only 53. 1s. 1d. Besides the works constructed by them were others completed at private expense; including diversions of sewers by the Metropolitan Railway Company and improved drainage of houses in Highbury-terrace, by which drains, open ditches, and cesspools were abolished; the whole comprising 10,085 feet of sewer and pipe; which, together with the side entrances, cost 4,217. In the drainage of 637 houses there was used 53,709 feet of pipes of various dimensions, at a cost of 3,852.4; making the total of works paid for by parties ultra the parish 8,069.

The portion of the high-level sewer which passes through this parish has been completed, and the main body of the water diverted into the covered channel; and the contractors are engaged in forming collateral sewers. The Hackney brook has thus been abolished, and other improvements have thereby been effected.

726 new buildings have been submitted and reported on; and with one exception the buildings have been erected in accordance with the directions of the committee, both as regards drainage and building line. In the exception alluded to the building was erected beyond the regular line of frontage, without the permission of the Metropolitan Board of Works. After numerous communications with that Board, the builder, and the vestry, the building was demolished, and set back to the regular line by the owner.

The number of men employed on the roads, including two foremen, amounted to seventy, and the cost of their wages amounted to 2,678. 8s. 1d. The amount paid for Guernsey and other granite, granite settings, flints, ballast, noggin, hard rubbish, and core, was 4,001. 0s. 8d. The total cost of the mason and paviors' work was 2,680. 17s. 5d., and the total charge upon the rate for scavenging and carting was 10,645. 16s. 2d.; for road watering, 1,913. 18s. 6d.

The supply of gas for street-lamps, by the Imperial Company, at 12. 12s. 6d. per lamp a year, cost 9,899. 0s. 5d.; and the Chartered Company, 545. 1s. in all, 9,904. 0s. 6d. There are other items; but the whole amount received in the year mentioned, on account of poor-rate, sewers, lighting, general district church accounts, churchwardens, &c., was 114,273. 12s. 7d.,—a large

amount, which requires to be very judiciously expended.

The report the same year, by Dr. Ballard, has particularly interest. That gentleman remarks that, at the last census, the population of the parish amounted to 155,291; the ten years which have just elapsed having added the extraordinary number of 59,962 persons to the population. This is an increase of 5 per cent. each year upon the population of the preceding one. Assuming this rate to have been uniform throughout the ten years; the population of each may be readily calculated in the same way as the accumulation of capital at compound interest. The following table shows the population of Islington thus estimated at the spring of each year, from 1856 to 1860:—

Year.	Estimated population.	Total increase occurring during the year.	Natural increase exceeding dur-able year (births exceeding deaths).	Proximate increase by excess of immigration over emigration.	Difference of increase by immigration over preceding year.	Corrected mortality.	Deaths per 10,000 living.
1856	121,666	6,083	1,873	4,210	..	2,436	200
1857	127,751	6,387	2,035	4,352	+ 142	2,556	200
1858	134,138	6,767	2,171	4,596	+ 244	2,791	208
1859	140,815	7,243	2,480	4,857	+ 261	3,051	199
1860	147,888	7,403	2,192	5,211	+ 354	3,392	202
Mean	134,458	6,721	2,011	4,713	..	2,717	202

Dr. Ballard observes that nothing can be more satisfactory than these results of the battle against unsanitary influences; and that Islington stands in respect to the mode of increasing its population in a remarkable position. During the ten years, from 1851 to 1861, the increase of the population by immigration of strangers is one-fourth less than the natural increase by the excess of births over deaths, in Islington, during the five years of Dr. Ballard's official connection with the parish. The increase by immigration was absolutely one and a third times greater than that by natural increase. Of course, whatever sanitary advantages the older residents of the parish have enjoyed, the new comers every year bring in themselves the results of those less sanitary conditions in which they have hitherto dwelt, and which render the general death-rate of England 220 in the 10,000. "No one," says the medical officer, "can study the table I have given above, without seeing three things:—first, that, notwithstanding our growth by immigration, our death-rate has been comparatively low, viz., 202 per 10,000; secondly, that whenever in the five years the death-rate has risen, it has been in connection with the increased influx of strangers from without (see years 1858 and 1860); thirdly, that, in the course of the year, even these strangers incorporated into our community derive the benefit of the sanitary advantages afforded them in a diminished death-rate (comparing the death-rate of 1859 with that of 1858). Were our increase to be simply or mainly that by birth, it is probable that our death-rate would not exceed 190 in the 10,000."

The above accounts are very satisfactory, inasmuch as they show a movement in the right direction. There, however, remains still much to be done in this extensive parish; and the success which has been the result of sanitary measures should lead to renewed exertions against the enemy which is so destructive to health and life. Those spots which are thickly inhabited, and which may easily be discovered by the increased death-rate reported by the registrar-general, should be carefully watched; and strenuous efforts made to perfect the drainage, paving, &c., of those localities.

WORKS ON THE ARTS.

MR. WEALE has issued a second edition of the remarkable list of works on the fine and constructive arts in which he has been concerned, and prefaces it with some observations which we willingly publish:—

"I know of no printed registry of works on the fine and useful arts of an individual publisher except those lists issued at intervals by the vendors of the literature of art. I believe that there is nothing extant that will show the cost, either at home or abroad,—satisfactorily setting them forth and their periods of publication,—of works approaching, as the following pages attempt to explain, the expenditure of nearly a quarter of a million of money.

My publishing career has been a labour of love. It has, nevertheless, been a struggle made in the best period of my existence. It has been incessantly the work of early and late hours, and of intense anxiety, without the financial aid of any one or any body of men. Many works here found enumerated would never have seen the light but for the persevering efforts used in obtaining them, in some cases unsuccessfully so.* I mention thus much not from any maudlin spirit, but to state that mine is not a singular instance of the privation, and in some cases deprivation, of property, of many that have passed and are passing away from us, who in the field of literature strenuously followed the publishing profession.

It is also as well to say that if I speak to the world, so do I pronounce to my brethren that the beneficent interests of our country demand individual exertions in our calling, as it does commonly with most things; and, as a stimulus to the rising man, I would advise, if they will excuse my doing as in this case I have done, by giving an exposition of their publishing career—no doubt better than I can possibly have done it myself—as an initiatory effort. This will be the best answer that can be made to the slur too frequently flung about discouragingly of the book-publishing business.

Doubtless some few men get rich who have by interest or fashion unbought patronage; but the mass must be content to leave the world, after the long toil, nearly as they began it; and, as it frequently happens, the most enterprising and useful, but less fortunate, are in a less happy condition than their neighbours.

As to those books in the list marked with an asterisk,—the expense of them was defrayed by their several authors. The amounts of the costs of each of the other works were made as near as the several expenses could be ascertained; and although in many cases they are but an approximation, yet they may be considered as nearly approximating:—

Expended on account of authors.....	£29,895	0	0
Expended at the sole cost of the pub-lisher.....	269,592	0	0
	£299,487	0	0

* "Some time after the occupancy of the chair by James Walker, Esq., F.R.S., as president of the Institution of Civil Engineers, I had the honour of proposing to him the scheme of publishing annually such approved papers as were read at the meetings of the members on subjects of civil and mechanical engineering. Mr. Walker, having so much the interest at heart for the welfare of the Institution, read my proposition at the next meeting of the council, and urged the adoption of it. The council at once entered into a negotiation with me for carrying that object into effect; the president, the secretary (Captain Goodwin, R.A.), and the publisher having all and equally the one desire. The first volume soon appeared and gave much satisfaction, to the members and to the British and foreign public; its efficiency in the engraving, printing, paper, and binding: every means were taken, and a considerable risk on my part, to circulate the volume in all parts of the world. At that time the Institution held their meetings at a small house in Cannon-row, Westminster. The result of the efforts made by the president and publisher of the volume, upwards of fifty civil and mechanical engineers shortly after joined the Institution. The terms of my proposition were as follows: That the president, vice-president, and council should form a publishing committee of five gentlemen to select papers and drawings to make a first volume, to be published in 4to size; the large drawings to be reduced to the size of the book, either as single or folding plates, all of which were to be placed in my hands for the production of the volume, and every expense, i.e. engravings on copper, woodcuts, printing, paper, binding, advertising, &c. should be defrayed by me; moreover, I additionally proposed to give, without charge, 250 bound copies for distribution to the members of the Institution. The enterprise of this volume was happily and agreeably, with the able assistance of the president and secretary, brought to a close. Not so with volume II., which did not appear till two years afterwards, at an additional expense of cost of making the drawings and the presentation of 800 copies, instead of 250 as in the former case. Grasping men, then making very large annual incomes by their profession, prevailed in the council; and, in arranging for the third volume, ungenerously heaped upon me their malice by taking it to another house, and committing the expenses of it to the cost of the Institution, whose printed returns of the same plainly set forth: Vol. I. paid its expenses and a five per cent. interest on the money expended; Vol. II., although now many years published, has but just paid its expenses, without the production of any interest on the outlay of cost. If the evil-doers had not checked the zeal originally manifested by the then president, twenty volumes at least by this time would have been published, showing the brilliant exploits and genius of the civil engineers of Great Britain and Ireland.

Again: I am constrained to notice the short-sightedness of another institution. I made some time afterwards a similar proposition to the Institute of British Architects, that originally made to the Institution of Civil Engineers. In my intercourse with foreign architects I have found that they held our professors of architecture as being snail in conception and bigoted in design. I was desirous of removing these impressions by proposing the publication of an annual volume that should contain fine engravings, with descriptive text: the object—would show the foreign architects that we had equal, and in many cases superior, talent to those whose works are so conspicuously exhibited in their public streets; but our edifices are less seen by the stranger, and cannot always for the same reason be appreciated. Such works would have been excellent examples for the rising architect; but my proposition met a negative, and fell to the ground."

REVOLUTION IN GASMAKING.

MR. JOHN LESLIE has patented a process for the manufacture of gas, which appears to contain in it the germ of great alteration in our present system. It consists in so arranging works as to employ in the manufacture the hydrocarbon products of coal obtained by distilling such substances at a low temperature, whereby the patentee is enabled to dispense with the machinery and processes used for purifying illuminating gas obtained by the existing process of destructive distillation of the bituminous mineral. For these purposes Cannel coal, parrot coal, Boghead coal, and other coal, and other mineral bituminous matters, are distilled at a low temperature, in such manner as to obtain the products in a condensed form in place of in the state of gases; then, when necessary, the resulting fluids are purified, and then such fluids are subjected to the action of heat in a finely-divided state in retorts or vessels, to convert them into gas, which is conveyed into gasometers such as heretofore used at gas works, in order that the same may be distributed therefrom, as heretofore practised.

The coal or bituminous mineral is introduced into a cylindrical retort, broken up into small pieces, and the products evolved pass off to the condensing apparatus, which is constantly kept cool by water, and the condensed hydrocarbon products are received into a suitable receiver or vessel.

In order to convert the liquid into gas, it is caused to drop into a retort or vessel heated to a good red heat, and the gas is conveyed from the retort into gasometers of the ordinary construction, from which the illuminating gas is supplied to the gas mains.

One result would be, that gas-works will be rendered less objectionable in any neighbourhood. By this means, too, all the refuse coal which is now completely wasted at the pit's mouth may be distilled into oil at the collieries. "This fluid may be further purified from sulphur and other deleterious substances on the spot where it is made, whence it could be carried up to London, and converted into gas in the space of a few minutes. The advantages of this would be—the coal, being used at the pit's mouth, would cost a mere trifle; all the troublesome work of distillation and purification, with its concomitant evils of poisoning the neighbourhood by the offensive odour, could be performed where labour was cheap and ground plentiful, instead of, as at present, in the heart of London; the expense of carriage of material to London would be considerably reduced, as only the real gas-making constituent of the coal would be transported; and lastly, the complicated machinery of plant and hands, with the sickening odour with which it is always surrounded, would be, in great measure, done away with, no purifying apparatus being needed, and the mechanical labour of converting any quantity of the hydrocarbon fluid into gas, being reduced to the capacity of a man and a boy."

For foreign stations, where coal is not obtainable on the spot, the system would seem to offer great advantages.

JOINT MEETING OF THE BERWICKSHIRE AND TYNESIDE NATURALISTS' CLUBS AT ALNWICK.

A VERY large party of gentlemen met together on the 29th ult., attracted, by the permission of the Duke of Northumberland, that the clubs should be allowed to view the castle, and museums within the castle. After a breakfast at the Northumberland Arms, a proposal was made by Mr. Clay, to raise a sum by subscription to defray the expenses of excavating and fencing the valuable Saxon building called Dun Edin's Hall, or Woden's Hall, near Abbey St. Bathans, the property of Captain Munro. This was carried.

The whole party proceeded to the castle, where Dr. Bruce pointed out the leading features of the restorations; and showed where, in excavating the soil to open out the bases of the postern tower, the foundations of the ancient "bakehouse, slaughter-house, priest-house, and midden" had recently been uncovered. Descent into the lower regions of the kitchens was made; the noble proportions of which, no less than the complicated and ingenious machinery which they contained, excited the admiration of all; especially of the ladies who favoured the party with their company. His grace having arrived from Foxton Hall, to meet the clubs in the Egyptian Museum, he ably explained the meaning and uses of some of the antiquities; and, in a running discourse, explained how, in the system of barter that prevailed in Egypt, it sometimes came to pass that slaves

were figuratively quartered. The objects offered in exchange for a slave—perhaps a dromedary—not amounting to more than the fourth part of his value, a tally was made of a quarter of a slave, and the amount was subsequently made up in other objects till the full value was given. His grace pointed out tools that had been in use in the days of Joseph and his brethren; and noticed the fact that the same form of tool was used among the modern Egyptians to this day. Some black for dyeing ladies' eyes also elicited interesting explanations; as did other relics from this ancient world.

The president failed not to express the great gratification his grace's kind reception had given both the clubs; and a vote of thanks was most gratefully accorded. Before the duke withdrew, the president formally announced to him that he had, that morning, been elected a member of the Berwickshire Naturalists' Club.

The party intending to visit Hulne under the guidance of Mr. F. R. Wilson, made their first halt before the only remaining portion of the once extensive Alnwick Abbey—the gateway. Traversing the Abbey grounds, they emerged into Hulne park; and, passing on their road the famous yew-tree and the Lady's Well, they next arrived at the ruined abbey of Hulne. The larger proportion of the party made the ascent of Brisse Tower; where, every condition being favourable, a delightful prospect of the Cheviot country, and the fertile vale of the Aln, was enjoyed. At the forest gate the party lingered before another attraction of a different character,—an ancient cist, which the duke had allowed to remain untouched for the inspection of the clubs. On the road back to the town, Mr. Wilson pointed out another remarkable object,—the quarry from which 60,000 tons of stone have been taken for the new works at the castle. The party, under the guidance of Mr. Tate, inspected the basaltic whin sill, which, at Ratchegh Crag, is intruded between limestone and shales; and, as well, visited the site of the camp on Peppermoor, in which oats of new varieties have sprung up.

Meeting after these long rambles at the Northumberland Arms once more, 117 members of the clubs sat down to dinner. Mr. Milne Home, president of the Berwick Naturalists' Club, and Dr. Johnson, of Sunderland, president of the Tyneside Club, directed the proceedings of the clubs. Some valuable papers were read.

A COURT OF HIGH-CLASS DECORATIVE ART.

THE National Committee of Architecture, with the sanction of her Majesty's Commissioners, have appointed a sub-committee for the purpose of forming a court of High-Class Decorative Art, at the International Exhibition, in which shall be gathered together the *chefs d'œuvre* of all the specified classes of art—excepting sculpture and painting, these having their own separate galleries. The hon. secretary asks us to give publicity to this intention, and to invite all to whom it may be impossible to send a circular to communicate with the committee in Conduit-street at once. We willingly do so, and urge such of our readers as it may concern, to apply at once.

It is believed that this will form one of the most interesting and attractive courts in the Exhibition, and no doubt the exclusive honour of exhibiting in it will be found valuable.

SOME WEAKNESSES IN MODERN SCULPTURE.

MR. EDWARD FALKENER, in his "Dædalus," reviewed in these pages, when first published,* comments at some length on various statues erected in modern times. These comments deserve a wider consideration than they may, perhaps, obtain through the book itself; that being somewhat costly; and, as we are enabled to reproduce his illustrations, we have condensed the remarks in question, and print them without necessarily endorsing the whole. It will be understood, then, that throughout Mr. Falkener is speaking.

In ancient sculpture there is no extravagance: all is characterized by simplicity and grandeur: the figures are in repose, except the event requires action. The movements of the wise man, says Plato, are tranquil: those of the base are extravagant and irregular. Plutarch censures those unreflecting sculptors of his day, who thought to make a colossal figure great and powerful by representing him with legs striding out, with violent attitudes and open mouth. Such parenthesis

was ever avoided in the best times; but, on entering our abbey once more, what extravagance of action do we not behold? Figures reclining awkwardly in the lap of some ill-understood symbolic personage; the legs and arms projecting over the monument; Cupids and allegorical figures rubbing their eyes with pretended grief; and, even in our more modern groups, the accessory figures doubled up, in imitation of those which Michelangelo, and the other masters of the Florentine school, employed for the purpose of showing off their knowledge of anatomy; forgetful of the impressive maxim,—"*Ars est celare artem*." Nothing can be more remarkable than the Greek simplicity compared with modern superfluity in this respect.

In speaking of ancient art, we noticed how a statue of Nemesis, by Agoracritus, was made beautiful as one of Venus. On looking at the angel of Victory recently exhibited in one of our parks (Fig. 1), we might suppose that an artist unacquainted with the refinements of Greek taste, had wished to typify the goddess of vengeance, if not of disgust. Instead of beautiful forms we find nothing but angular lines. The Grecian youths were instructed to walk with gravity, and regulate all their movements by the laws of elegance and decorum. "The rules of gesture and action," says Quintilian, "descend to us from the heroic ages: they are approved by the greatest men of Greece, and by Socrates himself. Plato classes them with the useful and necessary qualifications of a public man; and Chrysippus has not omitted them in his book on the education of children."

Milizia says that only two instances are known of figures being represented sitting with their legs crossed. But here we have a female raising one of her feet almost to the level of the block on which she is sitting; an attitude the difficulty of which will be evident to any one who tries it, and at the same time keeps the other foot on the narrow ledge beneath. Instead of a soft undulating outline, we have nothing but sharp angles,—the bent knee, the bent elbow, the bent wrist, the turned head, the sharp nipple of the breast, and the bent demon-like wings. It is sufficient to compare this, even in thought, with the graceful undulating lines of the Venus de Medici. On looking at it from the left, the attitude is such that the right foot, though so much elevated, seems to touch the ground: on looking at it from the right, the left knee seems to reach up to the elbow; in either case one limb appears to be of nearly double its proper length. The heavy cumbersome forms of drapery also, when viewed in front, are incompatible with a figure of Victory. Whether we consider the statue as regards beauty of expression or attitude, we may say,—It is not what the Greeks would have done.

In the earlier times even of pagan idolatry, it was not permitted to place the image of man in the temple of God; but what can be more unbecoming the reverence of God's sanctuary than to see one statue proudly overtopping his neighbours, as if of superior dignity and worth; as is witnessed in the statues of Follet and Kemble in Westminster Abbey; where Follet seems rejoicing in his size, while Kemble stretches out his neck in the vain attempt to attain to the height of his presumptuous rival? (Fig. 2.) We may almost fancy we hear Lucian's Jupiter Tragicus declaiming against the Colossus, "What does he come amongst us for—only to disgrace our diminutive size, and throw the assembly into confusion?"

A colossal statue is frequently felt to be less an honour than a pretension, a pretension not so much of the public as of the artist. In point of art the statue would in most cases be better, had it been confined to the life size, instead of being larger; but even in those cases where a larger size might be permitted, the artist appears to have forgotten that as the size is increased the design requires to be more studied and elaborated. It is to be feared that the sculptor too often studies his model from the life; and, when perfected and approved of, prepares the enlarged model by the rules of art, and examination of casts of ancient sculpture; and the finished work in stone or marble is merely copied from the model; thus losing accuracy and vigour by a twofold copying, instead of finishing the work itself, as the Greek artists did, from nature.

However small the model might be, the practised eye should be enabled to detect that it is intended for colossal dimensions. The celebrated

* So sensible of this incongruity was the late Dean of Westminster, that he offered to remove the statue of Kemble to the side of Mrs. Siddons's monument: and the Dean is also said to have jokingly offered to the Dean of St. Paul's the colossal statue of Watt, which Chantrey had the want of taste to place behind the screen of the Boucher monument.

colossal statue of Frederick the Great at Berlin is deficient in this respect: it might be of any size: a reduced model of it would look well as a chimney ornament. The bas-reliefs of the pedestal, though their relative proportion as regards the mass would be proper if alone, are disproportionately large for a colossal work.

Let the modern artist equal the Greek in the excellency of his art, and then let him think of making his own works larger in proportion; for "goodness does not consist in greatness, but greatness in goodness."*

The knowledge of perspective was considered of the greatest importance by the ancients, and it regulated the attitude and expression of their statues. Nothing is more important than this consideration. Before the artist allows the design to grow up in his mind, he should consider attentively the situation for which it is intended. He should fix upon the distance at which it would be seen, and the accompaniments by which it would be surrounded. An example of the ill effects of a neglect of this precaution occurs in the statue of Pitt over the great door of Westminster Abbey; which, from its elevated position appears to have one arm of greatly disproportionate size, as if the figure were that of an orang-outang. (Fig. 3.) In this case the artist should either have reduced the limb, as we find in other examples, or he should have so altered the position of the arms as not to appear excessive.

Another modern instance may be adduced in the sitting figure of Britannia in the new western addition to Somerset House. (Fig. 4.) Being placed at so great a height, it is impossible to see the whole of the statue, or, if seen in profile, the perpendicular lines appear diminished by the obliquity of vision. The consequence is, that the thighs or horizontal lines seem to be enormously prolonged, while the trunk appears foreshortened. Had the artist examined the figure of the draped Bacchus,† now in the British Museum, which was found on the summit of the choragic monument of Thrasylus at Athens, he would see that the Greek sculptor, to avoid this appearance of defect, has in that figure diminished the length of thigh. It may be said,—What! do you approve of altering the proportions of the human figure, of representing them as what you acknowledge to be wrong? Must they not, if so represented, appear distorted? As well might the unreasonable objector complain of the scenes of theatres being painted in false projection, because intended to appear true only from a distance. Not content with their appearing true from the seats of the spectators, he might insist that they should appear true also from every other position.

The difference in the treatment of portraits in ancient and modern times is very observable. While the Roman and modern portraits represent every accidental mark or blemish, those of the Greek philosophers indicate only those peculiarities of the face which were necessary to character, and even these were treated in a free and large manner. When treated in the one manner it is a mere portrait, in the other it is a work of art.

Still the inefficient artist may deny this: he may deny the ideal production, finding it easier to copy than to think: the unreflecting critic may support him in his opinion, believing it to be contrary to nature; he may insist upon exact identity of likeness, upon precise conformity to costume: the ignorant public, as the public ever does, will take up the cry of those in authority, or of those who loudest cry; and thus the evil is perpetuated. The vulgar, says Cicero, generally judge of things according to a preconceived opinion, not according to truth.—"Sic est vulgus: ex veritate, pauca; ex opinione, multa æstimant." An opinion very similar to that of Plutarch, who says,—"To please the many is to displease the wise." Whether the cry be raised against the "pepper-boxes" of a National Gallery, the architect of which is never praised for his skillful porticoes; the cocked-hat of Wellington on the Marble Arch; the bare-headed, pig-tailed king of Pall Mall; or the supposed saddle-tail-lacking horse of the king at Charing Cross, it is equally the same.

With reference to works of art devoted to the representation of the human form, not only must the eye be pleased with the correct delineation of the outward form, not only must the mind be satisfied with the attitude and action, but the sympathies of the heart must be excited, if we

desire to attain success—if that success is hoped to be enduring.

In a small volume, recently published by Mr. Falkener, in reply to the reviewers of "Dædalus,"* he continues his observations.

One journal, he says, suggests that the examples of modern art given in "Dædalus" are from inferior specimens, and, therefore, not fair representations of modern art; but, unfortunately, they are specimens of our public sculpture, and, if inferior, we have the greater reason to complain. Since the appearance of that work two other statues have been erected; and do we find exhibited in them any greater attention to the laws and requirements of perspective? Owing to the nature of his material, an architect must judge of his intended building by anticipation of its effect when finished, being guided by the experience which he has attained in former works; but the sculptor has his large plaster model, by examination of which he can ascertain what will be the effect of the finished marble. Why should not the plaster model be exhibited in the place intended for the statue, so that the sculptor should have the benefit of examining it from every point of view: an opportunity which is denied him in the contracted limits of his studio? Even in architecture, I remember having seen, many years ago, at Trieste, an immense screen erected in the public place, covered with canvas, and painted by a scene-painter, to represent a triumphal arch which was intended to be erected after the designs of the Cav. Pietro Nobile. This gave opportunity, not only for the public to offer their criticisms, but which is still more important, for the artist himself to correct and modify his design. Had this advantage been accorded to our sculptors in the present instance, it is probable that more drapery would have been given in the one instance, and less in the other. Had the drapery in the statue of Havelock been extended to the ground it would not have hurt the effect of the statue in front, while it would have greatly improved it behind. (Fig. 6.) Had there been less drapery used in the Guards' monument, the figure would have more resembled Honour, or a Victory in front, while it would be infinitely less ungraceful as seen in the rear. (Fig. 7.) As the statues now appear, in the one case we have a figure apparently without legs; in the other a figure apparently without a head.

In the preceding remarks, as our author says in "Dædalus," and with this we may conclude our *præcis*.—It has been the object not so much to point out some of those particulars in which modern art is inferior to ancient, as to do justice to the excellences of ancient art,—"Ingeniorum monumenta quæ seculis probantur."—(Quint. iii. 9.) and explain, as far as possible, the causes which led to that success. Far be it to attempt to attach that measure of inferiority which may be found on comparison, to our own country, and to our own age.† On the contrary, candour must lead us to acknowledge that sculpture, with the sister arts, is rising, both in this country and on the Continent. One thing, however, we cannot be too careful lest we fall into—a pedantry of art, which leads us to praise Greek art merely because it is Greek, and to despise modern art because it is not Greek.

THE ROYAL ENGINEERS' MEMORIAL, CHATHAM.

THE handsome arch lately completed, which forms the subject of our illustration this week, affords a striking evidence of the strength in the present day of that principle of "esprit du corps" on which military men consider that the efficient maintenance of all the special services of the army manifestly depends. To no department of the gallant forces by which this country is defended can such a gravitating principle of cohesion be more essential than to the corps of the Royal Engineers, whose duties demand (as the motto of the department, "ubique," implies) that, wherever, throughout the world, the British flag is carried, it shall be accompanied by a fraction at least of that scientific body. Without a strong rallying tendency the scattered units of the force would inevitably lose that average of knowledge, zeal, and action, which has won for the corps of Royal Engineers the well-

earned reputation it has long enjoyed. Hence it cannot be otherwise than gratifying to recognize how unanimously the survivors in that glorious Russian war, which tried in no ordinary manner the energies of the force, have united in providing the means by which a fitting and permanent record has been insured of every individual member of the corps who fell in the Crimea, or who died elsewhere through the varied fatalities of that frightful campaign. Before the allied armies left the theatre of war a considerable sum was subscribed by the officers and sappers, and a committee organized to collect additional funds, and to procure the erection of a suitable memorial. Early in the discussions of the committee, presided over at first by Colonel Gordon, C.B., and subsequently by Colonel Chapman, C.B., with the Hon. George Wrottesley as hon. secretary, it was decided that the memorial should assume rather an architectural than a more rigidly sculpturesque form; and that it should be erected at the head quarters of the corps at Chatham. The fine "Brompton" barracks, occupied by the Royal Engineers at that place, offered several eligible sites, and a selection was made of the centre of the one vacant side of the great parade.

Mr. Digby Wyatt was at this stage of the proceedings honoured by a commission from the committee to prepare designs; and, after the merits of several different styles of monument had been fully canvassed, it was ultimately determined that the memorial should take the shape of a triumphal arch, through which the sappers might be marched, on field days, from their quarters to the lines on which their siege operations and other practical exercises are usually carried on.

Working drawings having been made, bills of quantities were prepared by Messrs. Hunt & Stephenson, whose services were rendered gratuitously as a mark of respect to the corps. Tenders were obtained; and that of Messrs. Mansfield & Son, being the lowest, was accepted. The first stone was laid by the Duke of Cambridge on the 1st of March, 1860; and since then the work has been steadily carried on to its recent completion.

The sculpture and the principal part of the carving have been intrusted to Mr. John Thomas, of Paddington. The remainder of the carving, including the pateras in the caissons of the vault and the round panels, in which are inserted tablets bearing the names of the battles in which the Engineers were more or less prominently engaged, was executed by Mr. Farmer, of Lambeth. The bronze gates, which are very handsome, were cast by Mr. Potter, of South Molton-street, from Russian gun-metal given by the War Department.

The work was superintended, on the part of Mr. Wyatt, by Mr. Clarke, the resident clerk of the works. The arch is of Portland stone, and the whole has been constructed with a view to insuring the greatest possible solidity and durability. It is somewhat singular that Mr. Digby Wyatt should have been called in to add an additional attraction to those barracks which, originally planned by his ancestor James Wyatt, the surveyor-general, would appear to be the only similar structure as yet designed by an architect with any pretension whatever to style. When originally constructed they were looked upon as prodigal in the extreme in the provisions made for the comfort of the officers and men. They are now, though handsome, looked upon as very far from reaching the highest standard of efficiency. This may be regarded as a healthy sign that the present generation is not altogether dead to the real economy and expediency of improving the sanitary and intellectual condition especially of the common soldier. This memorial is to be especially admired in the fullness with which all are commemorated. The names of every officer and every sapper alike who fell in the Crimea have been inscribed on white marble slabs let into the stonework; so that the memorial is truly, as its gilded inscription implies, a Memorial by "the Corps of Royal Engineers to their Comrades who fell in the War with Russia, 1854-5 and 6."

KINGSWINFORD MARKET HALL.—Kingswinford Market Hall has been completed, and the opening of the erection for public business was duly celebrated on the three first days of last week. The new hall is a commodious building, in the Gothic style, 90 feet long by 57 broad, and 15 feet high. All the benches are movable except those appropriated to meat and fish, which are covered with Rulford's glazed bricks. It was designed by Mr. Gething, and erected by Messrs. Elliott & Lovatt, builders, Wolverhampton.

* Caphesias, apud Athen. xiv. 26.

† This statue was originally taken for Niobe or Diana.

‡ A statue which is certainly so ill-designed that it might be taken for that of a grenadier, whether viewed from Piccadilly or the Albert Gate. (Fig. 5.)

SOME WEAKNESSES IN MODERN SCULPTURE.



Fig. 1.—A Victory, lately in Hyde Park.



Fig. 2.—Follet, and Kemble, in Westminster Abbey.

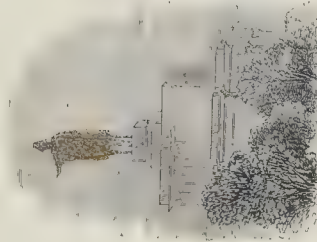


Fig. 3.—Tit, in Westminster Abbey.

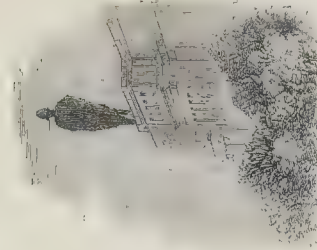


Fig. 4.—Britannia, on Somerset House.

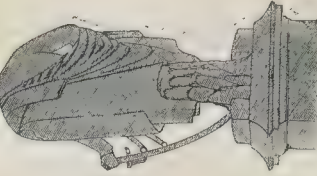


Fig. 5.—Wellington, at Hyde Park Corner.



Fig. 6.—Havelock, in Trafalgar Square.

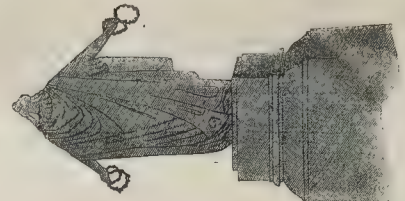


Fig. 7.—Honour, in Waterloo Place.



THE ROYAL ENGINEERS' MEMORIAL, CHATHAM.—MR. M. D. WYATT, ASSISTANT.

THE LONDON AND BRIGHTON RAILWAY
ACCIDENT.

PAYMENT OF SERVANTS.

This accident, which, at the time of our writing, has occasioned the deaths of twenty-four persons, and which we are told has injured about 200 others, is a matter of serious import; for, besides the sudden deaths, the accounts of the sufferings of those travellers who have been spared alive are most distressing. Some have been severely scalded and bruised; others so much hurt that the loss of life might have been preferable. Some have been a great deal shaken, and received injuries which will most likely be the means of shortening their days. Necks and knees have been mangled, eyes out, teeth knocked out, legs and arms broken into compound fractures; and, as regards the dead, so much were they crushed, that it was not easy for the friends of some to recognize the mutilated remains.

The signal-man states that when the excursion-train disappeared in the tunnel, he telegraphed to the other end to ascertain whether "the train" had passed through, and was answered that it had passed through all right; whereas the reply referred to the first of the three trains, which had passed not ten minutes before. Here was the fatal error. Why should not each train, in every such telegraphing, be distinctly specified? Had either the signal-man, or his respondent, only named the train he referred to, a danger-signal would have instantly stopped the third train. All three trains, moreover, appear to have been dangerously near each other. Nearly all the passengers killed were of the third-class, which goes far to show that third-class carriages do desiguedly occupy the most dangerous situations in trains—a cruel arrangement, considering that "dummy" carriages, as they call them, might be systematically placed in such situations, and not carriages full of human beings, deliberately exposed to the greatest possible danger of injury or death. To the credit of the Brighton and South-Western management, it must, however, be noted that accidents are rare on their line.

If more facts be needed, this collision shows the great necessity which existed for keeping that useful servant, the locomotive, in proper care. With right management this, one of the most important of modern inventions, is most beneficial to mankind, but otherwise it is both dangerous and destructive.

In the present instance the inquiry, so far as it has been carried, indicates that the calamity has been caused by a complication of mismanagement; and our duty to the public obliges us briefly to refer to some of the circumstances. The evidence given at the coroner's inquest is conflicting, but shows clearly enough the main facts.

The superintendent of the Brighton station (who was not, however, at the station at the time the accident happened) reports that the train which left Portsmouth for Brighton at six o'clock should have left the last-named place at five minutes past eight in the morning. He says he was not aware of this train being unpunctual; he never remembers that "it was more than five minutes late." This is, however, proved to be incorrect, as may be seen by referring to the following figures. The times of starting the trains on the Sunday morning referred to should have been as follows:—

Portsmouth train should have left Brighton for	
London.....	8:5
The Brighton excursion.....	8:15
The ordinary train.....	8:30

The time at which these trains started was—

	Too late in starting.
Portsmouth.....	8:22.....17 minutes.
Brighton excursion.....	8:27.....12 minutes.
Ordinary train.....	8:36.....6 minutes.

The Brighton excursion followed the Portsmouth in five minutes, and the ordinary train followed the Brighton excursion after a pause of nine minutes.

It is a matter well worthy of consideration, if such a rapid succession of trains, particularly on lines on which there are several tunnels, be safe. In such cases the safety of the lives and limbs of passengers depends on the chapter of accidents: the line may prove slippery—signal men sleepy from the long hours of attendance. At the Clayton tunnel the man was kept to his post for twenty-four hours on the Sunday. There is also the risk of the failure of signals—telegraphs—the mistakes of drivers, &c. &c. Sufficient time should, therefore, be left for these and similar emergencies.

The weight of a train, the greasy and other ill conditions of the line, and the strength of the engine, should be carefully considered. In connection with this part of the question, it is stated

that a train should consist of twenty carriages. Charles Tegg, station master, says that there were sixteen carriages in the Portsmouth excursion, seventeen in the Brighton excursion, and eleven or twelve in the ordinary train; "but of this," he says, "I am not certain." This is important, for it seems that notwithstanding the fluster and confusion of Henry Killick, the signal-man at the tunnel-mouth, he managed to show the red danger-flag to the driver of the engine, as it was rushing into the tunnel, for upwards of five minutes. Notwithstanding the reversal of the engine the train remained in the tunnel; not having the power, seemingly, of moving out of the darkness towards Brighton. The driver says that for two minutes they stood quite still. Is this delay in the tunnel to be attributed to the weight of the train, the want of power of the locomotive, or the greasy condition of the rails caused by the dampness of the tunnel?

The immediate origin of the accident is, however, in all probability to be attributed to the failure of the spring-bell signal. It appears that this has been several times out of order, and that reports of it have been made: this was disputed by one of the superintendents; but, on making inquiry on another line of railway, we found that signals of this kind often did fail to act, and that they did not entirely depend upon them. That such signals do not unfrequently fail, and that no little recklessness is occasionally displayed in connection with such failures, we had occasion to witness while in a West-end Crystal Palace train last summer. At one of the stations, near a tunnel, through which the train was about to run, the signal-man came rushing along to the engine-driver; hurriedly telling him,—it's of no use: it won't work: go through like H—." What he meant, precisely, we never learnt; no coroner's inquest (fortunately) being called for on that occasion; but no thanks for this either to signal or to signal-man. If these signals be not sufficient, other and better plans, if even more expensive, should be adopted; and there ought to be, most certainly, an officer of intelligence, and who can be thoroughly depended upon for zeal and activity, who shall have the entire charge and responsibility of all the signals on a particular line of railway. It should also be seen if the signal-men are fitted for their vocation. We fear that, on a reasonable examination, many would be reported insufficient. Henry Killick (we hope that the amount of his income, allowed by the company, will be ascertained) seems to have been not fit enough for the occasion of the arrival of the rapid succession of trains and the failure of the signal; and many a man of, perhaps, greater nerve and better information, might not have done much better; for three trains must have come thundering and screaming to the southern mouth of this tunnel in little more than ten minutes. Here is risk!

As regards the signal, Killick says, in answer to a question by the coroner, "Yes, it has failed a great many times. We have always reported it. It has, perhaps, failed altogether seven or eight times; and when we have reported it at Hassock's, aid was always sent, and we had it remedied." The signal, however, failed," said Killick, "on Saturday morning with the eight o'clock train. This was not, however, reported, because it went well the rest of the day. I was going to report the failure on the Sunday;" but on that Sunday morning, at nearly the same time as on the Saturday,—all those poor souls were maimed, and a large percentage of them hurried, almost in an instant, to their last account. The wires had again failed.

Killick oiled his signal at times with lamp-oil, which cannot be very well adapted to the spring of a machine which appears to have been seldom looked at, and which is delicate in its operation. The thickening or gumming of this very oil may have been the cause of the occasional failures of the signal to act.

There are other matters to which we might refer, but would willingly spare the feelings of those who have, by a general want of care and prudence, been the cause of this accident; and we hope that, sad as is this result, it will lead to good, not only in connection with the management of this, but of other railways. The servants of these companies, on whom the public depend in a great measure for their safety and comfort, should be adequately paid. When heavy deflections come pressingly upon a company, it is neither wise nor right to reduce the salaries of officials, who have been in no fault, for the purpose of raising funds or cutting down expenses, to the danger of their passengers.

Many men who have appointments at stations, who have the management of the signals, who are

expected to give civil and intelligent answers to all, are paid at the rate of 16s. a week. Without taking into account the annual sacrifice of life on railways, the cost of accidents is enormous: an accident has lately cost a company 80,000*l.*, without taking into account the damage done to the line, &c.; and it might be worth while to compare this with the additional expenses of the fair payment of servants. A famous Italian singer had a narrow escape from the last accident,—no, not the last, although it was so when this was written,—and the damages which might have been returned in such a case, would have been sufficient to increase for a considerable time the number and the salaries of the railway functionaries.

Scarcely had the notes above been written when another accident occurred, quite as frightful in its results; and, perhaps, nearly as fatal as that which happened but a week and one day ago. We will but just remark, at present, further, that, at Caledonian-road Station, Islington, we received information that the bell-signals were not to be depended upon, but that they used other means. We will ere long, from the official inquiry, be able to ascertain if the train to which the accident happened was in time; but many passengers will remember long periods of waiting, between even Islington and the Chalk Farm station, on the way to Kew; and the vast bustle, and what, to the uninitiated, at the Camden station, seems confusion, at that busy place. It seems that in many instances the opening of new lines of traffic, through one which was not originally intended for the purpose, is, under the best management, very precarious. Through the Stepney station of the North London many trains pass from North London to the City, Blackwall, the eastern parts, and also from these places. We have started from Islington for Blackwall, and been detained in consequence of the Stepney arrangements until twenty and even twenty-five minutes past the time. To persons, indeed, who have important engagements at the docks, to those who propose starting by vessels, and to most persons, this is annoying. But we look now more particularly at the danger which arises from railway stations not being sufficient for increased traffic, and the risk which arises from delay.

The inquest on the massacre at Clayton tunnel is still pending. Surely these starting "accidents" will not be allowed to pass by without effectual measures being forced upon railway directors for the better security of the public life upon the new public highways of the country. They can boast of the excellent and infallible arrangements which they make for the safety of her Majesty the Queen, well knowing what they might expect of the country should so precious a life be lost by reason of any "accident" to her, occurring on their restricted territories; and every one feels gratified to find such tender care taken of one so universally beloved. But it is now high time that the better security of the public also should be seen to. Whether it be that there are too few officials employed, too small wages paid, too long hours worked, too quick succession of trains, too imperfect arrangements made; or whatever be the causes which so often lead to such catastrophes as those now simultaneously horrifying the public mind; a thorough investigation ought now to be made into the whole routine and minutiae of railway management. Of inadequate wages, too few employees, and too long hours of attendance to which want of sufficient hands must lead, one is every now and then hearing; and it is even hinted that railway employees await, and almost wish for, some such startling "accidents," in order that the whole subject may be forced upon the public attention. Inadequate wages produce inadequate men: overwork is incompatible with vigorous and careful attention. It is not long since engine-drivers threatened to strike in consequence of overwork. All such points ought to be minutely considered, although some of them may not exactly apply in the present instances. So with all sorts of arrangements ostensibly for the public safety. Are even self-acting signals sufficiently abundant? Although these are not to be exclusively trusted to; neither, it seems, ought signal-men to be exclusively trusted to. Railway shareholders are ready enough to meet and consult together, as to what is to be done to rid themselves of the costs which railway accidents induce juries to cast upon their shoulders: let them be equally ready now to meet and consult together as to how best to reform their own establishments so as to obviate such accidents, and hence to get rid of these heavy costs in a legitimate way, and not by petitioning the Legislature to restrict compensation within certain

limits, as they propose to do. Doubtless, the very object which juries have in view is to compel them to adopt means of securing the public safety; and that, they will find, they must do ere they can get rid of compensation for injuries sustained by the public on their monopolizing lines of public highway. For many years railway managers have turned a deaf ear to the pressing and frequent warnings and requests of the public press, as to want of proper signals, and on many other points affecting the public safety; and every one but themselves, probably, foresaw that a time was coming when they would be compelled to reform their management in this respect. Let us earnestly hope that the time is now come; and that the recent meeting of shareholders in the City may only be the first of a series of less unsatisfactory meetings for the oblation of railway accidents, and of their cost to the public, no less than to shareholders.

THE HULL TOWN-HALL COMPETITION.

I ENCLOSE you a report of the last meeting respecting the Hull Town-Hall plans, by which it will be seen that the usual amount of blundering, or something worse, has been perpetrated. Nothing but the glaring injustice and absurdity of the committee's choice could have induced the council, by a majority of nearly two to one, to set aside its decision.

The result of the meeting as reported is, however, what it ought to be; and Mr. Tite will, I have no doubt, see justice done to all. It is to be hoped, however, that he will see the site of the proposed building, as more than one of the selected six are (although very good in point of design) totally unsuited to the site in question. It is to be hoped also that the report of the surveyor, who was called in and consulted as to the Act, will be laid before the referee.

"A COMPETITOR."

At the last meeting of the town council, Mr. Alderman Pearson moved the confirmation of the minutes of the Town-Hall Committee of the 9th of August, containing the following resolution:—

"That the design and plans marked 'Protesse quam conspici' should be recommended by this committee to the town council as the best design and plan, for the proposed new buildings, entitled to the first premium of 100*l.* (offered for the same)."

Mr. Alderman Abbey seconded the confirmation of the minutes, to which

Mr. Richardson objected on the ground that the plan recommended for the premium was not in accordance with the instructions, and was agreed to at a small meeting of the committee; there being only eight members present out of fourteen, five of whom only voted for the plan, with three against it. He therefore moved that the recommendation be not confirmed.

Mr. Alderman Gresham seconded the amendment, as he thought they ought to have a more definite decision of the fourteen members of the committee than five votes.

Mr. Atkinson supported the minutes.

After a few words from Mr. Dibb,

Mr. Norwood suggested the six plans should be sent to an eminent architect for his opinion as to which was the most suitable; inasmuch as, notwithstanding the Latin mottoes, which should have been secret, the names of the architects had been ascertained by certain members of the committee, and they were voting rather for men than for the merits of the plans. Mr. Norwood concluded by moving a second amendment to carry out his suggestion; naming Mr. Tite, of London, as the architect to whom the six plans should be referred.

Mr. Eccles seconded the second amendment.

Mr. Alderman Blundell said the whole of the plans should be submitted to Mr. Tite; inasmuch as it was very probable after all the committee had let the best plan escape them. The first amendment was here withdrawn.

Mr. Dobson said there were two courses open to them; either to vote for the committee's minutes as they stood, and accept their decisions; or refer the whole of the plans to an architect; because if they had not confidence in the committee in choosing two plans out of six, how could they have confidence in them in choosing six out of thirty? He (Mr. Dobson) was satisfied with the committee, and should therefore support their minutes and decision.

Mr. Alderman Pearson, in replying, appealed to the council to support their committee's minutes.

The amendment of Mr. Norwood was declared carried; but a division was demanded, when the

numbers were—For the amendment, 28, and 2 tellers,—30; against 16 and 2,—18. The amendment was therefore declared carried, and the six plans will be referred to Mr. Tite; or, should he decline, to any other eminent architect who may hereafter be named.

MIRACLE PLAYS IN ESSEX.

At a meeting of the Essex Archaeological Society, held in Chelmsford, on the 15th ult., the Ven. Archdeacon St. John Mildmay read a series of entries, beginning in 1557, from an old parish account-book in his possession. Those of them relating to Miracle Plays will interest some of our readers:—

1562. List of players' dresses taken from the inventory of the goods remaining in the church. [This list includes, amongst other items, "3 jyrkyns, 3 sloppes for devils," 23 "bredes" and 21 "hares."]

1562. Paid unto the mynstrells for the shew day and for the play day, 20s.

Paid unto Burton Wood for their meat and drink, 10s.

Paid unto the trumpeter for his paynes, 10s.

Paid unto Burton Wood for meat and drynk for the drom player, the flute plaier, and trompeter, 1s. 6d.

Unto the flute player for his paynes, 3s 4d.

Mr. Beadill's man for playing on ye drom, 5s.

Whole expenses, £5 13s 8d.

Paid unto Wm. Hervett for making the Vice's cote and joruet of borders and a jerkin of borders, 15s.

Paid to the cooper for 14 hoops, 2s 2d.

Paid to Christopher for writing 7 parts.

Paid to J. Lockyer for making of 4 sheep hooks and for iron work that Burle occupied for the hell, 4s.

Paid to Robt Matthew for a pair of wambes, 1s 4d.

Paid to Burles for sainge the play, 53s 4d.

Unto Lawrence for watching in the church when the Temple was a drying, 4d.

Item: bowstrings, 2d.

For the mynstrells soper a Saturday at night 2s.

For their breakfast on Sunday morning, 2s.

For their dinners on Sunday, 2s.

For their soper on Sunday, 2s.

For their breakfast on Monday, 2s.

For their dinners on Monday, 2s.

For their diners that kept the scaffold on Sunday, 3s 4d.

For their sowpers that watched the scaffold on Sunday at night, 1s 4d.

For drink on the scaffold on Monday, 1s.

Sundry payments at Baintree and Maldon for the players—

Item: paid unto Mr. Browne for the waights of Bristowe and for meats, drink, and horsemeate, 4s 8d.

Item: paid unto Burles for saing of the last playe and for making of the conysants, 42s.

1562. Willm. Richards for making of two gowns and four jenkins, 6s 8d.

Paid unto Andrew for heres and beards borrowed of hym, 1s.

To Wm. Withers for making the frame of heavens stage and timber for the same, 10s.

1562. John Wright for making a cotto of leather for Christ, 1s 4d.

For 10 men to bear the pageant, 10s.

To Royston for paynting the jelaunts, the pajesants, and writing the players names, 7s.

For read wine, vinegar, and possett, 4d.

Recayved of Coulchetter men for our garments for the ore of their play, 53s 4d.

Recayved of men of Waldyne for hire of three gounes, 10s.

Recayved of Belyreca for the hire of our garments, 26s 8d.

Recayved of Coulchetter, £2 13s 4d.

— Belyreca, £1 0s 0d.

— Starford, £3 6s 8d.

— Baddow, £0 6s 8d.

— Litel Baddow £0 6s 8d.

Recayved of John Syman, costable, upon his collection gathered of the pishe for the reparation of the glas windows of the church, £8.

Moulsham £1 17s 10d.

1565. Sabford men for the hyer of the playres garments, 40s.

The same of Cope of Borham for the same, 13s 4d.

Of Somers of Laneham, for ditto, £1 6s 8d.

1565. Barnaby Rush of Witham, for ditto, £1 6s 8d.

Wm. Mountegue, of Coulchetter, for ditto, 13s 4d.

Johnson of Brentwood, for ditto, 10s.

1565. Recd. of Parker of Writtle, for the players.

Rd. money of Earle of Sussex's players for ditto, £1 6s 8d.

—Of J. A. Parker, of Hanfield, ditto, 5s.

Of Cape of Boreham, ditto, 10s.

1573. Sold to G. Studeley and others all the copes vestaments, subdecons, players' coats, jenkins, gounes, heares, capps, bords, jornette, mantells, and capes mentioned in ye inventory of ye last churchwardens by ye consent of divers of ye parishioners as by a byll under their hands appereth to the use of the mayntenance of the church, for £6 13s 4d.

1574. Paid to Drain for mending the broken holes in the church windows, which was done at the late playe, 8d.

THE CAMBRIAN ARCHEOLOGICAL SOCIETY.

THE opening meeting of this Society took place at the Royal Institution, Swansea. There was a large meeting, under the presidency of Mr. H. H. Vivian, F.G.S. On the second day upwards of 100 members and friends went in omnibuses to Margam Abbey, with Mr. Freeman as clericone. Here the party were met by another from Swansea, who came by train. The turf was uncovered from the encaustic tile flooring of the abbey, and other objects of interest were inspected. The party then started for Neath Abbey, and were there met by a large number of residents in the locality; and all, numbering about 250, had luncheon provided by Mr. Howell Gwyn, of Duffryn. The ruins of the abbey church were afterwards visited. Mr. Freeman expressed a general regret that no steps were taken to prevent the ruins from falling into farther decay. Here, too, some encaustic tiles were exposed to view. It being now evening, the company returned to Swansea; having been unable to visit Neath Church, the Castle, and other objects of interest. At the evening meeting a general discussion took place upon the events of the day; the bishop of St. David's and Mr. G. G. Francis directing attention to the tessellated pavement which had occupied their notice. He also desired to draw the notice of the neighbourhood to the extremely-interesting Early Norman church of St. Giles's, situate on the banks of the river Neath, containing a perfect Norman arch. On Wednesday the Association proceeded across Fairwood Common by Cillibion, and on Cefnbyrn Common examined an old *tumulus*; and from thence to Llanmaddock Down, an old British camp, where Mr. Freeman gave a lecture. Weobly Castle was next reached, and here Mr. Octavius Morgan, M.P., gave an account of Early Castellated Architecture in this country. The Association then returned to Swansea, where the evening meeting was held. Mr. H. Thomas made some remarks respecting Weobly Castle, followed by Mr. G. T. Clark, of Dowlaish, who gave a description of the quality of the stone to be found in the district, and concluded by remarking that if more attention were paid to the different kinds of stone, some better idea of the age of the castles might be gained. Professor Babington, F.R.S., read a paper "On the subject of Bronllys Castle." Mr. T. Stephens, Merthyr, then read a paper "On a newly-discovered Stone at Capel Brithair, Glamorganshire."

OLD BUCKENHAM, NORFOLK.

A RANGE of buildings, forming ten almshouses, has been recently erected and completed at the above place; the inmates having been installed a few days since by their benefactor, Mr. Robert Cocks, of New Burlington-street, London; who, at his own cost, has purchased the land and erected these buildings for the benefit of the poor deserving inhabitants born in the above-named village. This kind-hearted gentleman has also endowed them with 2s. per week each, and a ton of coals per annum, for ever. A handsome Bible, of large type, is placed in each house for the use of the inmates. The frontage of the buildings is about 222 feet. Each house consists of a living-room and bed-room, each 10 feet 6 inches square, and 9 feet high in the clear, both lighted from the front. The floors of living-rooms are of paving tiles, on 6 inches of concrete; those of the bed-rooms are of wood. Each room has a fireplace fitted with Pierce's cottager's stove; also a cupboard and other conveniences. Opening from the living-rooms are wash-houses, 8 feet square, with sink and a place for coals; also a separate "closet" for each house. The buildings

are of red brick, with white brick and Bath (Box ground) stone dressings; the two ends being brought forward 3 feet, with pointed gables, and moulded stone coping and angular buttresses. In each gable is a shield and monogram (R.C.) in a quatrefoil. There are two porches to centre houses, projecting, and carried up with a gable and buttress, also containing a stone tablet with inscription. The whole is roofed with Bangor Duchess slating on 1-inch boarding, &c., and surmounted by an ornamental ridge and crest tiling. The sashes are of cast-iron. Three sides of the ground are inclosed with a red brick wall, 3 feet 9 inches high, coped with white saddle-back coping bricks, the gate piers being carried up somewhat higher, and surmounted with stone caps, weathered, and gables on all sides. At the rear of the buildings, in the centre, forming the water supply, is a well of spring water, and a rain-water tank; the whole of the rain water being collected from the various roofs, and conducted by means of glazed earthenware pipes into the said tank. The cost of the buildings, including the purchase of the ground, is about 2,000; this sum being exclusive of the architect's fees and the endowment. The builders are Messrs. Loveday, of the above village, who have executed the work from the designs and under the superintendence of Mr. Thomas Dyke, of London, architect.

PAYMENT BY THE HOUR.

CORRESPONDENCE.

SIR,—One would almost imagine that the master builders of London had invented some dreadful instrument of torture, and were endeavouring to subject the men in their employ to some severe corporal punishment. As many of the men have for the last five months so perseveringly and obstinately refused the terms proposed, it might be instructive to those who do not fully understand the nature of the change proposed, to have the facts simply laid before them. What, then, is the real difference between the system now adopted and that of last year. There is no difference whatever, save and except that the men have the privilege of leaving work on Saturdays at one o'clock instead of four. Men have literally and practically been working on the hour system for many years past. There are many places in the provinces where men work by the day; if they are late of a morning they are compelled to lose a quarter; but it is not so in London. Men too late for six in the morning can commence at half-past six or seven; consequently, if a man loses an hour in the morning, the time-keeper sets down nine hours instead of ten. At the close of the week the hours made each day are added together. Supposing a man to have lost three hours and a half on the old system, the amount of his time would be fifty-five hours. Here, then, lies the whole cause of dispute. The men, although they have taken the benefit of the hour system practically, refuse to adopt it as a theory. If I were about to pay a person a debt of 5*l.*, and that person refused to take it unless I would consent to call it five guineas, I certainly should think that person very defective in the upper story. The men are quite willing to continue the privilege of commencing work at any hour; but when these hours are added up at the end of the week, they want those hours to be divided by ten, so that fifty-five hours shall be called five days five hours. Then why not humour their eccentricity? Simply, because it gives them the power to continue their agitation. It is but just on the part of the masters, if the men (as they have for years past) adopt the hour system practically, for their own advantage, that the masters should adopt it in theory when they cannot possibly reap any advantage, but that of securing peace, and to prevent further agitation.

In my impression of the 24th ulto, Thomas Conolly, a mason, has made some attempts to cavil at my letter of the 17th ulto. I say "cavil," for I have searched in vain for anything like reason or argument. If it was his intention to damage the cause he professes to advocate, he has succeeded admirably well, as he has furnished such rich materials for comment. I beg a little space for a few remarks.

1st. Mr. Conolly informs us that the O.S.M. Society have paid 14,195*l.* to men in search of employment, in the last seven years. The question is, have those men received this enormous amount in searching for, or for running away from, their employment? I think the latter is the correct version. What is the cause? Strikes! strikes!! Strike in town; then take the road for the country. Strike in the country; return again to

town. Like the ebbing and flowing tide, always in a state of agitation. It would have been better for Mr. Conolly to have kept this item of expenditure in the background: it speaks loudly of deserted homes, broken-hearted wives, and destitute children. And tramping has such a demoralizing influence over men: it makes many of them spendthrifts, careless, and reckless.

2nd. 10,923*l.*, Mr. Conolly informs us, has been expended in sick relief. But let the world for once know the degrading conditions that men are subjected to, in order to obtain that sick relief. To illustrate this:—supposing a man were convinced that it was right to accept the hour system proposed by the masters; had he contributed to this sick relief fund twenty years, if he were to accept work anywhere without the permission of his dictators, he would at once forfeit all right to the fund which he had contributed to raise. This is what enables the society to use such tyrannous language as we read in some of the papers, viz.: "The society has ordered its members to leave such and such an employer." Mr. Conolly says he is not surprised that I should write in behalf of the masters; but I am surprised to see such petty despotism grow on English soil. I am not now writing in behalf of masters, but in behalf of the men. If I make them sensible of the fetters that bind them, if they do not burst them, I shall think that Englishmen have changed their dispositions.

3rd. Mr. Conolly informs us further that the O.S.M. Society has raised the wages in the provinces in the last few years 10 per cent. I knew the provinces more than thirty years ago, and London twenty-five years. Instead of experiencing a rise in my wages I have experienced a fall. When I first came to London, I could get 2*l.* or 2*l.* 5*s.* per week, in less hours than I now work for 33*s.*; but then it was what the O.S.M. Society terms "obnoxious piece-work." A man could then carry out to the very letter that proverb that saith: "Whosoever thy hand findeth to do, do it with thy might." This proverb is foolish, of course: the order of the day now is, "Do as little as you can, lest you should expose the defects of the lame and the lazy. Real merit is kept as much as possible in the background. Impudence and sloth take the precedence. I am fully aware that piece-work is not applicable to all jobs; but piece-work might often be done where it is not done, to the advantage of the public, of employers, and of workmen. There are defects, without doubt, in all systems; but that is not sufficient reason why they should be set aside. The sun may sometimes scorch the ground too much, or by its powerful influence may strike a man to the earth. Some of our would-be progressionists, for these reasons, if they had the power, would, without doubt, extinguish it. Discontent sees evil in everything.

4th. Mr. Conolly also informs us that the O.S.M. Society contains "12,000 of the most skilful and intelligent masons." A respectable and intelligent mason, having had eight years' experience in official duties in the O.S.M. Society, who has now withdrawn in disgust with its proceedings, informs me that 9,000 would be more correct as to numbers; but I do not wish to quibble about things of no moment. Set them down as 12,000. The question is, are they volunteers or pressed men? In the construction of laws to govern human beings, it should ever be borne in mind that man is a free agent, responsible alone, in one sense of the word, to the highest power. When a man has to violate his conscience, in order to yield obedience to human laws, those laws are morally wrong. In nations wholly despotic, very little regard is paid to what may be termed the birthright of man. No nation under the sun has paid such strict attention to the birthright of man as that of England. They are quick to perceive, and quick to resent, any encroachment on that right.

Now, Mr. Conolly, tell us, in plain language, what right you have to publish the names, in your returns, of those men who exercise the right the laws of the land allow them, in accepting employment from those employers they may prefer; and then for you to watch opportunities to impose a fine of 2*l.* for accepting such employment, and further 2*l.* for working overtime. If we admit your right to exercise despotic sway over the fellow-members of your own society, surely those who do not consent to your rules, nor contribute to your funds, ought, in all fairness, to be allowed the free exercise of their own judgment, without exposing themselves to the lash of your vengeance. The laws of the land allow us freedom: you endeavour to contract those laws, to bring us into a state of bondage. Of this array of figures, 12,000 members, if the volunteers were separated

from the pressed men, the former would form a very small minority. Coercion, intimidation, and threats. These are the means used to swell your ranks.

"Oh, wad some power the giftie gie us,
To see ourselves as ither see us."

5th. Mr. Conolly, with many others, are, without doubt, wholly blind in reference to the appearance they present to others. Let me present by way of supposition an illustration of their own conduct. Suppose then a dozen bakers in any locality were to agree to raise the loaf to a certain price; but, feeling disturbed by one of their own order who will not agree to their compact, these dozen bakers send two of their own order as pickets to the door of their opponent, to intimidate all his customers from entering his shop: when this fails, to bribe them with gifts to effect their purpose; and if this fails, you, as a third party, lend your influence, and aid to effect their wicked object. Do you not think that such an offence should be punishable by law? If I were a barrister instead of a mason, I should think the third party highly culpable; and, if I were employed to prosecute the offenders, I should place in my indictment words to the following effect:—"For aiding and abetting a band of conspirators in their attempts to ruin an honest tradesman." I hope this gentle hint will be duly received by those for whom it is intended; for it must be very evident, I think, to every candid observer, that these organized combinations, more properly conspiracies, such as the O. S. M. presents to view, are some offshoots of despotism growing up on the soil of freedom. The very means that despot uses to obtain their end are laid hold of, and used by these organizers,—intimidation, bribery, and treachery. The organization of one class will necessitate the organization of another. Nothing can follow but the most direful results, mutual animosities, mutual injuries. Esop tells us in fable, that the covetous man and the envious man had the privilege of having their wishes granted: the last of the two was to have a double portion. The covetous, wishing to secure that, allowed the envious man to make the first wish; who, to punish the other, requested one of his eyes to be put out. The O. S. M. may see that this fable is not exactly adapted to their case. In order to put out one eye of their employers, they consent to suffer the extinction of both. They consent to inflict on themselves the most grievous sufferings for the gratification of a little envy in producing inconvenience to others. JOHN GRIFFIN, MASON.

THE BUILDERS' MISUNDERSTANDING.

SIR,—The misunderstanding between the master builders and their operatives, which began some time ago, and still remains unsettled, is a mystery to many; and as the affair is of considerable public importance, good might arise if some able pen could disclose the whole matter, open up all points, and make them generally intelligible. As to the parties now in antagonism, the difference between them will never be settled by any number of words: when war has begun, argument is no longer attended to; and whatever is the termination in this instance will depend on the relative necessities and powers of endurance of the parties engaged.

The time was when men sought employment hopefully, and laboured with love and emulation; then, they had respect. Though all may not have changed, it is easy to see that dissatisfaction exists, and that a cause of disturbance lies hidden somewhere. The custom of letting by contract may have had something to do with it, by greatly increasing the risk and responsibility of builders, and unfavourably affecting them; and whatever may be said in favour of the system, it certainly is no friend to generous feelings. The effects are in some degree reflected upon the men, who have to work in the cold shades of competition, and get little appreciation—that genial warmth required to stimulate our common nature. All are not gifted with discretion; and when the mind is not satisfied, instead of looking forward it turns back and revolts against the first authority it finds placed over it, whether it be right or wrong. The contract system, however open to objection it may be on moral and social grounds, has so long prevailed as to make its removal impossible, and the necessity is imposed on all parties to accommodate themselves to it.

Taking the men's case into consideration, they appear first to have asked for reduction of one hour's work per day, but offered no equivalent in the reduction of wages or otherwise (that was adding 10 per cent. on time value), partly on the ground of superabundance of men, and partly

through decay of physical power. If those reasons which they put forward were really founded in fact, the men were unfortunate in making them known: to rise in the scale of society, we put forth strength, conceal weakness, and do not expect increased remuneration to accompany a state of debilitation.

We are taught by the highest authority that the servant is not above his master, neither is the existence of equality possible: two equals never did work well together, and never will: whether it be in the largest community or a private establishment, there must be a line of gradation, from the highest point downwards. How would the nation prosper with two queens to govern it?

It may be that the men's resistance to hour payment is founded on the supposition that it will subject them to asperity from masters and foremen; but that is a mistake: the continuance of their engagements will, as heretofore, be determined by the will or interest of either party. An employer will not discharge a good workman when his services are required; and a man will not stay if he can better himself. If the men have any idea of limiting the rate of production, that is also a mistake, is contrary to the laws of political economy, and will not succeed. What Englishmen have to do will be done. It may be in the power of a section of men to cause annoyance, when combined together for that purpose; but the wave of industry will still roll on: the men who desert from work would soon die for want of necessities if all followed their example. The men who asked for less work and more wages have obtained both, and the question at issue appears now to be, who shall be master?

SENTENTIA.

TRADE SOCIETIES.

It is a pleasing duty from time to time to see the upward movement of the working classes, and to note that provident measures are on the increase. Some of the reports of trade societies are of the most encouraging description, and indicate what remarkable results may be obtained by English workmen taking care of themselves. Take, for instance, the Associated Society of Engineers, Machinists, Millwrights, Smiths, and Pattern Makers. This society now numbers 20,000 members; and from 1851 to the end of the year 1859 the following sums have been expended:—

Relief to unemployed members	£120,264
Sick members	8,824
Members who by accident are unable to follow their employment	5,400
Members in distress	1,436
Funerals	15,598
Grants to other trades	6,986
	£210,774

The present income is about 1,000*l.* per week.

This is one of the largest trade societies. If, however, we take, by way of contrast, the journey-men brushmakers, we find that, in March, 1860, they had cash in hand 4,069*l.* 18*s.* 3*d.* From September to the 1st of March in the above year (six months) there had been

Paid to men temporarily out of employment	£872 1 1
Superannuated members	534 10 1
Funerals	125 14 0
Club beer (a doubtful item)	95 8 11
Persons shut out	164 16 8
Incidental	20 13 7
	£1,613 13 4

This expenditure is at the rate of more than 3,000*l.* a year.

From the rules of this society we learn that every young man on finishing his apprenticeship is called to pay 1*l.* 13*s.* as entrance money, provided he applies for admission within three months after the expiration of his time; if after, 1*l.* 18*s.* Certificates of good character are required. There are other regulations which apply to the admission of workmen in other ways and circumstances. Any member who has paid for a stated period may, in case of old age or inability to work, be put on the superannuation list: those who have been members seven years are allowed 2*s.* 6*d.* a week; those who have been fourteen years, 3*s.* 6*d.* a week; and those who have been twenty-one years, 4*s.* 6*d.* a week.

The following rule is important: "That any free and clear member can receive, with the sanction of the head society, the sum of 7*l.* when he shall have made up his mind to emigrate to America, but cannot become eligible to any trade benefits for twelve months after receiving it. Any such member, wishing to go to Australia, shall, on obtaining the sanction of his head society, be allowed the sum of 16*l.*, but cannot

be eligible to any trade benefit for two years after his return."

To entitle a member to 7*l.* emigration money, persons must have been members three years; and for the 16*l.*, six years.

Secretaries, who are paid small salaries, are appointed in the various towns on the route of tramps' union societies. When the income is not sufficient to pay expenses, assistance is given from the London branch; but it is arranged that all country societies, when able, shall remit surplus money to London, holding only a small sum in hand.

The head societies put out money to interest. On the decease of any free member, 7*l.* is allowed to the widow or nominee, and 4*l.* to a free member at the death of his wife: if the relations of a deceased member permit him to be interred at the expense of the parish, the club money is not paid.

The payment of members is as follows:—When the stock is under 200*l.*, the payment to be 1*s.* 6*d.* a week in summer and winter. When the stock is 200*l.* and under 1,000*l.*, the payments to be 1*s.* 6*d.* in summer, and 1*s.* in winter. While the stock is above 1,000*l.*, the payments to be 1*s.* per week in summer and winter, and to remain the same whatever the stock may amount to. There are fines for neglect of payment, &c.

In case a free member falls out of work, he is entitled to receive for the first twenty-six weeks, 10*s.* per week; for the next twenty-six weeks, 8*s.* per week, which will make one year; and if he should still continue out of work, to be allowed 7*s.* a week until the end of the second year, then to be placed on the superannuation.

Young members, who have not paid the club money for six months, are only entitled, in case of loss of employment, to 7*s.* a week; but if they go on tramp, they are entitled to 2*s.* a day. Those entitled to 10*s.* a week at home are allowed 2*s.* 6*d.* a day when upon the road. There are regulations to prevent imposition on this fund, and measures are employed for the purpose of assisting men to get work.

With the following note of the rules of this Society we must conclude:—"That in order to stimulate the pensioners to get other work, not connected with our trade, they shall be allowed two-thirds of the pension they are entitled to; that is to say, when they are entitled to receive 10*s.* per week, they shall have 6*s.* 8*d.*, and when 8*s.*, they shall have 5*s.* 4*d.*, and when 7*s.*, they shall have 4*s.* 8*s.* per week." The sick allowance is regulated in the same manner as the other payments. J. B.

PUBLIC BUILDINGS IN THE PROVINCES.

Grimby.—The contract for the building of the new Town Hall having been entered into, it was necessary to stake out the site, when it was found, says a local paper, that the land was rather too small to comprise the whole of the contemplated buildings and improvements. This awkward circumstance has been the subject occupying the attention of the Council and the architects during the week, and the question of how to make the whole fit still remains to be settled. The piece of land on which the hall is to stand being in the form of a fool's cap, it adds, there should be no difficulty in our Council making it fit, particularly when they have had plans gratis from architects from different parts of the kingdom to assist them.

Oxford.—On the recommendation of the Corn Exchange Committee, the ornamental design for the Corn Exchange by Mr. S. L. Seckham was adopted, and Mr. Dover's tender for the erection of it, for the sum of 2,179*l.*, was accepted.

Reading.—The hall erected in West-street has been opened. The room, which is intended to accommodate 500 persons, was built from a design gratuitously furnished by Mr. Woodman, of Reading, who also superintended the progress of the works without remuneration. The hall, besides meeting the numerous requirements of the Temperance Society, is adapted for general purposes of a public nature.

Folkestone.—The opening of the new low-water landing-pier has been celebrated by a dinner to the workmen, numbering 110, who have been engaged in its erection. The new pier is to be named the "Victoria." Mr. Peter Ashcroft was the engineer, the whole of the works being carried out by the staff of the company. The pier will be of use in the landing passengers from Boulogne, without reference to the state of the tide; the landing-place being below the upper flooring of the pier, which is accessible at all

times of the tide, with facilities by a series of rails laid down on the upper part of the pier in connection with a tramway, from whence passengers can be at once conveyed to the main line.

Kingswinford.—The new Market Hall has been opened. It is in the Gothic style. The building is 90 feet long, 67 feet broad, and 15 feet high.

Derby.—At a meeting of the local New Market Committee, it was resolved to recommend the Council to give their sanction to the pulling down of the buildings at the rear of the Town Hall, known as "The New Market," and to raise an entirely new covered market in place of it. The committee have directed plans to be prepared.

Hawick.—At a general meeting of the shareholders of the Hawick Corn Exchange Company, the plan of Mr. Rothead, of Glasgow, as recommended by the provisional committee, was adopted by the meeting. Mr. Rothead's plan is estimated to cost 3,800*l.*, which, with 825*l.* paid for Mr. Kedie's property, and 700*l.* for arching the site, will make the entire cost of the Exchange 4,825*l.* of this 4,010*l.* have already been subscribed. The dimensions of the principal hall in the new building will be 80 feet by 50 feet. There will also be an arcade along the south and west sides of the Exchange, affording accommodation for fleshers and vegetable stalls, &c. Provision will be made for news-room, waiting-rooms, &c.

WEST HIGHLAND COTTAGES.

We have before now alluded to the condition of Highland cottages. Cuthbert Bede, in his "Glencreggan," has the following on the subject:—

"No poetical gilding or artistic chiaroscuro can avail to conceal the abject squalor and indecency of the average West Highland cottage; and, until landlords take up the subject in the way they ought to do, as stewards of a trust committed to their hands, so long must all other efforts to ameliorate the Highland labourer's condition be fruitless, and the benefits derived from education and religious teaching be nullified. Mr. Stirling, of Keir, and Mr. Scott Burns, in a paper read to the London Farmers' Club in December last, adduced a great mass of evidence relative to the evils resulting from the bothy system in the Western Highlands; and a remarkable speech was made by Lord Palmerston, at Romey, during the Christmas of 1859, and, in substance, was repeated in December, 1860, in which were uttered very valuable truths concerning lodging for the labouring classes, which Scotch as well as English landlords would do well to take to heart and act upon. The noble viscount's argument was to this effect:—That a landlord ought not to look at the rent of the cottages on a farm reimbursing him for the expense incurred in building those cottages, any more than he would expect to receive rent for a farm-house separate from the farm. That the cottages for the labourers are farm appurtenances, equally as much as the barns and buildings essential to the cultivation and stocking of the land. That land cannot be well cultivated unless the labourers are well housed; and if the labourers have to trudge three or four miles to work, they get physically exhausted, and the farmer does not receive his money's worth for the wages that he pays. That the weekly rent paid by the labourer is rather to impress upon his mind that he is earning the accommodation given to him, than from any idea that he is to repay the expense of erection. That the carrying out of these propositions would be to the advantage of the farm; and that a farm that can be cultivated to advantage is worth more to a tenant. This is good advice—an advice that a landlord may turn to his own benefit as well as that of his labourers. Except in certain cases, where a two-roomed cottage is adequately sufficient for the comfort and decency of the inmates, every cottage should have at least three sleeping-apartments—one roomy one for the man and wife, and two smaller ones for the boys and girls. There is an 'Association for Promoting Improvement in the Dwellings and Domestic Condition of Agricultural Labourers in Scotland,' which has already been of service, and might be of much more. It supplies designs for Highland cottages; but the designs are somewhat too strictly confined to the present national characteristics of thick-walled cottages of one story high, with bed-recesses in the living-rooms. An infusion of English comforts and conveniences would benefit the designs, and still more the Highlander. Landlords, to the rescue! and do your best to put an end to the evils of the bothy system; and make your habitations for human beings at least as comfortable and commodious as your stables and kennels."

CHURCH-BUILDING NEWS.

Peasehall.—The new church of St. Michael, in the parish of Peasehall, built at the sole expense of J. W. Brooke, esq., of Sibton Park, has been opened. The style is Perpendicular. An entrance porch leads to the nave. This has been entirely restored, and is built of flint and white stone, and the tracery brought out in the same style as the original. The building has been entirely constructed of black flint and white stone facings. In the chancel is a five-light stained-glass window,—subject, “The Crucifixion.” This is a memorial window, the gift of Mrs. Brooke, to perpetuate the memory of her parents. Mr. Williment, of London, was the artist. The chancel, which is 18 feet in length, is covered with an encaustic pavement in patterns, the work of Messrs. Maw & Co., of Broseley. The roof in the chancel was made out of the old roof taken from the nave. The benches are of solid oak of some centuries old with tracery fronts, surmounted by carved poppy heads. The roof of the nave is open and of stained oak. The benches have been made of fir, varnished. A window of stained glass at the west end of the tower is the gift of Mr. Thomas White, of Peasehall, and was from a design made by Mr. Fulcher, of Lowestoft, surveyor, and executed by Mr. Henry Flak, of Yoxford. In addition to the rebuilding of the church, the old tower, which was in a very dilapidated state, has been partially rebuilt; having been pulled down level with the church, and carried up an extra height of about 3 feet. In this have been placed four new two-light windows, and also four sculptural pinnacles at the summit. A new bell-frame has been made, and the bells re-hung, by Messrs. Smith & Sons, of Peasehall. The estimated cost of the whole is upwards of 2,000l.

Bulwick (Northants).—Bulwick Church is being partially restored. The chancel exhibits a melancholy state of neglect, the walls being much discoloured by damp, caused by the accumulation of soil in the churchyard, which nearly reaches to the sills of the windows on the south side. In restoring the walls of the interior, various paintings in distemper have been exposed to view, extending over the whole of the walls of the nave and aisles. Unfortunately the workman was unconscious of the interest that attaches to this description of Medieval decorative art; and, before the architect was made acquainted with the discovery, the paintings were ruthlessly obliterated. The works are being carried out by Mr. J. Jeffs and Mr. Roberts, of Stamford.

Shrewsbury.—Trinity Church has been enlarged. The new addition consists of a chancel with apical termination, about 10 feet long by 18 feet wide and 30 feet high, with side aisles of two bays each, 22 feet by 12 feet. One bay, being reserved for the choir, has the organ (given by the late Rev. Richard Scott) placed in its centre. The arcades have also the prevailing semicircular form, resting upon stone pillars and sculptured brackets. The walls have slender shafts with sculptured capitals, supporting a moulded wood ceiling. The clerestory lights and aisle windows are circular-headed, with deep plain sills. The apse has three shafted and moulded semicircular-headed windows, into which has been re-fixed the stained glass (by Messrs. Evans & Sons), also the benefaction of Mr. Scott. Above these are three circular openings, filled with stained glass, by the Messrs. Evans, whose benefaction they are; the centre representing the Saviour of the World in the act of blessing. The side windows represent emblems of the Holy Trinity, with trefoil borders. The end windows of the aisles are also filled with stained glass by Messrs. Evans: the others are glazed in the tinted cathedral or rough-tinted plate, in patterns suitable to the general design. The fittings are generally of stained deal. The floor of the chancel is of figured and plain encaustic tiles, from the establishments of Mr. Minton, and Messrs. Maw. The architect was Mr. Pountney Smith, of Shrewsbury.

Bishopport, Bedfordshire.—The school-church on Bedfordshire Down, in the parish of Bishopport, has been opened for divine service. It consists of a room, 50 feet long by 20 feet wide, with a class-room, 16 feet by 12 feet, forming a transept, and two porches so arranged that the larger of them can on Sundays be employed as a minister's robing-room and vestry. It is intended to use the structure during the working days of the week as a schoolroom for the education of the numerous children of the district, and on Sunday it will be employed for the purpose of public worship according to the ritual of the Church of England. It is hoped that the promoters will be enabled shortly to add a school-

master's house in connection with the building. The roof is an open one, plastered between the rafters, and covered with red and brown tiles in plaster. The window is glazed with ornamental glass in the tracery. The extension is built of flint stone, with freestone dressings, and the whole of the stone has been hauled to the ground free of expense by the farmers of the parish. The walls are built of brick, given for the purpose by Messrs. Abbot & Co., of the Ashton iron-works. The style of the building is Early Gothic. At first it was intended that it should be perfectly plain, but as it progressed tracery windows, &c., were added. Messrs. Popes, Bindon, & Co., were the architects; Mr. Thorn, the mason; Mr. Saunders, carpenter; Mr. Edbrooke, Smith; Mr. Tuckey, plumber; and Mr. Hill, plasterer.

South Petherton (Somerset).—The old church of South Petherton, which for the last two years has been undergoing extensive repairs, has been re-opened. The nave, 60 feet by 28 feet, and 40 feet high to the ridge of the roof, has been entirely restored and re-arranged. The Perpendicular west window has been filled with tinted ground-glass. The pattern of the old roof has been followed, and carved bosses placed at all the intersections of the beams and on the wall-plate, from a few specimens remaining. Tracery has been introduced between the tie-beams and principals, copied from Kingsbury church. The north and south aisles (each 60 feet by 15) have been newly roofed (Perpendicular work), in accordance with portions of the old roofs which have not been destroyed. The south porch has a stone groined roof, with carved bosses and niche, the doorways being restored in the Early English style. The north porch has set over it a parvise, and is now entered by a new Perpendicular doorway. Various other repairs, &c., have been effected. The restoration has been carried out, under Messrs. Hickes & Isaacs, of Bath, architects; by Mr. Perry & Mr. Munford, of Crewkerne; and J. Staple, of Stoke-sub-Hamdon. The entire cost has been 2,750l.

Leeds.—The parish church has been reopened. The whole of the interior, according to the *Intelligencer*, has been renovated. All the stalls, pews, and seats have been cleaned, repainted, and varnished; the stone work cleaned, and every trace of plaster, both on the roof of the transept and on the piers which were whitewashed, has been removed. The walls have been treated with a patent indurating solution, the patentee's right to which for Yorkshire has been purchased by Messrs. Dennis Lee & Welsh. The effect of this solution, says our authority, is to render the plaster extremely hard, and impervious to wet—harder even than stone. The capitals of the columns have been re-carved, and the foliage deepened; and in various parts of the church, where the plaster has shown signs of decay, it has been restored. The ceiling has been entirely repainted, grained, and ornamented. It is executed in a light-coloured oak pattern. The bosses have been gilded and perforated for ventilation, and a shaft has been carried the whole length of the ceiling within the roof, communicating laterally with the perforations. Improvements have been effected in the chancel of the vaulting. The mouldings, crockets, and fan tracery have been subjected to the indurating process, and then gilt. The niches in the arch of the great chancel window have been filled with Caen stone figures of the four Evangelists, life size. The mouldings of the window arches in the chancel have been gilt. The floor of the chancel has been relaid with black and white marble, in diagonal squares. The appearance of this part of the church generally has also been improved by additional light. The window-sills have been cut about 8 inches lower. Better light has also been gained in the transept by three new windows, which are filled with glass of the Cathedral tint, similar to the one on the north side of the pulpit, which was inserted about five years ago. On the south side of the chancel an ornamental memorial window has been inserted by Messrs. John & W. E. Gott, the design of the sculptured part of which consists of an enriched arch of several mouldings, with the Tudor rose and leaf running up in a broad hollow. The window is at present filled with rough plate-glass, but stained glass will shortly be added. In the antechapel, next to the Tennant family's memorial window, a new stained glass window, by Mr. O'Connor, of London, has been inserted. The subject illustrates events in the life of our Lord. Five smaller mosaic stained glass windows have been inserted in the clerestory, and five in other parts of the church. The monuments of the church have been restored. The cost of the renovations (exclusive of the new stained glass windows), the whole of which will be defrayed by

subscription, will be about 2,000l., towards which about 1,450l. has been received. The whole of the carving, sculpture, and general enrichments have been executed by Messrs. Dennis Lee & Welsh; the painters' work, &c., by Mr. Thomas Simpson; the plumbers' work by Mr. John Garlick; and the joiners' work by Mr. Mark Benton. Messrs. Dobson & Chorley, architects, have had the superintendence and direction of the entire operations. Simultaneously with the renovation of the church, some important alterations have been made in the organ. This fine old instrument, originally by Snetzler—and, when the church was rebuilt, remodelled by Greenwood—has been thoroughly repaired, and improved by the addition of several new stops, and the completion of others. All these works have been carried out by Mr. Wm. Holt, of Leeds, organ builder.

STAINED GLASS.

Saint Peter's, Worcester.—The memorial window, for the east end of the chancel of St. Peter's Church, Worcester, to the late Mr. Robert Allies, is in progress. It will be in the Decorated style, from a design furnished by Mr. W. J. Hopkins, of Worcester. It will contain three lights, and have tracery in the head. It is to be filled with painted glass by Messrs. Clayton & Bell, at a cost of 100 guineas. The subject will be the Ascension. The interior will be further improved by the erection of an ornamented stone reredos. It will consist of an arcade reaching across the chancel, and is also designed by Mr. Hopkins. The window is the result of a subscription amongst the friends of the late Mr. Allies; the reredos the gift of his widow. The contractor for the stonework is Mr. Norman, of the Butts.

SCHOOL-BUILDING NEWS.

Crowle.—New parochial schools are about to be erected at Crowle. A design has been made for the buildings by Mr. Hopkins, of Worcester, which awaits the approval of the rector and other donors. The design embraces school and class rooms, with residence for master and mistress: there will be accommodation for about 100 children, and a playground attached: there will also be a library over the entrance, for the special benefit of the working classes. The building will have a bell-turret. Mr. Smith, of Crowle, has given a site for the school and also otherwise assisted the work.

Bristol.—The buildings recently used as Colston-school have been sold by auction. The premises consisted of the school-house and other premises adjoining in Host-street, and also property at the back, known as the Mason's Arms' public-house, having an entrance into Trenchard-street. The ground comprised in the whole of the above property extended over an area of about 29,700 square feet, having a frontage of about 165 feet against St. Augustine's-place and Host-street, and a frontage of 195 feet against Trenchard-street, the average depth being about 165 feet. It was eligibly situated near the Floating-harbour. The competition commenced with a bid for 1,600l., which was followed by one for 2,000l., and another for 2,200l. The sum was increased by bids of 100l. each to 2,800l., when Mr. Wethered, of the firm of Messrs. Wethered, Cossham, and Bendall, offered 2,850l. The next bid was 2,900l., and Mr. Wethered then offered 3,000l. Mr. Fergus thereupon opened his sealed instructions, and declared the property sold to Mr. Wethered. It is stated that the premises have been purchased for the Public-hall Company.

Wortley (Yorkshire).—The new school, built by Lord Wharfedale, for Wortley and the neighbourhood, has been opened. The building is in the decorated Gothic style, designed by Messrs. Healey and Mallison, of Bradford; Mr. Richardson, of Wakefield, being the builder. The whole cost is 2,000l., and is defrayed by his lordship. A house for the schoolmaster forms part of the structure. There are also two porches, class-room, playground, and appurtenances. The *Sheffield Independent*, in describing the building, says that the courses of the walling are not in keeping with the courses of the coins, and the consequent patch-work spoils the effect. There is, however, much effective polished work.

GAS.—Workmen are now engaged in the construction of the large gasometer at the New Hendon Gas Works of the Sanderland Gas Company, and progress is being made with the necessary buildings. The South Shields Gas Company have declared a dividend for the half-year of four per cent. on paid up capital, notwithstanding the large quantity of empty property, and also depression in the trade of the town.

HOW TREAT PORTLAND CEMENT?

SIR,—Within the last five or six years Portland cement has, in this city [Glasgow], been introduced to a great extent, in place of Roman cement: it is used principally for plastering the lower portion of staircase-walls, skirtings, floors, &c.; but, unfortunately, in the present state of our knowledge here, neither can the architect nor house-painter treat the cement after it is put on the walls, so that it may be painted along with the common plaster and finishing of the building. If the work is painted with white-lead paint, in boiled linseed oil, it remains as sticky as birdlime for years after it is done. Some of the painters here give their Portland cement work a coat of sulphate of iron, or copperas: this, they affirm, cools the cement; but I find, after even this is done, that the work has not that even appearance that plaster-work has.

I am at present making a series of experiments in Portland cement and Roman cement, with a view to obtain the best medium, the results of which I shall be happy to communicate to you hereafter. Meantime, will any of your readers or correspondents inform me what is considered the best mode of treating Portland and Roman cement, with a view to immediate painting after the plaster cement is properly dry?

T. M'G., Architect.

COMPETITION.

Wesleyan Chapel, Tramere, Birkenhead.—The successful competitor is Mr. Walter Scott, architect, of Liverpool.

RAILWAY COMPENSATION CASES.

Scarbroon v. Charing Cross Railway Company.—This case was tried on Saturday, August 24th, 1861, at the Sessions House, Newington, before Mr. Under-Sheriff Abbott, and a special jury; to determine the amount of compensation to be paid to the claimant, Mr. Frederick Scarbroon, for the premises lately occupied by him in the Waterloo-road; taken by the company under authority of the Act of Parliament for the construction of their line.

The claimant's estimate of his loss had been sent to the company's surveyors, and was fixed by him at 1,250*l*.

The company disputed his valuation; and, having taken possession of the claimant's house, paid a sum of 400*l*. into court as sufficient compensation.

Mr. Hawkins, Q.C., and Mr. Ribton, appeared for the claimant: Mr. Bovill, Q.C., and Mr. Lloyd, jun., represented the company.

Mr. Hawkins, in his address to the jury, stated that the claimant had for twenty-one years carried on a successful and lucrative business as a corn-dealer, at No. 166, Waterloo-road, opposite to the terminus of the South-Western Railway; his net profits having averaged for many years between 500*l*. and 600*l*. per annum.

The claimant had a lease of his house, for which he had paid a premium of 65*l*.; and in consideration of that premium held the premises at a rent of 43*l*. only; being much below the rental that could have been obtained for them at the time the company took possession.

Counsel submitted the case as one of a very exceptional character; inasmuch as the claimant had, as he should be able to prove, rather understated, than exaggerated, the loss he had sustained through the deprivation of the business.

Mr. John Barnett, the surveyor for the district of Marylebone, was called, and proved the value of the lease of the claimant's premises. He also, under a protest by Mr. Bovill against the admissibility of the evidence, proved that the company's surveyor had very recently offered 1,100*l*. to compromise the claim, which had been refused by Mr. Thomas Alley Jones, the claimant's solicitor.

Mr. William Lawrence Gomme, of Hammer-smith, supported Mr. Barnett's valuation, and also proved the value of the fixtures upon the claimant's premises.

The claimant was then examined by Mr. Hawkins, and proved the nature and character of the business he had carried on, and that his profits had for many years past, after payment of all expenses, realized an average of between 500*l*. and 600*l*. per annum; and that in the year 1860 they amounted to 560*l*. 12*s*. That in preparing his claim he had not availed himself of the assistance of any professional valuer; but had stated a sum which he believed a very low estimate of the loss he had sustained by the deprivation of his business.

The claimant was cross-examined by Mr. Bovill at some length as to the business which he had

carried on since his late premises were pulled down; but nothing was elicited to affect the statement of the claimant in his examination in chief. At Mr. Bovill's desire the claimant produced his day-books and ledgers for some years past; and they were submitted to the learned counsel's inspection; and the claimant was further questioned as to his system of trade, and the possibility of its re-establishment in the same neighbourhood. The claimant, however, stated that the railway company had entirely destroyed the neighbourhood upon which his business had chiefly depended, and that he had not been able to find any premises that would be suitable for the trade of a corn-dealer near the spot upon which his house had stood.

Mr. Hawkins was about to call other witnesses, of whom there were a large number in attendance, to support the claimant's case; but upon Mr. Bovill stating himself satisfied with the claimant's evidence without further corroboration, no other witnesses were called; and Mr. Bovill having announced that the company did not intend to offer evidence,—

Mr. Hawkins briefly summed up the case on behalf of the claimant, and contended that Mr. Scarbroon had clearly established his claim against the company, not only for compensation to the amount which he had originally asked, but what was now shown to be the larger amount of loss which he had sustained by the company's operations; and the learned counsel called upon the jury not to confine their verdict to the limits of the claimant's original demand, but to award him what had been shown to have been the actual damage which the deprivation of his business and premises had entailed upon him.

Mr. Bovill, in addressing the jury for the company, contended that the claimant had entirely failed in making out a case for compensation before the sum which the company had offered; and that the claimant's solicitor, Mr. Alley Jones, had ill-advised his client when he recommended him to reject the company's offer of compensation made before the expenses of the inquiry had been incurred. He also said that the company had, throughout their dealings with proprietors of property in the county, acted in the most liberal and handsome spirit; but that it became the company's duty, in the interest of the shareholders, to resist any attempt which might be made by individuals, as in the present case, to make an extravagant profit upon the sale of their interests.

The Under-Sheriff was about to sum up the evidence; but the jury, having announced that their minds had been for some time made up, interposed, and returned a verdict for 1,300*l*., being 50*l*. in excess of Mr. Scarbroon's original claim.

Southwark Police Court.—*Charing Cross Railway and Howard.*—The claimant in this case is a scaleboard and splinterer, and wholesale box-maker, in York-street, Blackfriars-road, who had no greater interest in the premises occupied by him than that of a tenant from year to year. He claimed as under:—

For the value of his unexpired term or interest in the premises.....	£550
For removal, depreciation, and refixing of machinery.....	850
For general removal.....	100
	£1,500

Mr. Horsley appeared as solicitor to the claimant; and Mr. Henry Rice, of the firm of Rice Brothers, and Mr. Horne, of the firm of Pullen, Horne, & Eversfield, gave evidence as surveyors on his behalf, with a number of other witnesses. On behalf of the company there were present, in addition to Mr. Ryde, the company's surveyor, Mr. Francis Fuller, Mr. Hammack, and Mr. Marrable; but Mr. Hawkins, who, with Mr. Harrison, represented the company, did not call witnesses. The magistrate (Mr. Combe) gave for the value of the unexpired term, and for the just allowance which ought to be made to Mr. Howard by an incoming tenant, and for any loss or injury he has sustained, the sum of 370*l*.; and directed that Mr. Howard should pay his own costs of the inquiry.

The Charing-Cross Railway Company.—At Southwark Police Court, on Saturday last, Mr. Bramble, a patent-fuel manufacturer, of No. 12, Gravel-lane, Southwark, attended to prefer a claim of 37*s*. from the Charing Cross Railway Company, as compensation for his premises, &c., which were required for the construction of the railway.

Mr. Stammers appeared as counsel for the claimant, and Mr. Hawkins, Q.C., with Mr. Harrison, for the company.

Mr. Stammers said that the claimant considered that his profits from his business for nine years past were 250*l*.

a year. His present rent as a yearly tenant was 22*l*. 10*s*. In removing he could not get premises to suit him for less than 60*l*. a year, and would have to pay 120*l*. premium for twenty years' lease. He therefore considered himself entitled to 37*s*. for change of premises, and 160*l*. for removal, making altogether 67*s*. compensation.

Mr. Bramble was then called, and said that he had carried on business as a patent-fuel manufacturer, at 12, Gravel-lane, for upwards of nine years; and up to August, 1857, held an agreement from the South-Western Railway Company, who were his landlords, and he paid his rent quarterly to their agent. He had expended 160*l*. in improving the property. His stock and machinery was worth about 37*s*., which he called upon the company to take. He could not get premises to carry on his business suitable for him for less than 60*l*. a year and 120*l*. premium.

In cross-examination by Mr. Hawkins, he said that the premises were very old, and chiefly composed of wood. There was no dwelling-house, but he and his wife and family lived on a kind of shelf. It suited them as well as a palace, as he could look after his property and protect it from the thieves.

Mr. Hey, surveyor, of Churchyard-row, Newington, said he had looked over Mr. Bramble's premises, and considered that his loss in removal, &c., would be 37*s*., and an additional 300*l*. for stock, fixtures, machinery, &c.

Two other witnesses were examined, when Mr. Hawkins addressed his worship at considerable length, contending that the demand made upon the railway company was extortionate in the extreme; and during the whole course of his experience at the bar he never knew such an unprincipled claim. His worship, no doubt, would plainly see through the whole of the case; but, in fact, the claimant was entitled to no more than six months' premium for loss by removal before March next, when he would have to turn out without a penny, at his own risk and expense. His loss by removal would be 160*l*.; extra rent, 13*l*. 15*s*.; loss of business, 40*l*.; making in all 73*l*. 15*s*., which was all the company considered they had a right to pay.

Mr. Combe adjourned the case so that he might look into the documents placed in his hands; and he has since given judgment that the railway company pay to Mr. Bramble 75*l*., without costs.

THE "BUILDER'S" LAW NOTES.

A Jury's reasons for their Verdict.—In a recent case it has been decided that a request by one party that the judge should ask the jury to state the reason of their finding their verdict was correctly refused, for that the jury are not bound to explain the grounds for their verdict.—*Brown v. Bristol and Exeter Railway Company.*

Accidental Death.—A person going to Brighton took a Railway Passengers' Assurance Ticket for 250*l*. Before the time arrived for his using his return ticket he went to bathe and was drowned. The relatives sued the Assurance Company for the 250*l*., and the Court of Exchequer held the company not to be liable, as death was not caused by any accident within the terms of the policy. This judgment, however, was set aside on appeal; and it was held by all the judges of the Exchequer Chamber, that the relatives were entitled to recover; for that death by drowning did come within the terms of the policy.—*Trew v. Railway Passengers' Assurance Company.*

Master and Servant.—A passenger in an omnibus was expelled by the conductor for alleged drunkenness, of which drunkenness there was not sufficient evidence. In removing the passenger the conductor used an unnecessary amount of violence, so that the passenger was thrown down and severely wounded by a passing vehicle. The passenger sued the owner of the omnibus for the injury sustained at the hands of the conductor; and it was decided (and confirmed on appeal) that the owner was responsible; for that the wrongful violence of the conductor took place while he was acting within the scope of his employment by virtue of delegated authority.—*Greenwood v. Seymour.*

Books Received.

Linear Perspective Simplified. J. Holt, Hackney, 15, Cambridge-terrace.

THIS little work is intended to supply the want of elementary instruction in perspective, in sufficiently plain terms to come within the comprehension of youthful students of art or photography. We are acquainted with many, especially ladies, who have acquired a very pretty power of drawing, but whose sketches are valueless on account of the absence of an acquaintance with the first principles of perspective: to these Mr. Holt's concise explanations, and careful diagrams, will be of service. Mr. Holt is the inventor of a set of tablets composed of wood, glass, and metal, for the illustration of perspective. This apparatus should assist both the memory and the perception of learners, as the names of both objects and lines are labelled, even the principal visual rays having an embodiment in the shape of a silver thread. With or without a teacher, the primary rules might be easily mastered when thus simplified; and the student will have laid a good foundation for studies of a more abstruse character.

Miscellaneous.

RAILWAY MATTERS.—The Portsoy Railway Station, according to the *Elgin Courier*, has been contracted for, and commenced. The cost is expected to be above 1,000*l*. The contractors are for the mason-work, Mr. Barclay, who has built a great many bridges on the line; Mr. Walker, Banff, for the slater-work; Mr. Jackson, Portsoy, for the plaster-work; Mr. C. Innes, Banff, for the painter-work; and Mr. Wilson, Portsoy, for the plumber-work.—The bridge which was in course of construction over the river Bollin (about a mile from the Bowden-station, on the Cheshire Midland Railway), has fallen; the debris entirely blocking up the waterway of the river. It appears that the centres supporting the arch had been struck or eased some days; and the contractors were looking up the arch of the bridge on the north side of the river with earth; whilst on the opposite or southern side some twelve or fourteen feet of filling still remained to be done before reaching the crown of the arch. This is understood to be the cause of the accident.—filling up one side of the bridge before the other. Happily no one was killed. The damage done will amount to several hundred pounds, and the progress of the works at the Bowden end of the line will be slightly delayed in consequence.

THE NEW MECHANICS' INSTITUTION FOR STALEY-BRIDGE.—The ground story will contain a reading room, conversation room, library, committee room, secretary's room, class room, porter's room, laboratory, and other conveniences; front entrance hall, vestibule, staircase, and staircase hall. The principal staircase and landings will be constructed of stone, and from the top landing of this staircase, on the chamber floor, the assembly room and two ante rooms will be approached by corridors. The assembly room will be 81 feet long, 41 feet wide, and 24 feet high, having a platform at one end in direct communication with the principal ante room, and a gallery at the opposite end approached by a staircase from the corridor. The building will be constructed of bricks, the two principal fronts being faced with stocks and having polished Yorkshire stone-dressings. The Italian style has been adopted, with, however, a considerable amount of Gothic feeling in the details. The cost of the building (exclusive of the warming, gas-fitting, and furnishing) will be about 3,100*l*. The plans and specifications have been prepared by Messrs. Blackwell and Son, architects, Manchester, under whose superintendence the building is to be carried out. Messrs. Joseph Greenup and Co., of Miles Platting, are the contractors, and Mr. Robson is the clerk of the works. The site, given by Mr. F. Astley, is at the corner of High-street and Leech's "Snug," the principal entrance being from High-street, and the library entrance from Leech's "Snug." The chief stone has been laid.

MUSEUM OF PRACTICAL GEOLOGY.—The Museum of Practical Geology, Jernyn-street, will be re-opened to the public on Tuesday next. During the vacation, some important additions have been made to the wall decorations in the hall, consisting of inlaid slabs of polished granites, porphyries, marbles, and alabaster, by Mr. Macdonald, of Aberdeen, and Mr. Hall, of Derby. Some of these specimens have never before been employed in the arts, and deserve the attention of architects and builders.

MR. MELLON'S PROMENADE CONCERTS.—The promenade concert given by Mr. Mellon in the Opera House, Covent-garden, continue to be of great excellence. Probably at no similar concerts was such great variety afforded, or strength in vocalism. To Mlle. Parepa, Mr. Geo. Perren, and Mr. Weiss, have been added Herr Formes. Miss Julia Woolf is a promising new pianoforte player, and Mr. Levy excellent on the cornet. On Thursday evening, Mozart reigned supreme.

INCREASE IN THE PRICE OF GAS.—The three gas companies supplying the city of London with gas have, since the passing of the Metropolis Gas Act, determined to raise the price of their gas. This decision was made known to the inhabitants yesterday by the issuing of a circular, stating that the Legislature having, after full inquiry, passed an Act for regulating the supply of gas to the metropolis, requiring under heavy penalties a higher standard of illuminating power and purity, which will necessarily involve an increased cost of production, the companies supplying the City will, on and after Michaelmas next, be brought under the provisions of that Act, and that the future charge will be at the rate of 6*s*. 6*d*. per 1,000 feet for the ordinary coal gas.

SOMERSETSHIRE ARCHEOLOGICAL SOCIETY.—The thirteenth annual meeting of this association commenced on Tuesday in last week, at Langport. A temporary museum was formed at the Town-hall, by the contributions of several influential inhabitants. The annual meeting was held in the Town-hall, at twelve o'clock, and was well attended. Mr. R. N. Grenville presided. Mr. E. A. Sanford was elected president for the next year, on the motion of Mr. Grenville, who made an interesting address upon the occasion. The vice-presidents were re-elected, and the committee and officers for the ensuing year having been appointed, the secretary (the Rev. F. Warre) read a report of the society's doings during the past year. After this, Mr. J. H. Parker, of Oxford, read a paper on "The Bishop's Palace at Wells." Mr. W. W. Munckton read a paper on "The History of Langport." After a tour of inspection through Langport, an evening meeting was held for the reception of papers, and discussion. The Rev. T. Hugo read a paper on "Athelney Abbey." On Wednesday, the members left Langport at ten o'clock, on an excursion to Muchelney, Kingsbury, Episcopi, Martock, South Petherton, Shepton Beauchamp, Barrington, Burrough, Hambridge, and Curry Rivel. In the evening a *conversazione* was held in the Town-hall. On Thursday an excursion was made to Pitney Church, Roman remains at Pitney, Low Ham, High Ham, Church and School, and Gypsum Quarries, Othry, Burrough Bridge, Athelney, and Aller.

TYPOGRAPHICAL WORKSHOPS OF FLEET-STREET.—William Caxton, the celebrated printer, had a shop for the sale of books, &c., in Fleet-street. He was succeeded by Wynkin de Worde, who, in his last will, 1545, calls himself "citizen and stationer." The following were also contemporary printers in Fleet-street, viz.:—Robert Copland, stationer, printer, bookseller, author, and translator: his sign in 1515 was the Rose Garland: he died about 1547. John Butler lived at the sign of St. John the Evangelist, in Fleet-street, in 1529. Thomas Bertholt, king's printer, dwelt at the Lueretia Romana, in Fleet-street: he retired from business about 1541. John Bedel, stationer and printer, lived, in 1531, at the sign of Our Lady of Pity, in Fleet-street. John Wayland, citizen and stationer, lived at the Blue Garland, in Fleet-street, 1541. Lawrence Andrew, a native of Calais, was a printer at the Golden Press, by Fleet-bridge. Thomas Godfrey, the printer of Chaucer's works, lived near the Temple-bar; and Robert Wyer, an early printer, lived at the sign of St. John the Evangelist, in the Bishop of Norwich's rents, beside Charing-cross.—*City Press*.

NEW GARDENS AND THE GREAT EXHIBITION OF 1862.—The ribbon flower-bed, 50 feet in length by 7 in breadth, is still the one leading attraction here. The flowers are now exceedingly brilliant. We are told that all the great centres of English industry are sending agents and artists to copy it, as a design and pattern for part of the goods they are making for the Great Exhibition of next year, viz.:—Manchester, prints, chintz, draperies, &c.; Coventry, ribbons; Kidderminster, carpets; Glasgow, muslins, shawls, &c.; Yorkshire, coloured table-covers; Belfast, damask table linen, &c.; Nottingham, lace; Macclesfield, Derby, and Spitalfields, silks, embroideries, &c.; Dublin, mixed fabrics; Paisley, Scotch goods and window muslins; Bradford, moreens and damasks; Clerkenwell, artificial flowers; and the Potteries, china and porcelain. A lady of title has ordered to be manufactured for her 50 yards of stair-carpeting, and a drawing-room carpet, the border of which will be an exact imitation of the above, and the centre copies of many of the circular flower-beds in various parts of the gardens.

IRISH POPULATION.—While Great Britain, during the last ten years, shows a large and steady increase of the people, it is to be regretted that in Ireland there has been a decline of upwards of a million during the period above mentioned. This is a most important matter, which requires very careful consideration. This falling has been attributed to the great extent of the emigration which has taken place. On examining the number of emigrants from Ireland to England, Scotland, America, Australia, &c., these form but a portion of the missing population. We look anxiously forward to the Registrar General's coming report, in order that we may be enabled to trace in what districts the greatest decrease has taken place, and to learn if those who are connected with agriculture or manufactures have suffered most in this respect. We may be also enabled, in some measure, to see to what extent this very large decline of the Irish population is to be attributed to sanitary neglect.

PRICE OF LABOUR IN SYDNEY.—The labour market here still continues dull, and the supply is nearly adequate to the present demand. The *Sydney Herald* says, that there are indications of general improvement. Wages, with board and lodgings, a hut, room, and rations, per annum, were as follows, viz.:—Married farm labourers, 45*l*. to 60*l*.; single do., 30*l*. to 35*l*.; ploughmen, 35*l*. to 40*l*.; bullock drivers, 40*l*. to 50*l*.; hut-keepers, 26*l*.; stockmen, 35*l*. to 40*l*.; carters, 40*l*. to 50*l*.; surveyor's men, 35*l*.; cooks, 40*l*. to 60*l*.; coachmen, 35*l*. to 50*l*.; grooms, 35*l*. to 50*l*.; gardeners, 40*l*. to 60*l*.; blacksmiths, 60*l*. to 80*l*.; wheelwrights, 60*l*. to 80*l*.; single shepherds, 30*l*.; shepherding family, 55*l*. to 70*l*.; bushmen, 40*l*. to 45*l*.; housemaids, 20*l*. to 22*l*.; nursemaids, 18*l*. to 20*l*.; female cooks, 26*l*. to 30*l*.; laundresses, 26*l*. to 30*l*.

THE LONDON SHOEDRACKS AND THEIR EARNINGS.—Nine years have elapsed since this branch of labour was introduced, and these boys, it is said, have earned about 11,950*l*. Their united earnings for the last financial year amounted to 4,548*l*.—a sum representing the blacking and polishing of no less than 1,119,320 pairs of boots.

THE SITE OF CHERTSEY ABBEY.—The council of the Surrey Archaeological Society have determined to assist in promoting the proposed excavations on the site of Chertsey Abbey, which has been recently purchased by one of their local secretaries, and have opened a public subscription for the purpose. It will be in the recollection of our readers that a large and curious collection of tiles in the possession of the Architectural Museum at South Kensington is from this site. An equally large and very complete collection is in the museum of the Surrey Society. The excavations are now being proceeded with; and during the last few days some interesting remains have been turned up,—stone coffins, tiles, gold coin, leaden chalice and paten, gold ring, &c. Subscriptions in furtherance of the object will be received by the honorary secretary, Mr. Henry W. Sass, at the council-room, St. Mildred's-court, Poultry.

THE GLOUCESTER SURVEYORSHIP.—At a recent meeting of the city council, a report was read from the committee proposed to consider the salary and duties of the surveyor, chamberlain, &c. The committee recommended that the salary of the new officer should be the same as that paid to Mr. Hanvey, viz., as chamberlain, 100*l*., surveyor, 50*l*., and superintendent of waterworks, 100*l*.; that an out-door assistant be appointed at a salary not exceeding 25*s*. per week; that candidates for the office be advertised for, who are to send in their testimonials by the 14th September; and that a meeting to examine the applications and testimonials be held on the following Monday. The report was adopted.

SUGGESTED MEMORIAL TO BISHOP VILLIERS.—With reference to a suggestion of a memorial to Bishop Villiers, Bloomsbury, the scene of his ministerial labours has been named as the most appropriate site. The *Bury Post* says, the commissioners for inquiry into the means of increasing the accommodation of the British Museum have recommended that the houses on the north, east, and west sides should be purchased, to provide sites for additional galleries,—a plan which would leave the Museum as much as ever immured from the public sight, and the finest façade in London hidden by the mean and narrow streets on its south. Let these be removed, by which an equal area to that proposed to be taken on the three other sides would be secured, with much less purchase of private property, on account of the intersecting streets; and in the space now bounded on the north by Great Russell-street (which would still be a thoroughfare through arches), on the west and east by Bloomsbury-street and Bury-street, and on the south by New Oxford-street and Hart-street, let an additional quadrangle, or whatever form might be found most practicable, be added to the Museum; and, as this would involve the demolition of the ugly and incommensurate church in which Villiers ministered, let a memorial church be included in the plan, and harmonized with the style of the Museum; but the cost, after proper allowance for the present church, to be defrayed by subscription.

SOUTH KENSINGTON MUSEUM.—During the week ending 31st August, 1861, the visitors have been as follows:—On Monday, Tuesday, and Saturday, free days, 6,014; on Monday and Tuesday, free evenings, 4,295. On the three students' days (admission to the public 6*d*.), 1,208, one students' evening, Wednesday, 117. Total, 11,634. From the opening of the museum, 2,226,764.

NEW DECORATIONS IN MANCHESTER THEATRE ROYAL.—During the last month or two, a renovation of the Manchester Theatre Royal has been effected, both externally and internally, under the direction of Mr. F. Chester, the architect of the building. The following particulars are gleaned from the local *Courier*. The Peter-street façade has been metamorphosed from its assumed blackness to the natural colour of the stone. Several minor improvements have been made on the outside of the theatre. Entering the edifice, the vestibule walls are painted to represent grey or Aberdeen granite, and the pilasters are painted a red granite. The cornices and other mouldings have patterns stencilled in neutral colours, and gilt; while the doors are diapered in patterns of gold. The railings of the freely used everywhere in the decorations. The 300 seats in the dress circle have been re-seated and covered with crimson damask; while the chandeliers have been raised a little, so as not to intercept the view. The private boxes in the proscenium have had their circular fronts advanced, and their interior fittings renovated. Extra ventilators have been inserted in the passages, the galleries, and above the stage. Ascending to the upper circle, the same style of decorations is found to prevail in painting the plaster, walls, and ceiling, as in the dress circle; and the seats have also been re-covered, the walls repapered, &c. The whole of the ornamental work on the front of the two tiers of boxes and the galleries has been re-gilt. Some alterations have been made in the ceiling, where there was much heavy and useless ornament. This has been removed. A new act drop has been painted by Mr. W. R. Beverley, representing the "Ruins of an Ancient City," at sunset. The green-room and performers' dressing-rooms have also been renovated, and new scenery is being prepared. The painting and decorating have been performed by Mr. Richard Anderton.

THE LIVERPOOL FINE ARTS SOCIETY'S EXHIBITION.—The annual exhibition of this society has been opened. New arrangements have been made; and these, as well as the works of art themselves, are said to be satisfactory. The collection is a numerous one; embracing, as it does, upwards of 800 works, contributed by about 450 artists; general, local, and foreign together.

ANOTHER GASOMETER EXPLOSION.—It is very well known that when illuminative gas is mixed in a certain proportion with atmospheric air, the mixture becomes explosive, although neither a larger nor a smaller proportion is so. Every gasometer maker and gas manager ought to know this; and no gasometer ought to be brought into use by merely pouring in the illuminative gas so as to mix with the atmospheric air with which the gasometer is naturally filled when it is formed; the only safe proceeding being first to expel all the atmospheric air by sinking the gasometer completely into its water-bed. Nevertheless, as most of our readers must remember, an explosion occurred not long since in the north of England, from ignorance or neglect of this precaution; the gas being allowed to mix with the atmospheric air in the new gasometer. The catastrophe seems to have been of little use, as a warning; for precisely the same sort of explosion has just occurred at the Bridgnorth Gas Works. In May last the company commenced the erection of a new gasometer. This construction was composed of plate iron, and comprised a tank 36 feet in diameter, and capable of holding 16 feet of water. Over this tank was placed the holder, also constructed of plate iron, and weighing about eight tons. This holder contained gas and atmospheric air, the latter being gradually ejected, and its place supplied with gas. On the top of this holder was a stockpot for releasing the air. This gasholder was left in charge of a young man, who had been warned not to go near the stockpot with a light "till the foul air was got out." In about twenty minutes after the manager of the works had left, however, the report of a terrific explosion was heard; and it was found that the top of the gasometer, weighing about four tons, had been propelled about 50 feet into an adjoining field, and close to it was discovered the body of the young man, fearfully mutilated. A portion of a tobacco pipe was found between his teeth. The stockpot was found partially opened, and the hypothesis is that he was in the act of lighting his pipe with a lucifer match; and the flame, coming in contact with the explosive mixture of gas and atmospheric air issuing from the gasometer, caused the catastrophe. The damage done amounts to 500*l*. An inquest was held on the body of the deceased, and a verdict of accidental death was returned.

BAZAAR BRIDGES FOR LONDON.—Mr. Aleock, M.P., referring to the value of land in London, and the want of means of communication between the two sides of the Thames, suggests the erection of bazaar bridges, comprising shops on either side of a central way, similar to the arrangement existing on the Ponte Vecchio at Florence. He says,—"The price of land in London may be reckoned at considerably more than 100,000*l*. per acre. Thus, the Excise Office was sold at the rate of 88,000*l*. an acre; the India House at the rate of 124,000*l*. per acre; some land, as approaches to New Westminster-bridge, at 170,000*l*. per acre; giving an average of 127,000*l*. per acre. On the other hand, the expense of New Westminster and New Blackfriars bridges is at the rate of 3*l*. 5*s*. per foot, or 141,000*l*. per acre; that of Chelsea Suspension-bridge, 2*l*. 5*s*. per foot, or 98,000*l*. per acre; that of New Lambeth Suspension bridge, 1*l*. 10*s*. per foot, or 65,000*l*. per acre; giving an average price of bridge communication at 101,000*l*. per acre. Land may, therefore, so to speak, be created by the construction of a bridge at a less cost than it can be purchased in a good locality. Let us suppose, then, a foot bridge to be built at St. Paul's or Charing-cross, at a cost of 2*l*. per foot, including a glazed roof. Such a structure, 1,000 feet long and 30 feet wide, affording a free thoroughfare 14 feet wide, and stalls on either side 8 feet square, would cost 60,000*l*. Let us suppose further a series of shops on either side of this viaduct (250 in all), and that the rent of each was 50*l*. a-year, this would produce a revenue of 12,500*l*., which affords a profit of above 20 per cent., or, at 30*l*. rent, 7,500*l*.; equal to 12½ per cent. on the total outlay." If the suggestion were likely to be carried out, we should call for much wider bridges, by means of which alone can London, north and south of the Thames, be made one. But were it even likely to pay for the greater width, as well as the greater required solidity, the unsightliness of such antiquated revivals, the obstruction of the view, and of the free aerial current, and the interference of higgling traffic with free intercourse over a City bridge, ought at once to dismiss the crochet.

WAGES IN MELBOURNE.—Masons are now getting from ten to twelve shillings a day, and several are working for eight; at the present time there are between two and three hundred unemployed. Carpenters are getting from eight to eleven shillings, and consider themselves fortunate if they only go two weeks idle for every one they work. Blacksmiths and others connected with the iron trade are getting from ten to fourteen shillings a day; but, as regards the state of trade, at one establishment, where from 180 to 200 men have been employed at one time, there are now only some forty or fifty; and at Russell's Foundry, in Sydney, there is a lock-out because the men refuse to accept a reduction of ten per cent. off their wages, and they have been only getting from six to ten shillings per day of ten hours.

TELEGRAPHIC PROGRESS.—Telegraphic despatches for the Russian port of Taganrog, in the Sea of Azoff, have been sent direct to that city from the Electric Telegraph Company's station in Telegraph-street behind the Bank of England. This is the longest direct communication by telegraph ever achieved, the distance being above 2,500 miles. The Dutch screw steamer *Draak* started with 6½ miles of new deep-sea cable on board, intended to repair the cable in the Straits of Banka. The examination of the cable was commenced with that part between 176 and 179 miles from Batavia, lying to the south of Lucipara, and which was laid in a W.N.W. direction; it being proposed to splice on the new 6½ miles of cable, and to lay it further to the N.W. in a depth of two fathoms. On taking up this 3½ miles of cable, it was found that where it lay the bottom consisted of blue and soft mud, like that on the east coast of Sumatra, and that the cable in this mud was not encrusted with shells, but remained clean and undamaged, and as good as new. From the mouth of Muara baru, where the shore end of the cable is situate, to a distance of about 40 miles from Batavia, W.S.W. Pulo Katok, the number of breaks were not less than 20, the repairs of which occupied a long time. It is noticeable that all these breaks were found in the deep-sea cable, while the whole line, from the south of the Agnitia islands to the south of Middleburg and Amsterdam, where the shore-end cable lies, was not damaged in a single place. Of the deep-sea cable, which was under-run for a length of 40 miles, it was found in some places that the iron-wire covering had wholly disappeared, while in others it had become very thin.

THE BLACKFRIARS STATION OF THE LONDON, CHATHAM, AND DOVER RAILWAY.—Preparations are made for commencing the works of the London, Chatham, and Dover Railway in the Blackfriars section of the line. The station will be erected on the site of the Albion Wharf, at the foot of the intended railway bridge, extending on arches across Holland-street. This part of the line is at a very great height above the level of the street, in consequence of the viaduct having to cross that of the Charing-Cross Railway, at a height of 40 feet from the ground, in William-street. Blackfriars-road, near Rowland Hill's Chapel. The approach to the station for vehicles will be by an incline from the new street connecting Westminster and Southwark, near the spot now occupied by Miller's Surrey and Sussex Hotel. The property required by the company for the extension of the viaduct as the east side of the Blackfriars-road has been purchased, and the occupiers of the premises are under an agreement to remove immediately on being served with notice to that effect. The plant and engine of the Eagle Works, in Holland-street, have been sold.

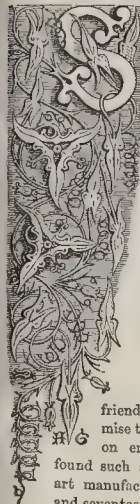
MASTERS AND MEN.—A correspondent suggests that the following extract from the Autobiography of Mrs. Fozz (vol. II.) may be usefully read at the present time—"Bath, 14th April, 1817. A gentleman who has large concern in the iron works of a neighbouring county called fifteen of his principal people together the other day, and told them he was no longer able to give them piece-work,—such is the phrase,—because his rents were so ill paid; but he would present them with a pound note each every Monday morning till they were to resume their old employment, as he wished might soon be the case for all their sakes. 'God bless your honour!' was the immediate reply, with thanks and expressions of (as we believe) sincere attachment. They said, however, that the bargain could not be formally acceded to till letters arrived from Manchester; but that they would wait on his honour the following Wednesday and settle matters. Wednesday came, and so did the fifteen workmen, but with altered countenances. Friends had taught them not to be bamboozled, was their word; so their employer might keep his money, and they would throw themselves upon the parish; a measure instantly adopted, to the distress of the parish. A poor triumph for their Manchester acquaintances."

EDINBURGH.—The Lord Provost of Edinburgh has received intimation that his Royal Highness the Prince Consort had consented to lay the foundation stones of the Industrial Museum and of the new General Post-office, at Edinburgh, on or about Wednesday, the 23rd of October, on the return of the Court from Balmoral. The Industrial Museum is from plans by Captain Fowke, and contracts have been entered into in the meantime for the construction of one-third of the contemplated building. The site is immediately behind the University, and will, when the whole plan is executed, cover the greater part of Argyll-square. The Post-office is from plans by Mr. Matheson, architect of the Board of Works at Edinburgh, and is to occupy the very important site at the foot of the North-bridge, recently cleared by the removal of the Theatre Royal and other buildings. The *Scotsman*, in an article on "a new field for the employment of women in Edinburgh," describes extensive India-rubber and vulcanite manufactories, the former already erected and at work, with about 400 young women employed, at wages ranging from 7*s*. to 12*s*. per week; and the latter in course of erection only, but virtually by the same company, though under another name. The vulcanite works will be an extensive brick erection, with a giant brick chimney-stalk. The highest portion of the building has reached its third story, while a lower portion has been roofed in, its floor laid down, and glazing finished. The main building is 150 feet long, 40 feet broad, and to the wall-head, 33 feet high. A roof of 11 feet in height raises the total elevation to 49 feet, and converts a three-story building into four. In the centre there will be a square clock-tower, partly tapered towards the top and rising to a height (including that of a weather vane) of 108 feet. On the west side, joining up to this, the main building, there is the engine house, 30 feet long; and beyond it, the polishing house, 85 feet long and 10 feet 6 inches in height surmounted by an overhanging roof. The total length of the building is thus 265 feet. The chimney-stalk will be 150 feet in height; and the whole, it is expected, will be completed in two months from this date. The whole is to be coated over and painted to resemble stone.

The Builder.

VOL. XIX.—No. 971.

A Morning in Lille, France.



WOULD any of our readers who have a taste for works of art and art-manufacture, chance to visit Lille, they should seek an introduction to the house of Mr. Gentil, in the Rue de l'Hôpital Militaire. Even in the courtyard there is something to be seen: an elaborately-carved porch, with twisted columns and Gothic panel work below, applied to the modern house; sculptures in marble; and an exquisitely wrought iron pump, attributed to Quintin Matsys, but undoubtedly something later in date. The dog-kennel is a piece of Gothic work, and the owner says his canine

friend respects it fully. The promise thus given is more than fulfilled on entering, for within there is found such a *ramassement* of articles of art manufacture, chiefly of the sixteenth and seventeenth centuries, as can scarcely be matched elsewhere in a private house; articles not used exceptionally here and there, as decorations and special curiosities, but actually filling the house, and made to perform daily duty. Take up the nearest thing that comes to hand in the first room you enter: it is a damascened inkstand, of the time of Louis XIV., with a gun-lock attached to it to get light for the sealing-wax; and next it is a work-box of the same period, with all its contents to the minutest particulars. Porcelain of Palissy and lacquered chinaware stand about. The fire-irons are elegant work of the seventeenth century, and Mr. Gentil has the same story to tell that collectors in this country can: how that first buying the poker and so forth, the broom of the identical set came to his hands from an entirely different quarter some years afterwards.

One room displays furniture wholly of the reign of Louis XV., with Gobelins and Beauvais tapestry marvellously fresh and bright. Illustration is carried as far as it can be. Open one of those round purses lying on the table, and which every one knows, if only from the pictures of the period: it contains a contemporary pack of cards, counters charmingly engraved, a little writing-case, and fine medals of the king. Even more remarkable than other rooms seems the little kitchen, wherein every article is of the same artistic character, gridirons, steelyards, jugs, dishes, and saucepans. The holes in the colander form the name of the original owner, and show the date, 1630: while of warming-pans there are half-a-dozen, more or less elegant and "cunning."

Going upstairs to what may be called the museum proper, or rather, the study, chairs, tables, floor, walls, are covered with pieces of iron-work, thousands of medals,—we use the word advisedly,—wood carvings, curious deeds, seals, and autographs. Unlocking one drawer for a key, and with that a cabinet, and then plunging his arm into a tangled heap of riches, Mr. Gentil, if you are in favour, brings out, as evidently one of his most treasured relics,—a diamond-mounted snuff-box, displaying a capital N., the gift of Buonaparte to his father, and containing a lock of the emperor's hair, cut after death at St. Helena. A more remarkable collection, in short, the gatherings

during fifty years, is seldom to be found; and we grieved to hear the obliging owner of it say, touching his head, when we asked if he had a descriptive catalogue of it,—“It is only here.”

Lille is further fortunate in having a museum of its own, including a large collection of pictures, bad and good, ancient and modern (some of the former being copies and some originals), disposed in commodious galleries. Some of the best of the modern pictures,—for example, a large painting by Hückert, “A Swedish Church,”—are the gift of the Emperor. The great boast, however, of the museum in Lille, is the Wicar collection of drawings by the early masters, including a remarkable set of small sketches by Francia, sketches by Giotto, Guido, Titian, Rembrandt, Raffaele, and Michelangelo. The collection ascribed to the last-named great artist, nearly 200 in number, is very extraordinary. It includes studies of architectural works of his own period (such as the buildings of Bramante), and studies from the works of the architects of the fourteenth and fifteenth centuries, especially Brunelleschi, for whom he professed the greatest admiration. There are also studies from the antique monuments, drawn with great care; and compositions of his own, set forth with great freedom of hand. The latter include a plan for the staircase of the library of San Lorenzo, Florence, concerning which there is some difference of opinion. It is known that Michelangelo designed this staircase when altering the building to fit it for a library, and that the works were stopped till 1555, remaining unfinished for thirty-two years. Vasari relates how that Michelangelo, being then applied to for his original design, or such suggestions as might enable those who were concerned to execute the staircase in the way he had proposed, replied that the drawings were lost, and that he remembered nothing about them.

He says in his letter on the occasion,—“*Mi torna ben alla mente come un sogno, una certa scala ma non credo che sia quella che pensai allora, perché mi torna cosa goffa.*”

In the same letter, however, he gave “Messer Giorgio” his recollections of the scheme. The book containing the sketch, now in the Wicar Museum, was lost during the siege of Florence. “We are persuaded,” say the directors of the museum, “that all the erroneous discussion that has long taken place as to this staircase results from the wrong interpretation which has been given to expressions in Michelangelo's letter. After a careful examination, the precious drawing that we possess, and which appears to have been unknown until the present time, seems to us to reveal the right disposition which this staircase should have in the place for which it was destined.”

Accompanying the drawings is a letter from Francis I. of France, to Michelangelo, seeking to purchase any good works of his hand that he could let him have. This is dated in February, 1516.

In the gallery containing the sketches there is a curious and instructive set of ten plans of Lille at different epochs, commencing with it as it was in the year 1000, and ending with it in 1793. These were made about the year 1828.

The museum is open to the public, free, on Sunday and Thursday in every week, besides fête days.

Wicar, in addition to his remarkable collections, left to his native town, by a deed dated the 28th of January, 1834, funds for the maintenance at Rome of three students, being inhabitants of Lille, in the classes of painting, sculpture, and architecture, respectively.

Besides what we have already mentioned, there is, in the same building, a collection of “curiosities,” so to speak, called the “Mollet Museum,” and an industrial museum, showing preparations and processes in the style of our Brompton collections. The industrial museum, we may say, contains some creditable specimens of stained glass by Mr. Gaudelet, the principal

artist in that material in the town, and by whom the new windows in the cathedral have been executed.

This building is now being restored under the direction of Mr. Caussier, the town architect. Some additions have been made at the south-east corner in very good Gothic. The Bourse, too,—an ornate building, erected in 1652,—is undergoing restoration.

The new church, for which it will be remembered designs were obtained in competition, English architects carrying off the chief premiums but not being employed, is making very slow progress. The crypt under the east end, vaulted with brick and stone groins, is used for service. The stone work above is carried up to some height, and the foundations of part of the nave are constructed very solidly. At present there is little of beauty apparent, though plenty of strength.

Lille much needs a sanitary board. The river Deule, which traverses the city, ought to be spelt *Deuil*, so black are its waters. The cellars of the houses almost wholly below ground and inhabited by a dense population, are a disgrace to a civilized community. This was pointed out some years ago by commissioners sent from Paris, but little improvement in this respect seems to have followed their report. Travellers into Belgium by the night train, who are forced to remain, as is now the case, two hours in the station at Lille, may detect one result of this and other unsanitary arrangements in the pungent and poisonous air which fills the waiting-rooms there. But for the out-of-door habits of the population, the death rate in some of the French towns would attain even more frightful proportions than it now exhibits.

ART AND PHILOSOPHY.

At the recent Antwerp Art-Congress, the third section had to consider and decide on the following questions:—

1st. What are the relations between philosophy and art?

2nd. Does not art exercise a certain influence upon the moral and intellectual development of nations?

3rd. What influence do we recognise as produced upon modern genius by contemporary art? Does not our epoch possess a new principle, which may give to the plastic arts a fresh direction and expression?

4th. If art, in expressing contemporary thought, ought to offer a symbol of it to all eyes, by what class of works can this end be best obtained?

Mr. Huard, in reporting the discussions to the general meeting, gave a fair idea of what was said. His remarks will assist us in conveying it to our readers.

It is no easy matter to treat with perspicacity such abstract ideas as those which the section had to consider; and this difficulty was increased owing to the various languages in which the ideas were promulgated, one half of the speeches having been delivered in German, Flemish, and in English; the remainder in French.

Touching the first question, what relation does philosophy bear to art? it is worthy of remark that no member of the section represented art to consist in pure and simple imitation of physical nature. All were agreed to recognize an intimate relation between the known facts of philosophy and the manifest actions of art.

Philosophy proceeds from human intelligence: art, equally, is derived from the intellectual domain, the human thought: that is the one common source from which philosophy and art alike receive their existence. True, great distinctions divide them: thus, philosophic science is abstract and general; art is individual, and to it a sensible form is a necessity. These are essential differences, which may not be safely overlooked; for if art strive to remain in generalities, and usurp the nature of philosophy, it subsides into empty and false idealism. But if it desire, on the other hand, to limit itself to sensible forms, it cannot escape materialism.

The relations between philosophy and art are so close, that to each school of philosophy there is a corresponding school of art. If beauty be to the philosopher merely an agreeable sensation, the artist need not in his works propose to himself any other end than to contribute to this sensual enjoyment, and art becomes materialistic. Let the

philosopher behold in the beautiful the splendour of truth, and art becomes spiritual: it will seek, by its works, to arouse in the soul that exquisite, delightful impression which accompanies the perception of moral beauty; so that one may apply to the arts equally well as to men that old French proverb,—"Tell me what philosophy you hold, and I will tell you what you are."

One member enunciated the idea that the artist ought not to belong to any school. He ought, it has been said, only to depend upon his own individual sentiment. If it be desired to imprison the artist in a sect of philosophy, art will break such fragile chains; and God forbid that the attempt succeed, for it would be to condemn him to immobility.

This thesis has met with contradictors. It is not right, it has been objected, to confound philosophy with the schools that claim to represent it. There is a great distinction between the artist enslaving himself to a course adopted by a school of philosophy, and following, without being aware of the fact, a philosophic idea,—dealing in philosophy, in a word, as Mr. Jourdain made prose, without being aware of it. For this latter case, the artist enjoys perfect liberty; and yet, at the same time, art rests upon its right foundation,—human thought.

This freedom for the artist of being subject only to his individual sentiment was generally allowed by the section.

Then arose the question, if the artist ought so far to follow his own individual feeling, might he not also release himself from every authority, even to that of religion? Immobility of art would be the consequence, it was said. This is an error. Christian art, for example, has given birth to schools widely differing,—the Byzantine school, the Umbrian school, the Flemish school, Raffaele, Rubens, &c.,—present to us, with the same acknowledged facts, expressions extremely varied.

A member made an effort to bring back the discussion to the question, the relations between philosophy and art. According to him, individual sentiment does not suffice to decide the point. Doubtless, the individual is free; but, to reach the public, the productions of the artist pass through his soul, and take their impress from it. What ideas animated that soul? It was not of importance to know if it belonged to the philosophy of Kant, or that of Mr. Cousin? No: the one thing needful to ascertain was, if that soul were truly great and noble; and the more grand, the more noble it was, so in proportion would be grand and noble the impress stamped upon its productions. With only liberty, a man cannot produce a picture: it is further necessary to know to the service of what thoughts, of what sentiments, this liberty is to be applied. Well, it is this that philosophy will point out; and the more she ennobles the soul, the more will she advance art.

Thus it is seen by the foregoing remarks that all members were agreed to admit that art does no more than translate into a sensible form the thought and the feelings of man. But so far, this thought and these sentiments merely appear as derived from efforts purely human. A member hereupon propounded the idea that Revelation (the Sacred Writings and the Prophets) could conduct to the same results as human science, the most sure and the most solidly acquired.

The conclusion to be drawn from this principle is, that Revelation ought to be a more sure and certain guide for the artist than philosophy.

To this it was replied, that this thesis would circumscribe the domain of art, since, excepting Jews and Christians, there were no artists capable of drawing from such a source.

Therefore, to sum up the spirit of the discussion upon the first question, art is inspired from thought, and is not a servile imitation of nature. Such was the unanimous opinion of the section. As regards thought itself, it ought not, in the opinion of the greater number, to be dictated by a school or a creed; it ought to be free and spontaneous.

Then as to the second question: does not art exercise a certain influence upon the moral and intellectual development of nations?

There was no hesitation in replying in the affirmative to this question. The influence of art, it was said, is good or bad according to the nature of the inspiration which animates the artist. But it cannot be denied, whatever may be the value of the work, whether the artist were conscious of the power he was about to exercise over his fellows, or that it was unknown to him, a sort of contagion will propagate the idea, or the sentiment, of which this work of art is the expression. Let us add, there is for thought no more universal means of

communication. In truth, art is endowed with the unique privilege of speaking in a language that is understood by all. Admiring the same objects, charmed with the same beauties, men unite in a common understanding; love of art is one of the most solid bases of human brotherhood.

Third question. What influence do we recognize as produced upon the modern genius by contemporary art? Does not our epoch possess a new principle, which may give to the plastic arts a fresh direction and expression?

A prefatory question was mooted,—Is there a modern genius?

No, replied a member, and in support of this assertion he remarked that there is no original contemporary art.

The section acknowledged some portion of truth in this opinion, and therefore substituted the phrase "tendency to modern genius," for "modern genius."

What is this tendency?

Some members thought that Realism was the truly characteristic tendency of our epoch. Photography, and still more the stereoscope, this was the last art-word of the day. Such was not the opinion of the section. Even as we have seen with regard to the first question, the supremacy of mind over matter was admitted by all the speakers. Art, individual in itself, proceeds in the individuality of idea and of sentiment, super-sensible elements, quite distinct from the objective quality that art applies itself to render.

We have said that to this point the section was unanimous in expressing itself according to this meaning. Nevertheless, the defence of Realism was undertaken by a member specially authorized to maintain this opinion. He made the characteristic of modern art to consist in the commerce of ideas.

To this was objected, with the assent of the assembly, that those of his works which had attracted the most notice, were precisely those wherein something more than pure and simple imitation of nature was evident.

The question took a higher ground. In glancing back to the history of the human race, one orator demonstrated that each epoch possessed its own distinctive and original character. He passed successively in review Greece, Rome, the Reformation, the French Revolution, and then asked if our epoch had a character, had tendencies, peculiar to itself.

Entering into this train of thought, it was submitted, that that which characterizes the present age is, the sovereignty of the people; or, to speak more correctly, the more enlightened, more developed sentiment, the dignity of humanity.

But is there nothing superior to man, which may furnish the artist with a true and abundant inspiration? Should not art seek its inspiration in a domain superior to that of human nature: that is to say, in the infinite, in the Deity? Always, be it understood, with perfect independence of thought.

Another speaker maintained that the tendencies of modern thought were in nowise materialistic; he set himself in particular to show the fearful and degrading consequences that these tendencies would entail, in an artistic point of view, if they were to be exalted into doctrine, and adopted generally. He strikingly contrasted the artist inspired with the pure single love of his art, making of this art a religion, with him who, deserting his true mission, seeks in his art only the means of flattering the caprice or passion of the day; or degrades it to the worship of the golden calf.

What, now, is the best method of expressing modern thought? This is the fourth and last question.

The section having admitted generally that the characteristic tendency of our epoch is, above all, to popularize art, and to spread its salutary influence among the most numerous classes, the method which appears likely best to realize these tendencies seems to be mural painting, which places the work of the artist before the eyes of all, and withdraws himself from influences entirely individual and evanescent.

One member, it is true, objected that if mural painting detached the artist from private influence, it delivered him up all the more completely either to the influence of public authorities, or to that of powerful corporate bodies. We may ask if the publicity of these grand productions is not a sufficient guarantee both for the moral liberty of the artist and for the elevated character of his work?

An ideal is a necessity; every one has acknowledged this. Where is it to be found? The thought of Deity alone can give it a real character.

It may be said, in summing up, that, in the opinion of the section, that which most characterizes modern genius, and, consequently, which best indicates to art the direction it ought to follow, is the sentiment peculiar to our epoch of respect for the liberty of man, and the consciousness of his dignity.

The Abbé Brauwers, of Holland, delivered a discourse at the meeting in connection with this subject, which produced a very stirring effect. Mr. Brauwers said: When I came to this Congress I was overpowered by the genius of others. I was delighted to meet here those whose works I had admired; I bowed my head before these great authorities, and I had no thought of becoming myself a speaker. I ask your pardon for now allowing myself to be guided by a different feeling; but I long to refute the assertion that an artist ought not to belong to any school of philosophy. There are two things to be distinguished: belonging to a systematic philosophy, and being really a philosopher. Every artist is a philosopher; it is degrading him to wish to make him otherwise. And this is the reason: man addresses himself to men, to reasoning beings. If he has no consciousness of what he does, he no longer acts as a man. The artist naturally asks himself, before painting a picture: "What am I about to do?—why am I going to do it?—what means am I about to employ to accomplish it?" To ask oneself this is to philosophize. The man who does not think at all as he takes up his pencil, what does he produce? It is like the fable of the ape exhibiting the magic lantern. It is in vain that he says to the bystanders, "Behold!" Every one exclaims, "I see nothing." The most that can be said of his work by some good-natured friend is, "I see something certainly, but I cannot distinguish what it is." It becomes, therefore, necessary for the artist to choose some end worthy of man as a domestic and social being; possessed of a mortal body and an immortal soul; of a body which must be subservient to the soul, as the pencil to the hand of the painter, as the tongue to the orator, as the instrument to the musician. This is what philosophy must accomplish. In the next place must be considered the means most conducive to this end. Herein lies the task good taste has to perform, the good taste which ought to be president of every organized commission as to a work of art. The plan of the artist once decided upon, the fine arts are called in to execute it, and to give to the idea a sensible form. Philosophy constructs the skeleton; the fine arts string together the nerves, cover them with flesh, and crown the whole with youth and beauty. Philosophy is the general; the fine arts are the valiant legions which fight under his orders. Art can do nothing without philosophy. To separate it from art is to tear the wings from the eagle, to strike out the eye of the lion, to wrench away the heart from the beautiful. Every man who earnestly desires to contemplate Truth, will feel rays of light descend around him; his heart will throb with an ardour that will incite him to work, and thus communicate to others the splendid vision he has beheld. It is by the aid of philosophy alone that the artist can captivate souls with beauty. If he do not succeed in attaining the ideal, from the moment that he cuts into the block with the chisel of philosophy, each splinter that he strikes off will be a star to illumine the world. If he has thought well before acting,—if he has called philosophy to his aid, he will have but to caress the marble, and the statue will arise, animated, beneath his fingers,—the canvas will breathe under his pencil. For the poet, his task is less difficult. To conquer senseless matter, command the block of stone: this is the triumph of reason. Language, not being a tangible body, the poet has at his disposal all means afforded by the other arts. He has the colours of the painter; his thoughts will arrange themselves in some sort like to statues; and he will have the resources of the musician, thanks to the harmony of language.

Mention has been made of Milton: allow me to do honour to another poet, a son of the city towards which I felt myself impelled, in spite of myself. You will see that truth is not quite used up. The ideal counts more than one heaven: those who have arrived at the third need not fear being infinite. March! march! Forward! In these spheres one is never content: the ideal seems ever above us. And this is the reason why the best artist is ever the least satisfied with his work. The ideal to which he continually approaches nearer and nearer forces him to reconsider what he has accomplished. It is something like it, he thinks, but it is not it. He hopes to do better, and never ceases; because, in proportion as he

works, the horizon of his thought recedes towards the infinite.

Philosophy and the fine arts are united by hands so sacred that it is criminal to wish to break them. To separate philosophy from art would be a divorce such as we ought never to have in our day. Philosophy is the master, the king; and art is the sweet queen, all beauty, fascination, and grace. It is to degrade the artist to treat him as a deserter from philosophy. There has been some talk about individuality. But we remain always individual; and even in the bosom of God we are ourselves individually distinct from that which surrounds us. No doctrine can suppress the individuality of genius. I do not speak of the copyist; he is not an artist; he is nothing. There has also been talk about liberty; but I understood nought of what was said. Is there one being who does not bow the head before the majesty of genius; who is not willing to bend the knee before heavenly beauty? Let us pause and marvel at him. Who would dare, in the face of a great work of genius, to exalt his own personality, and to exclaim, "I am all; thou art nothing;" and to throw dirt upon celebrities, instead of crowning them with laurel? If it were the modern artist no one would second him.

Every one admits the influence of art, of truth, and of virtue. Every artist is pervaded with the consciousness of his mission; he knows that he should exercise an influence on his age. The great question to be decided is, will that influence be good or bad? The artist may choose between the two: either to be the benefactor of man, domestic and social, or to be his tyrant; to be the prophet of God or a hypocrite amongst men. The choice rests with himself.

It seems to me the question is resolved from the moment in which you admit that the fine arts ought to exercise an influence on the elevation of the ideas and sentiments of nations. It is evidently necessary that the artist should attract the attention of the people by grand thoughts, to the end that in contemplating his work every one should come under the influence of his idea. Each artistic work may be perhaps but one drop; but these drops shall wear away the stone, and render the ideas appreciable. It is impossible to bind the artist who feels his soul soaring towards God; it is vain to hope to bring him down, to bend him towards earth; to sever him from the angelic ranks towards which he is rising, and force him to take a lower flight, or to grovel in the dust. Our feet must needs tread these stony paths, for we are condemned to exile; but the face of man should ever be raised heavenward. Just now I struck upon a sensitive note. Milton was a great genius; and yet I dare to assert, that all the genius of Milton is due to a son of Antwerp, to whom Holland, France, and Belgium are now raising monuments—to Vondel. All the subjects of "Paradise Lost" or "Paradise Regained," of "Samson" were treated by Vondel twenty-five years before Milton; and not only did Milton borrow the subjects, but he has adopted the developments, and has translated entire verses. It has been remarked that Milton's weakest poems are those in which he has not imitated Vondel. I reclaim for our country, and for Antwerp, this shining glory. You see that Christian genius has had the same ideas at different periods. But honour has not always been rendered to this great man: I trust the day will come.

This discourse was most admirably delivered, and seemed to carry the audience with it. They declined to listen to some proofs in the shape of parallel passages, which the abbé offered in support of his charge against Milton, but, with that exception, received every paragraph with the most energetic, and we will add, with well-deserved applause.

STRIKES.

At the recent meeting of the British Association, elsewhere mentioned, Mr. J. Watts, Ph. D., read the following paper "On Strikes:"—

Among the most serious evils to be encountered in the operations of trade are strikes by organized bodies or workmen. Since the repeal of the laws against combinations of workmen "trade societies" have sprung up in almost every considerable branch of employment,—associations, the principal object of which is "the protection of wages." These societies are co-extensive with the trades which they represent; being composed of federated branches, united by representation in central committees. Some of these societies are not strictly confined to the United Kingdom; for the hand engravers have members in North America, and the Amalgamated Engineers have members in every part of the civilized world. In

some of these societies piecework alone—i.e., work at so much per yard or per piece of a given number of yards, or so much for a given job—is recognized as the proper mode of payment: in others piecework and daywork are both allowed; and in others, again, daywork alone is recognized; but in all there are rules, expressed or understood, to control the rates of wages, which are alike for the inferior and the superior workman. In most societies apprenticeship to the trade is held to be an indispensable preliminary to admission, and the number of apprentices to be allowed to any employer to a given number of men is defined; while in other societies (the cotton trade, to wit), the system of apprenticeship is held to be injurious, and is sometimes denounced as a tyranny. The societies enforce their rules upon members by fines and expulsion, while the rod held over the employer is the probability of a strike. That strikes are great evils is universally allowed. Some persons affirm that they are unmitigated evils: some think that, however mischievous, they are not preventible; while others affirm that they are necessary, as preventing even greater calamities. If I can at all aid in discovering which of these theories is the true one, or if any of them be true, my purpose will be answered. I suspect there are but few men who would think of re-enacting the laws against combinations; for, whatever be the evils of freedom, those of secret societies, endless prosecutions, and schemes of revenge, which would certainly follow any such enactment, would be much worse; and we are therefore left to reason alone as our court of appeal, whatever may be our conclusions; and if we find that we are at present experiencing the danger of a "little learning" in trade affairs by workmen; the cure, as I believe, is not to be found in the backward path, but in the progress to higher knowledge; and we must not forget that our present position, as compared with twenty years ago, shows a very satisfactory improvement in the conduct of the working classes generally.

Economic science rules that the price of labour, like that of any other commodity, will be regulated by the supply of, compared with the demand for; it, and working men practically acknowledge the truth of the theory even while fighting against it; for they withdraw labour from the market; thus making it artificially scarce, in order to keep up its price. But such an operation, even if successful, is shortsighted: the operatives forget that all increase to the future wages fund comes out of the profits of the employer and the invested savings of the workman; and that to arbitrarily prevent the production of wealth, or to wastefully consume the savings of past years, is just as injurious to society, and as certainly lessens the future demand for workmen, as if the employer's workshops and plant had been burnt, or his wealth cast into the sea. Like produces its like: wealth begets wealth; but the seed wealth can only fructify by passing through the soil of labour; and, as the increase of an industrious population increases the price of land by increasing the customers for its produce; so will the increase of wealth generally increase the price of labour by increasing the demand for labourers. If I save money I do not lock it up in a box, but invest it, in order to make a profit; but where shall I find an investment which does not employ labour? If I go into Consols, into bank or railway shares, I release another man's money; and, however often this transaction be repeated, the ultimate result will be the release of some one's money from productive employment. The connection between the employer and his workpeople ought to be very intimate; for, unless the workman has the confidence of his employer or manager, he cannot expect to retain his situation for any long time; and, to enable him to deserve such confidence, he must work with a will, which can only arise from satisfaction with his remuneration and his treatment. The best of friends occasionally disagree, and each conscientiously believes the other to be in the wrong; and it is hardly likely that members of societies which, as at present constituted, infringe upon individual liberty, will avoid disputes with the sufferers from their restrictive rules; and, accordingly, we can scarcely lift a newspaper without finding (by advertisements for workmen, and counter advertisements advising workmen not to engage) that disputes and strikes are of very frequent not to say of constant occurrence.

The main object of trade societies is to keep up wages; and I am not prepared to assert that they do not in some cases succeed; especially where, by limiting the number of apprentices, they keep the trade in few hands. But I wish to inquire if strikes be a necessary condition to that success; or if, on the contrary, any possible success achieved by such

process could not equally be arrived at by less objectionable means; and if it be not possible to arrange trade disputes without resort to this fearful sword of strikes. The main causes of strikes have been threefold:—the desire to limit a trade, the introduction of new machinery, and dissatisfaction with the rate of wages paid. Sometimes the strike is against the use of the new machine, and sometimes against the arrangements rendered necessary by its introduction. A Liverpool shipbuilder, in 1859, got the copper for a ship's bottom punched by machinery ready for nailing on; but his workmen struck, and obliged him to set the hand punchers to work to go over the job as if it was not already done, and to pay them for the sham. The stay stitchers of Kettering struck against the employment of the sewing machine; and so strong was the sympathy of "trade societies," that subscriptions were sent in aid of the strike from the very machine shop which supplied the obnoxious articles. It seems to be very difficult for working men to get rid of the idea that improved machinery will lessen the demand for labour, although both theory and practice prove the contrary. It is quite certain that, for a new machine to get adopted, it must make a profit to its owner over and above that of the machine which it supersedes; and that increase of profit increases the future wages fund, and, consequently the demand for labourers. And it is equally certain that the increased demand for labour, the increase of population and of material wealth, have been most rapid where machinery has achieved the greatest perfection,—viz. in the cotton trade of Lancashire. The duration of a strike varies very much. The great Preston strike lasted thirty-eight weeks; the one at Padiham twenty-nine weeks; Bolton six weeks; Ashton and district six weeks; Clithero six weeks; Blackburn three weeks. The strike of the London builders lasted twenty-six weeks, and the late Colne strike fifty weeks. Let us assume five per cent. as the average amount in dispute; and assume that the strike is in every case successful; and we shall then find that the adage which is applied to disputants at law,—that "he who wins loses,"—is equally applicable here. A week is nearly two per cent. of a working year, and of course represents nearly two per cent. of the wages of a year. If, therefore, a strike for five per cent. succeeds, its results will be exhibited in the following table:—

The loss of 1 month's wages will require to make it up . . .	Years of Work at the Extra Rate.	
	1	3-5ths
" 2 months' wages " "	2	1-5th
" 3 months' wages " "	3	4-5ths
" 6 months' wages " "	6	3-5ths
" 12 months' wages " "	12	1-5th
" 12½ months' wages " "	25	

But, as money is worth 5 per cent. at interest, it follows that if a strike for 5 per cent. lasts 12½ months, and then succeeds, and maintains the increase for 20 years, the workman has lost in interest much more than he gained in wages; and that, therefore, no part of the loss can ever be made up; for if he could have worked for the lower sum during the year of strike, and have invested instead of spending the money, the year's wages would have grown into three years' wages nearly by the time in which the gain of the strike would make up for the loss of a single year. Of course, a strike for 10 per cent. would require only half the above term to make up the loss, while a strike for 2½ per cent. would require double the time exhibited in the table, or 41 years. The strike of the London builders in 1859 was for 10 per cent.; and, as it lasted 26 weeks, would, if successful, have required 10-2-5ths years of continuous work at the extra rate to make up the loss of wages sacrificed. The amount in dispute between the weavers of Colne and their employers did not average more than 3½ per cent.; and had the strike been successful, would have required more than 28 years' continuous employment at the advance to make up the amount of wages lost; by which time the lost wages would, at 5 per cent., have quadrupled. In the cotton trade wages appear to undergo something like a general adjustment every three or four years, in consequence principally of defective or abundant harvests of corn or cotton, or both. Such adjustments occurred in 1854, in 1857, and in 1860. If, therefore, the strikes which occur were spread equally over these periods, they would, even if successful, only affect the rate of wages for about two years upon an average, and therefore could not make up for more than about five weeks' loss of wages by strike. But strikes are seldom successful to the workmen; so that, while they sacrifice the wages of the present time, they also lessen the wealth of the world, and so lessen the future demand for labour, and put further off the day when any advance of

wages will be possible. Here is a list of a few unsuccessful strikes, with a rough estimate of the losses consequent thereon. Some of these were among spinners, and some among weavers; and, learning that about 45% in weaving and 80% in spinning will represent the capital per hand engaged, I have assumed, for the purposes of my calculations, 65% as the general average:—

Name of Town.	Number of Hands.	Males.	Females.	Amount of Wages.	Profit at 12 per cent. Capital.	Subscrip- tion to wages.	Total loss.
Preston	15,000	15,000	—	£127,500	£9,375	£100,000	£100,000
Blackburn	3,000	3,000	—	£15,000	£1,125	£10,000	£10,000
Chelmsford	3,000	3,000	—	£15,000	£1,125	£10,000	£10,000
Blackburn and district	40,000	40,000	—	£200,000	£15,000	£180,000	£180,000
Blackburn	25,000	25,000	—	£125,000	£9,375	£110,000	£110,000
Blackburn	12,000	12,000	—	£60,000	£4,500	£50,000	£50,000
London Builders	10,000	10,000	—	£75,000	£5,625	£60,000	£60,000
				£757,500	£57,500	£680,000	£680,000
				£1,087,500	£82,500	£925,000	£925,000

The associated colliers have, upon their own showing, spent about a quarter of a million since 1842; and the amalgamated engineers threw away nearly half a million in 1852. According to our assumption of capital of 65% per individual, the amount thus lost would have given employment and wages to 17,184 persons; and, if every second person was the head of a family, they would represent 42,950 individuals whose bread is thus wasted in perpetuity. And all the above-named, except the Preston strike, have occurred within the last two or two and a half years, and all have ended unsuccessfully; so that there has been no compensation whatever. I am aware that I may be thought wrong to try to treat these great problems so exclusively by a money estimate; but let me explain that money is simply a convenient expression for the necessities and comforts of life, which represent life itself, with all its feelings, all its hopes, all its aspirations. If I could see that these great sacrifices were necessary in order to secure a proper position for the working man, they would excite my highest admiration; but I cannot see the desirability of restricting any man, or any number of men, from placing their sons in the best paid trades if they can find employers who are willing to take them; nor do I see the desirability of a society dictating what amount of wages an employer shall pay to any individual. But if a trades' society, in addition to operating as a benefit society in cases of sickness and death, should also become a simple trade agency where information might be obtained every day of the state of employment and the amount of wages in every locality where the same trade obtains, and should also assist to remove workmen into the best markets; or, in case no better could be found, to advise them to remain there; most of the strikes for wages would be prevented, while all the results of a successful strike would be achieved without its expense and loss. The exceptions would be where, as at Colne, a strike occurs from misunderstanding or misrepresentation as to the wages paid elsewhere. This strike occurred during a very prosperous trade, when labour was so scarce that every hand employed at Colne might readily have got work elsewhere. But the hands refused to go, because those who did leave soon found that they could do better at home. This class of cases would furnish useful work for an arbitration court. But the constitution of such a court seems to have been a great difficulty, if we may judge from the Parliamentary discussions on the Masters and Operatives Bill. I would throw out the hint for consideration that such a court should be honorary; each party to the dispute naming an equal number of jurymen; the County Court judge for the district being appointed umpire; and from this court I think it

would be desirable to exclude lawyers. The parties would be evenly balanced: the umpire would be perfectly disinterested; and legal expenses would be avoided. These two modes of avoiding strikes could be put in operation, the one by trade societies themselves, the other by the sanction of the Legislature; but there is a third plan now coming rapidly into operation, which will severely test the capacities of the working classes, and prove whether or not the opinions expressed of them lately in Parliament be well or ill-founded. I allude to the rise of co-operative societies and manufacturing companies with limited liability. I have no doubt that companies and friendly societies for manufacturing purposes, covering a nominal capital of two millions sterling, have been registered.

To resume, therefore, I conclude that a strike to restrict a trade, either by limiting the number of apprentices, or preventing the employment of efficient workmen who have not been apprenticed, being an invasion of individual liberty, ought not to succeed;—that the more rigidly such restrictive rules are enforced the sooner will they be destroyed. Strikes against improved machinery are attempts to stay the progress of human intellect and of civilization; they originate in ignorance of the tendency of such improvements; the displacement of labourers caused by new machinery being an occurrence to be provided against by well-regulated trade societies in the form of temporary relief until the labourers can be replaced or otherwise provided for. But strikes against new machinery can never permanently succeed; and all money thus spent is therefore entirely thrown away;—that when trade is in such a position as to render a union of employers for a reduction or against a rise of wages possible, a strike cannot possibly succeed; for, as long as there is machinery standing, if a fair profit be possible, hands will be sought for that machinery, at a rise of wages if necessary, in order to secure the profit;—that whenever it is possible for a local strike to succeed, it must be either because wages in that locality are below the average, or because the demand for hands being general the local employers give way rather than lose their workpeople;—that in all such cases trade societies, by operating as trade agencies, and assisting in the gradual removal of hands to places already secured for them, would achieve an equal success without a struggle, without wasting a week's wages, and without a thousandth part of the ill-feeling which is consequent upon a strike;—that strikes are therefore either wholly injurious, or an entire waste of effort to an extent of not less than a million sterling per annum, or the bread of 38,460; each, with the addition of 4,000 or 5,000 who would have been called into employment by the profits in strikes;—that a court of arbitration would be able to deal with local misunderstanding and misrepresentations, and would heal many differences before they came to an open rupture;—and that co-operative societies, whether they succeed or fail, will find employment for much talent hitherto misdirected, and will teach lessons of wisdom and prudence which will render such a foolish waste of capital as that lost in and spent upon a strike for wages almost impossible.

DIDEROT'S ESSAY UPON PAINTING AND ARCHITECTURE.*

CHAPTER V. (continued).

EXPRESSION demands a strong imagination—a fancy all on fire, the art of conjuring up phantoms, of animating, of amplifying them. Disposition, in poetry as in painting, supposes a certain temperament of judgment and fancy, of passion and sagacity, of intoxication and self-possession, of which Nature offers us few examples. Without this exact balance the artist becomes extravagant or frigid, as reason or enthusiasm happens to predominate. The principal idea, well conceived, should exercise a despotism over all others. It is the motive power of the machine which, like that retaining the heavenly bodies in their places and impelling them, acts in the inverse ratio of the distance.

Does the artist wish to know that there remains nothing that is uncertain or equivocal on his canvas? Let him invite two well-informed men to describe to him separately and in detail all the composition. I hardly know a modern composition which would resist this test. Out of five or six figures there would hardly remain two or three which the brush would not pass over. It is not enough that you intended this figure to do this thing and that another: what is necessary is that

your idea be just and consistent, and that you render it so clearly that there can be no mistake made about it, neither by me nor by others, neither by those now present, nor by those who are to follow.

In most of our pictures there is a feebleness of conception, a poverty of idea, which defies our receiving from them any violent impression, or profound sensation. We look: we turn away our head, and we forget all we have seen. No image takes possession of you, and follows you wherever you go. I venture to propose to the more intrepid of our artists, to frighten us as much by their pencil as the gazetteer does by his simple narrative of the crowd of dying Englishmen, stifled in the black-hole of Calcutta. And really of what use is your grinding your colours, your flourishing your brushes, and your exhausting all the resources of the art, if you impress me less than a newspaper? It is because you are without imagination,—vividness of fancy. It is because you cannot reach any grand or striking conception.

The larger a composition, the more studies after nature will it require. But where is the painter who will have the patience to finish it? Who is there to give its value when finished? Recall the works of the great masters, and you will remark in a hundred places the indigence of the artist alongside his ability: among a few things true to nature, an infinity of things done by mere routine. The latter wound us all the more that they are by the side of the others;—falsehood made less supportable by the presence of truth. Ah! if a sacrifice, a battle, a triumph, a public scene could be given with equal truth, throughout all its details, as some domestic scene by Greuse or Chardin!

It is especially in this point of view, that the work of the historical painter is infinitely more difficult than that of the painter *de genre*. There is an infinity of pictures *de genre*, which defy our criticism. What picture of a battle would bear the examination of the King of Prussia? The painter *de genre*, has his scene perpetually under his eyes: the historical painter has never seen his, or seen it but for an instant. And then, one is a pure and simple copyist of common-place nature; the other, so to say, is the creator of an ideal and poetic nature. He walks in a path difficult to keep. On one side he falls into the mean; on the other, into the extravagant. We may say of one, *multa ex industria, pauca ex animo*; of the other, on the contrary, *pauca ex industria, plurima ex animo*.

The immensity of the work makes an historical painter negligent in his details. Which of our painters troubles himself about the feet or hands? He looks, he will tell you, to the general effect, and these trifles in reference to it are as nothing. This was not the opinion of Paul Veronese; but it is his. Nearly all our grand compositions are sketches. Yet the hands and feet of the soldier in his barrack-room, as he plays at cards, are the same with which he marches to the battle-field and strikes in the encounter.

What shall I say as to costume? It would shock us to have it braved beyond a certain point; but a more common fault is the pendency of being rigidly its slave. Naked figures in an age, among a people and in the midst of a scene where it is customary to be clothed, do not annoy us. Why? Because flesh is more beautiful than the most beautiful drapery; because a man's body, his breast, arms, shoulders,—because the feet, hands, and breast of a woman are more beautiful than all the finest stuffs with which they can be covered; because, too, there the execution demands more skill, because *major è longævo est reverentia*; and in preferring the nude we remove the scene, we recall a simpler and more innocent age, ruder manners, and more in keeping with the imitative arts; because we are dissatisfied with the present time, and the return to the life of an ancient period is agreeable; because, if savage nations civilize slowly, it is not the same of individuals; for we see many men divest themselves of clothing and become savages, but rarely savages taking up our own and becoming civilized; because the naked figures in a composition are like a forest or part of the country brought round our city habitations.

Græca res est nihil velare. This was the law of the Greeks, our masters in all the fine arts. But if we permit our artists to be disengaged from contemporary dress, let us not be so barbarous as to enslave him to some ridiculous Gothic costume. The eyes of good taste are not those of the salaried gentlemen of the "Académie des Inscriptions." Bouchardon has dressed Louis XV. à la Romaine, and he has done well. But let us

* See Page 606, ante.

not, therefore, make a precept out of a license. *Idemita sumpta prudenter*. Ah! how ignorant are some of these people, and how little measure they can maintain! If you give them their head, I should hardly despair of seeing them place a plume on the head of a Roman soldier.

I can hardly conceive any law as to the manner of dressing figures. It is a thing entirely of poetry as regards invention, and of the utmost rigor as regards execution. Let us have no little plumes creased one upon another. He who has thrown a piece of stuff on a man's outstretched arm, made the arm turn back on itself, and sees the muscles lately so prominent disappear, and the muscles lately invisible become again prominent, the stuff meanwhile drawing each of the movements, will take his lay-figure and throw it into the fire. I detect seeing the *écrouché* under the skin, but it is impossible to show me too much of the nude under the drapery.

A great deal of good and ill has been said about the drapery of the ancients. My idea—which here is of no value—is that it extends the light of the large masses by the opposition of shadows, and of the light, from the little, long, and narrow masses. Another mode of drapery, but chiefly in sculpture, opposes large lights to large lights, destroying the effects of the one by the other.

It seems to me there are as many kinds of painting as of poetry, but the division is superfluous. Portrait painting and the sculpture of busts ought to be in honour among a republican people, where it is proper to keep the people's eyes unceasingly on the defenders of their rights and liberties. In a monarchical state it is quite another business. There we have but one God, and the King.

Yet if it be true that no art can exist except by the principle which first called it into existence—medicine by empiricism, painting by portraits, sculpture by busts—our present contempt for both busts and portraits symptomatizes the decay of the two arts. There have been no great painters who could not paint portraits; examples: Raffaele, Rubens, Le Sueur, Vandike. There have been no great sculptors who could not carve busts. Every pupil commences just as the art itself commenced. Pierre said on one occasion, "Do you know why we historical painters paint no portraits? Because they are too difficult."

Historical painters, and painters *de genre*, do not bluntly own the contempt they reciprocally feel for each other; but we can divine it. The first regard the latter as narrow-minded, without ideas, without poetry, without grandeur, without elevation, without genius, who live on in a vile slavery to nature, which they dare not lose sight of for a moment,—poor imitators, whom they would identify with the Gobelins' artist, singling out his skeins of wool one after another to form the precise shade he is in search of for the historical picture of the sublime man who is standing behind his back. To hear the enemy, they are not people dealing with little mean subjects, with little domestic scenes taken from the corners of streets, to whom we can give no credit beyond the mechanical part of the art, and who are no bodies when they have carried their success to the highest point. The painter *de genre*, on his side, looks on historical painting as a romantic kind of *genre* painting, where there is neither truth, nor *vraisemblance*: where everything is extravagant, which has nothing in common with nature; where falsehood manifests itself in the exaggeration of the characters which never had existence, in the incidents which are wholly imaginary, in the entire subject, which the artist has never seen except in his own excited brain; in the details, which he has borrowed, Heaven knows where; in the style, which is called grand and sublime, and which has no model in nature; and in the actions and movements of the figures, so remote from real life and movement. You see, my friend, that this is the old quarrel between prose and poetry, between history and the epic poem, between high tragedy and the domestic drama, between the domestic drama and lively comedy.

I think the division of painting into painting *de genre* and historical painting sensible, but I could wish that in this division they had consulted the nature of things a little more. We call painters *de genre* both those who paint fruit, flowers, animals, wood, forests, mountains, and these, the conversation painters, who take their scenes from common and domestic life. Teniers, Wouvermans, Greuse, Chardin, Louthenberg, even Vernet, are painters *de genre*. I must insist, however, that "The Father who Reads to his Family," that "The Ungrateful Son," that "The Nuptials" of Greuse, that the marine views of Vernet, which

offer me all sorts of incidents and scenes, are for me as much historical pictures as "The Seven Sacraments" of Poussin, "The Family of Darius" of Le Brun, or the "Susannah" of Vanloo.

Let us examine the matter. Nature has diversified existing things into cold, inert, lifeless beings, without thought or feeling, and into beings which live, think, and feel. The line has been drawn from all eternity. Now, if we called the copyists of dead nature painters *de genre*, and the painters of sensible living nature historical painters, there would have been an end of the quarrel.

But leaving to words their wonted acceptance, I see that painting *de genre* has nearly all the difficulties of historical painting;—that it requires as much mind, imagination, even poetry—an equal knowledge of drawing, of perspective, of colour, of shades, of light, of characters, of passions, of expressions, of draperies, of composition, a stricter imitation of nature, more highly finished details; and that, as it shows us objects better known and more familiar, it has both more judges and better judges.

Is Homer less a poet, when he places the frogs in battle order on the banks of a marsh, than when he reddens the Sinois and the Xanthus with blood, and fills their channels with corpses. The difference is, that here the objects are greater, the scenes more terrible. Who is there who cannot see himself in Molière? But if we resuscitated the heroes of our tragedies, they would have infinite difficulty in recognizing themselves upon our stage: and if brought before our historical pictures, Brutus, Catiline, Cæsar, Augustus, Cato, would infallibly ask who these people were? Now, what does this mean, except that historical painting requires more elevation, more imagination perhaps, a stranger kind of poetry; that painting *de genre* requires more truth, and that even when reduced to a basket or vase of flowers, could not be practised without all the resources of art and some sparkles of genius, if they whose apartments are decorated by it had as much taste as money.

Wherefore cover this buffet with our tasteless kitchen utensils? Is it that these flowers will be more brilliant in a vase manufactured at Nevers than in one of better form? And why may I not see round this vase a dance of children, the joys of the vintage, a bacchanalian dance? Why, if the vase has handles, shall they not be formed of two serpents interlaced? Why shall the tails of these serpents not circumscribe towards the bottom of the vessel? And why may not their heads rest on the upper rim, and appear to seek water to assuage their thirst? But we must know how to animate dead things; and the number even of those who know how to preserve life in the beings which have received it are easily counted.

One word more before finishing our portrait-painters and sculptors.

A portrait may have a sad, dark, melancholy, serene air, because these conditions are permanent, but a laughing portrait is without nobleness, without character, often even without truth, and consequently a folly. The laugh is temporary: we laugh on occasions; but we are not laughers by rule.

I cannot help thinking that, in sculpture, the figure which does well what it does, may not do well what it does, and consequently not be beautiful on all sides. To wish it equally well on all sides is a folly. To seek among its members merely technical opposition, to sacrifice the rigorous truth of its action, this is the origin of the little antithetical style. Every scene has an aspect, a point of view more interesting than any other: it is thence we ought to see it. To sacrifice to this aspect, to this point of view, all the subordinate aspects or points of view, is our best course.

Where find a simpler or more beautiful group than that of the Laocoon and his children, that group so common-place if you look at it from the left, from the place where the father's head is scarcely visible, and where one of the children is thrown upon another? Yet the Laocoon is, up to our time, the most beautiful piece of known sculpture.*

DESTITUTE BOYS AND INDUSTRIAL SCHOOLS.

ALTHOUGH the last session of Parliament has not been remarkable for any very startling or extensive enactments, there have been several measures passed which will effect a great amount of good amongst various classes of the population. The New Post-office Savings' Banks Act, to which we especially refer, is one of these, and the Act respecting industrial schools will, we hope, be the means

of preventing the disgrace, to which we have often directed attention, of finding boys entirely destitute, in starvation and rags, without a chance of livelihood, except in a career of wickedness. There have for some time past been industrial schools to which, when approved by an authorized inspector, a certain sum was granted by the Government, but there were many difficulties in the way; and now it has been determined to send to an industrial school any child under the age of fourteen years found begging or receiving alms; any child, apparently under the age of fourteen years, that is found wandering, and not having any home or settled place of abode, or any visible means of subsistence, or frequents the company of reputed thieves; any child, apparently under twelve years of age, who having committed an offence punishable by imprisonment, or some less punishment, ought, nevertheless, in the opinion of the justices,—regard being had to his age, and the circumstances of the case,—to be sent to an industrial school; any child under the age of fourteen years, whose parent represents that he is unable to control him, and that he desires such child to be sent to an industrial school in pursuance of this Act, and who gives such undertaking or other security as may be approved by the justices before whom he is brought, in pursuance of this Act, to pay all the expense incurred by the maintenance of such child at school, provided that no child has been previously convicted of theft.

Such are the general arrangements of the new Act, which, if vigorously carried out, will nip in the bud a great amount of crime, not only in the large towns, but also in the rural districts.

There are other good provisions. For instance, the magistrate is instructed to find, if possible, schools which are conducted in accordance with the religious opinions of the parents: the period for which the child is to be detained is to be decided by the justices, except that no child can be detained against his consent after he has attained the age of fifteen. The managers of the school may, in certain instances, permit the child to lodge with the parent or some trustworthy person, provided that they, the managers, educate, feed, and clothe him.

The justices sending a child to school, or those where the school is situate, or in which the parents reside, may, upon the application of a person appointed by the Home Secretary, make an order upon the parent for a sum of not exceeding 5s. a week for the expenses of the child's maintenance at school, and the justices may from time to time vary the order whenever circumstances require it. There are penalties for persons encouraging children to abscond, and there are other provisions as to the mode of recovering penalties.

This new law puts it into the power of the police to prevent for the future much of the mischief which those who have watched the social conditions of the metropolis have seen with pain.

GRINLING GIBBONS AND THE RITSONS AT PETWORTH.

DR. TURNER, in a paper on the Antiquities of Petworth, which was to have been read at the last meeting of the Sussex Archaeological Society, but was postponed, gives some particulars of the carvers who were employed there.

The most striking feature in this house, says the writer, is the room on the walls of which are profusely displayed the exquisite wood carvings of Grinling Gibbons. The size of this room is 60 feet long by 24 feet broad, and 20 feet in height. The carving is arranged in festoons of fruits, flowers, shells, birds, and sculptured vases, thus forming panels for pictures; the whole surpassing in beauty of execution and quantity of carving any other of his justly admired works. Walpole, to whom I have often before alluded, and who was a man of singularly good taste in the fine arts, in speaking of this wonderful carver in wood, says that,—"before Gibbons, there is no instance of a man who could give to wood the loose and airy lightness of flowers, and chain together the various productions of the elements with a free disorder natural to each species." And after having enumerated others of his celebrated works, such as those at Windsor, Chatsworth, Burleigh, Southwick in Hampshire, and Stanstead, he continues, "but the most superb monument of his skill is a large apartment at Petworth, enriched from the ceiling between the pictures with festoons of flowers, and dead game, all in the highest state of perfection and preservation. One vase surpasses all the others in beauty of execution and elegance of design, being covered with a bas-

* To be continued.

relief of the purest taste, worthy indeed of the Grecian age of Carneo. Selden, one of his disciples and assistants—for what single hand could have executed such plenty of laborious productions—lost his life in saving this carving when the house was on fire.* To the credit of our country be it spoken, Gibbons was a native artist, having been born in London. His ancestors, however, a few generations back, were of Dutch extraction.

For many years the carved work of this room remained incomplete, and would probably have continued to do so—for who, of his own accord, could have ventured to offer himself to complete what so clever an artist as Gibbons had undertaken and left unfinished—had not that great patron of men of genius—and more particularly of such men as had not the means of bringing themselves and their performances into the notice they deserved,—I allude, I need hardly say, to George O'Brien, Earl of Egremont, of whom it has been asserted with great truth,—

"To plining genius he raised up a way,
And merit usher'd to the blaze of day."

Had not, I say, this large-hearted nobleman found, accidentally, among the workmen employed by Charles, Duke of Norfolk, when building Arundel Castle, a father and son named Ritson, natives of Cumberland, who were engaged by his grace's architect, for the purpose of carving the mahogany made use of in fitting up the library. Struck by the extraordinary talent displayed by the son, then only a boy twelve years of age, the Earl did not lose sight of him; and some years after took him into his lordship was but of short duration; for, at the expiration of a little more than a year, he left him, and returned to London, where he remained ten years; but finally entered upon a fresh engagement with Lord Egremont in 1827; remaining in his lordship's employ, and that of Lord Leconfield, then Colonel Wyndham, until his death in 1816; during which period of nineteen years he completed the carving of the carved room, finishing it only the year he died. Comparing the two works, we cannot come to any other conclusion than that his execution is inferior to that of Gibbons; but still not very much so. I knew Ritson well, and have often been led to regret that he was a man of intemperate habits, and of a most obstinate temper, so that he would only work when he himself felt disposed to do so. Had it been otherwise, he would have attained to great eminence. As it was, he died in a back street of this town, worn out both in mind and body, and supported entirely by the liberality of the present possessor of the estate. I attended him throughout his illness, and was in the act of administering to his comforts when he expired. There are portraits of him and Gibbons, by Clint, in the room to the beauty of which they so largely contributed. The wood made use of in this carving is maple.

A VOYAGE FROM WESTMINSTER TO LONDON BRIDGE.

BY A GHOST OF THE SIXTEENTH CENTURY.*

CAN this be London, the orderly and steady-going capital of the kingdom of "Bluff King Harry; of her Gracious Majesty our good Queen Bess;" and of our royal and learned master King James? Impossible to tell; for old landmarks seem to be all removed. I have called at Charing-cross: all appearance of the beautiful cross erected at Charing to good Queen Eleanor's memory has vanished; but I find the name of "Charing-cross" lettered on a strange-looking building, quite unlike any of my day. The "Golden Cross" is close by, but only in name; and oh! the bustle and tumult of this place! Persons in unfashionable and absurd attire move in all directions rapidly along; carriages of the strangest and most remarkable shapes are filled with multitudes of people; the wagons and carts, loaded with merchandise, and drawn by enormous horses, grind along on (what is this?) a flat stone solid pavement. My wonder at all this is increased when I search for the King's Mews, and find in its place a great building, which to me looks to be of noble enough proportions. I enter in: and see—it is full of beautiful and wonderful paintings, most of them by artists unknown to me, either by name or style. On leaving this place, I observe a sort of display of statues and fountains; but so great is the confusion caused by all, that it seems as if it would be a pleasure for me to saunter quietly

up St. Martin's-lane, and rest awhile in the open green fields, under the trees. But lo! instead of these there are nothing here but houses, houses, on and still farther on; and a gentleman of somewhat prim appearance, clad in a close-fitting costume of blue, set with silver buttons, and having marked on his collar peculiar letters and figures, tells me that if I go for miles in this direction there will be found nothing but houses still. Perhaps there may be breathing space in Spring Gardens, which, in my time, was a beautiful place, thickly shaded with the most luxuriant trees. Here, too, I see, however, that the builder has been at work. I come down what is now called Parliament-street, and miss the two fine gates which formerly stood across the roadway.

The Cock-pit, abutting upon St. James's Park and the Queen's Gardens, stretching towards the river, where there used to be a water entrance called Prey Bridge, are no longer visible. These large structures, called the Admiralty, the Horse Guards, the Treasury, are all new to me.

Here, however, is the Banqueting Hall—the work of genius Master Inigo Jones—still looking little, if any, the worse for wear. The venerable Abbey, Westminster Hall, and St. Margaret's Church, seem to me like old friends; but how wonderfully is all this neighbourhood changed! What vast masses of building have here been raised. The old Abbey, even, looks dwarfed by lofty towers and turrets. And lo! just where there was a landing-place for the waterman, there is one mighty bridge, which has been raised and nearly demolished since my days, and a new one—of singular but seemingly strong construction, has been finished—and stretches across the Thames. I see none of the gay barges of royalty and the nobles, thronged with armed retainers in their gorgeous liveries, and few smaller boats; but many vessels of large size, which are troubling the waters, blowing out clouds of steam, and with a terrible noise and rattling of wheels, moving rapidly along the river.

Looking with inexpressible feelings at these wonders, I fall into a sort of reverie, and think of the rare doings there used to be here, and at Whitehall, in Henry VIII.'s reign, when the last-named place was tenanted by Cardinal Wolsey.* Here the cardinal received foreign potentates and other persons of distinction. Often the king himself came; when they wanted no preparations or goodly furniture, nor viands of the finest sort that might be provided for money or friendship. At these banquets there lacked no dames or damsels meet to dance with the maskers. There were all kinds of music and harmony set forth with excellent voices of both men and children. The king has been seen suddenly to come in lither in a mask, with a dozen other maskers, all like shepherds, in garments made of fine cloth, and fine crimson satin, and caps of the same, with visors of good proportion of visnomy; their hair and beards either of fine gold wire or else of silver, and some being of black silk; having sixteen torch-bearers, besides their drums; and other persons attending upon them, with visors, and clothed all in satin of the same colours. And at his coming, and before he entered the hall,—it must be understood that he came by water to the water-gates, without any noise,—men and lads charged many chambers; and at his landing these chambers were all shot off, which made such a rumble in the air that it was like thunder.

There was then some wit shown to deceive each other, and great feasting and dancing, the particulars of which I have not time to describe. I must, not, however, rest; although it requires no small amount of courage for a ghost of my date to take a ticket at what they call the steambot pier at Westminster, and go on board the vessel. This being done, and having embarked, I remember that in my time there was only one bridge across the river at London: now a fellow-traveller reminds me that there are ten bridges between the Tower and Battersea, and that others are projected.

I note great changes on the south side of the Thames. In my days Lambeth Marsh was almost a desert spot; and from near London Bridge to the Archbishop of Canterbury's Palace there were no houses closely abutting upon the river. From the Prey Bridge to York House all is changed. Of this once princely mansion the fine water-gate remains; doing credit to my time by its contrast with the wretched sheds and ill-shaped buildings

which are near. This place was originally the Inn of the Bishops of Norwich. It then passed into the hands of the monks of St. Benet Holme, in Norfolk; and, in 1535, to Brandon, Duke of Suffolk. After becoming vested in the Crown, it was presented by Queen Mary to the Archbishop of York. It again reverted to the Crown, and was used by the keepers of the Great Seal. Lord Bacon was born here; and, by the bye, this great man was christened in the picturesque old church of St. Martin-in-the-Fields. "See, sir," says the passenger to whom I had spoken, "this gate is one of Inigo Jones's best works: it shows how well Portland stone stands the atmosphere of London." York House came into the possession of the Duke of Buckingham, who was murdered in 1628; and in 1649 Parliament gave this place to General Fairfax, whose daughter married George Villiers, the second duke; by which act the mansion returned to the Buckingham family. Since those days, this family has, it seems, sold the estate for building purposes; and in the Strand there are streets placed on this site called Charles-street, Duke-street, and Buckingham-street (after Charles, duke of Buckingham).

I miss the picturesque remains of the Savoy Palace, where this north approach to the most beautiful bridge—they call it Waterloo Bridge—is now. This, to my fancy, was one of the most ancient-looking structures along this part of the Thames. The original of this building is of old date; it having been founded by Peter de Savoy, brother to Boniface, archbishop of Canterbury, uncle to Henry III.'s queen, Eleanor, about the year 1245. The palace then went into the hands of the Friars of Montjoy; after which Queen Eleanor purchased it for her son Edmund, subsequently Duke of Lancaster, whose son, Thomas, earl of Lancaster, was decapitated in the reign of Edward II., when it became the property of his brother Henry, by whom it was enlarged. John, king of France, died here in 1364. During the insurrection, when Wat Tyler figured as a leader, a party, after attacking Lambeth Palace, directed their attention to the Savoy; and, on the 12th of June, 1381, as it is chronicled, they set fire to it round about, and made proclamation that none, on pain of losing his head, should convert to his use anything that there was, but that they should break such plate and vessels of gold and silver as were found in that house (of which there is great plenty), into small pieces, and throw the same into the river of Thames. Precious stones they should break in mortars, that the same might be of no use; and so it was done by them. One of their companions they burned in the fire because he minded to have reserved one gaudy piece of plate. They found there certain barrels of gunpowder, which they thought had been gold; and, throwing it on the fire, more suddenly than they thought, the hall was blown up, the Houses were destroyed, and themselves very hardly escaped away. To the number of two-and-thirty these rebels entered a cellar of the Savoy, when they drank so much of the sweet wines that they were not able to come out in time, but were smothered in with wood and stones that mured (walled up) the door, where they were heard calling and calling seven days after, but none came to help them until they were dead. After this affair the Savoy lay in ruins during about 150 years, when Henry VII. commenced transforming the site into an hospital: this was not completed until the reign of Henry VIII. Although the structure seems to have again fallen into neglect, and although a chief portion of the ruins were removed to make the new bridge, I am glad to hear that the chapter still remains.

The number of passengers who come to and fro by these "steam-packets" seems to me surprising. I have just passed a bridge of fairy-like lightness, which they call Hungerford, and along which streams of people move: nor is this to be wondered at, when I learn that London now contains close upon three millions of people. I hope they do not joke with a poor old ghost; for this is about as much as half the population of England was in the reign of our good Queen Elizabeth. If this be true, I do not wonder to hear of the immense extent of the metropolis now, or that the new works which we have just passed are intended for a new line of traffic, along which people and goods are carried by an iron horse, fed with burning coal, at the rate of 40 miles an hour. It is not easy for me just at once to comprehend all these strange things, although my old friend the Marquis of Worcester, I dare say, could.

Just by new Waterloo Bridge should be Somerset-place, which was commenced by the Duke of Somerset in 1546. This we always considered to

* The ghost of whose spoke in an antiquated, though by no means an unpleasing, manner. Some of the words were so unlikely to be now understood, that we have modernised the narrative.

* Whitehall was a palace as early as the reign of Henry III., when it was the residence of the Lord Chief Justice of England. This king, at his death, left it to the Black Friars, in Holborn, who sold it to the Archbishop of York; and his successors occupied it for three centuries.

be a noble site: the original area occupied 600 feet from east to west, and 500 feet from north to south. John of Padua, an Italian, was the designer of the King's Buildings, in 1544; and this was the finest building, in the Italian style of architecture, ever executed in England. There was a more ancient building here, which gave place to that above mentioned. After the death of the Duke of Somerset, who had not used very fair means for the erection of this palace, the "place" came into the hands of the Crown, when it was converted to the use of our young Princess Elizabeth, when she visited at court in Edward's reign. Then it became known as "her place, called Somerset Place, beyond Strand Bridge." She, however, preferred St. James's and Whitehall on her accession to the throne; and the Duke of Somerset's property being partially restored, the dowager duchess inhabited Somerset House. The building of the Italian's design has disappeared, and great is the difference between that and the goodly pile which now fringes the Thames at this point. Over the water the lofty chimneys, the various manufactories, the endless succession of wharfs and houses, seem no less surprising. I can no longer see the flag upon the Globe Theatre, or the places for bear baiting, which I have known to rival the plays of Master William Shakespeare. I fancy that I can still see some of the gables of Essex House, close to the new library, as I am told it is for the use of the present occupants of part of the Temple. Upon the whole, the Temple is less changed than most other places: here are still the steps which were often used by both the company and the players, when they needed a boat to go to Southwark. But where those immense cylinders, which seem to be hung in chains, now are (for lighted London, they tell me, with smoke), as used to be Whitefriars, and from my knowledge of the place, I am not sorry that it has been removed. The large space which was before Blackfriars has also been removed; and, instead of the open course of the River Fleet flowing into the Thames, is another bridge, which to me looks already old and tottering.

Neither Baynard's Castle nor Bridewell, which used to be such conspicuous places at this point, is now to be seen. Broken Wharf and the great basin of Queenhithe, and other places of note, have also vanished. What has become of famous Old St. Paul's? which seems, however, to have been most worthily replaced. Where are those quaint-looking church-towers, and other objects, once so prominent?—Sweet off, you say, sir, by the Great Fire,—most terrible calamity! But of all the changes in this route, there is none more marked than London Bridge. The fall of water there has been altered: no old and tottering houses now stand upon this thoroughfare. And what is all the crowd hurrying along for, on foot and in vehicles of various kinds, as if some great sight were turning out all London? But I am too fatigued to be able to follow them to see the great sight: I have seen so many, too, already; and, in truth, I am stupefied with wonder at what I have already seen, and wish much for the present to rest.

GIVEN THE DIAMETER OF ANY REGULAR POLYGON, TO FIND THE LENGTH OF A SIDE.

TAKING the general case of a regular polygon of N sides, the angle which each side subtends at the centre of the polygon (or of its inscribed circle) is 360° divided by N ; and, if r is the radius of the inscribed circle, or semi-diameter of the polygon, S the length of one side, then, by plane trigonometry, $S = 2r \tan. \left(\frac{360^\circ}{2N} \right)$.

As polygonal terminations are frequently introduced in buildings, I give the calculation of the above formula for polygons of 6, 8, 10, and 12 sides respectively; so that the exact length of a side may be found at once for any particular case.

In a polygon of any given number of sides, the value of S varies only with that of r ; therefore,

$\tan. \left(\frac{360^\circ}{2N} \right)$ is the multiplier which turns the number of inches, feet, or yards in the diameter ($2r$),

into the number of inches, feet, or yards in the side. First, in the hexagon, or polygon of six sides, $N = 6$, and $\tan. 30^\circ = .577$, is the amount by which the diameter must be multiplied to find the length of one side. For example, if the diameter = 10 feet, the side will be $10 \times .577 = 5.77$ feet, or 5 feet 9 1/4 inches.

Rule 1. To find the side of a hexagon whose diameter is given, multiply that diameter by .577. Next, take the octagon or polygon of eight sides: $N = 8$, and $\tan. 22\frac{1}{2}^\circ = .414$ is the multiplier by

which the diameter is turned into the side. If the diameter = five yards, then the side will be $5 \times .414 = 2.070$ yards, or 6 feet 2 1/2 inches.

Rule 2. To find the side of an octagon whose diameter is given, multiply that diameter by .414.

I have a building in course of erection, a portion of which has an octagonal termination: the external diameter is 23 feet 4 inches: then, by this rule, the side will be $23\frac{1}{2} \times .414 = 9.66$, or 9 feet 8 inches.

Thirdly, the decagon, or polygon of ten sides, has $N = 10$, and $\tan. 18^\circ = .325$ is the multiplier. If the diameter = 30 inches, then the side will be $30 \times .325 = 9.75$, or 9 3/4 inches.

Rule 3. To find the side of a decagon whose diameter is given, multiply the diameter by .325.

Lastly, for the dodecagon, or polygon of twelve sides, $N = 12$ and $\tan. 15^\circ = .268$ is the multiplier.

If the diameter = 25 feet, then the side will be $25 \times .268 = 6.7$, or 6 feet 8 1/2 inches.

Rule 4. To find the side of a dodecagon whose diameter is given, multiply that diameter by .268.

E. WYNDHAM TARN, M.A.

POSITION OF "THE ARCHITECTURAL MUSEUM."

THE present position of the Architectural Museum is not generally understood. It may be as well that we should explain it. It will be remembered that in 1860 some correspondence took place with the Department of Art as to the future locality of the Architectural Museum.

In the autumn the Museum renewed the correspondence with the Department, and negotiations were set on foot to arrange some scheme by which the connection of the Architectural Museum with the South Kensington Museum might be maintained. From the first, the matters under dispute were solely questions of jurisdiction: the Department of Science and Art most fully acknowledged the value of an architectural collection such as that which the Architectural Museum had undertaken to form; and indeed the desire on its part to constitute a museum of universal architecture under its own control at South Kensington was the chief objection to continuing the concession of space which had been made to the independent Architectural Museum at a time when the South Kensington Museum was still a novel experiment. These negotiations were carried on partly by correspondence and partly by interviews with the officers of the Department of Science and Art, and ultimately with the Lord President; and they finally resulted in the acceptance by the council of the Architectural Museum of the following minute, which was drawn up by the Committee of Council on Education after the perusal of a proposed basis of arrangement submitted by the Architectural Museum, and afterwards modified by the Committee of Council at the instance of the Architectural Museum:—

"The Lords of the Committee of Council on Education prefer that the understanding with the Architectural Museum should be stated simply, as follows:—

1. The Department of Science and Art is willing to receive on loan, such specimens, belonging to the Architectural Museum Committee, as may appear suitable to the department, to be arranged as part of a National Gallery of Architecture, and as the Committee of the Architectural Museum may think proper to send. These will be labelled as belonging to the Architectural Museum Committee; and kept, as far as may be possible, together. Twelve months' notice on either side is to be given before such specimens are either to be taken away,—except for the illustration of lectures by the Architectural Museum Committee,—or returned by the Science and Art Department. They will be catalogued as part of the general collection of architecture; and each member of the Society will be treated as an exhibitor, and presented with a copy of the Architectural Catalogue.

2. In consideration of and during the time of this loan, my Lords will grant to the Architectural Museum Committee the use of the Lecture Theatre, for the delivery of lectures, &c., strictly relating to architecture, and of the room for the meetings of the Architectural Museum Committee, without requiring the payment of the fees usually paid by scientific societies. Application is to be made from time to time for the use of the Lecture Theatre, &c.

3. Should my Lords require professional advice from any member of the Architectural Museum Committee, they would be glad to pay for it according to the regulations of the Department; and will be happy to receive, at all times, any advice or suggestions which the Architectural Museum Committee may think it right to submit."

In acknowledging the acceptance of the minute on the part of the Architectural Museum, the Department of Science and Art informed the Museum that it would be some months before it could come into effect.

The minute will modify to a considerable extent the position and functions of the Architectural Museum; while, from the brevity with which it is drawn up, its successful working will depend upon the mutual good-will and friendly understanding of the two bodies immediately interested in it; viz, the Department of Science and Art, and the Architectural Museum.

The Architectural Museum has from the beginning possessed two characters. It has been a collection of architectural casts and specimens; and it has been a school of architectural art working by the lectures, prizes, and facilities for personal study which it could offer; and it has had so to husband its resources as to meet the claims upon them for both these objects. Under the new arrangement it will no longer be the custodian of its own collection at the South Kensington Museum; while the contributions which it lends at once or at any future period to the proposed National Collection of Architecture will be minutely identified, both on the specimens and in the official catalogue, as its property. On the other hand, it will have the use of the entire collection, and a recognised voice in the purchase and acceptance of future specimens by the Department; and it will thus be enabled to co-operate in the acquisition, at the national expense, of casts and special objects, which under the former system could only be obtained for the use of its students at a heavy cost to its own exchequer.

A large amount of the museum's income will be set free towards its development as a school of architectural art, in lectures, prizes, and teaching; and the council do not propose to neglect the opportunity. The prizes for the present year will be larger than those for any previous one; while it only depends upon the friends and subscribers to the museum to render them still more valuable on future occasions. The full use of the lecture theatre of the South Kensington Museum is guaranteed, as previously, for the lectures which the Architectural Museum may be disposed to give.

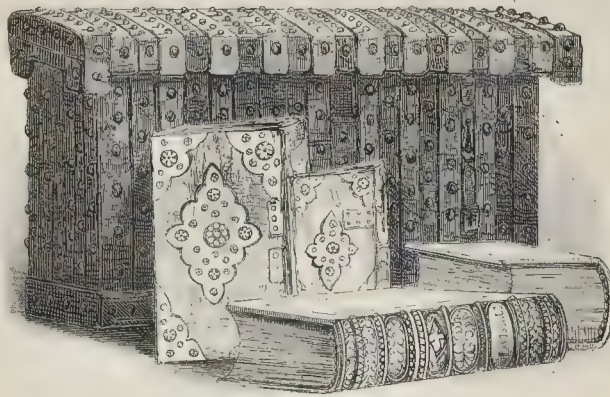
The council appeal to its friends to continue to support the Architectural Museum in its extended operations as a school of architectural art, with even greater liberality than that which they have already so generously bestowed upon the institution.

At the present time the condition of the collection, indeed of all the architectural collections, in the Brompton Museum, is unsatisfactory; the casts being scattered about, and to a great extent inaccessible. It now rests with the Department to form a complete and satisfactory National Museum of Architecture; and we sincerely hope that no time will be lost, and that no pains will be spared, in bringing about this much desired result.

SANITARY CONDITION OF MANCHESTER.

At the recent meeting of the British Association, Mr. David Chadwick read a long paper on the progress of improvements in Manchester and Salford during the last twenty years. The paper contained an immense variety of statistical details relating to the different departments of social improvement.

Mr. Edwin Chadwick, having been referred to for some account of the sanitary condition of the place, regretted he must give a dark reverse to the picture which had been given of the general progress of the district, for the county was yet the lowest of the whole kingdom. He accepted the statement, that 17 in 1,000 was the normal death-rate of a kingdom: sanitary science was so far advanced in its practical application that contractors might contract for results. They might be shown instances, where, by one measure alone, the abolition of cesspools, here called "middens," death-rates had been reduced 10 in 1,000. Typhus, which ravaged the dwellings of the labouring classes, had been banished from prisons and pauper establishments. No high wages would avail for the health of the labouring classes who worked in crowded workshops, and who slept in dwellings where the atmosphere was a compound of the emanations of a cesspool or a middenstead and a chimney. One proof of the dependence of health on the condition of workshops was the fact, that when large numbers of men were out of employment, or on strike—that is, were out in a less bad air,—the number of fever cases largely diminished and fever wards were almost empty. An analysis of the causes of death showed how large a proportion were from atmospheric impurity. Dr. Greenhow had examined the causes of death in Manchester: he found a large proportion to be from diarrhoea, and designated the middenstead the monster evil of the city. In this city, of all born, full one-half were in their graves before the fifth year; and that from diseases which were almost banished from well-regulated pauper establishments. The deaths of adults from these diseases were excessive; and the duration of life and working ability in Manchester was exceedingly low. The city competed with



DOMESDAY BOOK IN A NEW DRESS.

Liverpool in being the most unhealthy in England. The state of the county in respect to crime was shown by the criminal returns to be relatively as low as its state of health. Its relative position in education, as shown by the proportion of marksmen prevailing among middle-class persons, or those who had the franchise, was yet a very low one.

Mr. W. M. Tarrt alluded to the very imperfect ventilation of nearly all the great buildings in Manchester. Even the magnificent Free-trade Hall was most defective in this respect; and the splendid hotel at which he now stopped was like an oven, in consequence of the mismanagement of the gas.

Mr. David Chadwick replied. They had availed themselves of every sanitary improvement within their reach, so far as they could be expected to have done; and Mr. Edwin Chadwick did not appear disposed to give them credit for any improvement whatever, representing everything in the blackest light.

The President observed that whatever progress had been made in sanitary improvement, so long as the death-rate was so much larger than the average which prevailed in other districts similarly situate, people would continue to think that much remained to be done.

GOUDHURST, KENT.

ON one of the bright mornings of this beautiful autumn, I was led to visit the parish of Goudhurst, which has long been impressed on my memory as one of the most beautiful spots in this favoured county; and, having traversed the range of hills from the east, of which this place forms the abrupt termination; passing several mansions, and seeing an infinite number dotted about the district; I expected to see a town or village corresponding with the associations before named, but was much disappointed in finding a cluster of old houses piled one above another on a very steep acclivity, by which alone the place is approached from the west.

The church stands boldly on the top of the eminence, and forms the centre of an amphitheatre of about thirty miles diameter, extending from Lyme on the east, by Wye Westwell and Eastwell Downs, to Igham, Sevenoaks, Southborough, Fant, Kilndown, and ending with Fairlight, and the towns of Hemsted and Tenterden.

The view from the tower of this church is interesting as well as extensive; being unusually chequered with hill and dale, parks, woodland, hop-land, corn-fields, and pastures. The numerous mansions around add much to the interest of the prospect, without encroaching the whole: Bedbery, the ancient seat of the Colepepers, and now of Mr. Beresford Hope; Linton, of Lady Cornwallis; Finchcocks, of Mr. Springett; Gray Hall, not yet completed; Hemsted, of Mr. Hardy; and numerous others, less distinguished or distinguishable, give character to the scenery, while numerous churches tower over their respective hills, on which they are generally placed in the wold, by which each visitor easily recognizes some well-known district; so that the mind which can view this scene without interest can be no lover of cultivated nature.

The church itself presents (among its many defects, to be mentioned hereafter) some objects of striking interest.

The tombs of the Colepepers are worthy of antiquarian research. One in marble, with recumbent figures, has recently been restored by Mr. Hope. A curious mural stone tablet, with the date 1537, records the family of the knight below, and probably some particular event in his life. There is another tomb in the same marble, with figures in metal; and over it a stone arch, of probably more ancient date: this tomb is partly hidden by one of the frightful pews which pre-eminently disfigure this structure: other mural monuments to this family, that of Campion, Hussey, and many others, ancient and modern, with a few brasses, give an antiquarian interest; while the historical novel, by G. P. R. James, of "The Smuggler," recording the exploits of Radford and his band in and about this building, bring this interest down into modern times.

But what is more within the province of the *Builder*, and which induces me to trouble you with these remarks, is the disgraceful alterations under the name of repairs which have been suffered to be made in this building, otherwise remarkable from the lightness of its architecture and the beautiful site which it occupies. With one exception the whole of the tracery of all the windows has been removed, and Perpendicular supports (for I cannot call them mullions) have supplied their places; and, to make their hideous deformity more conspicuous, they have been kept *beautifully* white,—the venerable clerk proudly boasting he remembers *restoring* the last window when he was a boy.

Hasted says the tower was burnt down in 1637. This explains how the door-case to the tower has been erected with Italian front, pilasters with Corinthian capitals, and a three-light "circular-headed window over it, all made eminently conspicuous with white paint.

Surely attention only wants to be drawn to these deformities; and, in such a large and opulent parish, with talented and generous men residing within its bounds; gentlemen who, while decanting on the irregularities of style at archaeological meetings, might look at home; and, while improvements are going on in numerous parish churches around, not let this remain such a conspicuous blot on the taste of those who can and ought to restore it to its pristine elegance. Q.

DOMESDAY BOOK IN A NEW DRESS.

IN the approaching exhibition the skill of the bookbinder will, doubtless, be well illustrated; and the public will be able to examine not only the hand-work of the best bookbinders of the present generation; but also have the opportunity of comparing them with good specimens of other dates. In the manuscript department of the British Museum there are some very curious and beautiful old book covers: some are of cunning device, the patterns inlaid with gold, silver, and rich tints of silk and velvet. In others are artificial and real gems and such like adornments. On no account would it be right to cull the treasures of the national collection. There are, in the pos-

session of royalty, deans and chapters, antiquaries municipal bodies, the universities, both in the metropolis and in the provinces, many matters in this way which, if gathered together and well arranged, would prove both instructive and interesting. We should see the plain old books, literally bound in "boards," which were the delight of "Belted Will Howard," at Naworth; the still older Anglo-Saxon and Anglo-Norman book-covers; the gorgeous dresses of the manuscripts of the Middle Ages; and the different styles in which the taste of various generations up to the present day has been used for the preservation of matters of rare interest.

Besides the public companies and bodies above mentioned, there are other sources from which good specimens of skill and taste in this department might be obtained. One of these is the Record Office, in Chancery-lane, where there are some very fine examples of bookbinding, which are, according to the present arrangements, seen by only very few: there are also several curiously wrought cases for rolls and books, and coffers, in which they have been kept for centuries. Amongst the most remarkable of these is the very ancient iron chest shown in the back-ground of the engraving, which is called of Anglo-Norman date. The strength and massiveness of this piece of smithwork is remarkable: it seems as solid as a sarcophagus.

In this coffer, in the Chapter-house of Westminster Abbey, the famous Domesday Book of William has for many centuries been kept with the greatest care. No relic of a saint or martyr was ever better preserved; and in consequence, now that 800 years have passed since the two volumes of Domesday Book were written, they are still, so far as the contents are concerned, without a blemish; and in most parts the clear and beautiful penmanship is as distinct as it was when the writer had completed his work.

Fifty or sixty years ago Domesday Book was in a wooden binding, strengthened with ornamental brass plates, with bosses arranged in patterns. At the time mentioned it was found that this cover was falling rapidly into decay, and had become occupied with insects, which were likely to prove dangerous to the prized MS. The covers were, therefore, removed, and then the venerable record was put into the Quaker-like garb shown in the engraving. It is solid, substantial, and useful; but no one, when the volumes are brought from their receptacle, would think that this cover, of unmeaning design, enclosed that most early of English historical books, the name of which is as familiar to every schoolboy as it is to scholars.

Fortunately the old binding is still preserved: as to whether even this was the original binding or not there seems to be some difference of opinion.

THE ROYAL DAIRY, FROGMORE, WINDSOR.

WE have already given the plan and an interior view of the dairy which has been erected for the Queen and Prince at Frogmore, under the direction of Mr. Turnbull, on the part of her Majesty's Board of Works, Mr. John Thomas co-operating.* We now add a view of the exterior. It is Italian in style. The south front has an arcade in Bath stone. In the frieze appears the following inscription, "Erected in the 21st year of the reign of her Majesty Queen Victoria." The other sides of the building are constructed in brick, relieved by stone dressings. The work about the windows is in Bath stone. The building itself is surmounted by a cornice and a parapet constructed of perforated Bath stone. The appearance of the building is improved by the introduction of red bricks into the frieze. The arms of her Majesty and of his Royal Highness the Prince Consort are wrought in panels, made of the same stone, on the parapet of the north front. The dairy is covered with red and blue tiles in alternate lines, while the roof is surmounted by a zinc ventilator.

FLOWERS.—In the south of France a harvest of 2,500,000 of pounds weight of flower leaves is gathered every year, and sold for about 250,000 sterling. It consists of 1,600,000 lb. of leaves of the orange blossom, 500,000 lb. of rose leaves, 100,000 lb. of jasmine blooms, 60,000 lb. of violets, 65,000 lb. of acacia buds, 30,000 lb. of tuberose, and 5,000 lb. of jonquil flowers. Why should we not grow flowers for their odours as well as for their colours?

* See p. 512, ante.

THE ROYAL DAIRY, FROGMORE, NEAR WINDSOR.



THE BRITISH ASSOCIATION AT MANCHESTER.

THE congress which has been held in Manchester has been unprecedented, even in the annals of the British Association, for the sale of tickets; which yielded no less than 2,120*l.* before a paper had been read or a meeting of the sections held. The sum ultimately paid was 3,905*l.* About 400 papers were to be read.

We do not mean to attempt to grasp at even an abstract of the voluminous proceedings of the various sections of the Association; but we may snatch a few points here and there from the proceedings.

The address of the president elect, Dr. Fairbairn, on Wednesday, was an able and lengthened one. In speaking of the valuable light which chemistry has thrown upon the composition of iron and steel, he said that,—

"Although Despretz demonstrated many years ago that iron would combine with nitrogen; yet it was not until 1857 that Mr. C. Binks proved that nitrogen is an essential element of steel, and more recently Mr. Garon and M. Fremy have further elucidated this subject, the former showing that cyanogen, or cyanide of ammonium, is the essential element which converts wrought iron into steel; the latter combining iron with nitrogen through the medium of ammonia, and then converting it into steel by bringing it at the proper temperature into contact with common coal gas. There is little doubt that in a few years these discoveries will enable Sheffield manufacturers to replace their present uncertain, cumbersome, and expensive process, by a method at once simple and inexpensive, and so completely under control as to admit of any required degree of conversion being obtained with absolute certainty. Mr. Crace Calvert also has proved that cast-iron contains nitrogen, and has shown that it is a compound of carbon and iron mixed with various proportions of metallic iron, according to its nature."

After enlarging upon the mechanical improvements which facilitate our leading manufactures, Mr. Fairbairn proceeded to point out the dependence of all these improvements on the iron and coal so widely distributed amongst the mineral treasures of our island. The Bessemer process he thus referred to:—

"The process of Mr. Bessemer—first made known at the meetings of this association at Cheltenham—affords the highest promise of certainty and perfection in the operation of converting the melted pig direct into steel or iron; and is likely to lead to the most important development in this manufacture. These improvements in the production of the material must, in their turn, stimulate its application on a larger scale, and lead to new constructions."

After alluding to the uses of iron in war, he said,—

"We have already seen a new era in the history of the construction of bridges, resulting from the use of iron; and we have only to examine those of the tubular form over the Conway and Menai Straits to be convinced of the durability, strength, and lightness of tubular constructions applied to the support of railways or common roads, in spans which, ten years ago, were considered beyond the reach of human skill. When it is considered that all our bridges do not exceed 150 feet in span, nor cast-iron bridges 250 feet, we can estimate the progress which has been made in crossing rivers 400 or 500 feet in width, without any support at the middle of the stream. Even spans, greatly in excess of this, may be bridged over with safety, provided we do not exceed 2,000 feet, when the structure would be destroyed by its own weight."

Among other interesting papers read in the several sections on Thursday, was one by Mr. T. Bazley, M.P., in which he took a comprehensive glance at the cotton trade. On the evening of that day a crowded assemblage of upwards of 2,500 members met at a microscope soirée in the Free-trade Hall, and their scientific enthusiasm was heightened by means of the stirring music of Handel, Mendelssohn, Beethoven, and other musical inspirations, on the large organ of the hall.

A paper on Strikes, by Dr. Watts, which was read on Friday, in Section F.—Economic Science and Statistics,—we print separately.

In the same section Mr. Edward Potter read a paper "On Co-operation and its Tendencies," and some of his conclusions were—

"That co-operation is sound only when limited to simple and almost unobscured trading, such as the division of stores for supplying a provided demand from shareholders; or for institutions and establishments for limited purposes, such as would safely admit the democratic principle of management; that it is inefficient for competitive, and therefore speculative, commercial undertakings, that it would prove weakest during periods of depression, and could not find power of sustentation from a multitude of shareholders of the capitalist class; and that co-operative experiments, though costly to their supporters, may be valuable to society by affording practical lessons in political economy, and testing the value of, and necessity for, forethought and experience; that the greater diffusion of education will not lead to co-operation for trading purposes, but to greater self-reliance and competition."

The Patent Laws engaged a good deal of attention in Section G.—Mechanical Science,—in which Mr. J. Heywood, F.R.S., brought up the report of the committee on the patent laws, and a discussion on it followed.

The Spectrum Analysis formed the subject of very interesting discourse by Professor Miller,

illustrated by experiments, and delivered at the Concert-hall in the evening. At the close of it the Professor is reported to have said:—

"Every star had its own series of lines, some of them seeming to show sodium. The sun appeared to contain sodium, potassium, iron, chromium, nickel, and magnesia. Bunsen, in observing the residue of the water of a certain spring, found spectrum lines which he had never seen before, and supposed them to be due to the presence of an unknown metal, which he afterwards was able to isolate, finding that three grains (only) of it were extractable from a ton of the water. From the beautiful blue lines in the spectrum produced by this metal, he named it cesium." By the kindness of Professor Bunsen, who had complied with Professor Roscoe's request for a specimen, the lecturer was enabled to exhibit the spectrum lines of this new metal; and Professor Roscoe had also supplied him with a sample of another new metal thus discovered, and named rubidium, the spectrum of which he also threw on the screen.

On Monday evening, after much scientific talk in the sections, Professor Airy, the astronomer royal, delivered a lecture in the Free-Trade Hall, on the Great Solar Eclipse of 1860.

On Tuesday, in the section of Economic Science and Statistics, Mr. James Heywood, F.R.S., made some observations on the subject of Endowed Educational Institutions; and Dr. Strang, of Glasgow, read a paper on "The Comparative Progress of the English and Scottish Population."

Fires formed the timely subject of consideration in the section of Mechanical Science, on the occasion of Mr. J. T. Bateman, president of the section, reading a paper on "Street Arrangements for Extinguishing Fires." These he regarded as very defective and unsatisfactory. He described a very simple arrangement in use in Manchester, consisting of a ball barrel communicating with the main pipes, to which proper fitting hose could be attached in a very few moments; thus avoiding the delay caused by the employment of engines. The greatest requisites were high-pressure, large main pipes, ample communication with the main pipes, and a plentiful supply of water.

Mr. C. W. Siemens, of Berlin, read a paper also on Railway and Fire Alarms, from which it appeared that Berlin is divided into a number of circular districts (each of which contains a number of fire-stations), communicating with a central station, from which information is instantly conveyed to all the stations in any district where a fire may have broken out, and within a very few minutes all the engines are on the spot and ready for actual use.

Colonel Sir H. James, R.E., gave a very interesting description of the process of photostereography, which enables a person to transfer a photograph to a zinc plate, from which any number of copies may be printed.

Electricity engaged attention in the section of mathematical and physical science.

The concluding general meeting of the Association took place on Wednesday last, in the Free Trade Hall, where the president, Mr. Fairbairn, was surrounded on the platform by many of the leading members of the Association, and the hall was filled by ladies and gentlemen. Professor Phillips read the report of the general committee.

For Thursday, the following excursions were arranged:—To the Worley Coal Mines; to the Dunkirk Coal Company's Astley deep pits at Dukinfield; to the Great Marston Salt Mine, near Northwich; to the Glass and Chemical Works, St. Helen's; to the Copper Mines, Alderley; and to the Manchester Waterworks.

NORTHERN ARCHITECTURAL ASSOCIATION.

ANNUAL EXCURSION.

THE annual excursion of this association took place on Wednesday, the 28th ult., and the opportunity afforded of inspecting the buildings at Ushaw College induced a large attendance. The party were most courteously received by the Vice-Principal, the Rev. J. Gillow, who accompanied them over the buildings. The farm buildings were in the first place inspected. The ingenious manner of collecting the liquid and other manure, and the contrivances for distributing it over the land, particularly attracted the attention of the members. The buildings are placed on the slope of the hill, which has been taken advantage of by erecting them on an upper and a lower stage entered from different levels, and affording accommodation for a very large number of cattle in a compact space. Over all are placed the fodder supply and machinery, &c., and the whole are fireproof in construction, and admirably ventilated and drained. The party next proceeded over the College, visiting the library, a noble room 120 feet long, containing upwards of 20,000 volumes. The exhibition hall and the refectory, the extensive kitchen department, and the laundries fitted up

with the latest modern improvements and machinery, occupied the party for a considerable time. Thence to the infirmary, a beautiful building complete in itself, standing apart from the main block; and lastly, the chapels, which, in themselves exquisitely beautiful, contain innumerable specimens of the painter's, sculptor's, and decorator's art, of rare excellence. In taking leave, the Association expressed, through the president, the great gratification which they had received, not only in the inspection of the buildings, but in the hospitable and courteous manner in which they had been entertained. On the return of the party to Durham, they inspected the park of Mr. Wharton; and, after enjoying a walk through the beautiful show of flowers being held on that day, they visited the antiquities of the Castle, and the fine old Cathedral; concluding an exceedingly pleasant day by dining together in a most harmonious manner, under the presidency of Mr. Dobson.

BRICK AND TILE MANUFACTURES AND THE EXHIBITION OF 1862.

At a meeting held at the Tontine Hotel, Ironbridge, on the 4th inst., present Mr. George Pritchard, high sheriff of the county; Mr. John Pritchard, M.P.; Mr. Ferriday, mayor of the borough; Mr. Antistice, J.P.; Mr. George Maw, F.S.A.; and all the principal brick and tile manufacturers of the neighbourhood; it was resolved to organize for the International Exhibition of 1862 a collective series illustrative of the clay manufactures of the Coalbrookdale and Broseley coalfield, including the productions of Messrs. Maw, the Coalbrookdale Company, the Madeley Wood Company, Messrs. Burton, Mr. Exley, Messrs. Davis, Mr. Evans, Mr. Lewis, and other manufacturers of the district, in preference to each manufacturer exhibiting separately.

An influential committee was formed for carrying out the project, and a subscription commenced, towards which nearly 100*l.* was contributed at the meeting for the purpose of defraying the expenses.

REPORT OF METROPOLITAN BOARD OF WORKS.

MAIN DRAINAGE AND OTHER IMPROVEMENTS.

THE Report of the Proceedings of the Metropolitan Board for the past year has been issued in a printed form. It comprises two reports, one signed by its clerk, Mr. Pollard; and another by its engineer, Mr. Bazalgette. Both reports are of considerable length; but the following is a condensed abstract of the more important portions of each.

ABSTRACT FROM CLERK'S REPORT.

The Board have now to report the completion of the Northern High-level Sewer, the Acton Branch of the Western Drainage, and a portion of the Southern Low-level Sewer.

The total value of the works executed by the Board during the year ending the 25th March, 1861, amounts to the sum of 474,582*l.* This includes the laying down of eighteen miles 1,830 feet of brick sewers, and three miles 1,090 feet of pipe sewer, and the cleansing and repairing of about 165 miles of main sewers, and 167 laps, penstocks, and outlets into the River Thames. Up to the end of June, about twenty-five miles of main intercepting sewers were completed, at a cost of about 486,000*l.*

On the 26th of July last, the Board directed their engineer forthwith to prepare for their consideration the requisite plans for a Thames embankment, in order that the necessary Parliamentary notices might be given, and steps taken for obtaining, in the ensuing session, the adequate powers for the execution of the work. [Government, however, had not determined what body would carry it out.]

For the new Covent-garden approach, between Long-acre and King-street (which was opened for public traffic in March last), the aggregate amount of claims received was 164,887*l.* 13*s.* 1*d.*, but these were settled for 97,687*l.* 19*s.* 8*d.*, including houses to be resold. Along the entire length of the street there have been constructed an efficient sewer, and a subway for conveying gas and water-pipes, telegraph wires, &c.; thus obviating the great expense of breaking up the road and footways, and the consequent interference with the traffic. Vanits and cellars have been built, the roadway and pavements formed, lamps fixed, and the whole line fenced for the protection of the public: the cost of these works amounted to 4,391*l.* The line of building frontage and vacant ground has been carefully plotted, and submitted

to public competition, and several offers are now under consideration.

On the Southwark and Westminster communication, the Board have dealt with 131 claims, amounting in all to 554,533l., and the amount agreed to be paid has been 357,517l. Nearly the whole of the interests of that part of the line between High-street and Southwark-bridge-road having been purchased, and possession of the land obtained, the greater portion of the property has been pulled down. The Board have determined to construct a subway in the line of the street, similar to that in King-street, Covent-garden, and tenders have been received for the execution of that work, together with the necessary sewers, vaults, and drains, and the formation of the carriage and foot ways, with a view to the land being let upon building leases.

The third line of thoroughfare being carried out by the Board is that of the Victoria Park approach. Forty-one claims have been dealt with, amount 34,345l. 15s. 11d. These were settled at 27,814l. 12s. 3d. The whole length of the roadway and sewer is in course of completion, and this line of thoroughfare will be open for public traffic in the course of the autumn.

In concluding, the Board advert to the inadequacy of the funds placed at their disposal for effecting the important improvements confided to their charge; and the report closes with the statement that unless the Board have revenues placed at their disposal other than those derived from direct taxation, they will be precluded from effecting many other public improvements which are loudly called for, such as the formation of new lines of thoroughfare, to relieve the daily increasing traffic of the metropolis, the formation of new parks, and the purchase of metropolitan bridge tolls.

ABSTRACT FROM ENGINEER'S REPORT. Amount of Work done.

The total amount of the main drainage contracts now in hand is about one million eight hundred and twenty-six thousand pounds, involving the construction of upwards of 46 miles of main intercepting sewers, together with pumping stations, outlets, and other appliances in connection therewith.

The proportionate value of the works constructed during the past year, exclusive of the purchase of land and other contingencies, is 436,000; and about 25 miles of the main intercepting sewers are now completed. The present condition of these several contracts is as follows:—

Northern High Level Sewer.

The Northern High Level Sewer from Hampstead to the storm overflow into the Lea, a length of about 9 miles,—has been completed. The new intercepting sewer now receives and carries off the sewage which formerly flowed through the open Hackney brook sewer, and was the cause of much nuisance and constant complaint: the Hackney brook, having been filled in, is now no longer used for the purposes of main drainage.

Drawings and estimates have been prepared for the following contracts, which have been entered into in the course of the past year:—

	Contract Price.	Engineer's Estimate.
Northern Outfall Sewer ..	£625,000	115,000
Deptford Pumping Station	115,136	24,640
Ranelagh Storm Overflow	23,500	
Covent Garden Approach		
Subway and Road, &c.	4,391	4,400
Middle Level Sewer, relet	309,800	No Estimate presented when let a second time.

Northern Outfall Sewer.

The Northern Outfall Sewer forms the largest contract yet let, or to be let, in completing the main intercepting scheme. The works, which extend from the river Lea to the Thames at Barking Creek, a distance of 5½ miles of double and treble lines of sewer, each 9 feet in diameter, and will form the outlet for the metropolitan drainage north of the Thames, are rapidly progressing: Mr. Furness contractor. The value of the permanent work done, up to the 25th of March, was 7,000l., and up to the present time is 39,000l.

Middle Level Sewer.

The extensive arrangements made by Messrs. Brassey for the manufacture of bricks of superior quality for this contract will, it is hoped, now begin to tell upon the progress of the work more than has hitherto been the case. The work done is of good quality, and is still confined to the neighbourhoods of Old Ford and the Bayswater or Paddington tunnel. When openings are once made in the more crowded thoroughfares traversed by this contract, the extensive character of the operations will become more apparent than

at present, and it will then become necessary to press them forward with greater rapidity. For these reasons the contractors have not been urged to make further openings until they were fully prepared to grapple with the difficulties which they will have to encounter. The value of the work executed up to the 25th March was 12,451l., and up to the present time is about 27,451l.

Ranelagh Storm Overflow.

The Ranelagh Storm Overflow has progressed slowly across Hyde Park and Kensington Gardens. The value of the work done up to the 25th March was 11,600l., and is now about 15,500l.; and it is expected that this work will be finished about the month of November next.

Southern Outfall Sewer.

On the south side of the Thames the Southern Outfall Sewer may be regarded as the contract standing second only, in importance and magnitude of works, to the Northern Outfall Sewer; and it is now more than half completed. The contract comprises the construction of about 7½ miles of sewer, 11½ feet in diameter, of which about 4 miles are completed; and the value of the work executed up to the 25th March last was 127,000l., and up to the present time 174,000l. This work, both as to the manner in which it has been executed, and the quality of the materials so far, reflects much credit on Mr. Webster, the contractor.

Southern High Level Sewer.

The Southern High Level Sewer is now about half completed: it has been a long time in hand, and the failure of the original contractors has caused the Board and their officers much anxiety. I am unable to speak of the mode of conducting this work in the same terms of commendation that I have used with respect to some of the other contracts; but when finished it will, I trust, prove to be solid and substantial; and there certainly has of late been some improvement in the quality of the materials. The total length of sewer under this contract is 9½ miles, of various sizes, but terminating in a double sewer, each section being 10 feet 6 inches in diameter. The length of sewers executed is about 5½ miles, and the value of the work done up to the 25th of March was 72,500l., and up to the present time is about 92,000l.

Southern Low Level Sewer.

A short section of this sewer, under the Surrey Consumers' Gas Works at Deptford, has been constructed under great difficulties; the subsoil having turned out to be a running sand, filled with an unprecedented volume of water.

THE LABOUR QUESTION.

Worcester.—The works at Worcester Cathedral, the new bank, and other places in that city, were brought to a stand-still on Monday last week, by a turn-out amongst the stonemasons, numbering about 150 men. "A circular [says the *Worcestershire Chronicle*], was sent to the employers on the 23rd ult., making certain demands, and requesting an answer by the 31st. The employers not having complied by the time specified the men simultaneously 'struck' work on Monday morning. The following code of rules was embodied in the workmen's circular:—1. That the wages be 4s. 6d. from the 15th of February to the 15th of November, and 4s. per day for the remaining three months. 2. That we cease work at half-past five for the first five days, and four o'clock on Saturday, summer months. 3. That we work from daylight till dark the winter months, Saturday four o'clock throughout the year, artificial light not to be introduced. 4. That all overtime be abolished, except in cases of emergency, in all such cases to be paid time and half. 5. That the meal time be one hour and a half in summer months, and one hour in winter months. 6. That wages be paid directly we cease work." The employers look upon the attempt to prohibit the use of artificial light in winter, and to abolish overtime, as tyrannical, and as a piece of interference to which they are resolved not to submit." It appears that in a circular of July 16, the men made application to leave work at four o'clock on Saturdays instead of half-past five. The employers then granted them, as an equivalent, a rise of wages of 3d. per day, having previously granted them a similar increase; so that their wages since July have been 4s. 6d. per day, or 6d. more than the wages at Gloucester. On the other hand the men, it seems, will now be satisfied with the boon of early closing on Saturday; a privilege which they assert is enjoyed by the masons in almost every town in the kingdom. The masons employed at the Foregate-street railway station have re-

sumed work; the contractor, Mr. McCann, of Malvern, having acceded to the Saturday short-hour movement.

Bath.—The masons employed at Messrs. Myers's quarries at Box, near Bath, have struck work on the hour question.

Kenilworth.—About thirty masons employed here by Messrs. Trollope have also left work on the same question.

Liverpool.—A bricklayer, named Joseph Powell, has been sentenced to imprisonment with hard labour, for three months, for assault and intimidation. In passing sentence, the magistrate said, it was a sad case. Every right-minded man must lament such a state of things as that strikes amongst workmen should subside into tyrannical interference and intimidation. Men had a right to combine to obtain any rate of wages, but they had no right to interfere with others receiving any price for their labour they thought proper to take. He wished it to go forth that if any assault was made upon workmen, or they were intimidated under similar circumstances, the law would give them the best redress and protection it allowed. He was sure he was speaking the sentiments of every man on the bench when he said they would give every protection to men trying to earn an honest living by their labour. The prisoner urged that he had a large family to support. The magistrate, Mr. Holmes, said the prisoner must remember that the men he had attempted to intimidate had families too, and must not be prevented by violence or intimidation from earning a living for those families.

CARLISLE CORN-MARKET COMPETITION.

With reference to a paragraph on this subject in a recent number, the corporation surveyor of Carlisle, Mr. J. Gordon, wishes it understood that the plans submitted to the meeting alluded to in the paragraph were by him, and that the 2nd awarded to Mr. Carter were for plans submitted in competition, but which the Corn Market Committee could not recommend to the Council for adoption. He continues, "The council some time ago advertised for plans, offering 20l. for the best, and 10l. for the second best, without any reservation as to the premiums not being awarded in case the plans sent in were considered of insufficient merit, and in answer to that advertisement only three sets of plans were received. It will therefore be seen that two of them, whatever their merits, must necessarily, under the conditions, be entitled to the premiums. One set of plans being totally unfit for the site, was returned; the author of another set could not be made out. Mr. Carter had it, therefore, all his own way."

I was precluded from competing, and after the committee found they had not got a set of plans submitted in competition which they could recommend to be carried out, asked me to make them a set, and the result of my labours having been approved of and adopted, I think it only fair that the impression given to your readers by the paragraph in question should be removed."

IRELAND.

Bray Church.—The stone of the above church was laid by the Archbishop of Dublin on Monday last. The site was given by the late Lord Herbert, of Lea, and is beautifully surrounded by the most Wicklow mountains and scenery of the most splendid description, which will quite harmonize with the very lofty dimensions of the new church. The style of the edifice is Early Middle Pointed, and it consists of nave, aisles, chancel, and vestry. The clear internal length of the church is 125 feet, and 62 feet 6 inches wide: the height, from level of nave floor to underside of ridge, is 64 feet; the tower and spire, of good proportion, are placed at the north-west corner. The external dressings will be of granite (the local stone), and the walls of the same material, but built in irregular courses. This will necessarily simplify the ordinary details: the arcades and internal masonry, however, are of Bath stone. The architect is Mr. William Slater, of London: the builder is Mr. Carroll, of Dublin.

PROVINCIAL NEWS.

Bedford.—The Britannia Ironworks, Bedford, are being enlarged, by the erection of a large building, at a cost of 2,000l., including the site. The style will correspond with the other parts of these works, the same architect, Mr. Palgrave, of London, having prepared the plans, and two of the same builders, Messrs. Lawson & Freshwater, being employed to carry out the works. The manufacture of steam cultivators, according to the local *Times*, has become an important addition to the staple trade of Bedford.

Bath.—The scheme proposed by Messrs. Hickes & Isaac, of Bath, architects, for the improvement of the city markets, and which has received the sanction of the Markets Committee, is based upon commercial principles, says the *Bath Chronicle*. They propose to open a broad central avenue, extending from the Orange-grove and High-street to the head of Pulteney-bridge. The foot traffic

between Pulteney-street, Bath-wick, and the city, would thus be thrown through the markets, rendering the space on either side of such avenue valuable as shops or stalls. The avenue before alluded to intersects a central dome, of ornamental ironwork, under which the fish market is arranged. This dome is carried by iron girders, springing from columns with enriched caps. The dome is roofed in, partly with slate and partly with obscured glass. Ventilation is secured by the arrangement of the roof and stall holders. The fish stalls are proposed to be fitted up with marble or slate slabs, over which a constant supply of water would flow. A gallery, above the fish-stalls, runs round the interior of the dome, for the display of game, &c. The whole of the interior is proposed to be painted a light bronze colour. The roofs over the whole of the markets are of a light character, iron being largely introduced in their construction. Messrs. Hickes & Isaac suggest three modes of continuing Market-row to the Orange-grove or Pierpoint-street. In each scheme they propose to remove the present slaughter-houses, and construct *abattoirs* on the site, forming a road and wholesale vegetable market over the said *abattoirs*.

Dukinfield.—The Board of Health for the township of Dukinfield having secured land in King-street for a public market, and determined to erect public offices and a residence for their surveyor, the foundation-stone has been laid, and as it was the first public building ever erected in Dukinfield, some little ceremony was observed. The building is so constructed, and will be of sufficient strength, to allow of a large room being thrown over it, for a magistrates' room, or concert hall, &c.,—a room much wanted in the township.

CHURCH-BUILDING NEWS.

Somerby (Leicestershire).—All Saints' Church here is about to undergo a thorough restoration. Plans have been prepared which embrace a new arcade on the south side, new roofs to north and south aisles, new benches, pulpit, and reading-desk; opening out the tower arch, removal of the unsightly gallery, new windows, and restoration of existing ones, &c. The tower is placed between nave and chancel, and as there are no transepts it has rather a singular appearance. The northern arcade is very fine; and if the funds admit of the present brick piers and arches on south side being removed, and a corresponding arcade to the north substituted for them, the church will be one of the best in this part of the county. Mr. R. W. Johnson, of Melton Mowbray, is the architect for the restorations.

Eastwell.—The partial restoration of Saint Michael's Church has been commenced. The plans were prepared last year; and, as the funds will not admit of a complete restoration, the rector has decided to expend the money collected as far as it will go. The chancel, also, is under repair. The works are being carried out under the superintendence of Mr. R. W. Johnson, architect.

Bromley.—The foundation-stone of a new missionary church and schools has been laid in the parish of St. Leonard's, Bromley, Middlesex; of which Mr. John Walter, M.P., is the patron. The church is 78 feet in length by 35 in width; of the geometrical style of architecture, with open timbered roof. On the south side of the church is the site reserved for the permanent church which it is proposed to erect. The edifice is dedicated to St. Michael and All Saints.

Charmouth.—St. Andrew's Church has been consecrated by the Bishop of Salisbury. The edifice had for some time past been undergoing considerable repairs. The church, which was rebuilt some time ago, is of Elizabethan design, and stands in the centre of the village. The altar-piece, which has been recently erected, is of Caen stone; surmounted, in the centre, by a battlement, and at the sides by ornamented canopies and pinnacles. There are five arches, four of which contain the Ten Commandments, the Lord's Prayer, and the Apostles' Creed. The high-backed pews have been removed, and in their place are open seats. Three stained windows, the gift of Miss Stewart, of London, have been placed on the north side of the edifice. The design is by Messrs. Lavers & Barrand. The churchyard has also been enlarged by the removal of an adjoining house; the whole being enclosed by a stone wall. The restorations have been carried out by voluntary subscriptions, and only about 80*l.* or 100*l.* of debt remains on the building.

Bromsgrove.—A new chapel, just erected by the Primitive Methodists, was opened on Sunday last. In the evening, just previous to the commencement of the service, some

300 persons being present, upon the ground-floor, no gallery having been erected; suddenly a crash occurred, which was caused by the dislodging of the pillars underneath the chapel, where is a school-room of the size of the chapel, and about 7 feet high. It appears the supports were temporary (of wood), and those on the sides underneath the centre beam gave way, which caused the centre pillar to break, and the noise caused thereby occasioned great alarm to the congregation, as all expected to be precipitated to the room below. The females shrieked, and the men shouted lustily; and, as soon as possible, the place was cleared. No person was hurt. Early on Monday the pillars were firmly fixed; and in the evening a tea-meeting was held, which was attended by nearly 200.

Crewkerne.—Merriott Church has been reopened, according to the *Dorset Chronicle*. The old galleries have been swept away, the church newly seated with open benches, the nave lengthened, and the chancel restored. The building consists of a triple chancel, a nave with its side aisles, and the old tower at the west end. The chancel aisles are divided from the chancel proper by two arches on each side, supported by solid shafts of Bath stone, surrounded by columns of Purbeck marble. The vestry screen at the eastern end of the south aisle of the chancel is of Bath stone, and ornamented with arches with trefoil headings, supported by Purbeck marble pillars. The reredos is also of Bath stone. The old piscina has been converted into a sedilia, and is placed in the wall on the south side of the altar. The old east window has been retained. It is in the Decorated style, and consists of three lights, with a circle in the head, and there are the remains of a hood moulding. The window has been newly glazed with coloured glass, by Messrs. Lavers & Barrand. In the series of groups of human figures are represented the principal events in the life of Christ, from the Annunciation to the Descent of the Holy Spirit. The floor is paved with encaustic tiles from Messrs. Maw's establishment. The steps approaching the altar are of black marble. The roof of the chancel is of pine, stained and varnished. It is of half-octagon shape, divided into panels by ribs of gilt and scarlet, with bosses at the intersections. The stalls are of open perpendicular work. The whole of the chancel has been rebuilt, and put back to the length of a bay; that bay having been added to the nave at its eastern end. The nave, in its enlarged form, is divided from its aisles by four arches, and is lighted by four perpendicular windows on the north side, and by three on the south side. The ground-floor of the tower has been opened into the church, and is appropriated to the school children. The benches supply sittings for about 540 people, and 140 are free. The cost of the work was upwards of 2,000*l.* The works have been carried out by Mr. Davies, of Langport, from the plans and under the direction of Mr. Ferrey, the diocesan architect.

Ripon.—Trinity Church has been re-opened for divine service. During the time the church has been closed extensive alterations have been made. The gallery at the west end has been entirely removed, and galleries have been erected across the north and south transepts, thereby providing a large increase of church accommodation. The church is now lighted by night with two sunlights.

Peasenhall Church.—We would add to our recent notice of the restoration of this church, that Mr. R. D. Chantrell was the architect, and Messrs. H. Ringham & Son, Ipswich, were the contractors.

STAINED GLASS.

Shareshill Church.—The Rev. W. H. Havergal, rector of Shareshill, in the county of Stafford, has just had the east window of that parish church filled in with stained glass. The window was designed and executed by Mr. George Rogers, of Worcester. In the centre compartment are three symbolic devices; namely, the Holy Trinity, surrounded with the text, "Three persons in one God;" above, the cross, crook, and sceptre: "If we suffer we shall also reign with Him;" and below, a sheaf of corn, with a chaplet of vine: "I am that bread of life; I am the true vine;" wheat ears, intertwined with the vine, surrounding the whole. The two side lights are of a corresponding design, in which are represented the helmet, sword, and shield; the sacred monogram of Jesus, crown and palm branches, Holy Bible, dove and serpent; the all-seeing Eye, surrounded by lilies of the valley and violets.

St. Mary's, Hulme.—A stained glass window has just been placed in this church by the liberality

of a member of the congregation. The window is composed of grisaille glass; the design being taken from an old window in Exeter Cathedral. In the centre light is a figure of our Lord, as a little child, in His mother's arms; the subject being chosen as appropriate to the situation of the window, which is immediately over the font, and also on account of the dedication of the church to St. Mary. The work has been executed by Mr. Wailles, of Newcastle.

St. Raphael's, Bristol.—It is intended to enrich the church of St. Raphael, the Archangel, Bristol, with a series of stained-glass windows, illustrating the "Ministry of Holy Angels," arranged in type and anti-type fashion. The first window is now in hand. It contains, first, "The Sons of God shouting for Joy at the Creation of the First World;" second, "The Angels foretelling the Birth of the second Adam to the Shepherds."

RAILWAY MATTERS.

The coroner's inquests on the two accidents, on the Brighton and the North London railways, as our readers must by this time know, have terminated in verdicts of manslaughter. At the Kentish town inquest, Rayner, the signalman, stated that he was nineteen years of age, that his wages were fourteen shillings a week, and that he worked fifteen hours and a half one day, and ten and a half another, alternately. The jury returned a special verdict of manslaughter against Rayner. They also censured the directors and managers for employing such inexperienced persons to fill the offices of signalmen; expressed a strong opinion as to the impropriety of despatching a special train at any other than the specified time; and recommended that, "when the line is obstructed by shunting or otherwise, it should be blocked by telegraph as well as by out-of-door signals." At the Brighton inquest, the jury returned a verdict of manslaughter against Mr. Legg, the assistant station-master at Brighton, for having started the trains with such fatal rapidity the one after the other. They exonerated the engine-driver, and Kellick and Brown, the signalmen, from blame; and condemned the defective system under which, on the day of the accident and for some time previously, the company's rule with regard to the starting of the trains had not been adhered to. It is rather a curious coincidence, in these two nearly simultaneous and equally horrifying accidents, that the engine-drivers in both cases seem to have been named Scott—John Scott and George Scott.

The works on the Metropolitan Extension of the London, Chatham, and Dover Railway were commenced by Messrs. Peto & Betts in February last, and the progress made has exceeded expectation. The tunnel in the vicinity of the Crystal Palace is about 2,000 yards in length, and is perhaps the heaviest work on the line. It passes through London clay; and in order to facilitate operations seven shafts have been sunk from the top of the hill down through the centre of the tunnel to the level of the intended railway. The shafts have been bricked down to the arching of the tunnel, which has been constructed to the full size at these places. To prevent accidents from the treacherous nature of the soil, the excavation in the tunnel is carried on for a short distance, and the brickwork is commenced and completed for that distance, and then the operation of the excavation is repeated and the brickwork further extended. The aggregate length now completed is about 235 yards, or about one-ninth of the whole. On other portions of the line the brick viaducts have progressed rapidly; the aggregate length of them being about 6,200 yards, including 600 arches of 30 feet span. Of these 300 have already been constructed. The length of girder-bridging for crossing the public roads and thoroughfares is 500 yards; and about 85 yards of it are ready for fixing the girders. The operations for making and providing the immense number of bricks required for these works are on a very large scale near the tunnel at Sydenham. With regard to the extension to Farringdon-street, it is not intended to wait for the completion of the bridge over the Thames; but, on the completion of the viaduct and railway to a point near the river, to erect a temporary station contiguous to the south end of Blackfriars Bridge for the accommodation of the City traffic.

The Charing-cross railway directors, having failed in their endeavours to rid themselves of the necessity imposed on them, by the Governors of St. Thomas's Hospital, of purchasing the whole of that property, have abandoned all further efforts in this direction, and have given notice of their intention to buy the whole hospital and its appurtenances. The question of value will now,

therefore, be determined, under the powers of the Public Works Acts, by arbitration, in the usual way. The land occupied by this important public charity is said to be 3½ acres; and, with the buildings, must be of great value. The claim is reported to be, in round figures, nearly a million. The hospital will consequently be removed and rebuilt; but at present no site is even suggested. By a clause in the Act no part of the hospital can be touched for 12 months after the notice is given.

A correspondent of *The Times* writes as follows:—"We are informed that a special carriage, costing 3,000*l.*, has been fitted up by the North-Western Railway Company for her Majesty's use; and that the 'tires of its wheels were put on cold, and hardened, as affording a greater security than those manufactured under the ordinary process.' Every Briton will rejoice in this; but will it not strike many, as it does me, that if there be so 'secure a process,' why is it not universally adopted; and why, for the sake of a larger railway dividend, should our lives be thought of less value than that of her Majesty?"

A "universal railway signal" has been registered by Messrs. Turner & Yates, of Leicester. In their description of it, they explain it to consist in signals fixed to the engine of a train, in sight of the driver, and capable of being acted on from the line, as during fogs and darkness, by the pointsman, who can also cause the whistle of the engine to alarm both driver and guard, and otherwise warn the guard simultaneously with the driver, so that both break and engine may be at once brought to bear in checking or stopping the train.

The North Eastern Company have, in the course of the last few months, made great additions to their goods and passenger accommodation on many of their branches of the northern division. At South Shields a goods warehouse and offices are in course of erection; and considerable additions are being made to the passenger station at the same place. At Sunderland a goods warehouse is to be erected as soon as the corporation will allow of arrangements being come to, and cease their culpable opposition to the same. At Hartlepool wagon-shops and a goods warehouse have been commenced. The terminus at the watering-place of Tynemouth is now being greatly enlarged and improved, which has been for some years much required. The central station, Newcastle, is also to receive extensions in the shape of increased hotel accommodation to be erected at the east end of the building, adjoining the present hotel. When this is completed, together with the portico at the main entrance (the erection of which is now talked of), this noble building will be nothing short of any of its kind in the kingdom.

The same company have commenced with the formation of the branch railway to the new quay at Gateshead-on-Tyne, from their goods yard down on to the new quay which is now being made by the corporation of Gateshead. This is the first instalment of the improvements resulting from the great fire which occurred just seven years ago; the whole of the new quay and part of the branch railway being formed on ground lately occupied by part of the ruins of the fire and explosion. It is intended to erect a shed over a portion of the quay at the bottom of the incline, and also travelling-cranes next the river, for transferring goods from ship into the railway, and *vice versa*. When these have been completed, it will only remain for some enterprising capitalist to erect warehouse accommodation (for which there is ample space still covered with ruins), when the town of Gateshead will be provided with wharfage convenience of no mean order.

GAS.

THE balance-sheet of the Crystal Palace District Gas Company for the last half-year shows the profits for the half-year to be 2,120*l.* 2*s.* 7*d.* Out of this sum the directors recommend the declaration of a dividend after the rate of six per cent. per annum, together with a bonus after the rate of two per cent. per annum, both free of income-tax; the remainder to be appropriated as follows, namely, 40*l.* 6*s.* 4*d.* to dividend on preference shares; and 83*l.* 2*s.* 7*d.* to the profit of the succeeding half-year.—The West-Ham Gas Company have declared a dividend of 3½ per cent. on the half-year free of income-tax. A new gasometer is being erected at a cost of 8,000*l.* The report of the Wolverhampton Gas Company stated that the income of the company for the half-year was 11,599*l.* 6*s.* 8*d.* and the expenditure 7,405*l.* 0*s.* 10*d.*, leaving a balance of 4,194*l.* 4*s.* 10*d.* The

directors recommended the payment of a dividend of five per cent. free of income-tax for the half-year, which would leave 635*l.* 16*s.* 10*d.* to be added to the reserve fund. The reduction of the maximum price to 3*s.* 9*d.* per thousand feet had given general satisfaction to the customers, and was expected to lead to a greatly increased consumption. During the past half-year it had become necessary to renew many of the worn-out mains and services in central parts of the town. Hitherto the restoration of these pipes had been attended with excellent results in reducing the per-centage of loss by leakage. The report was adopted.—The jubilee of gas-lighting in the city of Bristol has just been celebrated by an illuminated *soirée* at the Avon-street gasworks, St. Philip's. After tea, a variety of sources of attraction were furnished to the artisans; and during the evening the gasworks band played an agreeable selection of music.—At the half-yearly meeting of the Derby Gas Company, a dividend of 10 per cent. has been declared.—The Sunderland Gas Company, in their forthcoming report, intend to recommend a dividend of 4½ per cent., in addition to 3½ per cent. already paid in the spring, making 8 per cent. for the year.—At Peebles, the price of gas has been reduced from 8*s.* 4*d.* to 7*s.* 6*d.*

HULL WATER-WORKS' ENGINEER.

SIR,—As you are a lover of fair play, and expose the shams that take place, may I beg space for the following. The corporation of Hull advertised for an engineer to their water-works; the applications, &c., to be forwarded to the town clerk by the 30th of August (some arrived after this, but it is not of them I wish to speak). The council held a meeting on the 29th to elect an engineer (if they saw fit). Now there were more than seventy applications; and one of the members (the chairman of the Water-works Committee) asked for an adjournment, in order that the testimonials of the applicants could be read by any of the members that liked. This was put down with loud cries of "No! no! Proceed to election." The consequence was that some six were voted for; the testimonials of the others not having been even looked at; and the result of the election was the appointment of a gentleman (even taking his own testimonials) without qualifications as a water-engineer.

In fairness to the candidates, should this be the course pursued? Are their money and time to be wasted because the town council are too lazy or too careless to do their duty? If a man pick your pocket you have your remedy; but it is not so in the case of public bodies, who think the waste of time and money of those unfortunately obliged to seek employment from them as nothing.

If the election is to be public, let every one have a fair chance; if not, let them write to a few candidates who are known to them, in the same way that an engineer or architect does when he has a contract to let. Then all the people would stand a chance of justice: as it is, no one knows what to do. In one place he must canvass, and in another it loses him the election.

ONE OF THOSE WHO WERE SOLD.

THE DEFENCES OF PLYMOUTH.

SIR,—It is high time some one possessing a knowledge of, and taste for, the principles of civil architecture, as combined with military engineering, should be called in to direct the defences of this important place; or else, whatever may be thought of them as barriers against an invading army, they will expose us only to the ridicule and contempt of our polished neighbours in point of taste, when contrasted with similar works abroad. I am far from advocating expensive decoration: I simply ask that propriety should not be violated by the erection of such tasteless structures as have been erected here, where money is thrown away in the attempt by utterly incompatible parties to produce effect. Take, as an example to explain my meaning, the outer or eastern face of the eastern entrance to Devonport, adjoining Stonehouse, which has four arched openings and five pilasters, with an entablature, which I presume are meant to represent a Tuscan façade, but the character of which would be a disgrace if to a chandler's shop, and if put up by a village carpenter. It is absolutely beneath criticism. The attenuated shafts of the pilasters; the enormously disproportioned caps and bases; the vulgar mouldings, especially the torus instead of quarter-round in the capital; the projection of the entablature sideways, considerably over and beyond the outer edge of each outer pilaster; the want of any projection to define the limit of the façade; the disproportionately large, yet weak and ill-shaped, crowning moulding of the cornice; the thin ribband-like impost at the springing of the arches to the openings; the mean construction of the panels over these, formed by narrow stones, like picture-frames, instead of being moulded out of one block; form only a portion of the gross

* At the first voting, the numbers were—Mr. Charles Gott, Wakefield, 8; Mr. Fairbank, Scarborough, 9; Mr. Thos. Dale, Wakefield, 19; Mr. Glynn, London, 9; Mr. Hillman, London, 1; and Mr. Geach, Newton Abbot, Devon, 1. The last two, on the second count, were dropped. The second voting was as follows—Mr. Thos. Dale, 31; Mr. Glynn, 8; Mr. Fairbank, 5; and Mr. Gott, 3. Mr. Dale, of Wakefield, was therefore elected the new engineer.

absurdities of this miserable abortion of architecture. It would have been an infinitely better specimen of architecture had it been a mere plain undressed front; as is its inner face; or simply rusticated or hammer dressed; and the 50*l.* so spent in decoration had been saved; for, as a work of fine art, it is a disgrace to the country as it now exists. I might enumerate many more similar failures, but this will suffice to explain my meaning. Why will not the authorities place the erection of our public structures in more competent hands? And the principal entrance to a town—as this, in fact, is—is the most public of public structures. AN OBSERVER.

DECISIONS UNDER METROPOLITAN BUILDING ACT.

The District Surveyor of South Marylebone against Messrs. Holland.—This was a summons taken out at the Marlborough Police Court, to require Messrs. Holland to construct the staircases and passages of the Music Hall, called the "Oxford," behind the Boar and Castle, of fire-proof materials, and also to make a fireproof entrance through the Boar and Castle. Messrs. Holland had applied to the Board of Works, through the architects to the building, upon the receipt of notice of irregularity, and the Board had determined that the entrance between the Boar and Castle and the hall must be fireproof, but took no notice of the wooden staircases or passages. Messrs. Holland, it was stated, did not even alter the part referred to by the Board of Works, and the district surveyor took out the summons for the whole irregularity. The district surveyor argued that the sub-section did not override the local section, so as to justify wooden staircases and passages in a public building, and that even if the Board of Works had the power to dispense with the requirements of the Act in the case of public buildings, they had not done so, as they had taken no notice of that part of the document, and had never heard the district surveyor on the case. The magistrate (Mr. Beadon) determined that the Board of Works had made an award; that they claimed a power to dispense with the requirements of the Act; that, as they had made an award, the district surveyor was relieved from all further responsibility, and dismissed the summons. In this case there are openings in the old party walls above the roof, and one opening through the party wall below the roof, the staircases to the "private boxes" which are let to the public are of wood; a passage along one entire side of the building, communicating with the wall at each end, is of wood; and all the staircases to the performers' parts of the building are of wood.

COMPENSATION CASES.

Clerkenwell Court. - The Metropolitan Railway.—Three cases of compensation were decided a few days ago. The cases were those of Mr. Edwards, milkman, of Acton-place, who claimed 38*l.*, the company having offered him 70*l.*; Mr. Briggs, of 4, Acton-street, who claimed 140*l.* and was offered 61 guineas; and that of Mr. Newbury, who claimed 120*l.*, and was offered by the company 52*l.*. Mr. M'Donnell attended for the claimants, and Mr. Barchell for the company. Mr. D'Eyncourt, in giving judgment, said:—"The first case before me is that of Mr. Edwards, and it is the only one in which any difficulty has presented itself. Mr. Edwards claims compensation not only for the four months' unexpired term in his premises up to Christmas next, but also for the damages he will sustain by the loss of his tenancy beyond that period—a loss, he says, occasioned by the act of the company, as but for them he would have remained a yearly tenant of Mr. Silcock. I cannot regard this notice to quit as the act of the company. The landlord gave the notice not as the agent of the company, but as a possessor of the house for business. I have, therefore, only to assess the damages upon the loss of the net profits of the business for four months, for the fixtures, for some delay in obtaining a new house suitable for his trade, and the time given him for seeking a new house being shortened by the company taking possession; and for a slight loss by removal, perhaps to another place in the first instance. Taking all these items together, I determine that the company do pay Mr. Edwards, as compensation for taking possession of his premises, the sum of 140*l.* This award includes the value of the costs. The company must pay 5*l.* for costs in this case. In Mr. Newbury's case, taking all matters into consideration, I determine that the company do pay him 81*l.* 10*s.*, and 4*l.* 4*s.* costs. In Mr. Briggs's case the award will be by consent of the parties for 80*l.* 10*s.*, he being at liberty to remove the tenant's fixtures. The company would also have to pay 4*l.* 4*s.* costs.

Books Received.

On Food; being Lectures delivered at the South Kensington Museum. By E. LANKESTER, M.D. F.R.S. London: Hardwicke, 193, Piccadilly, 1861.

DR. LANKESTER is an excellent lecturer; and a volume such as this must needs be one of the very best of its kind; and it is so. It is a work full of instruction and amusement. As superintendent of the animal products and food collections at the South Kensington Museum, Dr. Lankester delivered the first series of his lectures at this Museum; and, although he ceased to lecture there, it has been felt advisable to add the second and last series, so as to complete the work. The first series or course of six lectures relates more especially to food in its heat-giving (flesh-forming, and other proximate elements); and the second to drinks such as wines and spirits, tea and coffee; to condiments and spices; and to narcotics such as tobacco and opium.

Having more than once spoken, in the *Builder*, of the curious and important distinction between

heat-giving and flesh-forming foods,—between such substances, for example, as starch, sugar, butter, fat, oils, &c., on the one hand, as fuel to the vital fire whose furnace is the lungs; and others, such as milk, eggs, beef, mutton, lentils, oats, wheat, and barley, all providing the flesh-forming fibrine, albumen, phosphates, &c., which sustain the vital frame; we shall not at present allude much farther to these interesting subjects; but we cannot allow so entertaining and curious a work as this to escape us without plundering it of a few of its miscellaneous and minor subjects of interest.

The second course of lectures is no less varied in its popular interest than the first. The subject of condiments, spices, and flavours, is a curious one. Dr. Lankester classes among the condiments, as being flavours agreeable with salt, such substances as onions, garlic, and even assafoetida, the most abominable drug in the dispensary:—

"Persons fond of onions," he remarks, "will get from onions to leek, from leek to garlic, and from garlic to assafoetida; and thus it is that, in the City, if you go to a chop-house, and ask for your steak with a little higher flavour, they take a warm dish, rub a little assafoetida on it, and put the steak on it. You do not, perhaps, know that you are eating assafoetida, but you find it agreeable."

Iodine, as every one knows, is a very volatile, vapoury sort of substance, but showy with all. Have these special properties of iodine anything to do with the rather curious fact that "this iodine exists in the bodies of Frenchmen?" The Genevaise are supposed to be liable to *gottre*, because there is no iodine in their bodies. But what of the English? Except it be "the Derbyshire neck" they are not subject to *gottre* either; and surely in an island, and surrounded by the sea, the grand source of iodine, the inhabitants must be at least as likely as the French to have iodine in their blood.

As national characteristics probably "run in the blood," of what peculiar characteristic in the Scottish blood can the fact be representative, that—

"Manganese exists in the soil of Scotland: it is taken up by the oat plant, and thus conveyed into the blood of the Scotch, who feed on porridge; and Scotchmen are said to have manganese in their blood."

Some members of the royal family are said to be very partial to porridge: they must be getting inoculated with this peculiarity in the Scottish blood; and if the blood of Earl Grey, who was induced by Her Majesty to try the porridge, were analyzed, we dare say some traces of Scotland might be found there too.

Englishmen seem to have a special contempt for oatmeal and porridge; English oats being really only fit for horses. But English oats are not Scotch oats, and a Scotsman in London detests porridge made of English oatmeal, perhaps, as much as an Englishman can do. The oatmeal of Scotland is sweet and pleasant to the taste; while that of England is rank and bitter; and, as we have said, really only fit for horses. Nevertheless, even English oats must be highly nutritious, else even horses could not thrive so well on them.

There is a certain well-known argument as to the essentially carnivorous nature of man; drawn, not from his practice, which is certainly sufficiently carnivorous, but from his anatomical conformation; to which Dr. Lankester alludes, but which we think is somewhat defective. The argument is this:—That man "has certain teeth,—the canine, —which, like those of lions and tigers, have the power of cutting," and others which have the power of grinding; "so that you see he is evidently provided with instruments to enable him to prepare for his digestion both vegetable and animal food." The conformation of his bowels too is adduced in support of this argument; the stomachs of herbivorous animals being more complicated than that of man. There is no doubt much force in this line of reasoning; and we do not for a moment wish to maintain that animal food is not natural enough to man as he at present exists. But it is a well-known fact that the anatomical conformation of the ape tribe closely resembles that of man; teeth and stomach both inclusive. Now the ape tribes are frugivorous, but they are not carnivorous; and it may be a question whether the dental conformation of both man and monkey do not simply imply that both are essentially frugivorous,—that the cutting and grinding of fleshy fruits rather than of animal food was the original intention of the Creator in both cases. The stomachs of sheep and such like animals are peculiarly fitted for the digestion of so primitive and unelaborated a substance as grass; but there is a long stretch from grass to the higher orders of even vegetable food; just as there is from the conformation of the stomach of the sheep to that of either man or monkey.

That vegetable food, too, is capable of yielding immense physical strength, notwithstanding what Dr. Lankester and others maintain as to the necessity of animal food to man for such a purpose, is evident from the fact that the beasts of burden,—the horse, the ox, the ass, the elephant, the camel,—are, every one of them, vegetarians. Still we must admit the greater suitability of the conformation of the bowels of all these animals for the elaboration of vegetable food,—at least of the lower kinds, such as the grasses,—than in the case of either man or monkey.

But Dr. Lankester's very suggestive and interesting book leads us to forget both our limits and our time; and we must now take leave of it, with a strong recommendation to readers of all classes to purchase, peruse, and re-peruse it, at their best hours of leisure.

VARIORUM.

"Second Report of the Municipal Commissioners of Calcutta, on the Progress of the Works connected with the Drainage and Sewerage of the Town." From the details furnished by the engineer to the commissioners, Mr. Clark (late of Hull), it appears that the experimental works are rapidly advancing towards completion, and that provision has been made for not only bringing them into practical use with as little delay as possible, but also for extending the system at once to the remaining thoroughfares of the southern division of the town, should the result of the experiment prove as satisfactory as anticipated. Serious difficulties encountered in the practical execution of the works are described by the engineer, in his report; but the experimental works, by the end of the current year, will probably be put into such a state as to admit of their practical use being tested. They comprise the following mains or sewers, &c.:—

	Feet
Dhurumtollah, first-class main sewer, from Circular-road to Chandpal Ghaut	6,900
Old Court House-street, second-class sewer, from Esplanade-road to Scotch Kirk	2,400
Chowringhee-road, second-class sewer, from Dhurumtollah	4,742
Great receiving sewer at Bantaly	600
	16,642

Of these, on the 1st of May, 15,060 feet of arched masonry were completed, as follows:—

	Feet.
Dhurumtollah main sewer	8,110
Old Court House-street (completed)	2,400
Chowringhee-road	4,250
Main receiver at pumping station	300

—"The Railway System and its Author, the late Thomas Gray, the Railway Pioneer: a Letter to the late Sir Robert Peel. By T. Wilson, Chevalier de l'Ordre de Lion Neerlandais. New edition." The merits and pretensions of the late Thomas Gray we have now brought under the notice of our readers; and although we can scarcely regard him as the author of the railway system, he was an important but unrequited pioneer, only too long "before his time,"—a "hasty fruit before the summer" of the railway system had set in; and fell into oblivion unregarded and unrewarded. The commendable object of the re-issue of the Letter to Sir R. Peel is to endeavour to benefit the family of Thomas Gray, and we earnestly hope it will be successful.

Miscellaneous.

IRON DWELLING-HOUSES.—An iron house is now being built on the London-road, at Leicester. The building is entirely made of iron, with the exception of the foundation, and is the invention of Mr. J. Chesterton, who is also the patentee.

DRESSING STONE.—Mr. J. W. Graham, of Manchester, has provisionally specified an invention, which consists in providing above the stone to be dressed a series of chisels, supported in suitable framing. The framing may be moved in any direction, and motion is given to the chisels by cranks. By this arrangement the stone may be cut, chipped, and dressed to any required form.

IMPROVED GRANARIES.—The agricultural journals of France draw attention to a new system of preserving wheat. It consists of pits dug in the earth and lined with masonry or brickwork, which is afterwards coated with thin sheet iron. The War Department of France, by way of experiment, had 576 quintals (the quintal is 2 cwts.) of wheat buried for the space of 25½ months in such pits; and the result, says the *Economist*, was that the grain was preserved in excellent condition, and that it only lost in weight seven kilogrammes, about 15 lbs. The War Department, it is added, contemplates applying the system on a grand scale.

ROAD ACROSS HYDE-PARK.—A movement, it seems, is in progress at Paddington, for procuring the long-desired road across the park, bringing the districts of Hyde-park-square, Bayswater, &c., in direct communication with South Kensington. A parish meeting is to be held to discuss the subject.

THE BULL POINT POWDER MAGAZINE CONTRACT.—The *Plymouth Mail* says:—We regret to hear that in consequence of the discovery that iron nails were being used instead of copper by the contractors for work at the new powder magazines at Bull Point, an order has been issued to stop the work immediately.

RESIGNATION OF THE LIVERPOOL DOCK ENGINEER.—Mr. J. B. Hartley, the resident engineer to the Mersey Dock Board, has tendered his resignation on account of ill health. His complaint is neuralgia, from which he has been suffering for some time. The salary attached to the office is 3,500*l.* per annum.

PHOTOGRAPHS OF THE 1862 EXHIBITION.—The Great Exhibition of 1862 daily becomes more and more of a reality. A firm in the City, it is said, has secured the right to photograph everything exhibited in the Exhibition, and has of course paid handsomely for the right. Tenders were invited, and the gentleman alluded to offered double the highest tender, which was 3,500*l.* The privilege will cost 7,000*l.*

IMPROVEMENT IN CANDLES.—Steeple the cotton-wick in lime-water, in which has been dissolved a considerable quantity of nitrate of potash (chlorate of potash answers still better, but is too expensive for common practice); and, by these means, a purer flame and superior light are secured, a more perfect combustion is insured, snuffing is rendered nearly as superfluous as in wax candles, and the candles thus treated do not run. The wicks must be thoroughly dried before the tallow is put to them.

STEAM MACHINERY FOR CUTTING STONE.—About 1810, some machinery was erected in Dublin for the purpose of cutting, and polishing stone; from the want, however, of a demand for the article when so elaborated, the undertaking failed, and the projector became (we believe) a bankrupt. About 1828, a patent was obtained in this country for the application of a steam-mill to the same object; and the machinery was in operation, in that year, at Westminster. The process of cutting the stone is very much expedited; while it is done with greater facility and exactness; and the polish is far higher and more durable than can be obtained by men's labour. As this is an expired patent, I make mention of this invention (not unkind of periodical strikes) in the hope that the means of enriching our domestic architecture will be considerably reduced in price by the use of steam.—B.

PROPOSED MONUMENT TO SHAKESPEARE IN AUSTRALIA.—The stage seems to be making progress in Australia in addition to the legitimate drama. In this far-distant province of Great Britain a number of members of the House of Legislation, answering to the English House of Commons, have given an amateur performance of the "Merchant of Venice." The parts of *Portia*, *Jessica*, and *Nerissa* were filled by professional ladies. In addition to the play, a prologue was delivered by the late Attorney-General of the colony; and a very amusing epilogue was spoken by Mr. Pyke, a member of the Legislative Assembly. The donning of the sock and buskin by those lively M.P.'s drew one of the most crowded houses which has been witnessed within the walls of the Theatre Royal, although the prices were raised some 50 per cent. The object of this performance was to aid a subscription which had been commenced in Melbourne for the purpose of raising a monument to the memory of Shakespeare in that city;—a good example.

ACCIDENTS.—At an auction in Halifax, some thirty or forty persons were standing upon the second-story floor in a warehouse, while the auctioneer was "holding forth," when a portion of the floor fell through, and about a score were precipitated into the basement. The weight upon the floor had sprung out the joists. No one was killed, but several persons were injured.—The roof and walls of a bake-house have fallen at Stoke. The oven chimney, which was some 16 feet high above the roof, also fell, crushing in the roof of a closet. The walls were but 4-inch work—a single brick thick, and the end next to the house was in no wise connected with it, but only run up against it—the whole thing being a mere shell. The oven still stands, but its sides, which are supported by iron tie-bands, are much out of the perpendicular, and must come down before any steps can be taken to restore the building.

THE ANCIENT WALLS OF ROCHESTER.—Efforts, it seems, are at present being made to destroy a portion of the ancient city walls of Rochester, in which work of destruction the Royal Engineers are giving their aid. The object is the enlargement of a charity school.

THE BIRMINGHAM STRAFTERSHIP.—The town council of Birmingham have unanimously resolved to increase the salary of the borough surveyor from 300*l.* to 400*l.* per annum, from 1st January last, on account of additional labour connected with the new local Improvement Act and new cemetery.

GLASS CASKS.—These, it is said, are replacing, in the south of France, those made of wood. The glass casks are of different sizes, to contain from five to one hundred litres. They are said to be stronger, when kept stationary, than wooden casks, having withstood a pressure which shattered the ordinary casks to pieces.

FALL OF A PORTION OF A RAILWAY TUNNEL.—On Wednesday night, the passenger traffic on the up-line of the North Kent Railway was stopped for about two hours, in consequence of the falling of a small portion of the Blackheath tunnel. Fortunately, no accident resulted, as Mr. Chapman, station master at the Blackheath station, immediately telegraphed to all down stations to stop all up traffic.

TEAMWAYS: "A FACT NOT GENERALLY KNOWN." Under this heading the *Falkirk Herald* says:—"The father of Sir James Outram was the founder of the Buttery Iron-works, now the largest iron-works in England. He was a man of great ability, energetic, self-reliant, of fertile and ready resource; so much so that his opinion was deferred to by many of the most eminent engineers of the day, such as Sir John Kennie and Thomas Telford. He was the first, in connection with these works, to lay down an iron way, and it is to this circumstance, and from his name, that we have the term *Tram-way*." If the word tram was thus originated, how does it happen that the shafts of carts have been known from time immemorial in Scotland as "trams?" Surely Sir James Outram's father was not the inventor of these.

WOLVERHAMPTON SCHOOL OF ART.—The seventh annual meeting of this school has been held. Mr. Benjamin Hickling occupied the chair. The report and balance-sheet showed that the income of the school on the year would have nearly equalled the expenditure, if it had not been for an unexpected falling-off in the fees from students; the diminution in this source of income being, as compared with last year, 48*l.* 11*s.* 9*d.* The consequence of this is that the balance against the treasurer has been increased by the sum of 53*l.* 18*s.* 5*d.* The balance-sheet showed a total credit of 711*l.* 12*s.* 2*d.* Mr. Loveridge proposed the adoption of the report, which he said was certainly of a very gloomy character. Still, he believed that the position of the school was not so gloomy as at first sight seemed to be the case. The expectation that the school was to be given up had acted prejudicially to its interests, and he thought that if a guarantee could be given to Mr. Mauder to secure him from any further loss, something might yet be done. The report was adopted.

MONUMENTAL.—A monument has been erected in Rowsley Church to the memory of Lady John Manners, who died on the 7th of April, 1854. The monument is what is known as an altar-tomb, and is principally made of Darley Dale stone. On the top was an alabaster figure of Lady Manners, and a figure of her infant child is placed beside her. An angel kneels at each side of the head of the figure, and the arms of Lady Manners are crossed upon her breast. The columns which support the tomb are of russet marble, the carved capital and panels being of alabaster. The monument is placed in a mortuary chapel in Rowsley Church, which Lord J. Manners has caused to be erected for its reception. The floor of the chapel is inlaid with marble mosaics. The artist employed was Mr. Calder Marshall, B.A.; and the sculptor was Mr. Forsyth, of London. The works in connection with the building of the Wallace monument on the Abbey Craig at Stirling have, under the direction of Mr. Harvey, the contractor, already made considerable progress. A railway has been laid, about 400 feet in length, from a point near the base of the hill to the summit, at a gradient of nearly 80 degrees. Mr. Harvey has, we believe, laid out about 800*l.* in making a commencement of the monument. In making the excavations a quern was lately discovered; also stones which apparently show that some edifice has stood on the summit, as the stones found are freestone, and not the rock of the Abbey Craig: other relics, have been found.

THE LINCOLN EXHIBITION.—This Art Exhibition is now closed. The total receipts have been 480*l.*, and the expenses 450*l.*, leaving a gain to the committee of 30*l.* The exhibition was open thirty-one days, during which time it was visited by between 25,000 and 30,000 persons. The estimated value of the collection was from 70,000*l.* to 100,000*l.*, contributed by nearly 300 individuals.

LAYING FOUNDATION-STONE OF NEW CHAPEL AND SCHOOLS IN BERMONDSEY.—On Monday afternoon the foundation-stone of a new chapel and schools, in connection with the United Methodist free churches, was laid by Mr. W. H. Cox, in the Upper Grange-road, Bermondsey. The cost of the proposed chapel and schools, including the freehold ground, will be about 2,000*l.* The style of the building is to be Gothic. The architects are Messrs. Porter & Markham, and the builder is Mr. Sawyer, of Dulwich.

TELEGRAPHIC SOIREE AT MANCHESTER.—At the telegraphic soiree in connection with the British Association held at Manchester, in the Free Trade Hall, messages were sent through the Electric and International Telegraph Company's wires by Varley's instruments direct, *via* Holland, to St. Petersburg and many other distant places on the Continent, and there was also a communication with Balmoral. At 8.30 p.m. the Prince Consort telegraphed from that place the following message to the president:—"Has the meeting of the British Association at Manchester been successful?" A satisfactory answer was instantly sent. At 8.45 p.m. a message was sent to St. Petersburg asking the state of the weather. The answer was, "Weather beautiful; time, 10.50."

THE NEW AGRICULTURAL HALL AT ISLINGTON.—The directors of the company formed for the construction of a hall at Islington, for holding the shows of the Smithfield Club and other purposes, have accepted the tender of Messrs. Hill & Co., builders, of Whitechapel, amounting to 24,800*l.*, and the contract provides that the works shall be completed by the end of June next. The new building will be constructed from the design of Mr. Frederick Peck, architect. We understand that an agreement has been entered into by the company for the purchase of some additional land as a frontage; so that the main entrance to the hall will be in the high road opposite Islington-green.

PAPER FROM WOOD.—It is said that a French lady has succeeded in manufacturing excellent paper from wood, at a price much lower than that made from rags. Her method, according to the *Mechanics' Magazine*, consists chiefly in the use of a new kind of machinery for reducing the wood to fine fibres, which are afterwards treated with the alkalis and acids necessary to reduce them to pulp, and the composition is finally bleached by the action of chlorine. Paper made according to this method, from wood, and which costs only 400 francs (16*l.*) per ton, is said to be esteemed by engravers and lithographers as being quite equal to the China paper, which costs 5,350 francs (214*l.*) per ton.

INAUGURATION OF A CLOCK TOWER AND DRINKING FOUNTAIN AT TYNEMOUTH.—On Sept. 2nd a clock tower and drinking fountain, recently erected at the cost of Mr. William Scott, a native of the borough, was inaugurated. The tower, which is of Venetian-Gothic, was erected from the designs of Messrs. Oliver & Lamb, architects, selected in competition out of twenty designs. The structure is erected at the east end of Front-street, and combines a clock tower, fountains, marine barometer, and thermometer. The tower is divided into three stages, and in the upper stage is placed the clock. The middle stage is occupied with ornamental openings, filled with pierced tracery. The lower stage has granite drinking fountains on the north and south sides: the west side is occupied by a marine barometer, and the east side by an entrance doorway. The materials employed in the erection are stone, red and blue bricks, and polished Aberdeen granite. The carving was executed by Mr. Beale, sculptor, Newcastle. The barometer, furnished by Messrs. Negretti & Zambra, of London, is similar to those provided by his Grace the Duke of Northumberland along the coast. It is inclosed in a stone case. The basins for the drinking fountains are polished, both outside and inside. The water flows from a mass of rocks, out of which springs a group of water-flowers; and beneath the basins are drinking-troughs for dogs. On the south side, over the basin, a thermometer is placed. An effect is produced in the middle stage by the insertion of polished red granite columns; and the edifice is crowned by a finial and vane. Upon the east side of the clock-tower is the inscription. Mr. Lawton was the contractor for the work.

THE REGISTRAR-GENERAL'S RETURN FOR 1859. The Registrar assigns 100 years as the natural term of human existence. He refers to 63 districts in the kingdom as peculiarly favoured and healthy, and shows that the deaths in these places amount to only 17 annually out of every 1,000 of the population. Taking this as a standard of health he proves that all excess of mortality over 17 in 1,000 is owing to causes which might have been prevented;—in other words, that more than 118,000 English subjects annually die "before their time." The year 1859 is remarkable, inasmuch as the births were in excess by 34,400, and the deaths in defect 8,875 of the average. The births registered were 689,881, the deaths 440,781, giving an increase to the population of England and Wales of 249,100. The entire increase of births, to deaths, was about 55 per cent.; and there are twenty districts in which the increase was 100 per cent. and upwards; while there were some districts in which the increase was less than 5 per cent. It is remarkable that no district of the metropolis reached the 100 per cent. standard but the once notorious Bermondsey, where the births were 2,361, and the deaths 1,140—a surplus of 1,190 in this manufacturing district to the national strength. Dr. Challice, in pointing out these and other returns in the *Times*, refers, as he says, with some pride, to the sanitary progress and the social improvements of Bermondsey, which he fully believes will stand the test of comparison with any city, town, or district within the realm. As to productiveness, Liverpool is bad, and the returns are depressing—8,968 births to 8,146 deaths in 1859; while in 1858, melancholy to relate, the deaths outnumbered the births by 735.

TENDERS

For the carcass of a new house at Hartsholme, near Lincoln, for Mr. Shuttleworth. Mr. Goddard, architect:—

Fox	£4,470	0	0
Huddleston	4,246	0	0
Young	4,200	0	0
Jackson	3,749	0	0
Hall (accepted)	3,693	0	0

For alterations to No. 7, Whitehall, for the Incorporated Church Building Society. Mr. Joseph Clarke, architect:—

Langridge	£216	0	0
Foster	198	0	0
Bowley, Brothers (accepted)	140	0	0

For new roof, &c., to nave of St. Michael's Church, Middlewich, Cheshire. Mr. Joseph Clarke, F.S.A., architect:—

Ringham (accepted)	£936	0	0
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For the erection of a back house and house adjoining, at Totness, for the Devon and Cornwall Banking Company. Mr. J. Hine, Plymouth, architect:—

Barnes & Vander	£2,678	0	0
Call & Pethick	2,550	0	0
Clarke (accepted)	2,400	0	0

For erecting two cottages at Tring, for Mr. William Gower. Mr. Frederick Gutter, architect:—

Wright	£297	1	11
Smith	278	0	0
G. & J. Honour	274	0	0

For repairs and decorations at Coombe Wood, for Mr. Sim. Messrs. Glaser & Son, architects:—

Colements	£249	10	0
Brusden	248	0	0
Cobbett	239	0	0
Machraite	262	0	0

For St. Michael's and All Angels' Mission Chapel, and two residences, Byron-street, Bromley, Middlesex. Messrs. John Morris & Son, architects. Quantities supplied:—

	Mission Chapel.	Residences.
Atherton	£2,120	£675
St. Clifford	2,170	690
Watts	1,897	625
Jeffrey	1,859	610
Hack and Son	1,839	624
Hodges	1,789	613
Brown (accepted for the Mission Chapel only)	1,700	650
Salt	1,730	600

For two shop fronts, and alterations, for Messrs. Ebbly & Aylett, New Church-street, Paddington. Mr. J. B. Shea, architect:—

James	£410	0	0
Heaven (accepted)	425	0	0

For building a new church, George-street, Leamington. Mr. Henry Clifton, New Burlington-street, architect. Quantities supplied by Mr. Crocker. From the amount a sum has been deducted for the value of the present church:—

	Church.	Extra if faced with Warwick Stone.	Total.
Broadbent	£4,283	£885	£5,168
Myers	3,583	—	—
Jackon & Shaw	3,650	260	3,910
Balard	3,272	125	3,408
Bloomfield	3,242	78	3,320
Gasgyn	3,102	295	3,397

The Builder.

VOL. XIX.—No. 972.

Condition of our Chief Towns.—Sheffield.



VERLOOKING Sheffield is a mount—"the cholera ground"—where John Blake, Esq., master cutler, dying of cholera after a few hours' illness, on the 30th of August, 1832, was buried the same day, with many of his townsmen who fell victims to the same calamitous infliction. On this mount a "cholera monument" has been erected. The monument itself is of no interest, being but a triangular, spindly, spectral-like pinnacle, supported at the base by flying buttresses—a finger-post of warning: but the mount on which it stands affords a most comprehensive view of the head-quarters of the cutlery trades. Looking down from this point we gaze into a large closely-packed town built like Naples or

Genoa, in the manner of amphitheatres; threaded by three rivers, the Don, the Porter, and the Sheaf; and encompassed by hills. The narrow streets rise and fall in the most irregular manner, according as they are planted on gentle eminences or up and down more acclivitous sites. A thick pulverulent haze is spread over the city, which the sun even in the dog days is unable to penetrate, save by a lurid glare, and which has the effect of imparting to the green hills and golden corn-fields in the high distance the ghostly appearance of being whitened as with snow; and a buzz, softened down from the first clanging and clashing utterance of machinery, into a hum as of a swarm of bees, rises into the air and is distinctly audible. Here live 184,779 people; subsisting, for the most part, by the industrious manufacture of cutlery, edge-tools, instruments, and plated wares.

The numberless divisions and subdivisions of these trades are most curious and interesting: they serve, also, to obtain a realization of the reputation the town has enjoyed for centuries, as well as an insight into the occupation of the present inhabitants. Chaucer mentions "a Shefeld thwytel" (or knife) as being part of the accoutrements of the miller of Trowpington. Stowe drew a distinction between the "fine, coarse, and uncemely knives" manufactured at Sheffield, bringing them under three heads: these are now increased by straw-machine knives, French and Spanish lock knives, cork, shoe, cook's, palette, bread, gardeners', paper, sportsmen's, sailors', weavers', table, pen, pocket, hunting, and dessert knives; dirk, bowie, spear, and dagger knives; curriers', farriers', glaziers' and painters' putty-knives; fish-hook knives, and weavers' and nippers' machine knives. The Earl of Shrewsbury, in 1575, sent to his friend, Lord Burleigh, "a case of Hallamshire whittels, being such fruites as his pore country affordeth with fame throughout the realme." Besides carving and table forks, there are manure, digging, and hay forks. Joiners' and carpenters' tools comprise squares, bevels, gauges, spokeshaves, turnscrows, spirit levels, screw-boxes, gimlets, augers, saws and frames, saw pads, saw-sets, hand pads, pricker pads, chisels, gauges, plane-irons, socket chisels, joiners' flooring and ship cramps. Files are divided into curvilinear, tanged hard compositions and doctors' files. Vices

can be hand, or bench, or parallel, or smiths', or portable. Instruments may be dental, veterinary, mathematical, optical, surgical, or philosophical. These, again, may be subdivided: thus surgeons' instruments may be for amputating, trephining, cupping, couching, or lithotomy; or may be for operations in dental surgery, such as lancets; or stomach and breast pumps; or may be trusses and bandages for artificial limbs, or other surgical mechanism; philosophical instruments may be barometers, thermometers, saccharometers, or hydrometers. In the simple articles of shears there are at least ten varieties—sheep, horse, gloves, thatchers', weavers', fellmongers', grass, rag, tailors', and American. Bellows may be either patent common or patent portable, or improved portable or circular patent or patent circular, or improved circular or patent double blast, or may be developed into portable forges and blowing machines.

Sheffield also deals in Russian and Swedish iron, which is carbonized, melted, and refined for steel purposes, single and double shear steel, blister and best cast steel, and best refined cast steel. Sheffield also manufactures tinners', silversmiths', engineers', masons', quarry, and sculptors' tools; also railway springs, forge and tilt hammers, water tue-irons, scythes, saws, ploughshares, cast-steel bells, scissors, and skates; also stoves, grates, fenders and fire-irons; also buttons and button-moulds, wire-drawing; type, marks, letters, figures, cast and wrought-iron brands; reading-glasses, spectacles, and telescopes; and, more than these, Sheffield plate; silver-plated goods upon steel; and Sheffield plate with silver edges, tea and coffee-pots, spoons, candlesticks, tureens, epergnes, candelabra, icepails, urns, and services for the table. Another important branch of the local trade is grinding. There are wet and dry, and mixed grinders, fork-grinders, needle-grinders, knife-grinders, scissor-grinders, razor-grinders, table-knife grinders, saw-grinders, file-grinders, scythe, and ivory-grinders; and two new manufactures must henceforth be added to the list—crinoline for ladies, and armour-plates for our warrior men-of-war. All these trades beget dust, metal dust and coal-ash dust. Hence the workers inhale air impregnated with impalpable dust, wherefore the more need for proper arrangements for the conveyance of these deposits out of the town. However, as we shall show, there is no pretence of any provision of the kind, nor of any other adequate provision for the preservation of the health of all the inhabitants. We have surveyed Birmingham, Stafford, Wolverhampton, Newcastle-upon-Tyne, Hull, Shrewsbury, and other towns; but Sheffield, in all matters relating to sanitary appliances, is behind them all. The three rivers sluggishly flowing through the town are made the conduits of all imaginable filth, and at one particular spot which we shall presently describe, positively run blood. These rivers, that should water Sheffield so pleasantly, are polluted with dirt, dust, dung, and carrion; the embankments are ragged and ruined; here and there overhung with privies; and often the site of ash and offal heaps—most desolate and sickening objects. No hope of health for people compelled to breathe so large an amount of putrefying refuse. Sheffield, with its 184,779 inhabitants is a town where authority is so divided, between improvement commissioners for cleansing, lighting, watching, and otherwise bettering it—composed of town trustees, including the master and warden of the Cutlers' Company—the town burgesses, and the church burgesses, all of whom hold property in trust for the benefit of the town at large, that virtually there is no authority at all; and the greater mass of this vast population work their own ignorant and suicidal will.

There is not anything like sufficient or systematic drainage, nor is the water-supply pure. The trades engender some ills; but a far more fearful source of trouble is harboured in every alley and street, and we might say in every house. If the popu-

lation would only take the pains to consider this important fact,—if Mr. Roebuck, in his forcible and terse way, would only address his constituents on this subject, and bring as much conviction to their minds concerning it as he endeavours to do respecting foreign policies,—how much disease, suffering, and death would be escaped!

Immediately facing the entrance-gates of the cholera-ground stands a chapel, which forms the centre of the Shrewsbury Hospital,—an institution founded in 1616, by the Earl of Shrewsbury, "for 20 poor men and 20 poor women, such as had seen better days, and had been reduced by misfortune." The original hospital stood in the heart of the town, on the site of the present Corn Exchange; but in 1827 it was pulled down, being elbowed out by the overgrowing modern town, and the present neat establishment built in its stead on this high ground,—an advantage not easily over-estimated when the pestiferous condition of the neighbourhood of the original site is taken into consideration. Possessing all the faults of the late Perpendicular style, it is, nevertheless, as we have said, effective, every house having a projecting gabled porch. The names of the roads hereabout suggest the proprietary of distinguished noblemen with great responsibilities. Thus, we see Norfolk, Shrewsbury, and Talbot roads; and the houses fringing these are generally detached or semi-detached, airy and healthy. An immense stone quarry pit forms a remarkable object in this fine quarter, as does a large new United Methodist Free Church, 1860, on a most precipitous site. Crossing over to the summit of South-street, a very straight line towards the centre of the town, it is curious to note how the houses deteriorate in class and style as they approach the markets,—first villas, then small lodging-house, then smaller shops, dealing in horn-dust and the like commodities. A gap where the street is traversed by Henry-street discloses a beautiful panoramic view of a portion of the town, where all the blemishes are hidden, and church towers and spires, countless chimney shafts, tall and short factories towering one above the other, with a glimpse of the hilly ridge of country surmounting all beyond, form a most diversified picture; but, before the eye can dwell on this comprehensive scene, it must suffer the intrusion of one of the thousand of death-dealing details with which, upon minute inspection, the city is found to be polluted. In the foreground, in the centre of a muddy, unpaved open square, just where a pant or water-conduit might be advantageously placed, stand two public privies. They have two doors in the front, and open ash and offal pits behind in connection with the cesspools below. These are overlooked by the windows of all the surrounding houses, and are used in common by the inhabitants, while their children play round about the filthy objects like cocks or pigs upon a midden.

Descending steep Bungay-street, a region ominously called "The Ponds" is found. A plank bridge over the Sheaf here shows dead dogs and cats floating on the slimy waters, and a terrible condition of the partially-walled banks, through outlets in which fluents of excremental slush ooze into the river. It is 26 feet wide at this point, and has all the appearance of having once been a vast covered sewer, and having now become ruined, it being impossible to realize that the objects in it were ever intended to meet the sight or smell. The river Porter, which joins the Sheaf in this part, brings further accession of filth from large districts through which it has flowed. The ponds themselves are lakes of slush. Here a heterogeneous mass of scabby-looking cottages, isolated dung-heaps and isolated privies, and detached and semi-detached petty factories, large timber-yards, such as that of Messrs. Garside & Shaw's, English and foreign timber merchants, and large factories, such as the Penzance works, Cutts, Brothers, lie and jostle against each other in this stagnant valley of the ponds. In the streets channels are cut in the pavements to con-

vey the fluid wash from every house across the footways into the flowing gutters, a most extraordinary feature, which is apparent in the street we have just left, South-street, and which we observe in almost every street throughout the city, while clothes are hanging out to dry across comparatively wide streets. Pond-street is occupied by small manufacturers, razor-case makers, table and Chinese scale pressers, elastic steel spectacle makers, fly, stamp, and buffin-engine makers, and the like. Parallel with the east side of this street, and in its rear, is a narrow gullet, watered by chance overflows from the Porter or the ponds; the back premises of all the houses incline towards it, and it has become a dark rotting deposit of every imaginable description of filth and refuse. The only cleansing this sewer obtains is when a wintry flood flushes the contents into the adjoining ponds. This black, furtid, sluggish stream is nearly a quarter of a mile long. On the opposite side of Pond-street there is a steep bank behind the front row of houses; rows of houses and factories, and courts of houses and factories, crowd here precipitously one behind the other, and upon the alleyed approaches to all these run continually streams of liquid slush, which find their way along the main gutters into the choked cesspool grates in the streets; or falling to do this, work their way in dribbles, in the dog days, through the soil and through the tenements down to the rivers and ponds.

Not far from this, at the corners of Sycamore-street, Milk-street, and Bakers' Hill, stand the new stone and red brick enlarged factories and show-rooms of Messrs. Rodgers & Sons, designed by Mr. Wilson, and erected by Mr. Maycock. Bold effects are produced by stone sill and head courses and deep recesses to the windows of the new factory, and a conspicuous effect has been given to the more extensive premises built of brick and stone, with segmental arches and rustic walling to lower tier, semicircular arches to second tier, and square window openings to the third tier, with a truss cornice above all, occupied as the new show rooms. This wealthy establishment is a prosperous representative of the great cutlery firms who at the Great Exhibition carried off five council medals, 55 prize medals, and 80 honourable mentions, and won a grand medal of honour to the town at the Paris exhibition in 1855, and who, in the persons of the Messrs. Spear & Jackson, Messrs. Turton & Sons, and Mr. George Wottenholme, were at the same time awarded French medals of honour. From the cellars stocked with elephants' tusks (from Gaboon, Angola, Alexandria, and the Cape) to the top stories full of paper (which—so delicate are steel goods and so liable to rust—is kept in stock three or four years, and then hung to dry before it is used), countless objects of beautiful workmanship and elegant design are exhibited—all the result of the skilled labour of the Sheffield artisans. But we may not linger now to admire. Opposite this storehouse of shining metal wares and polished plate there is a dismal, dark brick school. The entrance to it is up an alley where a gutter, sunk in the pavement, brings down a stream of soap and other suds to run down into Milk-street. There is washing done by the tenants of the houses in the close yard, and linen hanging out to dry; and the 220 boys have to wade their way through these impediments to the Milk-street Schoolroom doors—a veritable pursuit of knowledge under unsanitary difficulties. In this and other localities we perceive a useful arrangement connected with the Fire Brigade: over the street doors of the houses inhabited by firemen the word FIREMAN is very largely and legibly inscribed.

A statue of Ebenezer Elliot, the corn-law rhymist, has been placed in front of the commodious Post-office. The figure is in a sitting posture, and has a very negro-like effect, being made of bronze, now black. The granite pedestal has also become black, and the paltry posts at the corners are very ugly. They should be replaced

by lamp-posts, and otherwise freshened up. The Post-office is a handsome stone building at the head of the new market, recently built by the Duke of Norfolk, with an Italian Loggia of access for strangers, boxes, and letters. The only faulty arrangement is, that the letter-box is concealed from sight in a covered passage-way to the market, which, in a shower, is often filled by persons taking shelter, and the letter-box rendered difficult of access. The market is placed on a deep decline. It consists of a nave and aisles about 260 feet long, and is excellently ventilated and paved throughout. In spite of the stringency of the bye-laws, a butcher at the top washing his block, was making a puddling stream that trickled down the whole length of the market. There are twenty-two butchers' shops on both sides painted green, with a fire-place in each, and with a breadth of nearly 70 feet between their respective rows of fronts. The fish and game-stalls are in the centre at the lower end. Owing to the rapid fall of the site, the use of water has been obliged to be disallowed for the fish and oyster-stalls. This is, of course, a great drawback. For the rest, the arrangements appear to be nearly complete. There is a good bell, hot water laid on twice a week, and cold-water taps at intervals; a capital, large, cheerful Exchange news-room up two stories (rather grimy and sooty), over the lower extremity of the market, and a telegraph office.

Standing in the yard of the George Inn, which is a model of a paved yard, a busy picture of a busy part of the town is obtained, at the junction of High-street, with sloping Angel-street, a region of pushing shops for the sale of draperies, hats, boots, and other wearing gear. The appearance of the house-fronts is in many cases deformed by huge lettering; and the only building of any architectural pretension is that occupied under one façade by Messrs. Brookes and Messrs. Marshall & Tapp. The streets generally are narrow and insufficient for the traffic, and this defect appears to be recognized by the notices affixed to the lamp-posts. "Drivers must keep to the left, foot-passengers to the right." At the junction of Bank-street and Snig hill is the publishing office of the leading local journal, the *Sheffield and Rotherham Independent*, overlooking a still more sloping street, called Water-lane. This latter is a region of registered lodging-houses, and presents the peculiarities we will describe. At the four corners are public-houses; in the centre is a large brewery in process of enlargement; the rest of the steep, declining lane is formed of lodging-houses, where necessity makes strange bedfellows. In the rear of one of the public-houses, called the "Old House at Home," there is a passage with pigs at the end of it, for whose accommodation a gutter is formed, and passes the doors of the houses in the passage into the street, running with liquid manure. This district is scantily swept, and the storm-grates are full of mud. The diseases that must necessarily be bred in this district, where sanitary appliances are little known, seem to be fully recognized by one enterprising individual at least. Although there is a notice that no bills are to be stuck, this persevering individual has placarded the walls with a printed advice to "Try Ridal's wonderful mixture for cholera, bowel complaint, and diarrhoea," indicating too surely the certainty of finding purchasers for the nostrum.

At the corner of Castle-street and Waingate stands the old-fashioned and inadequate building known as the Town-hall, but consisting merely of a petty sessions-hall and sessions-room, and a police-office. It has a large clock-faced turret, with a miniature colonnaded, domed temple on the top. Affixed to one of the windows of the police-office was the announcement, "Letters wrote at No. 9, Steel-house-lane, West Bar; charge, 4d." Next door,—a fit supplement for the want of education among the residents implied in this notice,—is a showy ginn-palace. Behind the Town-hall, in Castle-green, is another district of registered lodgings and registered common lodgings. Tea-leaves and slops are

sailing down the kennels, and a great, fearful, common ash-pit stands in the public thoroughfare, in a rounded corner of Castle-green, apparently for the joint convenience of the lodging-houses and the officials of the Town-hall. Still in Waingate, which is a street of shops in the "general line," where Joseph Linley, mechanical chimney-sweeper, is both a boiler, flue-cleaner, and a dealer in soot; and E. Major's hair-cutting saloon, baths, and cigar divan, in the Castle-court, furnishes "a clean brush for every head," still in Waingate, near the Town-hall, there are more ash-pits, and one close to the bar window of the Old White Hart.

No vestige of a castle remains save in the name it has devised to the neighbourhood of its ancient site. A few paces further on in the "Castle Folds" there is another handsome general and hardware market built in one wide span, and resembling a railway-shed. This being, like most of the buildings, on a steep incline, it is approached at one end by some twenty steps, the cellarage underneath forming good accommodation for the goods of the cheese, bacon, ham, and lard factors. On the opposite side of Castle Folds there is, in Court No. 2, which is full of clothes hung out to dry, a square of back-to-back houses, the property of one person, in the corner of which there is another and a colossal open pit of ashes and privy stuff, used in common by the inhabitants of more than twenty-nine tenements. From this we step to a scene that baffles description—a district of slaughter-sheds for nearly the whole of Sheffield, beginning with a boiling-house for tripe, and thence slippery with gory slime and drippings from the ash-pit of the tenements mentioned above. Pailfuls of blood soak down on the surface of the ground and into the ground through the wretched paving of the Slaughter-lane, and percolate from slaughter-house to slaughter-house, till the blood oozing finds its way, together with faecal matter, into the river. The sheds themselves are generally so rickety that the removal of the shambles to an extra mural site could be effected with but little loss of property: but their ill condition adds to the ghastliness of the scene. Into the river Sheaf already thus polluted pour hot and steaming sewage and cold sewage, horizontally and vertically. Refuse is thrown into it from factories overhanging it in all directions: black ash refuse, green vegetable refuse, mud-coloured refuse; and all this is frothed up in a waterfall, or rather sewage-fall, by means of which its junction with the river Don is at this point attained.

Attracted by nightmare recollections of it to the bridge in the Furnival-road another morning, we are still more impressed with the terrors of the waters and of the banks on either side. On the *Wickerside* of the river Don looms Gray's colossal castellated five-storied factory, in which the casements are all open and every pane of glass smashed—employed in the manufacture of wire and crinoline. It is noticeable that the Sheffield men who labour by grinding, smash immense quantities of glass to ensure ventilation. Looking up the Don towards the Lady's Bridge and Nursery-street, or downwards, where, after the confluence of the waters of the Sheaf, it is 150 feet wide, the same blighted, miserable, smoky, begrimed, outlines, thickly studded with conical and tall chimneys, are presented. At this season of the year, when, in the absence of floods, the water is scanty, the refuse heaps deposited by the various factories attain a height of 10 or 12 feet. Every little factory defiles the bank with a refuse heap; and every large factory pours out refuse from its first, second, and even third stories, which must remain till the waters are out: and when the waters are out what becomes of all that is carried away? The sloughs and sludge of Sheffield are foisted on to the inhabitants of pleasant Doncaster, and as the Don merges into the Humber, leaving a slimy trail along its banks, who knows how much of the filth that is sitting up the harbour of Kingston-upon-Hull may have been washed down

from Sheffield? So long is the chain of ills forged by directing the drainage of a town into the rivers that flow by it!

We shall return to Sheffield.

ON IRON CONSTRUCTION, WITH REMARKS ON THE STRENGTH OF IRON COLUMNS AND ARCHES.

WE would direct attention to the following paper, by Mr. F. W. Shields, M.I.C.E., read at the recent meeting of the British Association. It gives valuable practical results.

It is almost needless to expatiate on the great and rapid development which the use of ironwork has received within a few years preceding the present meeting. In bridge work, the ancient structure of masonry; in roofing, the employment of wooden framing; and in shipbuilding, the use of timber, both in the naval and mercantile marine; are being gradually superseded by a material eminently possessed of the qualities of strength, durability, and cheapness for engineering construction.

Nor are these effects confined to England alone, for the employment of British iron for such purposes has now become well nigh universal. In fact, it appears almost anomalous that iron for a bridge or other construction, manufactured in this country and conveyed abroad at considerable cost, should supersede, with economy and advantage, in Australia, India, Russia, or Spain, the material indigenous to the country, and found abundantly on the spot; and this when iron is more costly in itself than the materials of wood and stone, which it supersedes.

This apparent contradiction is explained by two causes; 1st, that iron possesses, size for size, much greater strength than any other substance in general use; and, 2ndly, that it possesses eminently the capacity of being manufactured in such variable shapes and sizes as the nature of the case may require, so that sufficient material may be supplied in each part of the structure to meet the stress or strain upon that part, without any being wasted or lost to use.

Under these circumstances, an iron construction of many parts, accurately proportioned for its purpose, should, when loaded to the point of fracture, have every part strained to the full extent of its resisting power. If some of its parts be increased in scantling beyond this proportion, such increase will add nothing to the strength of the structure as a whole, which is limited by the strength of its weakest part, and will only involve the addition of useless weight and expense to the construction.

It follows, therefore, that the designer of iron structures should possess not only the workman's practical knowledge of the material with which he has to deal, but should be peculiarly acquainted with the scientific and mechanical principles by which the strains on each part are found, so as to enable him to apportion correctly the scantlings for those parts.

The object, therefore, of this paper is, to call attention to the necessity for a greater diffusion amongst practical men dealing with ironwork of a knowledge of the mode of calculating the strains upon the usual constructions to which iron is applied. Nor is economy the only consideration which urges the necessity for progress in this respect. In a framing, where the strains are transmitted from one portion to another throughout the structure, the insufficiency of one part may easily compromise the stability of the whole; and the element of safety enters largely into the consideration of the question in this view.

It will not be attempted in this paper to recapitulate the scientific principles in question, which the author of these remarks has recently ventured to lay briefly before the public. It is conceived, however, that it may be acceptable to state the conclusions to which experience has led him, as to the practical amount of loading which may be laid upon iron columns and arches, the result of which he has not previously made public.

Iron Columns.

The foregoing remarks have had reference to framed and other structures, of comparatively complicated character, with strains varying both in nature and in amount; but in the simple constructions now alluded to, it is believed that practice affords the best guide.

The author's professional engagements on the reconstruction of the Crystal Palace at Sydenham and other works have given him much opportunity of ascertaining the amount of load which cast-iron columns will sustain with safety. In his

practice accordingly the following rules are adopted as the basis of calculation of their strength, the columns being supposed of good construction, with flat ends and with base plates at their bearings.

For hollow columns of 20 to 24 diameters in length,—

Columns may be loaded with					
If cast $\frac{1}{2}$ -inch thick or upwards . . . 2 tons for each square inch sectional area of columns.					
Do.	$\frac{1}{2}$	do.	do.	$1\frac{1}{2}$	do.
Do.	do.	do.	do.	$1\frac{1}{2}$	do.
Do.	do.	do.	do.	$1\frac{1}{2}$	do.

For columns of 25 to 30 diameters in length,—

If $\frac{1}{2}$ -inch thick or upwards 1½ ton per square inch.					
Do.	$\frac{1}{2}$	do.	do.	$1\frac{1}{2}$	do.
Do.	do.	do.	do.	$1\frac{1}{2}$	do.
Do.	do.	do.	do.	$1\frac{1}{2}$	do.

The cause of the modifications of loading from varying thicknesses is, that thin and light columns are more liable to fracture from inequalities of casting and from accident, and should therefore be less loaded in proportion than those of greater thickness.

Iron Arches.

In the apportionment of iron to meet the strain or thrust of an arch, it is usual amongst engineers to allow not more than 2½ tons of thrust or pressure to each sectional inch of cast-iron, and 4 tons of pressure to each sectional inch of wrought-iron.

Independently of the compression of the arch, it is advisable in very flat arches to consider the flat central portion as a girder, and to give to its top and bottom such flanges as a simple beam of its length and depth would require. Thus in an arch forming a curve of 300 feet radius, which the author had recently to design, the central portion of 70 feet was considered as an independent girder, and treated in this manner.

In bringing these brief remarks to a close, it may be stated as their object to promote a general knowledge of ruling principles in a subject of ever growing importance.

THE SOUTH FORELAND LIGHT.

ON a headland some 3½ miles to the eastward of Dover, are situate two lighthouses, well known as the Upper and Lower South Foreland Lighthouses. The Upper Lighthouse, which is fitted with a Fresnel apparatus, was recently the scene of Professor Holmes's experiments with the electric light. This light was removed some eighteen months ago, and has since found a place in the lighthouse at Dungeness, in an apparatus specially prepared for its reception. The Upper Lighthouse at the South Foreland has now been selected by the Trinity Board for the exhibition of the lime light, for which a special contract has been entered into by the Universal Lime Light Company. This light was placed in the lighthouse on the 26th of last month; and, having continued to burn brilliantly, as we are informed, and steadily ever since its erection, it may now be held to call for some special notice. For the benefit of those not informed on the subject, we will give a short description of what the lime light is.

The light is obtained from the ignition of a piece of lime by submitting it to the intense heat evolved by the compound flame of hydrogen and oxygen gases, in the proportions in which they form water. The lime does not burn, but simply becomes brilliantly illuminated, without undergoing any chemical change. This light, therefore, is independent of the atmospheric air, and does not deteriorate it. The light produced is the most intense known, with the exception of the electric light, from which it differs, however, in some important particulars. It is steady and continuous, and its volume may be increased at pleasure. Drummond was the first who applied the lime light to purposes of practical utility; and by his experiments it was shown that its range was practically unlimited, for he connected the shores of Wales and Ireland by the light at Holyhead, a distance of sixty-four miles; and afterwards obtained a like result at the summits of Ben Lomond and Knock Lynd, a distance of ninety-five miles. His light, however, wanted these two special properties; volume, without which no light is adapted to the means at present possessed for its distribution; and, secondly, continuity, which he could not command. For these reasons it was condemned by Stevenson as unsuited to lighthouse purposes. In fact, with the appliances then obtainable, he could come to no other conclusion, the duration of the light being under no control.

Both these difficulties, we understand, have been overcome by the ingenuity of those who

have followed in the wake of Drummond, for the volume can be readily increased so as to meet every practical necessity, whilst the complete control over its continuity, and the facility with which it can be permanently maintained, have been fairly proved by practical experiments. Amongst these we may mention the maintenance of the light for some seven or eight hours every night during two months, upon the landing-stage at Liverpool. It was also maintained for two months upon the finished portion of Westminster Bridge; and the engineer of that structure says, in his report upon it,—“I have much pleasure in acquainting you that, since the application of the lime light upon Westminster Bridge, not a single case of failure has been reported to me, and the result of my own personal experience will justify me in recommending the system for the permanent lighting of the bridge and its approaches, on their completion.”

It has now been maintained in the South Foreland Lighthouse as a first order coast light since the 26th of last month with success. It is exhibited there, we understand, upon trial, and the period of probation has been settled at three months by the Trinity Board; and upon its fulfilling the conditions requisite for a first-class lighthouse probably depends its extensive adoption for coast lighting.

The Fresnel apparatus in which the light has been placed is not considered by its exhibitors the one best calculated to show the full power of the lime light; but its brilliancy is, notwithstanding, strikingly apparent, when contrasted with the ordinary coast lights.

It is very desirable that it should be tried in other forms, as in a parabolic reflector; and it seems to us that a most convenient opportunity is afforded for its application in that form in the Lower Lighthouse at the South Foreland, which contains fifteen reflectors; and if the lime light were placed in one of them its comparative value under the same circumstances would be clearly ascertained.

Another important adaptation of this peculiar light is now in course of trial. The value of a powerful light on board of those vessels of the navy, which from their magnitude and high speed render additional precautions necessary against collision, cannot be too highly estimated. Each vessel fitted with such a light becomes in effect a floating lighthouse—a conspicuous warning to other vessels approaching it. Life and property to an incalculable extent may, by means of this light, be rendered comparatively safe. Each vessel may carry a light at the mast-head, fulfilling a double purpose of a warning beacon and a look-out light, illuminating the surrounding water, and giving the vessel the means of avoiding collision with others. Such lights are also applicable to signalling, to convey intelligence at night or in thick weather from one ship to another, and as such specially adapted for fleet signals. An application of this kind is now under consideration and trial, with a view to combine, if possible, the mast-head lamp and signal lamp in one, at the same time producing an economical and efficient lamp, adapting itself to the code of night signals now employed in the navy.

The methods of obtaining the gases admit of alterations for the better, not so much in the mechanical means used for producing them from their present sources, for these are very simple, but as to the sources themselves from which they are obtained. The hydrogen is at present obtained by the decomposition of water by the agency of zinc and sulphuric acid. A simple apparatus however, is in course of construction for obtaining it by the decomposition of steam passed through red-hot cast-iron borings. The hydrogen can be obtained by these means very rapidly, and at a moderate cost; whereas its production by the present method is both costly and tedious, to say nothing of the objections that must always exist to the use of sulphuric acid in large quantities.

The oxygen gas is obtained by simply heating the peroxide of manganese to redness, in cast-iron retorts. The process is simple enough, but very slow, the gas leaving the manganese very unwillingly, and 8 cubic feet only being produced from ten pounds. The cost of firing is, therefore, considerable. There is a method which has been in practical operation of obtaining this gas from nitrate of soda, which is far speedier and less costly. The gases pass from the retorts into gas-holders in the usual way.

There are many other points worthy of notice, but we shall only add at present a description of the lamps at the South Foreland which, with what we have already said, will, we think, make the subject clearly intelligible to all.

The lamp is of brass, and consists of a circular base, 7½ inches in diameter, and 1½ inch in height, with an aperture in the centre, through which the lime wicks pass. In this base are contained two annular chambers for holding the gases. These chambers are separate and distinct, into one of which the hydrogen passes, and the oxygen into the other from the gasholders. From these chambers the gases are supplied by separate tubes to small mixing chambers, 5-8ths of an inch in diameter, and ½ an inch in depth, into which the gases are admitted by means of two separate cocks, one for each tube. The chambers are filled with from sixteen to twenty very fine wire safety gauges, through which the two gases have to pass on their way to the jets which are screwed into the tops of the chambers. By these means the gases are thoroughly intermixed before their ignition at the points of the jets.

Within the aperture in the base is fitted a brass tube, 22 inches in length, and 3¼ inches in diameter inside. This tube is of cylindrical form, corrugated at the upper end in order that each corrugation may be opposite to the centre of one of the eight panels of the Fresnel apparatus. In the middle of each exterior corrugation is cut an aperture about 7 inches from the base of the lamp. This aperture is about 2½ inches long and 1 inch wide, and opposite one of the jets in every case. Within the external tube just described, a screw for putting the lime in motion is worked by a clock placed below the lamp: this screw passes through a nut, upon which rests an inside octagon tube of brass, of 39 inches in length. Upon each of its surfaces, which are flat, a metal case containing the lime is fastened every evening before lighting. These cases, which are open in front, are about 1½ inch in breadth at the back, and are dovetailed so as to overlap the edges of the lime, which is in section the segment of a cylinder, so as to correspond exactly in shape with the corrugations of the external case. Each lime case when fastened to the interior tube, as above described, fits closely into one of the corrugations through the aperture, in which is exposed a surface of lime, 2½ inches long and 1 inch wide, upon which the flame impinges.

When the lime-wicks have been inserted ready for lighting the gases are turned on and lighted, and motion is given to the screw which raises the nut on which the tube carrying the lime-wicks rests, keeping a fresh surface of lime always exposed to the action of the flame. No further attention is required during the burning of the lamp.

The lantern of the lighthouse at the South Foreland is similar in every respect to that at the North Foreland [of which an illustration was given in our number 812, for 1858], the only difference being in the mode of lighting by the substitution of an oxyhydrogen lamp for the oil-lamp as heretofore used. The contrast of the two lights is remarkably striking, the one being of the ordinary orange colour, and the other pure and colourless, and of extreme brilliancy. The lamp is supplied by the two gases through tubes, which are carried up a tube in the centre of the lighthouse, the gas-generating apparatus and the gasholders being in a contiguous outhouse or shed.

CHOLERA IN INDIA.

EFFECT OF SANITARY MEASURES AT HOME.

THE news from this immense portion of the British empire is of a sad description. The land over a large district has been scourged by war, and thence have followed in a natural course famine and pestilence. The famine by this time has been in part assuaged by means of the large subscription which was raised in this country, and by the hope of a better harvest. The cholera, however, is just beginning to show its malignity in India, and hundreds of natives and Europeans are falling in all directions: portions of the British army have been already attacked, and those who have friends and relations in that force tremble for their fate, and watch with anxiety for accounts of the introduction of all those sanitary measures by which it is known the spread of zymotic disease can be to a great extent prevented. Our army in India is a vast force: in 1859 it numbered nearly as many men as the army at home, including the militia. At the above date the home army was 90,763 strong; the Indian army, 80,000. During the last few years, in Great Britain, the army has been carefully inspected in a sanitary point of view; troops have been moved from unwholesome barracks in town to open camps; the food of the men and the condition of the barracks have been im-

proved; and though much remains yet to be done, the results are very satisfactory.

From 1837 to 1846 the mortality in the Foot Guards was annually 20 in the 1,000; in the regiments of the infantry of the line the deaths had been 18 in the 1,000: the average deaths among all arms of the service at home had been 17.5. Considering that the men who form our army are all picked, that they are submitted to a rigid medical examination, and that our soldiers are chiefly of the ages of from twenty to forty years, the rate of mortality should not be more than 7 in 1,000. Since changes have been introduced the death-rate of the Foot Guards has fallen to 9 in 1,000; that of the infantry and the line to 8 in 1,000, which is also the mortality of the cavalry, the engineers, and artillery. Dr. Farr, as we have long since and repeatedly done, refers the excess of deaths by zymotic diseases, such as cholera, diarrhoea, and those by consumption, to the effects of overcrowding in bad barracks, of bad ventilation, bad water, badly-chosen sites, bad working arrangements, and the absence of the means of cleanliness. No doubt, much of the good effected has been the result of a distinct and clearly responsible superintendence of the home army, the necessity of producing reports of health by medical officers and others, so that any excess of death or sickness is at once discovered, and their skilled advisers are called to report upon the cause and suggest improvements.

In connection with the Indian army, it does appear that although the danger in such a climate is eminent, there has not been no similar provision made, notwithstanding that we have had such clear evidence of the effect of well-directed care at home, and a remembrance that it was the scientific and sanitary staff which was sent to the East which saved our army from destruction in the Crimea. If the shadow which is coming over India spreads, there will be need of the most prompt and energetic exertions, for some of our best warriors are not well acquainted with the rules which regulate the health of large bodies of men.

If even, contrary to the expectation of the most experienced, the pestilence in India be not excessive in its ravages, the effect of such measures would not fail to be of future value.

THE BISHOP'S PALACE, WELLS.

At the recent meeting of the Somersetshire Archaeological Society, Mr. J. H. Parker read a paper on the Bishop's Palace at Wells. In the course of it the reader said,—

The city of Wells is one of the most interesting in Europe to the student of Gothic architecture; and not to the student of architecture only, but to the student of the history of England also. These two studies should never be separated: the study of architecture is not merely the study of bricks and mortar, or the art of constructing buildings; but the history of those admirable structures which our ancestors have bequeathed to us (and which we have so shamefully neglected), and which forms an essential and important part of the history of our country. The city of Wells illustrates this close connection between history and architecture in a very remarkable degree: it brings vividly before our eyes an important chapter in the history of Europe, about which we have all read a great deal and understood very little. I mean the long continued struggle between the Regulars, or Monks, and the Seculars, or the parochial and cathedral clergy. The monks, as we all know, were persons who had devoted themselves to the service of God in a religious life, separated from the world and its ordinary duties; worthy excellent people originally; enthusiastic in a good cause; proceeding upon an erroneous principle, from the common cause of so much error, the taking particular texts of Scripture too literally and isolated from other texts which explain their true meaning. These good men did great service to the cause of religion at a certain period when such establishments were necessary; but afterwards, in the course of centuries, abuses crept in; and they became as really worldly and selfish as any other class, and their continually increasing wealth and power threatened to absorb the whole property and power of the country. Then came the long struggle to keep them under, which was only finally settled by their entire suppression under Henry VIII., the first necessary step to the reform of all other abuses in Church and State.

The Seculars, on the other hand, were, as I have said, the parochial clergy, headed by their cathedral chapters, originally the canons, *chanonici*,

or chanters in the church of the bishop, the head church in the diocese. These canons were parochial clergy; each was a parish priest, who lived the greater part of the year in his parish: he only took his turn in performing the services of the cathedral, assisted the bishop with his advice, and his services were required. He often served for a time as an itinerant popular preacher, under the direction of the bishop; for the ordinary parish clergy were too ignorant to be allowed to preach. The license to preach granted by the bishop was then a reality, and was granted only to those who could preach: now it has become a mere form and a matter of course, and the Methodists have been allowed to run away with this part of the church system. But I am digressing. The monks then lived together in common: they had their common dining-hall, or refectory, and their common dormitory, or sleeping-hall, divided by wooden partitions into small cells, or sleeping-rooms, one for each monk. So many of our finest churches belonged to these monasteries, that ignorant people commonly suppose they all did, and call Gothic architecture a monkish style, fit only for monks to live in; but this is merely betraying their own ignorance. Gothic architecture is just as applicable to any other purpose as to churches or monasteries; and was, in fact, applied to castles and houses, and any other purpose for which a building was required: it is simply the style of building used by our ancestors for every purpose. The buildings of Wells are not monastic at all: here we have no dormitory, no refectory, none of the buildings essential for the monastic system. Each canon had his separate house from the beginning: these establishments for the secular clergy were distinctly opposed to the monks. An attempt had been made in Wells to establish the monastic system in the eleventh and twelfth centuries. The monks of Glastonbury had struggled hard to obtain possession of it, and to make the bishop one of their own body, but they had failed; and before the commencement of the present buildings the matter had been settled. The monastic buildings which had been erected at Wells were destroyed: the bishopric remained independent of the monks; and the monks of Glastonbury were obliged to give up to the cathedral chapter, or the bishop's council, certain manors. These were Winscombe, Puckchurch, Blackford, and Cranmore, which were ceded to Bishop Joceline and his successors for ever; and the addition of these important manors supplied the chapter with funds to enable them to commence their new buildings. Bishop Joceline, who then ruled the diocese, was a native of Wells, and had been a canon before he became bishop. He was a truly great man, in advance of his age, a man of great prudence and foresight, and who had formed most magnificent ideas of the fortune of his great diocese, which was now permanently united with both Bath and Glastonbury. To correspond with this great accession of territory, of importance, and of wealth, he considered that suitable buildings were necessary to support the dignity of the bishop and the seat of his chapter, the headquarters of the diocese; and he formed the plan of the magnificent series of buildings, of which so large a part has fortunately been preserved to our time. The splendid cathedral is only a portion of his grand design: it is the centre of a group of buildings fit to accompany and support it.

To give an account of all these buildings would be to write the history of the city of Wells, which would require a volume, and which has been already done often enough. The cathedral alone is a subject for a volume; and this also has been already done, and well done, especially by Professor Willis, the first architectural historian of the day, and more recently in Mr. Murray's Handbook of the Cathedral. The Lady-chapel, the Chapter-house, the Vicar's Close, the Deanery, the Archdeaconry, the houses of the Vicars in their Close, the Gate-houses of the Precincts, the Prebendal houses in the Liberty,—each of these is a subject for a separate essay, though all are closely connected, and form part of the system. The Bishop's Palace, though also part of the same magnificent group of buildings, is more detached and more complete in itself; and to that I now propose to call your attention; and I hope to give you such a history of it as will make you all feel an additional interest in this, which is really one of the earliest, and has been one of the finest, houses in England.

The palace was originally built by Bishop Joceline, between 1205 and 1214, and appears to have been a quadrangle, the east side of which was formed by the present dwelling-house of the bishop; the north by the kitchen and offices, which have been much altered, and partly rebuilt at different times; the south by the chapel, rebuilt by Bishop

Burnel; and the west by a gatehouse, now destroyed, with a piece of curtain wall to connect it on each side with the other buildings. There is no distinct evidence of the fourth side of the original quadrangle, but there is great probability of it from a comparison with other houses; and the old drains found by the bishop by digging in this part of the court in 1860 seem to confirm it. They appeared to have been carried round the two turrets of a gatehouse. In Buck's view of the palace, taken about 1700, a square tower is shown at the west end of the north wing, opposite the corner of the chapel, which would have been at one corner of the original quadrangle. The present dwelling-house or palace, which remains to a great extent perfect, though with many alterations of a minor kind, has the lower story vaulted, with a good Early English groined vault, with ribs, carried upon slender pillars and corbels: the parallelogram is divided lengthwise by a solid wall at about one-third of the width, the outer or narrow part of which now forms the entrance-hall and passage to the staircase at one end, and the chapel at the other. In this vestibule is a fireplace of the time of Henry VIII., which has probably replaced an original one. The upper story of this long range of building is divided in the same manner as the lower one, by a solid wall running the whole length, and separating one-third of the width as a long gallery, in which there are two modern fireplaces, the chimneys of which are probably original: this upper gallery has also been originally divided into two rooms. The larger division is divided into several apartments. The partitions are all modern; and, as the roof and ceilings are also modern, there is no guide as to what the original arrangements were. The windows on this floor are of two lights, trefoil headed, with a quatrefoil over them; and within, a very elegant inner arch, trefoiled and richly moulded, with blue marble shafts in the jambs, having capitals of stiff-leaf foliage and moulded bases. As I find that a common notion prevails that these beautiful windows are nearly all modern, copied from one or two old ones, I take this opportunity of mentioning that such is not the case. They are commonly said to have been made by Mr. Ferrey, in the time of Bishop Bagot; but Mr. Ferrey has very kindly lent me his drawings, showing all that he did in the palace; and he assures me that these beautiful windows are nearly all original: the arches and heads had been entirely hidden and filled up with brick and plaster, and square sash windows introduced below the springing of the arch; but, most fortunately, the original window-heads had all been preserved, and it was only necessary to clear out the rubbish with which they had been filled up, and restore the mullions. Mr. Ferrey also wishes it to be known that he is not in any way responsible for the modern ceiling, or other interior fittings: he was employed to restore the stonework only, which he has done most conscientiously and admirably. An ignorant upstart from Bath was employed by Bishop Bagot to do the rest of the work, and did much mischief. All the principal apartments of the palace are still, and were from the beginning, on the first floor, and the entrance to them was always by a staircase in the same situation as the present one, although that is Jacobean work. The omission of the end bay of the vaulting, and the existence of a square pier on one side and none on the other, where the end of the vault is carried on a corbel only, prove that the original state staircase was in this situation, and ascended by a sweep round this end of the entrance-hall.

The internal arrangement of part of the house was entirely altered in the time of Bishop Becon, about 1810, when the floors were taken out, and what had been two stories made into three. The square tower at the angle, with a tall turret, is part of the work of Bishop Clerk, in the time of Henry VIII. An upper story was also added to the whole of the west front by Bishop Bagot, about 1840, to contain additional bedrooms; and the present dormer windows were then added by Mr. Ferrey, with so much ingenuity and in such good taste, that it is almost impossible to distinguish them from the old work; and the effect of the front is thought by many persons to have been improved by the alteration. The buttresses were then restored, but the toothing of the old buttresses remained quite distinct in the walls when the rough-cast was taken off.

The south wing of Bishop Joceline's Palace, occupying the site of the present chapel, appears to have been originally of two stories, like the rest of his work, and probably had also a vaulted substructure, with a chapel on the upper floor. The site does not appear to have been exactly

coincident with the present walls: the east end has been extended several feet. The staircase turret at the angle connecting the main range of Bishop Joceline's work with this wing remains perfect, and has a very good vault with a central pillar. This vault is, however, part of Bishop Burnel's work; the top of the tower having been rebuilt along with the battlement and cornice of the chapel. There were doorways from this staircase into the present palace, and also into the wing that has been rebuilt,—one on a level with the first floor, opening to an external gallery, which would cut across the present windows; the other above, to go on to the allure behind the battlement. A long loop window near the top of this staircase on the south side of the turret is blocked up on the outside by the east wall of the present chapel. At the opposite angle, or south-west corner of the present chapel, is another of Bishop Joceline's stair turrets equally perfect, with doorways in the same situations as in the other, showing that the wing of Joceline's palace extended to this point, and rather beyond it, as a doorway opens westward, now leading to nothing, but probably issuing originally to the external gallery. Part of the old wall joining to this turret on the west side has been preserved, and now forms part of the wall of the later hall; but the jamb of one of the early windows remains between the turret and the first window of the hall.

The great hall, of which the ruins only remain, and the present chapel, are both the work of Bishop Burnel, in the time of Edward I., between 1274 and 1292, but not quite at the same time. There is an interval, probably, of ten or twelve years between them, and a slight difference in the character of the work. In the chapel it would appear that the materials of Bishop Joceline's chapel were used up to a considerable extent; but the beautiful groined vault and the elegant windows are Bishop Burnel's work: the west window is an alteration of a later date.

The great hall of Bishop Burnel has been a very magnificent piece of work, of which the north wall and west end, with the turrets at the angles, only remain. The windows are rather different from those of the chapel, and probably a few years later: the three turrets at the south-east, south-west, and north-west angles are closely copied from the original one of Bishop Joceline, which remains at the north-east angle, connecting the hall with the chapel. At the west end of the great hall are the two doorways, showing the position of the screen and music gallery: the porch and the newel staircase to the solar or upper chamber have been destroyed, but marks of them remain.

The present gatehouse to the palace is plain work, of the fourteenth century, with square flanking turrets, a groined vault over the archway, the chains of a drawbridge, and the grooves of a portcullis. It was built by Bishop Ralph, of Shrewsbury, who also built the wall of enclosure and made the moat. This wall of enclosure has bastions, or towers, at intervals, with the usual allure, or passage, on the top of the wall behind the parapet, in which there are embrasures, or openings, and loopholes alternately. It was built for defence according to the most approved system of the age; and the gate-house is a very good guard-house of the fourteenth century, with vaulted chambers, loopholes, and windows widely played within, and with their heads formed of what is called "the shouldered arch," or square-headed trefoil, a very common form in the Edwardian period. There is a tradition that this fortification of the palace was made as a precaution against the monks of Bath, who threatened the life of the bishop, but there is no written authority for this. It is singular that the bishop's palace should have been so strongly fortified, while the precincts of the cathedral do not appear to have been fortified at all, or even enclosed with a wall, until a century afterwards; all the gatehouses of the close being the work of Bishop Beckington. But as the bishop was a sort of prince, or great noble of the district, it may have been considered necessary for his house to be fortified in the same manner as those of other nobles.

The peaceful character of this part of England is shown in a remarkable manner by the absence of fortifications round the cathedral and its precincts: up to the middle of the fifteenth century they do not appear to have been fortified at all.

To complete this summary of the architectural history of the vicar's close, it should be mentioned that the hall was enlarged by the addition of the two bay windows of the dais in the time of Henry VIII., by Richard Pomeroy. The kitchen, with the pantry and bottery at the lower end of the hall, seem to be part of the work of Bishop Beckington, or his executors. The bridge, or

archway, forming the eastern gatehouse of the close, with the passage over it from the hall to the cathedral, is part of the work of Bishop Beckington. The other gatehouses of the close are also his work (as has been mentioned), and he built a row of houses on the west side of the close, fronting the Market-place, which remain, though spoiled in appearance by modern alterations.

THE PLEASURES OF ART-EDUCATION.

NOTWITHSTANDING the numerous advantages which result from a fair amount of artistic education, it is to be regretted that it makes but little progress in most of our schools; and, consequently, the bulk of the rising population will be without a valuable means of giving expression to various ideas, and deprived of an elegant accomplishment. Useful, however, as is the knowledge of drawing and the principles of art to the practical workman,—to the builder, the gardener, to those engaged in ornamental trades, travellers, and even to seamen,—in fact, to all classes,—it is with reference to art-education as a source of pleasure that we now allude to this important subject.

A fair knowledge of the practice and principles of drawing and composition is like a key, not only to the beauties of nature, but also, to a great extent, to the glories of art. The cultivated eye, in simple scenes and objects, perceives matters for admiration which would be passed without note; as in the peculiarities of the colour and form of foliage, the mingling of tree branches at all seasons, the delicate variety of mosses and lichens on old church walls, mouldering tombs, and on roofs and other portions of dwellings.

To the artistic eye, the hues of the spreading heaths and moors have inexpressible charms: the white cliff, which, to the ordinary eye, is but white, is a mingling harmony of many tints.

At all times sky, and land, and water, are constant objects of agreeable thought: thousands of combinations of the most interesting description meet the eye in the most ordinary scenes: the moving figures in the streets; the arrangement, and light and shadow, of the buildings; the bright light of the sun; the gloom of twilight; the glitter of the moon; star and gas light; are all agreeable objects for the observation of those who can look at them with a painter's view. The means of looking at even the ordinary scenes of nature with constant pleasure is a possession which cannot be estimated by any standard of money value: in time of restless sickness, in the darkness of the night, recollections of scenes which have been artistically impressed upon the memory often beguile the time and soothe the pain. We know of one who, during a severe attack of fever, was delirious for days, and on partial recovery the recollection of that time of danger was one of long aisles of cathedrals, sometimes blazing with light and crowded with figures; at others, sunk in gloom and silence. There were thoughts of the sea, sometimes calm, at others, sparkling with motion and glistening with light: then there was wandering in great forests, by the edges of streams, and in little glens. When the eyes were open, even the posts and carving of the bedstead, and patterns of the wall paper, assumed fantastic but pleasing shapes; and no recollection was left, during that whirl of the blood, of any save agreeable images. It seems probable that but for the study of art, thoughts of a less pleasant kind would have disturbed or injured the brain. It is not all who have the time, inclination, or opportunity, of studying the refinements of art to the extent of making it useful as a profession; but all can, under proper directions, master its rudiments and principles; and the advantage, in many ways, would be great.

It is unfortunately the case that, even in first-class schools, art education is but little thought of; and it does not make sufficient way in the national schools. Notwithstanding, the general introduction of a certain amount of artistic education would be not only an advantage to individuals, but to the country at large. It would be the means of vastly improving our manufactures, so requisite in these days of foreign competition: it would drive out of our markets articles in bad taste, which are now provided as a matter of necessity; for many manufacturers, much against their inclination, prepare designs which they know to be ugly, but they will tell you that they must provide what will sell.

If art education could be made a portion of school learning, it would, without doubt, lead to a vast improvement in the homes, not only of the working classes, but of those of other grades of society.

HOUSE BUILDING BY MACHINERY.

We have before us a very remarkable collection of 918 mouldings, including architraves, cornices, cappings, handrails, sashbars, mullions, &c. &c., struck by steam machinery at saw and moulding mills in Liverpool.* Each pattern is numbered, but only a few are priced, which is to be regretted. The collection includes a number of doors, sashes, and casements, of various sizes and forms, which can be made, we suppose, at a cheaper rate than in the ordinary way, and may be viewed as a step towards the entire production of buildings by machinery, at a considerable reduction in cost, as in boat-building and gun-making. Some time ago, if we remember rightly, a paper proposing such arrangements was read before the Liverpool Architectural Society, and we expressed a fear, which we should still entertain, that it might lead to greater monotony and want of mind in our buildings than are even now apparent; but for labourers' cottages, and houses of healthful arrangement for the poorer classes, the sufficient supply of which, though absolutely needed, is prevented by cost, such an objection is not to be thought of for an instant. We shall be glad to see the experiment tried.

PAYMENT OF PHYSICIANS AND ARCHITECTS.

IN a recent railway accident case tried at Croydon, Dr. Partridge, Dr. Holt, Dr. Skelding, and others were called for the company, when several of these gentlemen stated that they were paid five guineas for making a report upon the case to the railway company, and twenty-five guineas per day for attending to give evidence; they stated also that they expected the same fee from their private patients, and that it was their usual charge. If an architect were to make such a charge, what would be said? How many architects are there who could venture to charge ten guineas a day for attendance to give evidence; and yet an architect's education has cost as much as that of the gentlemen named, and a greater variety of knowledge is required of him. Architecture is an ill-paid profession. We are speaking of course with reference to the properly qualified architect (at once artist, scholar, and man of business), and not of the smattering pretender, of whom there are unfortunately too many. We have heard it asserted by one who should know, that there are not a dozen architects in the metropolis making a clear 1,000*l.* a-year by their profession. If this be true, the inducement to enter the profession is not very strong.

THE NEW ASSIZE COURTS AT READING.

THE new Assize Courts and Police Station at Reading, for the county of Berks, having been completed, an adjourned session was held on Monday for the purpose of receiving the report of the committee upon the bill of the contractor. At the sessions in the latter part of June, it was announced to the Court that Mr. Myers, the builder, had only a few days previously sent in his bill; and, as the total cost of the works was shown by him to be 21,644*l.* 3*s.* 10*d.*, while the original contract was for 12,229*l.*, being an excess of more than 9,000*l.*, it was resolved to refer the bill to the committee for them to report to an adjourned session as to how and by what authority so large an excess of expenditure had occurred. The experience of the county magistracy in reference to the gaol at Reading was such as to induce a spirit of caution in any new undertaking, for the original estimate for that building was 20,000*l.*, but the work was not completed at a less cost than something above 40,000*l.* The new building adjoins the ancient Abbey gateway. The contract of Mr. Myers, of London, for 12,229*l.*, was not only for the Assize Courts, but was also to include the cost of a station and buildings for the county police purposes, all of which are erected on the site already stated. This sum was considered very reasonable; and, though the county magistrates were prepared for a bill of "extras" to about 2,000*l.*, the surprise and excitement were great on the announcement being made that the excess had amounted to 9,000*l.*

On the assembling of the Court the Clerk of the Peace read the report of the committee, which stated that it was with proportionate regret and surprise they had received the contractor's account, amounting to 21,644*l.* 3*s.* 10*d.*; and they were justified in expressing their surprise, as well as

* Mullin's Diagrams of Steam-struck Mouldings. Liverpool.

regret, because the uniform instruction given by them collectively and individually to the architect had been to caution him against excess of contract. The account of Mr. Myers had been examined by the architect, and deductions claimed to the amount of 1,344*l.* 3*s.* 10*d.* Mr. Myers had been paid 13,300*l.*, and there was a balance of 7,000*l.* to be paid to him if the proposal be accepted. His offer was to settle on the terms of allowing the deductions claimed, if the sum of 7,000*l.* was paid within one week of the adjourned sessions, and it was to be considered without prejudice to any claim to the whole amount of the disputed objections. The committee added that with an account of 12,000 items, and the inevitable cost and delay of any judicial inquiry as to their merits, they conceived the offer of Mr. Myers to be a wise and equitable adjustment, and recommended its confirmation by the Court.

In a letter of explanation the county surveyor stated that in December, 1858, shortly after the acceptance of Mr. Myers's tender, he forwarded to the chairman of the committee an "apportioned estimate" for the courts and police-stations, of the probable cost of building, amounting to—exclusive of lighting, heating, and ventilation—14,342*l.* Statements of the cost of additional works and alterations had also, at various times, been furnished by him. The setting back of the courts from the original line was referred to him, and he reported that it would afford him the opportunity of enlarging the building, and a cubical increase of 60,000 feet had been gained, making the various rooms and offices of the courts much more convenient than originally intended. A number of internal alterations, with increased excavation, from altered level of the ground, &c., involved an outlay of 2,700*l.* A variety of other work done were detailed, some of which were alterations after sessions and assizes. The letter of the county surveyor concluded by stating that his anxiety had been unceasing that the greatest economy should be exercised throughout the building; and he confidently asserted that there had been no waste of material or ornament, and that all had been substantially planned and executed at a fair and reasonable cost.

In the course of the discussion which ensued, Mr. John Walter, M.P., said he should be unwilling to concur in any expression of opinion that would cast blame either upon the committee or the county surveyor. If there was blame, a large portion must rest with the county. He thought the great fault in principle was that of their merging two offices in one person—the architect and county surveyor. What this county required was a first-rate architect to do a work of this kind, and the county surveyor should have been the person to keep a check upon him. Instead of doing that, the county employed one and the same person. That fault they committed at the start, and he traced all the excess in expenditure to that original sin, and the moral to be derived from this lesson was, that in all future buildings of this kind they should not be guilty of the same blunder. This report was something like a coachmaker's bill, for not only had they to pay for the courts, but for alterations which, in his opinion, were not improvements. It appeared to him to resolve itself into a question of pounds, shillings, and pence, and, having agreed to pay the bill, there was nothing left to be done except to grumble, if they pleased so to do. He hoped that the whole affair would lead to great caution and carefulness in all future public proceedings.

A resolution was passed accepting Mr. Myers's proposition.

Afterwards it was resolved, on the motion of Lord Overstone, that the committee be requested, after having had permission to raise the money required, to consider what steps should be taken for the future to prevent the county from again getting into similar difficulty.

THE NEW CLUB, EDINBURGH.

EXTENSIVE additions to the New Club edifice, from designs by Mr. David Bryce, are far advanced.

The new part is towards the west, and is conspicuous by showing an oriel window, which has given a more complete and imposing aspect to the edifice. A new writing-room, an extension of the coffee or dining room on the first floor, a new dining-room on the second floor, a new smoking-room, and new bed-rooms and waiting-rooms, are included in the designs. The alterations consist mainly of improvements on the reading-room, the entrance-hall, and the approaches to the different apartments. Between the new writing-room, a large saloon, lighted by the new oriel and finished

with cornice and enriched panelled ceiling,—and the old reading-room, which is being re-painted and decorated, a connection is formed by means of a large opening in the wall filled with a sheet of plate-glass, measuring 12 feet by 8 feet. Each of these rooms has polished Peterhead granite mantelpieces, of bold design; and, in common with the other chief rooms on the different floors, will be lighted at night by sun-lights in the centre of the ceiling, which act as ventilators. The flooring of the corridor is done in parquerie, manufactured by Mr. J. R. Swann, Leith-walk.

Of the improvements, the most striking, perhaps, is that effected upon the entrance-hall. The old wall that marked the limits of the outer lobby, and darkened the main staircase, has been removed, and abundance of light and a spacious lobby are the result. The wall is supported by an immense square pillar,—weighing four tons,—of polished Peterhead granite, with side pilasters. In the centre of the lobby, the floor of which is already partly laid with encaustic tiles, a massive granite pedestal has been laid down for the reception of a large lamp. Messrs. William Beattie & Sons are the builders; Mr. J. R. Swann the joiner; Mr. Annan the plasterer. The painting and decorating are in the hands of Messrs. Purdie, Bonnar, & Carfrae. We understand that the cost of the works will be about 12,000*l.* It should be mentioned that the polished granite is by Mr. Alexander MacDonald, of Aberdeen.

SKIPTON CASTLE.

"BUILD ME A PORTAL TO O'ERLOOK THE BURGHS;
AND CARVE ALOFT UPON ITS HIGHEST COPES,
THE MOTTO OF OUR HOUSE; PROCLAIMING FAR
AND WIDE THROUGH ALL THE REGIONS OF THE LAND,
WHERE DWELLS THIS REMNANT OF OUR ANCIENT NAME,
A SIGN THAT ITS AUTHORITY AND RULE
PREVALES AND SHALL ENDURE FROM THIS TIME FORTH."
SO SPYKE ANNE CLIFFORD,* PROUDHOSE OF HER RACE,—
AND SHE WENT ON LONG THE FIRM ENVOYED NOW
WITH LETTERS SHARP AND CLEAR AGAINST THE SKY:
DISFORMAIS.

ALAS, FOR HUMAN FORESIGHT!
THE ROLLS RESENTLESS ON IN MEASURED ROUNDS,
AND STRANDS FULL MANY A PURPOSE ON HIS SHORES,
FLED ARE THE CLIFFORDS' THEIR ANCESTRAL PILE,
A CUCKOON SHOWS YOU WHAT REMAINS,
WHILE LOCOMOTIVES WHISTLE PAST THE WALLS,
AND CATTLE-DRIVERS BAGGLE IN THE STRAITS.

JAMES HIBBERT.

THE 1862 EXHIBITION BUILDING.

REMARKABLE progress has been made in the construction of the building at Brompton, which is to contain the wonderful things of the world next year. The permanent portion of the structure in Cromwell-road,—large, massive, and lofty, and which has swallowed up some three millions of bricks,—is, for the most part, ready for the roof. The annex, running north and south,—a wooden building of great length, in three naves, cleverly constructed,—is completed as an inclosure, and only waits its fittings and decoration. The columns and galleries of the nave are finished ready for the roof, and the mighty scaffolding is finished for one of the domes, and partially so for the other. It is with a view of directing our readers' attention to these scaffoldings or stagings while they can be seen, that we pen this memorandum. They are about 180 feet high, and are formed of 100,000 cubic feet of timber. Each of the domes, when up, will be supported by eight cast-iron columns, 2 feet in diameter; and without any rib, outer projection, or ornament, they will rise to the height of 108 feet, the upper part being of the same diameter as the lower. Each one of these columns will be formed of five separate lengths, joined together by bolts passing through flanges

* Anne Clifford, Countess Dowager of Pembroke, only daughter of George Clifford, third Earl of Cumberland, famed in Queen Elizabeth's time for his literary and military abilities. She was a lady of much spirit and force of character, and of considerable accomplishments. Her literary works, consisting of memoirs of herself and family, yet remain in manuscript, a prey to the mice in the muniment room of the castle. She erected monuments to the poets Spenser and Daniels, the latter of whom was her tutor. Her dismantled castles, of which she had four in Westmoreland alone—Appleby, Brough, Pendragon, and Brougham,—were rebuilt and restored by her in defiance of the mandate of Cromwell. Whitaker states that no other character in English history was so copiously registered in stone as the Countess of Pembroke. She died at the age of 89, A.D. 1675. History records the answer she gave to Williamson, Charles the Second's secretary of state, who had presumed to nominate a candidate for her borough of Appleby:—"I have been bullied," she wrote, "by a usurer; I have been neglected by a court; but I will not be dictated to by a subject: your man shan't stand."

The Cliffs were a mighty family. From Skipton to Brougham, a distance of 7½ miles,—almost the whole of this district once belonged to them. The oldest remaining parts of their castle at Skipton are supposed to be of the Edwardian period; but the foundations of the structure belong to the time of the Normans.

cast on the inside, so that, when completed, the parts where they are joined will not be perceptible, and each will have the appearance of an enormous mast, without, however, its tapering end. In order to secure the different parts it will be necessary to lower some person down the inside of the column, and as there will not be room for a full-grown man—the diameter at the flanges not being more than 16 inches—the work of putting in the bolts and screwing them will be performed by a boy, who will have to carry with him a lantern to see the work. In order to keep these uprights in their place, a deep collar, or rim of iron, will be placed upon, and encircle the whole of, the eight columns, and from this the ribs of the dome will spring. More than 1,000 tons of iron have already been delivered on the ground by the Thames Ironworks Company, who have contracted for this part of the building. The iron work of the nave, including some 1,200 columns and 800 girders, Messrs. Barrow & Co., of Staveley, are supplying.

THREATENED MISTAKES IN THE SUFFOLK GENERAL HOSPITAL.

It is proposed to enlarge the Suffolk General Hospital on the present site, at a cost of probably 7,000*l.* or 8,000*l.*, in a very unsatisfactory manner. Mr. Newham, surgeon to the hospital, has published a letter, wherein he says, in protesting against the contemplated steps,—

"As soon as it was contemplated to enlarge the hospital, I applied myself to a study of every reported authority which our age has produced, from which I could glean any information on the subject. I did this the more ardently in consequence of the resolution of a meeting of the governors, that the intended alterations should be carried out 'with a due regard to the most approved sanitary appliances.' The authorities to which I refer (and whoever candidly studies them must, I am confident, yield them a ready acquiescence) are the two Government Reports on the Construction of Hospitals and Barracks; the admirable series of articles in the *Builder* newspaper; the 'Notes on Hospitals,' by Miss Nightingale; and the report issued by the governors of the Newcastle Infirmary."

Upon these data he feels it an imperative duty to assure the governors, that the plans proposed for the reconstruction of the hospital are not in accordance with modern requirements; the arrangements in reference to sanitary matters being faulty in the extreme, and the omissions almost incredible. The *Bury Post*, adopting the same view, says,—

"The decisive step has been taken by commencing the demolition of one of the front wards, without waiting for the removal of the patients, who are in consequence in a deplorable state of discomfort. And now, to add to the disastrous character of this ill-advised proceeding, we learn that erysipelas has again broken out in the accident wards—those wards nearest to the cesspool which has been recently emptied, and the vicinity of which has been pronounced free from all contamination, and which wards the new plan of the hospital proposes in part to retain. What will now be thought of the wisdom of disregarding the late Dr. Probert's caution against building on the present site without a year's testing of its healthiness after proper cleansing and airing?"

Is it yet too late to induce the governors to take the best obtainable advice on the matter, and reconsider it carefully. It is nothing less than a question of life and death.

OPEN COMPETITION OF PLANS FOR NEW MECHANICS' INSTITUTION, LINCOLN.

The building committee of the above institution having received plans from thirty-one architects, some of whom sent more than one set of drawings; as many as fifty-two elevations and ground-plans, &c., were exhibited in the Card-room of the City Assembly-rooms. At their first meeting the committee selected eight designs from which to make a decision; and at their next meeting reduced that number to three. After an interval of nearly a week the committee met again, and, from the circumstance of the plans being of nearly equal merit, and also from the fact of one of them being known to belong to Lincoln architects, "resolved to submit those marked 'Esse quam videri,' a 'circle,' and a 'circle'" enclosing the figures "24," to the judgment of Mr. Hakevill, of London, who happened to be in the neighbourhood. After comparison he gave his judgment in favour of the first-mentioned plan; which, upon opening the sealed mottoes, proved to be by Messrs. Hooker & Wheeler, of Brencley, Kent. The plans of these gentlemen are said to be well adapted for the purposes of the institution. It would have been easy for the committee to have selected a more elegant elevation than the plain Northern Italian Gothic of the successful competitors; but want of funds compelled them to be prudent.

It is only fair to say that many of the drawings have had the admiration of the public; who, as

well as the committee of the institution, have had the privilege of inspecting them. The plans are now on view, with the names of the architects appended; and amongst them we hear best of those by "Experiar," Mr. Hill, of Leeds; Mr. C. Else, of Leicester; Mr. Wilson, of Bath; Mr. Garling, of London; Mr. C. Amfield, of Leeds; Mr. M. Drury, of Lincoln; Messrs. Bellamy & Hardy, of Lincoln; Messrs. Hope & Stott, of Bradford; Mr. Matthews, of London; and Mr. Stranham, of London.

THE PRESTON SCHOOL OF ART.

A MEETING for the distribution of prizes in this school has just been held, from which it appears that there are 150 pupils in the school, divided into four classes, viz., fifty-three artisans, forty-four pupil-teachers, forty-two ladies, and eleven school-boys. The Rev. Canon Par delivered the prizes. In course of his opening address, he said he thought that the records of the study of art would show that those who have devoted themselves with the most zeal to it have not only won the admiration of their fellow-creatures for that success in art, but a corresponding harmony and a beauty of general character. He could not help observing, too, that it is in accordance with the study of art, viewed in a philosophic way, that our Divine Creator proposes to us that we should imitate and reproduce, in ourselves, under his aiding, favouring, fostering, and prospering hand, those moral perfections which constitute his own beauty, and the glory of his own nature. In nature, we see the beauty of that God-like character, which He has set before us. There is, then, a concord in man imitating, in his language, in the presenting of his heart, and in the appreciation of the glory of the Divine character,—there is, let him say, a concurrence and a concord between those objects and the imitation of everything graceful, which the same Divine hand has cast around us in this world. Therefore, he could assist in the working and support of such an institution as a school of art in Preston. He regarded it as a great blessing to the town. He had himself three daughters in the school, and he had been surprised at the proficiency they had acquired in the study.

"ALTAR SLABS," ST. CROSS, WINCHESTER.

In removing some woodwork behind the communion table in the church of St. Cross, Winchester, the original high altar slab of dark marble has been lately discovered, imbedded in the old stone reredos, apparently for protection at the time of the Reformation. It is in perfect preservation, 8 feet 3 inches long, 3 feet 3 inches broad, and 6½ inches thick. When the whitewash was removed, the five crosses of consecration were found as sharply defined as when first graven.

We are informed in Parker's "Glossary," that very few of these high altar slabs have escaped destruction; the only perfect one instanced is at Arundel. It would be a point of considerable interest to inquire how many remain, of what dimensions and material, in what situations, and in what condition?

Here is one quite unknown till within the last three weeks. We have a smaller chantry altar slab laid down as a grave stone in the south aisle of the choir; but it is considerably perished, and but two of the five crosses can now be traced, and that rather faintly.

Doubtless some of your correspondents can add some interesting contributions on this subject, and I write this letter with a view to elicit them.

L. M. HUMBERT, Master of St. Cross.

THE LABOUR QUESTION IN THE PROVINCES.

Worcester.—The difference between the operative stonemasons and their employers has been settled, apparently to the satisfaction of both parties. The strike appears to have been caused by a misunderstanding of the demands of the workmen; their claims not appearing to have been clearly set forth in their circular. Mr. Bennett, the contractor for the works at the cathedral, saw some of his men; and, on the matter being explained to him, he at once signified his willingness to accede to the request for the discontinuance of work at four o'clock on Saturdays. The other employers followed Mr. Bennett's example, and the men have resumed work.

Liverpool.—An interview took place on the 10th instant between a deputation of the master builders and a deputation of the operative bricklayers, with a view of adjusting existing differ-

ences. An offer was made to leave the matter to arbitration. The meeting was adjourned till the 12th instant, for the deputation to have an opportunity of consulting the general body of bricklayers, when they returned the following reply; namely:—"That they would resume work on the old system on the masters giving them a written engagement that they would not make any alteration without giving them six months' notice;—that they would not agree to arbitration;—that they would not have the hour system at any price;—and that one of the masters who had been active in the movement must pay 20*l.* to their society before any men would be allowed to work for him. These terms were considered so obnoxious and arbitrary by the masters, that they were at once rejected; the interview terminated; and the result will be that men will be brought into the town to supply the place of those on strike." On Wednesday evening of last week a meeting of the trades in Liverpool was held in Gill-street Market, Mr. Michael Lynch presiding. The meeting, which was large, and composed of operatives, had been called for the purpose of opposing the hour system. The chairman, and several speakers who addressed the meeting, condemned the interference of newspapers in the dispute; urging that the operatives were able to maintain their own cause without such aid. Resolutions condemnatory of the system of payment by the hour were adopted by acclamation; and the conduct of the master-builders was severely condemned.

Manchester.—Lately, it appears, considerable dissension has arisen between the managers of the corporation gasworks and the met employed under them; the result of which has been that a large number of the men, who belonged to a society, left the works, and a number of hands were engaged to replace them. When the new hands were about to commence work, about fifty or sixty of the men out on strike assembled in front of the entrance, in Gold-street; and an Irishman, who happened to be looking out, was assaulted, on the supposition that he was one of the new hands. The man who committed the assault was taken into custody. This and several other cases arising out of the strike were brought before the City Police Court; and three men have been sentenced to 21, 14, and 7 days' imprisonment respectively.

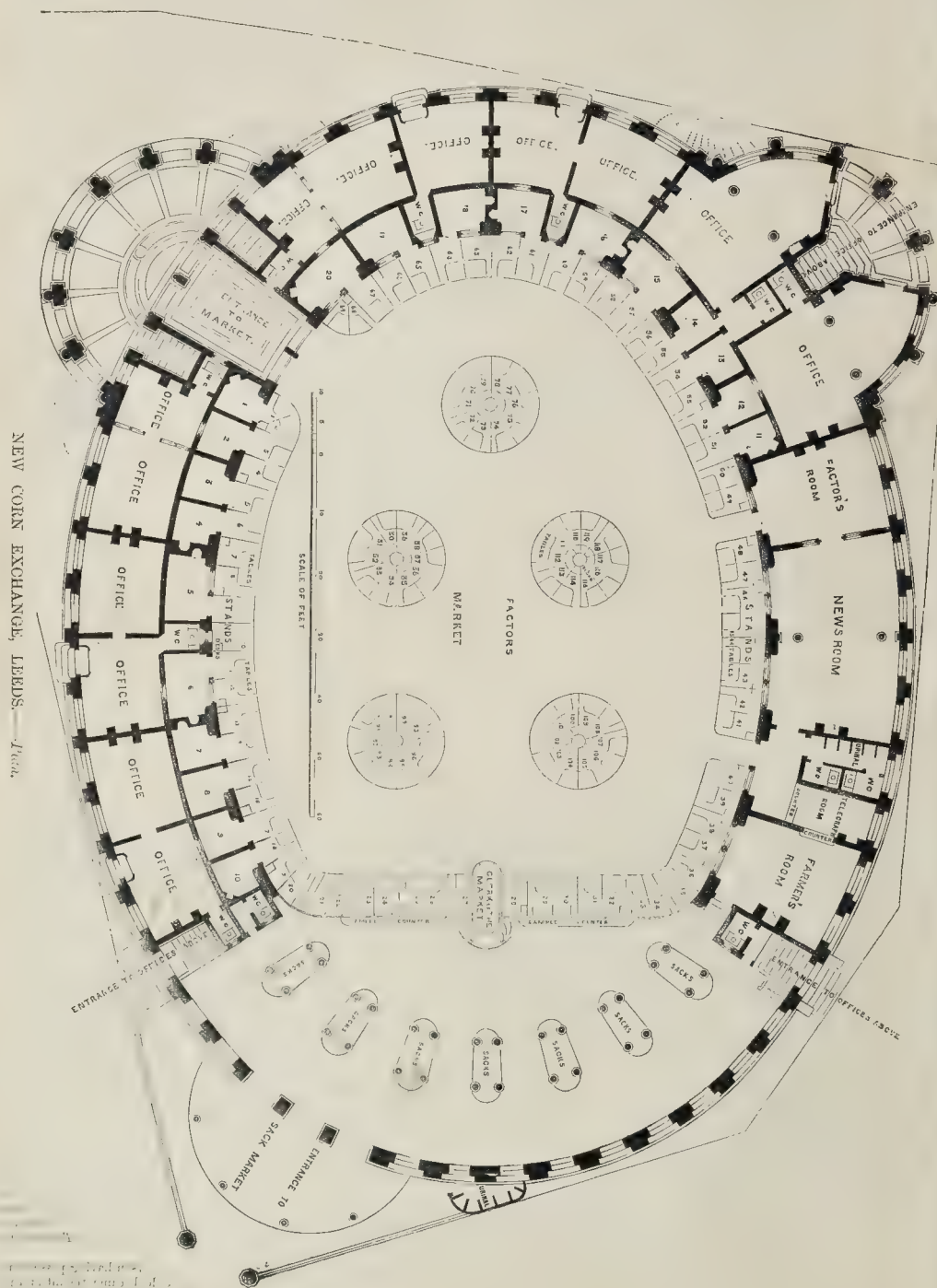
THE "BUILDER'S" LAW NOTES.

Severing of Property.—Two adjoining properties of the same owner were arranged so that one was a tan-yard and the other a house and garden. The tan-yard sloped gradually to one corner of the garden, so the owner made a drain into it, and a cesspool to absorb the surplus water. In 1819 the tan-yard was sold to one person and the house and garden to another, and the deeds did not allude to the drain. A purchaser of the house and garden, being annoyed by the cesspool, built up the wall and stopped the drain. An action having been brought for damages, the plaintiff succeeded; and, on appeal to the House of Lords, the judgment was affirmed, which decided that the drain passed with the tan-yard; for that, when two properties possessed by one owner are severed, anything which was necessary for the comfortable enjoyment of the one part follows the grant of that part, if there be the usual words in the conveyance.—*Ewart v. Cochrane.*

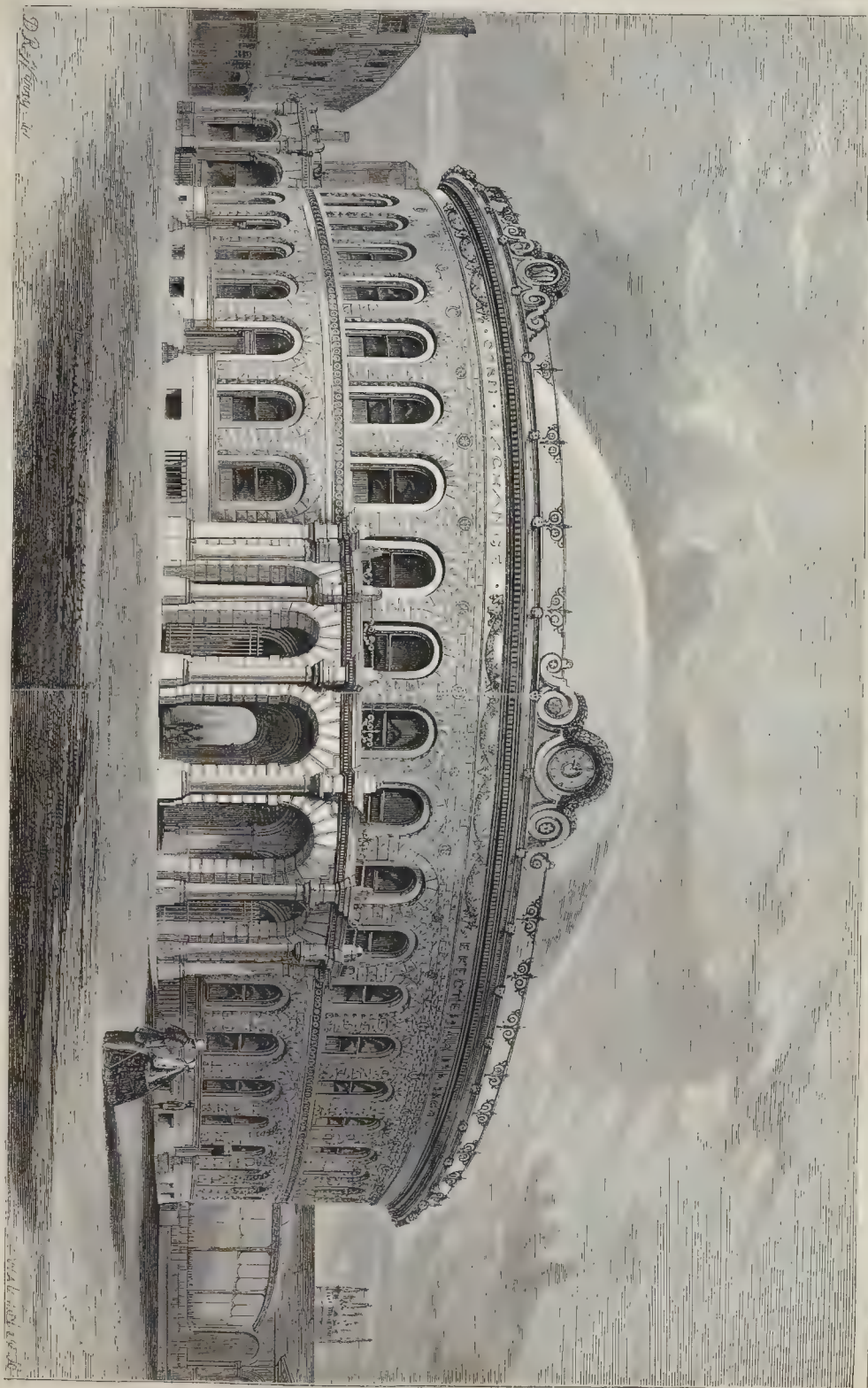
Joint Stock Company.—A person applied for fifty shares in a new company, inclosing 50*l.* and requesting that his name might be entered on the register of shareholders. Before any allotment of shares was made to him he wrote withdrawing his application, and requesting the return of his deposit. The company refused to accede to this request, and proceeded to allot the shares to him. It was held that he withdrew in good time, and that he never was a shareholder.—*Gledhill's Case, re Cardiff Iron Company.*

Bankruptcy.—When the trustees of an assignment by a trader for the benefit of his creditors have, with the *bona fide* intention of benefiting the estate, incurred expenses in respect of proceedings which did not actually lead to real benefit, and that the trader afterwards became bankrupt, payment of these expenses may be ordered out of the estate.—*Ex parte Tomlinson, re Boyce.*

Tenancy.—Where a person having possession of land under a good title became tenant and paid rent to a stranger, it was held that he was not estopped after his tenancy was determined, and before he had given up possession of the premises, from setting up his own prior title in an action of ejectment by the lessor.—*Accidental Death Insurance Company v. Mackenzie.*



NEW COIN EXCHANGE, LEEDS.—MR. CUTBERT BRODRICK, ARCHT'ECT.



INTENDED CORN-EXCHANGE, LEEDS.

LEEDS having long required a new Corn-Exchange, adequate to its trade and importance, designs were obtained; and, on the 7th of May last, the first stone of the intended building was laid. It will be seen, from the plan and view of the proposed structure, that a form has been adopted unusual in this country,—the form of the Roman Theatre—as best adapting itself to the site. The total area occupied by the building is 2,055 square yards. The factors' market covers 960 square yards; and the farmers' market, 400. There will be fifty-six sets of offices; seventeen of them having their entrances from the market only; the rest having immediate access from the streets. The building will be 190 feet long by 136 wide, and 86 feet high from the cellar floor. There will be news-rooms, telegraph office, and every requisite convenience provided for the transaction of the business to be carried on.

The architect is Mr. Cuthbert Brodick, of Leeds. The contractors are Mr. Addy, Leeds, for the building; and Messrs. Butler & Co., of Leeds, for the iron roof. The total cost, exclusive of land, will be about fifteen thousand pounds; and with it, about twenty-five thousand pounds. Mr. Cairns is the clerk of works. The building is to be finished in May next.

The structure is at present about 4 feet above ground. The builders were delayed in consequence of coming across about forty old iron pits. These, which are very awkward things to deal with, were not discovered until the old buildings and about 4 feet of earth had been removed. They are known in the neighbourhood by the name of Bell Pits, and have been used for getting at the iron ore. Their size varies from 20 to 25 feet in depth, 12 feet at the bottom, and 3 feet at the top, and they are generally found full of water and loose earth.

PROVINCIAL NEWS.

Bristol.—Some improvements are being made on Bristol Bridge. The works consist in forming a pathway, for foot-passengers only, of 12 feet wide, on the eastern side of the bridge; and increasing the width of the road, by the present width of pavement, which is about 7 feet wide. The new pathway will be formed by placing a wrought-iron girder of ornamental design upon Pennant stone columns to be placed upon the old abutments of the bridge, which will be lowered to the water line for the purpose of receiving them. To this girder will be fixed wrought-iron brackets with arms bolted into the old bridge. The present toll-houses on the east side of the bridge will be removed, as also the stone balustrades on either side; and they will be replaced by light iron-railling. By this means an additional width will be obtained on the west side of the bridge. The old stone arches will be merely repaired, so that the general character of the old work will be retained. It is intended to form the new pathway of large slabs of Cornish granite. The whole of the arrangements are under the direction of the city architects, Messrs. Popes & Bindon.

Coldstream.—A building for a Mechanics' Institute, public hall, &c., is about to be proceeded with at Coldstream. At a recent meeting of the building committee, a plan of the proposed building, prepared by Mr. James Cunningham, was produced, and approved of; and it was agreed that, as soon as the necessary specifications are completed, estimates should be taken for the execution of the work from the different tradesmen of the town. The plan shows a structure of two stories, consisting of a public hall, a room for a Mechanics' Institute, a news-room and library, besides keeper's apartments, &c. The total amount of subscriptions, at present, is six hundred and nine pounds; but a considerable sum is still required to complete the work in the manner contemplated.

Galashiels.—The new Town-hall here has been formally opened. Entering the lobby by a broad flight of steps on the right hand is the custodian's apartments, and the ladies' room. On the opposite side is the under-flat room, designed as a court and Commissioners' room, and which may be used also for smaller meetings. The ascent to the great hall is by a broad flight of steps leading from the middle landing to the right and left. The hall itself is 70 feet in length by 45 feet in breadth, with a deep cornice running round the top. The roof is semi-concave, and it is said a speaker of ordinary compass is easily heard in any part of the room. The plaster-work was executed by Messrs. Hood, of this town.

SCHOOL-BUILDING NEWS.

Bradford.—The building recently erected in Little Horton-lane, Bradford, for the accommodation of the schools in connection with the Independent church there, has been opened. The schools are in the Elizabethan style of architecture. They present a façade of 90 feet in length, and cover a space of 510 yards. The entrance to the building is by two main doors opening into separate porches and staircases. Connecting these entrances on the exterior of the building is a loggia, or open gallery, extending over two-thirds of the length of the building. On the ground-floor is accommodation for the Sunday schools. The large room, 53 feet by 23 feet 6 inches, is arranged for the assembly of the whole school for worship; the separate classes, with their teachers, retiring, after common prayer, into the adjoining class-rooms; into which, principally, the work of instruction will be carried on. These class-rooms are eight in number. They surround the large room,—opening from it,—and are in so immediate connection with it as to form part of it. The library, cloak-rooms, &c., form an additional part of these series of rooms. On the upper-floor is the lecture-hall. Its dimensions are 50 feet by 38 feet. The roof is elliptical and lofty. For the ordinary purposes of public meetings (for which, under the direction of the trustees it will be available) it will accommodate 450 persons. At the lower end of the lecture-hall are two special class-rooms; which, upon occasions, can be used as an extension of the lecture-hall; increasing its accommodation to 580. By an arrangement of tables over the lecture-hall and special class-rooms, nearly 400 persons can be seated together at tea or breakfast. At the upper end of the lecture-hall, and entirely separate from it, is a room 24 feet by 16 feet, furnished as a committee-room. The building will be heated throughout by hot water and hot air; while the principal rooms have separate fire-places. The ventilation has been provided for; that of the lecture-hall being by air-chambers in the roof, acting in connection with the sunlight by which the hall is lighted. Attached to the building is a warden's house. The cost of the building with its furniture will be 3,200*l*. The first stone of a chapel, with which this school is to be in connection, has just been laid.

Manchester.—The foundation stone of St. Luke's National Schools was laid last week by the rector of the parish. The building will be of the Italian style of architecture, three stories high, and comprise boys', girls', and infants', with class-rooms, &c. The principal rooms are 60 feet by 22 feet, internally; and the schools are faced externally with red bricks, with alternate courses of blue, and moulded bricks, to the windows, angles, &c. The roof is open, with framed principals, &c. Attached to the schools is the master's residence. The total cost will be about 2,000*l*, exclusive of the site given by the patron. The works are being carried out by Mr. J. Brammall, builder, under the direction of Mr. J. Lowe, architect, both of Manchester.

CHURCH-BUILDING NEWS.

Northampton.—From a statement of accounts made at a meeting held to consider the means of raising the funds still required for the completion of the Church of the Holy Sepulchre at Northampton it appears that 2,616*l*. have been expended on the building, and the liabilities amounted to about 623*l*. 10*s*. The further requisite outlay was as follows:—First section, 281*l*.; second ditto, 1,376*l*.; third ditto, 1,416*l*.; but from this latter a deduction of 200*l*. would be made if the seats were made of pitch pine instead of oak timber. To meet this expenditure of 3,100*l*. or 3,300*l*. there are certain assets, besides which it is expected that the collections at the opening will amount to 200*l*. and the committee think that the sum of 300*l*. could possibly be raised from the parishioners towards the expenses of seating, and the heating apparatus, &c. The result showed that a further amount of 2,129*l*. 17*s*. 5*d*. would be required. In a letter to Mr. T. E. Gray, read at the meeting, Mr. Scott, the architect, said:—"It is clear that, in treating an ancient building, it is desirable to add to it as little as possible of new work; but, in this case, the absolute necessities of the parish demanded an extensive addition to the parish church; and I cannot help flattering myself that this has been carried out in a manner calculated as little as possible to clash with the ancient character and aspect of the church. One great advantage, indeed, has been the restitution of an ancient feature which had been lost; and, as such, has been a return to the old form of the church instead of a deviation from it,—I mean, of course, the second

aisle up the north side. This aisle not only adds greatly to the practicable capabilities of the church; but, by opening out a third range of arcade and pillars, adds wonderfully to the effect of the interior; and is, in every way—antiquarian as well as practical—a positive gain; and is, taking the antiquarian view of the case, a set-off against the deviation from the old plan which we have been compelled to make at the east end." Mr. Scott protests against modernizing or altering the pier on the north side of the church. "That pier," he observes, "unites in itself half of the history of the church and many of the most curious and interesting archaeological questions which it involves; and is, therefore, in the very highest degree, valuable." He mentions that "it is of great importance that the curious and interesting architectural fragments which have been found in the walls and elsewhere should be carefully preserved and catalogued. Many of them belong to the round, and help to explain the curious and difficult problems which are involved in its architectural history. Others of these fragments illustrate changes which have taken place in other parts of the building; many of them as perplexing as they are curious and interesting. Some of the fragments have been worked up into the new or restored works, and their existence as ancient fragments will be lost unless they are described in some systematic manner."

Hornsey.—The first stone of the new church at Crouch-end, Hornsey, has been laid. The church of Christchurch, Crouch-end, will hold 458 persons, including children; and it will consist of a nave, chancel, and one aisle (another aisle being contemplated). On the north side of the church will be a tower and spire, the vestry being under the tower: on the south side will be the transept for the children. The whole length of the church will be 96 feet; the height to the ridge, 50 feet. The style of architecture is the Middle Pointed. The architect is Mr. A. W. Blomfield, and the builder is Mr. G. J. Carter, of Hornsey.

Slough.—The new church at Chalvey, dedicated to St. Peter, has been consecrated by the Bishop of Oxford. The style of the architecture is a combination of the Gothic and Early English. The internal admeasurement is 55 feet by 35 feet, exclusive of the chancel and altar. There is accommodation for 300. Benches or forms are used instead of pews. The building is faced with stone, flint, and brick. The windows are of a peculiar design. The nave arches are constructed of Bath stone, with fresh foliage capitals 18 inches in diameter. The pulpit is of a circular design, in the Norman style, with wreaths, &c. The font is of Caen stone. The windows have been supplied by Messrs. Lavers & Barrard, of London. The east window represents the Crucifixion, with angels in posture of adoration, surrounded by symbols of the Evangelists. The subject of the second window, in the south wall of the chancel, is that of the Life of St. Peter, to whom the church is dedicated. It contains representations illustrative of the "Call of St. Peter," and "The Beautiful Gate" of the Temple, &c. The subject of the third window is that of Mary Magdalene with the box of ointment. On the window over the font are executed figures representing Christ blessing little children, the Baptism of Christ in the river Jordan, Noah's Sacrifice after leaving the Ark, and the passage through the Red Sea. The pavement in the chancel is made of Minton's patent tiles, in various colours, while the altar rails and chancel pews are made of oak. The roof is of Menel timber, neither painted nor varnished. The burial ground (which was not consecrated on this occasion) is enclosed by an ornamental brick wall, surmounted by an oak fence. The church was built after the design of Mr. G. E. Street, the diocesan architect, by Mr. Harley, of Slough, builder.

Southsea.—The foundation stone of St. Bartholomew's Church, at Southsea, has been laid in Havelock Park, New Southsea. The architects are Messrs. Goodwin & Butcher, of London; and the builder, Mr. T. R. White, of Landport. The church, when completed, will hold about 2,000 persons, and the cost will be about 4,000*l*. It is to be built of Bath stone, with facings of Purbeck, and is to be in the Gothic style of architecture.

Winchester.—Itchen Abbas church having become dangerous from want of former repair, the rector appealed to the liberality of his neighbours for assistance to rebuild the same. Lord Ashburton gave 500*l*., and other contributions made up a good sum towards the necessary outlay. Mr. W. Coles, of this city, architect, designed a building in the Norman style, which will allow of some of the interesting portions of the old church to be worked in again. Tenders were sent in for the erection by

the following builders:—Mr. G. T. Fielder, Winchester, 1,366l.; Messrs. Newman & Son, Winchester, 1,344l.; Mr. Charles Fielder, Winchester, 1,250l. As the lowest tender considerably exceeds in amount the funds in hand, there is said to be a halt in the proceedings, to see if the expenditure can be reduced, or more funds be obtained.

Tewkesbury.—The chapel attached to Sudeley Castle has been restored, and will shortly be reopened. This edifice, which has been in ruins for centuries past, is celebrated as being the burial place of Queen Catherine, the last wife of Henry VIII., and the first Protestant Queen of England. In its renovated state the chapel exhibits the Perpendicular style of architecture (fifteenth century). The stained-glass windows, the font, encaustic pavement, and the entire details of the structure, are said to be in harmony with the period intended to be illustrated. The restoration of this place of worship has been completed at the sole expense of the proprietor, Mr. J. C. Dent.

Birmingham.—**Selly Oak.**—The new church of St. Mary, in the district of Selly Oak, in the parish of Northfield, has just been completed, from the designs of Mr. Edward Holmes, architect. The church is cruciform in plan, having a nave 70 feet 6 inches long by 21 feet 6 inches wide, north and south aisles 11 feet 6 inches wide and 20 feet deep, transepts 20 feet 6 inches wide and 20 feet deep, and a chancel 32 feet long and 20 feet wide, with a vestry and organ-chamber on the north, and an aisle for children on the south side. At the west end of the north aisle is a tower, surmounted by a spire, the extreme height of which is 150 feet. Seatings are provided for 617 persons, viz. 263 free seatings for adults, for the use of the poor, 172 seatings to be appropriated for adults, and 182 seatings for children. The style of architecture is the Early Decorated. The walls are of brick, faced externally with Bromsgrove stone, with Bath stone for the tracery, dressings, and spire. The nave, chancel, and aisle arches have Weoley Castle stone voussoirs introduced alternately with Bathstone: bands of Weoley Castle stone run horizontally round the inside of the church. The whole of the roof timbers are exposed to view, and slightly stained and varnished. The chancel roof has been treated with colour, a flowing stem, with flowers in gold and colours, being painted on a blue ground between the rafters. The framed timbers of the roof are also coloured. The whole of the benches are of oak, and the stalls in the chancel have poppy-head terminals to the standards, beautifully carved. Coloured marble has been used in the columns to chancel arch, and the sedilia, and also in the reredos, pulpit, and font, which, with the organ, chancel tiles, and communion rail, are special gifts. The pulpit, together with the reredos, is carved in Cuen stone. The church has at present a stained glass window representing the Ascension, in the east end of the chancel, given by Mr. G. R. Ekinington, and one in the west of the nave, representing the transfiguration, given by Mr. J. F. Ledson. Both windows are from the manufactory of Mr. Hardman, of this town.

Mr. Butterfield designed the font. The organ was built by Messrs. Halmshaw, of Camp Hill. The works have been completed by Mr. Samuel Briggs, of Bradford-street. Mr. Parker, of Bath-row, executed the decorations of the chancel roof and the ornamental writing to reredos. Messrs. Jones and Willis, of Temple Row House, supplied the hangings and furniture for the chancel. Messrs. Peard & Jackson, of High Holborn, made the communion railing.

THE BREAKWATER AT PORTLAND.

THE breakwater at Portland is finished, and the Times has given a warmly coloured account of the success which has been achieved. The writer says, the shape of the breakwater is an obtuse angle, stretching from the island at first towards the north-east, and then turning away due north into deep water, half across the splendid bay. Apparently, as one stands on the shore and looks along the interminable rows of black timbers peering up starkly out of the sharp long reef of white stones, there does not seem a great deal to show for nearly thirteen years of constant labour, for the fruits of all this toil are, of course, beneath the sea. If the restless waves were away, the visitor would behold a sort of ridgy mountain, or, at least, a hill of colossal stones, more than a mile and a half long, 100 feet high, and 300 wide at its base. More than 5,000,000 tons of stone have already been used, and at the least 1,000,000, or 1,500,000 more will yet be required. The harbour thus sheltered, and almost enclosed, by

this stupendous sea-wall has a total extent at low water of 2,107 acres. At two fathoms deep and upwards there are 1,750 acres, at three fathoms 1,590, and no less than 1,290 acres, varying from five to eleven fathoms in depth. Taking three fathoms as the standard at low water, the acreage of our made harbours is as follows:—Kingstown, 140 acres; Holyhead, 267; Dover (when made), 374; Portland, 1,290; and Plymouth, 1,741. The average of very deep sheltered water is, however, greater at Portland than at Plymouth. Just before the curve of the angle in the work there is an opening in the breakwater of 400 feet wide, which separates its eastern from its great northern length. This opening is made in order that ships going out in a northerly wind may not have to beat up the whole length of the breakwater, but pass through the aperture with a fair wind and get at once to sea.

The length of this eastern part of the work from the land to the opening is 1,900 feet, and the length of the northern breakwater beyond is a little over 6,000. The eastern portion, as we have said, is quite finished, and faced with granite at its parapet. The top, or promenade, if we may so call it, along this is divided into two broad platforms. That on the inner side is about 40 feet broad, and 12 above the sea. The platform or terrace above this is supported on a series of arches, and is about 18 feet broad and 28 feet above the sea. All the stone used in the breakwater, except the granite facings and parapets, which are from Cornwall, has been obtained from the Portland quarries, and three-fourths of it have been excavated by the labour of the convicts at the immense prison on the island. The quarries are situated some 400 or 500 feet above the level of the breakwater, to which it is conveyed down by three inclines of broad gauge double rails. These inclines are each about 1,500 feet long, with a gradient on two inclines of 1 in 10, and in the third of about 1 in 15. They are worked with a wire rope over a drum, the weight of the descending trucks full of stone winding up the train of empty waggons on the other line of rails. Thus, there is a constant succession of loaded waggons coming down the down line of each incline, with an equal stream of empty waggons being pulled up the up line, to be filled again. As fast as the full waggons arrive at the head of the breakwater they are pushed along the tramway over the piling by a powerful locomotive, to the end of the work, when the contents of each wagon are "tipped" over into the sea. As many as 3,000 tons a day have been thus "tipped in" at Portland. The tipping is now going on very slowly, for the foundations for the north fort, at the end of the breakwater, are being commenced. The base of this will be formed by a gigantic pile of stones some 600 or 700 feet in diameter, and 30 or 40 feet high. The estimated cost of the whole breakwater is 1,047,125l. 928,000l. have been spent.

COST OF WESTMINSTER BRIDGE AND THE PROPOSED BRIDGE AT BLACKFRIARS.

SIR,—My attention having been drawn to a letter from Mr. Alcock, M.P., East Surrey, in the Builder of last week, relative to Blackfriars Bridge and the cost calculated by him of certain metropolitan bridges, I have collected the following information from reliable sources, so as to bring before the public the comparative cost of that now in course of construction at Westminster and the bridge proposed by Mr. Page at Blackfriars.

The new bridge at Westminster was commenced in April, 1854, under contract, by Messrs. Mare & Co., for the sum of 206,438l. In consequence of their bankruptcy, the works were suspended for some six months, and they have been carried on since, under the instructions of the Board of Works, by Mr. Page, as the engineer.

That gentleman's estimate, submitted to the House of Commons in the last Sessions of Parliament, was stated by the Chief Commissioner of Works to be £316,000
Application was then made for a further vote of 60,000

Making the present estimated cost of the bridge £376,000

And we may well ask, as one of the honourable members did in the debate, whether this sum would conclude the matter?

The total width between the abutments is 808½ feet, and the breadth of the bridge 85 feet, making an area of 68,722 superficial feet, or a cost of 54. 9s. 6d. per superficial foot, in place of 37. 5s., as given in Mr. Alcock's letter.

This bridge will not be completed till the ensuing spring; thus making the period of construction, after allowing for several months' detention, upwards of seven years.

Messrs. Rendel & Simpson, civil engineers, were appointed to report on this bridge in 1856, after the failure of Messrs. Mare & Co. They came to the conclusion that it should be founded on the clay, on proper footings, within coffer-dams, in the usual manner; which, with the cost of a temporary bridge, was estimated by them at 804,000l. Their estimate, based on Mr. Mare's contract, on Mr. Page's method of construction, with other extra work, including the removal of the old bridge, was 264,228l.; being a difference of 39,772l. in favour of the latter; but as the former included a temporary bridge of 35,000l., there was very little difference between the two methods of construction: and Mr. Page has been subsequently obliged to erect a temporary timber bridge for foot passengers.

I cannot do better than quote the following clause from their report bearing on this question:—

"Now, whilst we cannot but regard the efforts of the engineer of the new bridge to avoid the cost of a temporary bridge, and of cofferdams, as laudable, and exhibiting a marked disregard of personal trouble and anxiety, having taken place in the bed of the Thames through London, since the removal of Old London Bridge, and to the well-known effect which these changes have produced on the foundations of the several bridges; and especially to the great disturbance which the bed of the river at the site in question has undergone in the various attempts to keep the old bridge:—we say, having regard to these facts, so material to the question of how the foundations of the new bridge can be most completely placed beyond the reach of accident, we do not feel that the present, or any plan which does not comprise solid stone piers and abutments, carried down deep into the London clay, can be regarded as possessing a permanent character. We are further of opinion that this is a case specially demanding the aid of cofferdams; not only that the site of the new piers may be laid open to view, as well as their foundations laid at a sufficient depth; but also for the better, cheaper, and more expeditious and safer removal of the arches and foundations of the old bridge; a matter important alike to the safety of the piers of the new bridge, and the early improvement of the navigation of the river."

Mr. Page's proposed bridge at Blackfriars, as described in the Times newspaper of August 2nd, comprises three arches of wrought and cast iron, resting on piers built in a similar manner to those at Westminster. The centre arch is to be 280 feet span, and the two side arches of 220 feet each; the piers 28 feet thick; making the total width between abutments 776 feet. The breadth of the bridge is to be 76 feet; making an area of 58,976 superficial feet. The estimated cost is from 240,000l. to 250,000l.; but it is probable that it may amount ultimately to a larger sum. Taking 250,000l., the cost would be 42. 4s. 9d. per superficial foot; whereas, the sum given in the statement above alluded to is only 37. 5s. Can the larger of these sums even execute the work, where the spans of the arches are more than twice those of Westminster Bridge, which we have seen will cost at least 54. 9s. 6d. per superficial foot?

The present stone bridge at Blackfriars was completed in 1770, having been ten years in construction. It has nine arches, with a waterway of 794 feet, and a width in piers, collectively, of 148 feet; making, between abutments, 942 feet, with a carriage-way of 28 feet, and two footpaths of 7 feet each: thus giving an area of 33,348 superficial feet. The cost, exclusive of approaches, was 167,810l., or 37. 13s. per superficial foot.

A stone bridge, therefore, is not so costly a structure as is generally imagined. Its durability, if the foundations be laid in a proper manner, and at a sufficient depth, is unquestionably greater than any iron bridge; for none have existed 100 years, although many stone bridges can be proved as having survived centuries. Stone bridges have, in the provinces, been constructed at a much cheaper rate than in the metropolis: how remains to be investigated; but I cannot close this part of the subject better than by a comparison with Glasgow bridge, executed under the superintendence of the late eminent engineer, Mr. Telford. It was completed in 1835, having been two years in construction, by means of coffer-dams in the tidal part of the Clyde. It has seven arches, varying from 52 feet to 58½ feet span, with a carriage-way of 34 feet, and two footpaths of 12 feet each: making a total of 60 feet. The whole is cased with Aberdeen granite, terminating with a balustrade of the same materials. The total cost of the structure, including compensation to owners and tenants of adjoining property, was 40,000l.; but, exclusive of such compensation, 34,428l., or 17. 6s. 3d. per superficial foot.

A stone bridge at Blackfriars ought to be built there cheaper than elsewhere; for the materials of the old bridge are at hand to be embodied in the new work in place of quarrying them at a distance. Much of the granite also, used in the

late repairs, could be applied in the new bridge; whereas, with an iron bridge, very little of the materials of the existing bridge could be brought into use.

But, of course, this would render necessary the erection of a temporary bridge for the traffic: and any one conversant with the subject will come to the conclusion that such is requisite; for any tampering up of the old bridge while the new works are in progress, with the increased scouring power of the river by the removal of the piers of Westminster Bridge, and the embankment of the Thames, must be attended with difficulty, and no reliable estimate can be formed of the cost of such a procedure; probably ending, as at Westminster, with a temporary bridge.

A. S.

THE AGRICULTURAL HALL, ISLINGTON.

SIR,—In your impression of this date you have published a short paragraph with respect to the new Agricultural Hall, about to be erected in this locality. Will you obligingly permit me to place the true state of the case before you? Dixon's Layers, the site selected for the building, extends from the Liverpool-road to the Upper-street, from which last it is separated by a row of (for the most part) dilapidated tenements and stables fast crumbling to decay. The Liverpool-road, on which the site opens, is a respectable but unimportant thoroughfare, returning at both ends into the Upper or High-street of Islington, and a few years ago was known as the "back road." The High-street side is in the great northern thoroughfare on the line of the omnibus traffic, nearest to the North London Railway Station, and facing the termination of the Lower-road, which connects the Essex roads with London, through Dalston, Clapton, and Hackney.

With these facts before them the directors of the company have, nevertheless, determined to build their main entrance on the side of the Liverpool-road. As to the ground they have taken on the High-street side, it is hardly worth speaking about, and will only suffice for the back entrance to the edifice. Let any unprejudiced person visit the locality and judge this matter for himself.

X. Y. Z.

OFFICERS FOR LINCOLN MINSTER.

SIR,—The appointment of Surveyor to the Dean and Chapter was determined yesterday at the annual audit. Mr. Thomas Greetham, a land agent, is appointed to manage the Leasehold Estates, and to have the title of "Surveyor." Mr. Buckler, of Oxford, is to be the Consulting Architect for the Cathedral; and Mr. Charles Ward (designated by your correspondent, an Architect's Pupil, a "wealthy plasterer and builder"), is to be the "Clerk of the Works," and to have the superintendence of the scraping and whitewashing.

A CITIZEN.

HOW A DOCTOR DIFFERS.

SEWERS.

In a paper headed, "The Condition of the Poor in Towns," read by Dr. McCormac, at the Dublin meeting of the Social Science Association, and which appeared in your number for September 7, I find the following paragraph:—

"Gas and water may be conveyed above ground, as the telegraph wires are; and the rainfall may be led away in the surface gutters, without the necessity of breaking up the pavement for any purpose whatever. Sewers,—those pestilent and abominable contrivances for fainting air and water alike,—should be abolished. Well-paid scavengers, exercising the functions of the Indian sweepers, might go from house to house at stated intervals, and remove all of every accumulation."

No one, I am sure, Mr. Editor, will dispute Dr. McCormac's claim to originality in his proposition respecting the gas and water pipes. The novelty of his discovery is amusing; but its absurdity such, that it is to be hoped your neighbour Mr. Punch will take a note of it.

With respect to "sewers,—those pestilent and abominable contrivances," it is satisfactory to know that Dr. McCormac's ideas are held by very few; and it is an established fact that the medical profession has done more to encourage sewerage and other sanitary measures than any other class.

I will not trespass further upon your valuable space than by referring to an interesting work, called, "Moral Sanitary Economy," published in 1853 by Henry McCormac, M.D. I find there,—

Page 107.—"A close tubular sewerage ought everywhere to subsist."

Page 108.—"It is certain, if we would have regard to health and decency, that foul sewerage should be isolated, as in pipes, from all direct connection with the atmosphere."

Page 112.—"The average of life is greater by seven years in the drained as contrasted with the undrained portions of Preston."

Surely, Mr. Editor, Henry McCormac, M.D., and Dr. McCormac are not one and the same individual. If so, "oh, what a falling off is there!" If not, I would strongly recommend the work alluded to above to Dr. McCormac.

J. N.

Preston.

THE POPULATION OF ISLINGTON.

SIR,—In the course of an article in the *Builder*, of September 7th, on sanitary progress in Islington, you have done me the honour of quoting from my last annual report. But an error on the part of your printer renders a portion unintelligible. You make me write:—

"Islington stands, in respect to the mode of increasing its population, in a remarkable position. During the ten years, from 1851 to 1861, the increase of the population by immigration of strangers is one-fourth less than the natural increase by the excess of births over deaths, in Islington, during the five years of Dr. Ballard's official connection with the parish. The increase by immigration was absolutely one and a third times greater than that by natural increase. Of course, whatever sanitary advantages the older residents of the parish have enjoyed, the new comers every year bring in themselves the results of those less sanitary conditions in which they have hitherto dwelt, and which render the general death-rate of England 230 in the 10,000."

I was desirous of pointing out the remarkable fact that the population in my parish had undergone its great increase from a disproportionate immigration of strangers when compared with the mode of increase of the metropolis generally. The misquoted portion of the above extract should read thus:—"During the ten years, from 1851 to 1861, the increase of population in London by immigration of strangers was one-fourth less than the natural increase by excess of births over deaths. In Islington, during the few years of my official connection with the parish, the increase by immigration was absolutely one and a third times greater than that by natural increase."

EDWARD BALLARD, M.D.

Medical Officer of Health for Islington.

RECOLLECTIONS OF A. N. W. PUGIN.

SIR,—I have just returned to England, and find that my letter of August 19th, sent from Brussels, had miscarried. I therefore have to make some observations on the replies made by the joint authors of the above work, which, as my time is much occupied at present, will be very laconic.* Every observation made by me in the *Builder*, of August 10th, is correct, and from personal knowledge. If Mr. Ferrey was ever in one of Pugin's residences, or saw him, why does not he state the *where* and the *when*? As regards the copper plates of "The Apology," I distinctly and positively affirm that they were engraved by Pugin and myself in my own rooms, and I have the first proofs of them before letters by me now. As my apartments were Pugin's home for years, he was much with me; I must, therefore, of necessity have a full knowledge of all his affairs, and I shall never shrink from contradicting untrue statements concerning him, from whatever quarter they may proceed, and more particularly when they convey anything of an unfavourable nature respecting him.

As regards the lengthy letter of the inspired author of the "Appendix," I can only positively assert that his observations respecting myself are totally erroneous, and that his inspiration is much at fault when he states that a feeling of jealousy instigated the lively observations I thought proper to make on the work in question. I beg to set him right on that one point, and to inform him that, although I was frequently solicited by Pugin's most intimate friend, as well as by his professional brethren, to write his biography and detailed history as a "Memorial" to him, I positively declined to proceed with it, and at a general meeting of subscribers to "The Pugin Memorial," held at the Rooms in Conduit-street, July 14, 1860, I then stated publicly that "I had abandoned every intention of publishing a biography of my friend," under the peculiar position I stood in as regards the memorial.

Now, as I had of my own free will given up all intention of writing on this subject, I cannot be open to the absurd charge of "being balked in my desire of making Pugin's memory a pedestal to my own fame," and the consequent jealousy

* We are very unwilling to return to this matter, but the writer appeals to us "in the name of common fairness," and we therefore insert his letter. We trust, however, it will not be the subject of correspondence. For any communications really tending to illustrate the life of the late Mr. Pugin, our pages will of course continue open.—E.N.

they attribute to me. That these statements are most untrue can be proved by my having proposed to give assistance to carry out the project by every means in my power; and I am willing still to do so.

In conclusion, I must state, that my principal feeling on reading these replies was regret that there was such a total absence of truth or a gentlemanly tone throughout them; and that the accusations therein conveyed must obviously recoil on themselves; for why did those two parties unite to the biography of my poor friend when one knew nothing of him since he was a boy, and the other had not the least knowledge of him in any way? With a view of acquitting myself from unjust and untrue charges, I have sent this explanation.

TALBOT BERRY.

YORKSHIRE MODEL COTTAGE COMPETITION.

SIR,—Can any of your correspondents inform me when it is likely the drawings for the above competition will be returned? The prizes have now been awarded some time. I am quite aware that the committee state their intention of retaining the plans, and exhibiting them at the Royal Agricultural meeting at Leeds, in July last; but any further detention is unacceptable. I have written several times without any satisfactory result, the only answer obtainable being, "that Mr. Strickland requires the plans to report upon."

Now, as mine are not even honourably mentioned, I am quite at a loss to know what information is obtainable from them; and it would be also satisfactory to ascertain if it is Mr. Strickland's intention to suck the brains of all the successful and unsuccessful competitors, and afterwards publish "Strickland's Model Cottage Plans."

VICTIM.

CASES UNDER METROPOLITAN BUILDING ACT.

THE following cases, at the instance of the district surveyor of South Islington (Mr. Godwin), were settled at the Clerkenwell Police Court, on Monday last, by Mr. D'Eyncourt.

For not giving proper Notice.—Mr. Staley was summoned for not giving proper notice before cutting away a chimney breast in shop. Notice for a new shop-front and repairs was sent; and, on visiting the place on the day the notice was received, the district surveyor found the chimney breast cut down, timber placed to carry the roof, and the upper jambs, projecting 14 inches, unsupported. Defendant's solicitor maintained that proper notice had been given; but it was shown to him that the Act required a special certificate from the surveyor that it could be done safely before a chimney breast could be cut away; and that notice given two days beforehand must contain particulars of all works about to be done.

Fined 10s. (the surveyor consenting to a nominal penalty), and 12s. costs.

Wooden Buildings.—Mr. Raby, of Ockendon-road, and Mr. Nash, of Ball's Pond, were summoned for erecting wooden buildings, and not removing them when directed.

Ordered to amend the irregularities, with 10s. costs in each case.

Thickness of Walls.—Mr. Hebb was summoned for erecting 9-inch walls inclosing the staircase of a house in Upper-street, 37 feet high (four stories), the Act forbidding in such a case that more than two stories should be of 9-inch work. The architect by whose instruction it had been done persisted in maintaining that the spirit of the Act had been complied with, because the instruction in the Act referred to works with a "length up to 15 feet," and the walls in question were very much less in length.

Ordered to amend: the surveyor waived costs.

COST OF THE ENGINEERS' STRIKE.

SIR,—In the *Builder* of last week appears a paper on *Strikes*, &c., by Dr. Watts, of Manchester, in which occurs a statement to the following effect, viz.: "The Amalgamated Society of Engineers, &c., in 1853, lost nearly half a million of money by their dispute." Permit me to inform your readers that the said dispute cost the Amalgamated Society of Engineers the sum of 40,000*l.* The loss of wages during the dispute amounts, at the highest calculation consistent with truth, to 120,000*l.*; being a total of 160,000*l.* How this sum can be nearly half a million, I cannot conceive, not even with "Watts's logic." If the statistics mentioned of other disputes are equally as fallacious as that of the engineers, the members of trade societies will place little reliance either on Dr. Watts's statistics or his logic.

Your insertion of this note will oblige a member of the Amalgamated Society of Engineers, &c.

JOHN HEAP.

Books Received.

An Appendix to the Fourth Edition of the Rudimentary Treatise on Clocks, Watches, and Bells; with a Summary of the Official Reports on the Westminster Clock and Bells. By EDMUND BECKETT DENISON, M.A., Q.C. London: Weale, 1861.

HAVING already taken favourable notice of Mr. Denison's practical and able treatise on Clocks and Watches, we need here only remark, that one of the chief points in this Appendix, so far as regards the construction of clocks, is the advocacy of three-legged escapements. The larger portion of the fourteen pages of the pamphlet relates to that very sore question, the Westminster clock and bells; and Mr. Denison, as usual, is

* As published in their reports.

unsparing in his censure of nearly all and sundry to whom he refers as having now to do with the clock and bells; but particularly of Mr. Airey and his report, and of Mr. Cowper. Of the latter he says:—

"I hear that Mr. Cowper has been trying, as his manner is, to get opinions to quote in favour of keeping the clock striking the hours on the fourth quarter bell. He may quote my opinion, if he likes, that it is the best temporary arrangement. We are indebted to Mr. Turle for it, who not only saved the good bells from Mr. Airey's reckless proposal to recast them, and to keep the bad one, but prevented those beautiful chimes from being destroyed, as Mr. Cowper announced last year that they were going to be under the same sage advice. But he will get no authority of Mr. Turle, or anybody else worth quoting, in favour of keeping that clock striking permanently on a bell four notes too high. A new bell can be made of the proper note, and with less of the loudness that was complained of (though some men in Waterloo-place kept writing to the newspaper to say that it was not loud enough, but which ought to have been anticipated by those who fixed the weight at 14 tons, long before I had anything to do with it.)"

In concluding, Mr. Denison goes on to say:—

"Neither is it very creditable to the nation to keep a great cracked good-for-nothing bell hanging there, with the clock striking wrong, as if nobody knew how to cast a better, because our most eminent founder declares it is impossible. Of the clock I have nothing more to say, especially as I have not seen it for a year; but, having been within hearing of it nearly every day since it was allowed to strike again, I have had the means of observing that it goes as well as the best clocks and chronometers in my house. To whose negligence its freak of striking forty-nine, or some such number, was due, I do not know; and I heard that the striking parts were then in the hands of one person, and the going part of another, under some of the wonderful management of the Board of Works. I may add that my final certificate brought up the total cost of the clock, including all the work done during eight years, to 1,086l."

VARIORUM.

"Our Black Diamonds; their Origin, Use, and Value. By Thomas Pimmsell. Weale, High Holborn, 1861." is a good little recast of the geological and general history of coal, coal mining, and the coal trade. This is an important and interesting subject, more especially in connection with steam and iron. In the *Mining Records*, Mr. Robert Hunt informs us that we are consuming and exporting about 80,000,000 tons of coal; that we convert some 8,000,000 tons of iron ore by smelting into about half that weight of pig-iron; and that the total annual value of our coals, minerals, and metals falls little short of our whole public revenue.—"A Short Treatise on the Construction of Steam Boilers. By S. R. Smyth, engineer, Dover, 1861." The main object of this pamphlet is to give an account of "Smyth's Patent Corrugated Retort Boiler," which is thus described:—

"The principles I have constructed my boiler upon are, an arch, counter-arch top and bottom, the small arches or corrugations running longitudinally the whole length of the boiler, forming direct courses for the heated products of the furnace to pass: not only would it be of sufficient strength to resist any amount of pressure used were it only plain, but the small arches or corrugations increase its strength tenfold, and also its heating surface. There is also another feature belonging to it; namely, provided the enormous pressure of steam is brought to the bursting point, the boiler will either collapse or straighten, and would not burst with that tremendous suddenness which takes place in boilers bound equal on all sides. Another feature which it has is, that the whole of the boiler is placed *above* the furnace, and the flues are all on the *outside*, a circulation of the water and an easy escape of the steam must naturally follow, as there is no impediment: it also has an abundance of room, both in furnace and flues, for the mixture of the gases."

—We are glad to see that the Newcastle people continue to take our strictures on the sanitary state of their town in good part; and that the corporation, urged by complaints of the state of the Whittle Dean water, with which both Newcastle and Gateshead are supplied, have been examining the reservoirs for themselves, and have discovered the source of that foulness of which we, as well as the Newcastle people, complained. In a "Report of the Town Improvement Committee on the Whittle Dean Water Supply" presented to the Council on the 7th August, we find it stated on the part of the Council Committee who examined the sources of the water supply that "the water in the great northern reservoir was found to be exceedingly offensive both to taste and smell, with numerous muddy-looking particles suspended and moving in it: that in the two reservoirs next adjoining the great northern, although not quite so bad, was affected in a similar way. The great southern reservoir, from which the supply is at present drawn [since the complaints referred to], was considered to be very pure, as well as that opposite the Keeper's House: the other two reservoirs lying between those just mentioned, owing to some repairs in progress at the embankment, were empty."

The water was analyzed, and analysis, of course, confirmed the evidence of the senses as to the

organic impurity and unwholesomeness of the water; and the report even contains engraved illustrations of the animalcules, &c., which feed on the impurities of water, and constitute an index to its drinkable and potable state, although the organic matter on which these vermin live is much more deadly and objectionable than even the vermin themselves, which, in truth, are natural scavengers to a certain extent, while the number of them, nevertheless, indicates the amount of the more noxious impurities.—"The Canadian Naturalist and Geologist; and Proceedings of the Natural History Society of Montreal. London: Sampson, Low, & Co." The geology and natural history of our American possessions here find a fitting exponent. The bi-monthly parts now before us contain some interesting and curious information on the natural history and habits of our Canadian and other American animals and birds, and on the geological conformation of various districts of the country. There is also an interesting paper, by T. Sterry Hunt, M.A., F.R.S. (of the Geological Survey of Canada), on the history of petroleum or rock oil, in which the author states that limestone, including coral rocks, constitutes a vast source of the oil which is now exciting so much attention in Canada and the States. On this subject he says:—

"An evidence of the presence of unaltered petroleum in almost all the Lower Silurian limestones is furnished by the bituminous odour which they generally exhibit when heated, struck, or dissolved in acids. In some cases petroleum is found filling cavities in these limestones, as at Rivière à la Rose (Montmorency), where it flows in drops from a fossil coral of the Birdseye limestone, and at Pakenham, where it fills the cavities of large orthoceratites in the Trenton: from some specimens nearly a pint of petroleum has been obtained: it is also said to occur in the township of Lanester in the same formation. The presence of petroleum in the Lower Silurian rocks of New York is shown in the township of Guilderland, near Albany."

As regards the history of earth or rock oil generally, the following is interesting:—

"Its use for burning, as a source of light or heat in modern times, has been chiefly confined to Persia and other parts of Asia; although in former ages the wells of the island of Zante, described by Herodotus, furnished large quantities of it to the Grecian Archipelago; and Pliny and Dioscorides describe the petroleum of Agri-gentum in Sicily, which was used in Italy under the name of Sicilian oil. The value of the naptha annually obtained from the springs at Bakum in Persia, on the Caspian sea, was some years since estimated by Alcock at about 600,000 dollars, and the petroleum wells of Kangon, in Durmah, are said to furnish not less than 400,000 households yearly. In the last century the petroleum or naptha obtained from springs in the Duchy of Parma, was employed for lighting the streets of Genoa and Ancona. But the thickness, coarseness, and unpleasant odour of the petroleum from most sources were such that it had long fallen into disuse in Europe; when, in 1847, the attention of Mr. Young, a manufacturing chemist of Glasgow, was called to the petroleum which had just been obtained in considerable quantities from a coal-mine at Riddings in Derbyshire; from which by certain refining processes he succeeded in preparing a good illuminating oil. This source, however, soon becoming exhausted, he turned his attention to the somewhat similar oils which Reichenbach and Selligie had long before shown might be economically obtained from the waste of coal, lignite, peat, and pitch-schists. To this new industry Mr. Young gave a great impetus; and in connection with it attention was again turned to the refining of liquid and solid bitumens; it being found that the latter by distillation gave great quantities of oil identical with those from petroleum. About the year 1853 the attention of speculators was turned to the deposits of bitumen in Enniskillen, just described; but it was not till 1857 that Mr. W. M. Williams, of Ilanaut, with some assistance, undertook the distillation of this fatty bitumen; when they soon found out that, by sinking wells in the clay beneath, it was possible to obtain great quantities of the material in a fluid state. Large numbers of wells were subsequently sunk by Mr. Williams and others in the southern part of the township of Enniskillen, along the borders of Black Creek, and also about ten miles farther north on Bear Creek. Nearly one hundred wells had been sunk when I visited the place in December last, and many more have since been bored."

Miscellaneous.

PARIS.—The new Russian Greek church, in the Rue de la Croix, near the Barrière de l'Etoile, has been consecrated by M. Leontius, Archbishop of Novogorod, who came to Paris expressly for the occasion. This church was built by voluntary donations, varying from 25 centimes to 100,000 francs. This monument is composed of a vast rotunda, capped with a cone, and flanked by four small towers of a similar shape, all richly gilt. These five cones are each surmounted by a cross. The porch, which is reached by twelve marble steps, is formed of a richly ornamented ceiling, which supports a gilt crown with a Greek cross. The sanctuary, which is entered by the porch, is decorated with a painting of the Virgin and the Infant Jesus, on a gold ground. Within the church is a painting representing Christ seated, and showing the book of the law. More than 300 of the Russian aristocracy came to Paris to be present at the ceremony.

THE FEMALE SCHOOL OF ART.—We are glad to hear that the Queen has chosen a design for a lace flounce, by a student of the above school, to be exhibited at the International Exhibition of 1862.

BURFORD'S PANORAMA.—The new arrangement under which three panoramas are seen for a shilling either morning or evening, gas supplying the absence of the sun on the latter occasions, should take a very large number of persons to Leicester-square. The last picture added,—a view of Naples with the surrounding country, painted by Mr. Henry C. Selous,—is very interesting and beautiful. The Bay of Naples under a bright light, with its edging of gay buildings, and back-ground of mountains; the water alive with boats and ships of all kinds, is a sight that, once seen, is not soon forgotten. The Italians say it is a morsel of heaven fallen to earth, and we will not quarrel with their hyperbole. Messina is still on view.

THE CENTENARY CHAPEL, DUBLIN.—With reference to a notice in our pages, on the 1st of this month, as to works going on here, Mr. Isaac Farrell, the architect of the chapel, fears it may lead to a belief that some serious defect exists either in its construction or design. This was not intended. Mr. Farrell says:—"It is not yet twenty years since the Centenary Chapel was built, and at a cost of nearly 10,000l. It must therefore have surprised many persons in England who took an interest in its erection to hear that now while it was yet new it required to be 'entirely remodelled, and fitted up with new seats'; the fact is, it was closed as stated, and for the first time since its opening in 1843, for the purpose of being repainted; and at the request of some of the pewholders, and at some loss to the general appearance, twelve seats, eleven or twelve under each side gallery, which, as originally designed, ran parallel to the aisles, have been reversed, so as to stand at right angles to and be entered directly from those aisles."

THE HAYMARKET THEATRE.—Mr. Boilover Higgins, in the newly-produced comedy here, "The Soft Sex," dressed in a coat of vulcanized cloth, trousers of vulcanized duck, and waistcoat of vulcanized silk, not to be wetted through in a week, describes an American hotel, which suggests, even if they be exaggerated, what may be done by arrangement. Tubes and lifts are every-where: turn a button, and your boots are brought to you; knock, and the fire is attended to; press a knob, and your yesterday's shirt flies up the chimney, and a clean one comes in under the door white as driven snow! Buckstone is the individual who says this; and, of course, it makes the people laugh; but there is teaching in it also. The piece itself, although not a very artistic composition, is amusing, and has a purpose: Mr. and Mrs. Charles Mathews play, with energy and taste, the other two principal parts.

SUPPLY OF WATER TO THE METROPOLIS.—At the Manchester meeting of the British Association, Dr. Fairbairn, the president, proposed that London should emulate what had been done so magnificently at Glasgow, whither (or at least to a distance of eight miles from Glasgow) the pure waters of Loch Katrine have been brought through a covered tunnel twenty-seven miles in length, there (at eight miles from Glasgow) to be emptied into the service reservoir! Thence to be conveyed across those still-intervening eight miles to the extent of 40,000,000 gallons of limpid water per diem! He says, "We may look forward to an extension of similar benefits to the metropolis, by the same engineer (Mr. Bateman), whose energies are now directed to an examination of the pure fountains of Wales, from whence the future supply of water to the great city is likely to be derived. A work of so gigantic a character may be looked upon as problematical, but when it is known that six or seven millions of money would be sufficient for the execution, I can see no reason why an undertaking of so much consequence to the health of London should not ultimately be accomplished."

THE LATE MR. ATKINSON.—The following note speaks for itself. We gladly rectify the misapprehension.—Sir: My notice was called a few days ago to an article in *The Builder*, purporting to be a notice of the late Mr. Atkinson the traveller, in which it is stated that he left two daughters, one of whom, Miss Emma Willsheire Atkinson, is the authoress of the "Memoirs of the Queens of Prussia," &c. I beg to inform you that Miss Emma Willsheire Atkinson, the authoress of those Memoirs, and also of "Extremes," is my daughter; and that, to the best of my belief, we are in no way related to the Mr. Atkinson in question.

JOHN ATKINSON,
Rector of Fisktort, in the county of Lincoln.

ILLUSTRATED CATALOGUE OF THE INDUSTRY OF ALL NATIONS.—The editor of the *Art-Journal* announces the intention to issue an "Illustrated Catalogue of the International Exhibition of 1862," with the *Art-Journal*, in eight monthly parts of that work—each part consisting of twenty-four illustrated pages containing about one hundred and twenty engravings. This is to be done without charge. The catalogue is to be "a report of progress, a volume of suggestions, a teacher from the lessons of many master-minds, and an enduring reward to those who labour for renown as well as for the ordinary recompense that is expected to accompany desert." "The *Art-Journal* Illustrated Catalogue of 1851" was a very valuable work, and may serve as a guarantee for the efficient performance of the new task now to be entered,—a task of no small difficulty, and in which Mr. Carter Hall will need to receive the assistance of all exhibitors, British and foreign. Surely the Commissioners, too, might rightly aid the proposed undertaking. With the year 1862 will be commenced a new series of the *Art-Journal*; in which a series of selected pictures from the galleries and private collections of Great Britain will be commenced. It is designed to succeed the "Royal Gallery" and the "Vernon Gallery;" and may be made superior in interest to either.

NEW CHURCHES, ISLINGTON.—Several new churches are about to be built at Islington—one in the Gloucester-road, in the district of St. Paul; another at the corner of Shepperton-street, New North-road; the freshholds for both being given by Mr. J. W. Scott, of Rotherfield Park; a German Evangelical church, in Halton-cross-street; and a Unitarian church, in Upper-street. A church is also proposed in Highbury New Park. The population of Islington has increased so rapidly during the last few years that additional church accommodation is much required, and the site which has been selected for one of the proposed new churches, in the Gloucester-road, is now entirely covered with houses, though but a short time ago it consisted of fields; and, although within the last ten or twelve years two additional churches have been erected in the district—St. Matthew's, Lower-road, and St. Jude's, Mildmay Park,—Hare-court Chapel of Ease, in St. Paul's-road, has lately had the number of sittings increased; and Union Chapel, Compton-terrace, has also been enlarged. The site for the other church, given by Mr. Scott—St. Bartholomew's—is situate in the midst of a district which comprises a population of 4,000, including a colony of costermongers in the notorious Ward's-place, and hundreds of drunken and profligate characters in the other courts and alleys. Three houses with long leaseholds have been purchased on the site of the proposed new building at a cost of 1,700*l*.

THE ANCIENT "FORESTS" OF SCOTLAND.—In an initiatory article on "Old and Remarkable Trees in Scotland," Mr. Cosmo Innes makes some interesting observations (here condensed) in regard to the ancient "forests" of Scotland:—"It is the common—it may be said the universal—opinion among our countrymen, that of old, but still within the period of history, Scotland was a wooded country. The *sylvæ Caledoniæ vastissimæ*, with its population of bears and cattle, may now be considered a myth, as old, to be sure, as Pliny, who liked to place his marvels in inaccessible situations. With later authors the difficulty has been where to find map room for this boundless forest. All evidence of record is against the myth. One source of the common error is the change of meaning of our word 'forest.' This could be proved by innumerable records. *Foresta*, signifying in early charter language chase or range for game, with peculiar privileges, did not imply a wooded district at all; and an old hunting baron or a jolly abbot who loved a fat deer and got his green pastures and hills erected into a free forest, which gave him the right to punish the slayers of deer with the utmost penalties of the old Norman law, would have been much disgusted if it had been proposed to plant his chase from side to side. Now, however, the occurrence of the word 'forest' in charters of land all over Scotland—in the wilds of Rannoch and the bare hills of the Etrich border—is held to prove that the heather and gray lichen—nay, the very granite tops of Breadalbane, as well as the green braes of Yarrow, were once a close dark wood. There are, however, and always have been, districts more or less willing to send up a native growth of timber. We have now, as we always had, the glens of Mar—the great valley of Glenmore, Abernethy, Rothiemurchus, and part of Speyside."

SYNAGOGUE, COLOGNE.—A few days ago a new synagogue was consecrated at Cologne, which is said to be one of the finest buildings in the Moorish style now extant in Europe. The temple seems to be erected in imitation of the Alhambra. It covers a surface of 1,000 square feet, and is overtopped by a cupola 32 feet in diameter. The architect of the new edifice is Herr Zwirner, who directs the work of restoration going on at Cologne Cathedral.

Foul Water and Cholera at Norwich.—Several cases of violent cholera have of late occurred at Norwich, according to the *Norfolk Chronicle*, and the Local Board of Health have been engaged in examining the state of the drainage and water in the districts where the cases have occurred. The results of analyses of the water by Mr. F. Sutton, an analytical chemist, show that, while water containing more than 20 grains of solid matter per imperial gallon is wholly unfit either for drinking or culinary purposes (and the New River water—the London supply—contains about that quantity), St. Michael at Plea pump contained 6½ grains; Elm-hill pump, 7½ grains; Tomland pump, nearly 80 grains; the Greyhound-yard, Heigham, 98½ grains; Beckham's-yard, Pockthorpe, 69 grains; Water Company's water, 33 grains on one occasion, and 38 on another, on the latter occasion no less than 16 grains per gallon being composed of organic elements.

THE UNDERGROUND METROPOLITAN RAILWAY: ACCIDENT WITH A WATER-PIPE.—At the works in the Clerkenwell district, one of the New River mains burst not long ago, and inundated the railway works in progress there, but happily without any lives being lost. A body of about twenty-five bricklayers and others had just resumed their work at the bottom of the shaft, about 55 feet in depth, at the Clerkenwell end of the new Victoria-street, for the purpose of continuing the tunnel; and other men were engaged at the same moment near the top of the shaft, removing a length of the New River Company's main pipe; when suddenly the main behind the stop-cock burst, and the water rushed down the shaft into the tunnel where the men were at work. A square iron bucket and windlass were the only appliance at hand for rescuing the men. The bucket was lowered and raised till all the men were rescued; the water by that time having reached to the crown of the arch. Means were at once taken to stop the flow of water, which was turned off from the reservoirs.

LANCASHIRE AND MANCHESTER STATISTICS.—A paper was read at the recent meeting of the British Association, by Mr. D. Chadwick, "On the Progress of Manchester from 1840 to 1860," from which the following statistics are taken:—In 1692 the assessable annual value of the whole property of the county of Lancaster was 95,000*l*; in 1841 it was nearly 6,200,000*l*; and in 1860 it was 10,500,000*l*. This is a little more than one-tenth of the whole assessable annual value of the property in England and Wales. In 1839 the annual value of property in Manchester was 670,000*l*; and that of Salford, in 1844, was 160,000*l*. In 1860 the figures for Manchester were about 1,500,000*l*, and those for Salford 350,000*l*. The population returns give 94,000 for Manchester and Salford together, in 1801; 311,000 in 1841; and 460,000 in 1861. This enormous increase of property and population is, of course, based upon cotton. In the four years ending 1845 the total import of cotton into the United Kingdom was 2,672,000 lb.; in the three years ending 1848 it was 1,655,000 lb.; and in the three years ending 1860 it was 3,651,000 lb. The one year, 1860, exhibits imports to the amount of 1,390,000 lb. as compared with 467,000 lb. in 1846, thus proving an increase of 197 per cent. in fourteen years. The total manufactured goods produced in Great Britain amounted in 1830 to 182,000,000 lb., as compared with 886,000,000 lb. in 1860. If we convert pounds into yards, these figures give us, in 1830, 914,000,000 yards, and in 1860, 4,431,000,000 yards, or 2,517,000 miles, i.e., a length of cotton which would wrap the earth round a hundred times. The total value of this manufactured cotton exceeded the revenue of the United Kingdom, being 77,000,000*l*. The estimated number of spindles in 1840 was 17,000,000; in 1856, 28,000,000; in 1860, 33,000,000. The total estimated value of spindles and looms together, in 1860, was 41,000,000*l*; their combined horsepower nearly 110,000; their consumption of coal nearly 650,000 tons. The wages of the operatives may be calculated at 11,250,000*l*. Improvements in the spindle alone have made the 33,000,000 of 1860 do the work of 37,000,000 of the spindle of 1840.

THE SHILLING TELEGRAPH.—The new Telegraph Company are commencing operations. They intend to deliver messages from any part of England to any other at a uniform charge of one shilling. The feeling that the telegraph is to be considered an extraordinary agent will have to be overcome before the new company can be thoroughly successful; but at this rate the public will soon begin to use it in the common affairs of life. It will not be surprising if either this or some new company should find a fourpenny rate more profitable still.

THE BRIGHTON ART EXHIBITION OF 1861.—This exhibition consists of 228 oil paintings and about 160 water-colour drawings, with a few specimens of sculpture. A fair proportion of these works are from the easels of artists of metropolitan repute, but the greater portion are the works of Brighton and Sussex artists. One of the local papers, speaking generally of the exhibition, says that, both in extent and merit, it is the best there has ever been in Brighton. The efforts made to provide suitable accommodation have apparently stimulated artists to additional exertion, and the result is seen in an exhibition worthy of the town.

BROMLEY, MIDDLESEX.—The foundation stone of a school church to be erected in the parish of St. Leonard's, Bromley, was laid on the 23rd ult., by Mr. Arthur Currie. The designs are prepared by Messrs. Morris & Son, architects. The room will be 78 feet in length by 35 feet in width, and 44 feet to the ridge, with an open timbered roof stained and varnished. The walls will be of brick, with coloured brick decorations: the interior will be lined with white bricks, relieved with coloured brick gauged arches and brick decorations. Bath stone mullions will be used for the windows, which will be glazed with quarry ribbed plate glass. There will be two large class-rooms at the south end, with lavatory and bath-room attached. It is intended to use the building during the week as a school-room, and on Sundays for public worship according to the ritual of the Church of England. Mr. Brown, of Ratcliff, is the contractor.

THE ITALIAN EXHIBITION AT FLORENCE.—The number of exhibitors amounted, by last accounts, to about 6,000. Very many of the exhibitors have sent numerous and extremely various contributions. There is, for example, the Sardinian contribution of Count Beltrani, forming a complete series of the agricultural, mineral, and manufacturing products from his estates in the island of Sardinia; the collection exhibited by the Chevalier Toscanelli, representing all the products and instruments of Tuscan agriculture; the varied series of porcelain from the Giottini manufactory; the collection sent by Prince Carignano of 100 pictures, and so on. It has been found necessary to erect two additional edifices, each of the length of fifty metres, and of the breadth of eight, of which the one is intended for the reception of the agricultural implements and the other for the statuary. The large building which has served as the terminus at Florence of the Leghorn and Florence Railway, says an account of the exhibition in the *Morning Post*, has been, with the large additions made to it since the 25th of June, converted, by means of the greatest activity and foresight, into an elegant and varied palace for the exhibition of the products of art and industry of the new Italian kingdom. The facade of the principal entrance of the palace consists of a portico, divided into five Ionic arcades, with niches holding symbolical statues, expressly modelled for the exhibition, and the ornaments and bas-reliefs of Greek architecture complete the effect. This front part of the palace has been added from the very foundation to the old railway building. The main body of the palace employed hitherto as a railway station—in length 100 metres, in breadth 50 metres—divided into two long walks, flanked towards the south and the north by a continuous series of saloons. A long line of regular arcades divides these two principal walks. The entire length of the galleries, halls, and pavilions which the visitor can traverse amounts to 5,000 metres; and the surface of the ground employed for the purposes of the Exhibition is 120,000 metres. The king, in opening the Exhibition on the 15th inst., said, his principal care was to establish the unity of Italy, and to develop the elements of her prosperity. He thanked the commissioners for the assiduity they had shown in the performance of their duties, and concluded as follows:—"Our great national work is not yet completed, but on this occasion Italy, which is completely represented at this Exhibition, again manifests her wish to be one united nation."

IMPORTANT MSS. OF MICHELANGELO.—Lord complaints are made by the Florentine journals of the negligence of the head librarian of the Laurentian Library; who, according to a correspondent of the *Morning Post*, has allowed a most important collection of unpublished documents, partly original papers of Michelangelo himself, partly MSS. illustrating the history of his family, to pass into private hands, from not taking the trouble to examine them when submitted to his inspection.

PRIZE MEDAL OF THE GREAT EXHIBITION OF 1862.—We omitted to mention last week that Mr. Macleod, R.A., and Mr. L. C. Wyon have been entrusted with the designing and execution of the prize medal to be given to successful exhibitors next year. We understand that the design for the obverse of the medal has been completed and approved of, and that the engraver is engaged in producing the die for it. In the centre of the medal Britannia is depicted seated on her throne. In her right hand she holds a wreath, and in her left an olive branch. Emblematical figures, representing Manufactures, Raw Produce, and Machinery, are exhibiting to her their several productions. Behind Britannia, Painting, Sculpture, and Architecture—who are to receive no reward beyond the tribute of admiration which their works will induce—are seen emblematically represented, and watching earnestly the decision of Britannia. Resting at the feet of the central figure, and occupying the whole foreground of the group, the British lion is shown.

THE BIRMINGHAM FREE LIBRARY.—The report of the local Free Libraries Committee states that from the opening of the library to the 29th July last (a period of fourteen weeks), the number of persons borrowing books was 3,524, and the number of books lent, 26,722, which may be classified as follows, viz.:—Theology, 325; philosophy, 187; history, 7,545; politics, 416; arts and science, 1,786; general literature, 16,463; total, 26,722. The books were all called in for examination on the 26th of June last, when out of an issue of 17,764 volumes, sixty-three only were not returned, and of these sixty have been subsequently sent in, and for the remaining three the borrowers have promised payment. The result of the examination was most satisfactory, and much credit was due to the borrowers for their care of the books and their punctual observance of the regulations under which they are issued. No instance of misconduct had occurred on the part of the persons visiting the library or news-room. The transfer from the council of the Midland Institute of the site for the intended Reference Library and buildings had been completed, the sum of £282. 10s. 9d. having been paid as the cost of the leasehold interests therein; and an advertisement had been issued for tenders to be sent in. The committee had still under consideration the provision of a site for a Free Library for the southern district of the borough.

DISCOVERY OF A CAVERN, WITH OGHAM INSCRIPTIONS, AND A GOLDEN CROWN AND COLLAR, NEAR CLONMACNOISE.—A Ballinasloe correspondent of *Saunders's Dublin News Letter* says:—"In July last I sent you the particulars of some ancient regal ornaments which had been found by a countryman, and purchased from him by the Messrs. Hynes, of this town. They have since been publicly exhibited in the collection of the Dublin Society, and much admired by those who relish antiquarian researches. The Messrs. Hynes offered the countryman a handsome douceur if he would point out where he found the relics; but this the wily native knowingly declined to do. He has, however, at length divulged the particulars. The man resided at a place called Skea, near the celebrated ruins of Clonmacnoise, on the brink of the Shannon. In the course of some agricultural operations he removed a large flag which opened the passage to a spacious cavern, in which were found the crown and collar, together with some ancient bronze weapons and several utensils used for culinary purposes. A friend of mine has been in the cavern. It was, no doubt, at once a fortress and residence. If any pursuers had the temerity to tread the tortuous windings of the entrance, certain destruction was sure to reach them ere they reached the apartments, several feet below the surface of what appears to be a limestone crag. Amongst other relics of bygone days are ten elaborately-ornamented slabs, of an octagonal form, and bearing long inscriptions in the Ogham character. The discovery of this wonderful cavern throws much light on the legends of Bryan O'Donoghoe; and to this means of retreat from his enemies is no doubt due the story of his compact with the Evil One."

THE HERBERT HOSPITAL, WOOLWICH.—The new general hospital at Woolwich is to be called the Herbert Hospital, out of respect to the memory of the late Lord Herbert, by whom the building was established.

GAS.—The Birmingham Gas Light and Coke Company have declared their maximum dividends of 9 per cent. on A and B Shares, and 7½ on New Ordinary Shares.—New gas works have been constructed and opened at Redbourn. The charge for gas is to be 7s. 6d. per 1,000 cubic feet. Mr. Bower, of St. Neot's, Hunts, was the contractor, for 990L, and Mr. W. Phillips, of the Luton Gas Works, is the engineer. The works were completed in three months. The gasholder is 25 feet in diameter, and will contain 4,000 feet of gas.—On August 14th, 15th, and several following days, Mr. Lenoir propelled up and down the Seine, at Paris, a small iron screw boat, by means of his engine, in which the motive power is "compressed gas." This experiment is said to be only a prelude to one upon a larger scale, which will shortly be made by an American inventor named Mr. Chandor.

WATERPROOF GLUE.—A company, with a capital of 20,000L in 54 shares, has just been established for manufacturing a kind of marine glue, invented by Mr. W. J. Hay, of Portsmouth Dockyard, and patented by permission of the Admiralty. The composition is cheaper than marine glue. In addition to the purposes to which ordinary marine glue is applicable, says the *Mining Journal*, the waterproof glue, from its extremely low price, may be used for covering iron, wood, and all other descriptions of roofing and fencing, and for posts, piles, &c. The glue, it is added, has been tested by seven years' trial. Its principal ingredient is Trinidad pitch, or asphalt, which is mixed with vegetable tar and oil naphtha, or a suitable substitute. The best proportions for the ingredients which Mr. Hay has yet discovered are,—Trinidad pitch, or asphalt, 60lb.; vegetable tar, 15 lb.; oil naphtha, 2 lb. Instead of the oil naphtha, 2½ lb. of rough creosote, or 4 lb. of oil of turpentine, may be used.

GIFT OF PICTURES TO THE VERNON PARK, STOCKPORT.—About twenty years ago Mr. J. Benjamin Smith, one of the borough members, was on the Continent; and, while in Italy, was brought in connection with the owners of some of the collections of paintings by the old masters. Mr. Smith possessed himself of a gallery of pictures, seventy-four in number; and they were packed up, and arrangements made for forwarding them to England. These pictures seem to have been amissing for the last twenty years; and Mr. Smith has, strange to say, only now received them; a communication having been made to him to the effect that two packages of pictures were then, and had been long, waiting his orders, in Liverpool. The packages were opened at the Stockport Museum; and the pictures, which were in an injured state, were brought to light. Seven of the seventy-four were selected by Mr. Smith for his own private gallery, and the remaining sixty-seven were left in the hands of the committee, for public exhibition, until others of a better class can be found to supersede them. Unfortunately, the subjects are at present a mystery, no catalogue or inventory having been forwarded with them. There are several, 5 or 10 feet wide. One is "The Adoration of the Kings," of the Venetian school, said to be by Paul Veronese; and another, a "Dead Christ," by Carravaggio.

RAILWAY SIGNALS.—A circular has just been issued by the authorities of the London, Brighton, and South Coast Railway, to the effect that a man, to be called the "travelling porter," will accompany every train. His business will be to ride on the seat placed for him on the tender, and to keep a steady and vigilant look out on both sides and along the top of the train; so that in case of any accident to any of the carriages or of any signal from the guard, or any apparently sufficient cause that may come to his observation, he may at once communicate with the engine-man, and, if necessary, stop the train. Further, it will be his business, generally, to have charge of the carriages forming the train; to see that, in every respect, they are in good condition and properly coupled up. Mr. Crozier, C.E. of Sunderland, is making arrangements with the directors of the London and Brighton Railway, says the *Gateshead Observer*, for the adoption of his patent for the prevention of accidents on railways: it consists of "surcharging the rails with electricity," which, by an apparatus attached to the engine, under the eye of the driver, indicates the approach of any engine on the same line to the drivers of both engines.

LUCIFER MATCHES.—The manufacture of these trifling articles is now carried on in England to an enormous extent. At one large saw-mill in London may frequently be seen six or eight piles of yellow pine, each as large as a six-roomed house, and all intended to be cut up into lucifer splints. The deals are cut by circular saws revolving with great velocity, into pieces three or four inches long; and these pieces or blocks are cut into lucifer splints by a machine in which there are about fifty sharp knives or cutters, fixed in a row. Five blocks are cut at once; and the action is so inconceivably rapid, that there are 120 movements of the cutters in a minute, and 250 splints severed and shaped at each cut; so that there are 30,000 cut in a minute, or 1,800,000 in an hour. Three of these machines, working ten hours a day each, would therefore produce 54,000,000 per day.

TENDERS.

For a new church, at St. John's-common, Burgess-hill, Sussex. Mr. Talbot Bury, architect. Quantities supplied by Messrs. Williams & Schofield:—

Fabian	£5,448 0 0
Cheesman & Co.	5,380 0 0
Cane	5,095 0 0
Norman & Woolven	4,797 0 0
Jackson & Shaw	4,545 0 0
Ellis	4,173 0 0

For finishing carcass, in the Grove-road, Kensington, for Mr. W. S. Shoobridge. Mr. Robt. Blessley, architect. Quantities not supplied:—

Minty	£2,460 0 0
Manley & Rogers	1,795 0 0
Elliott	1,750 0 0
Fawcett (accepted)	1,735 0 0
Ford	1,220 0 0

For Grove Chapel Schools, at Stratford. Mr. C. G. Searle, architect:—

Hill, Keddie, & Co.	£710 0 0
Brown & Co.	680 0 0
Perry	610 0 0
Rivett (accepted)	593 0 0

For four houses (being the first portion of nineteen), at Eastbourne, Sussex, for Mr. J. Nugent. Mr. Henry McCull, architect:—

Sawyer	£4,699 0 0
Stevenson	4,370 0 0
Palmer	4,259 8 9
McLennan (accepted)	3,980 0 0

For new offices at Bermondsey Workhouse, Russell-street, Bermondsey. Mr. Geo. Elkington, architect:—

Long	£2,550 0 0
Adamson & Sons	3,407 0 0
Brown	3,447 0 0
Walker	3,413 0 0
Stevenson	3,295 0 0
Wilkins & Bottom	3,289 0 0
Kent	3,227 0 0
Wells	3,171 0 0
Wells	3,148 0 0
Thompson	3,130 0 0

For the diversion of the line and the alteration of the gradients of that portion of the Worksop and Retford turnpike-road, situate in the parishes of West Retford and Ordsall, in the county of Nottingham. Mr. Frederick Jackson, engineer:—

Wilson	£526 0 0
Cope	473 0 0
Smart (accepted)	458 0 0

For painting and other works, to be done for the trustees and governors of the Licensed Victuallers' Asylum, Old Kent-road:—

Stiles	£465 0 0
Derrait	256 0 0
Alton	230 0 0
Martin	253 0 0
Wright	232 10 0
Devereux & Son	217 0 0
Crook	209 0 0
Secarle	193 0 0
Stace	182 15 0
Hooker (accepted)	137 15 0

For painting and repairs to Stockwell New Chapel, and in adding a new vestry. Mr. Edwin Pearce, architect:—

	New Vestry.	Painting to Chapel.
Notley	£133 0 0	£266 0 0
Pierman	143 4 0	243 4 0
Brashier	132 0 0	249 0 0

For a farmhouse and homestead, near Loughton, Essex. Mr. Sextus Dyball, architect. Quantities supplied by Messrs. Poland & Dobson:—

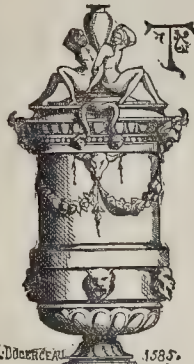
	House.	Homestead.	Total.
Hedges	£3,180	£2,250	£5,430
Fish	3,110	2,300	5,410
Saill	3,170	2,194	5,364
Protchard	3,109	1,800	4,909
Scott	3,102	1,870	4,972
Wills	2,911	2,950	4,861
Newman & Mann	2,915	1,991	4,906
Donley	2,908	1,970	4,878
Evins & Son	2,935	1,963	4,898
Wicks	2,950	1,975	4,925

See detached houses, Windsor.—For "Munn, 2,560L," read Andrew Munn.

The Builder.

VOL. XIX.—No. 973.

Sussex Cinque Ports.



THE whitewash,—calcareous growth of tasteless cleanliness,—is being removed, by scraping, from the main arches and columns of Winchelsea Church, the church of St. Thomas. Let us hope if the work be carried on to the monuments here, the monuments of the Alard family, as they are called, that it will be done under the best direction, for two of these monuments are amongst the most beautiful in the country, and should be preserved with reverential care. They are of the fourteenth century, and perfectly glorious,—with foliated arches, crocketing, diapers, and sculptured effigies. That the latter really belong to the tombs, we will not say,—we have a strong notion indeed that they do not, being somewhat earlier in date, and fitting as to size only indifferently; but they suit their position very well, and the result of the whole is exquisitely beautiful. The sedilia and piscina are similar in character and equal in beauty. In our last volume,* an eloquent pen sketched Winchelsea and its congener Rye, showing how Old Winchelsea had been overwhelmed by the sea in 1287; and this, the new one, forsaken by the same unstable element before the seventeenth century; describing its gates, and growing justly enthusiastic in a description of the ivy-clad portion of the church that remains,—the church to which we have just now referred,—its ruined transept, with the blue sky seen through the window openings, and its remarkable collection of monuments. We do not hope now to add much to that account,—simply to supplement it with some expressions of gratification and delight elicited by a visit to both places, and with the hope of inducing some who may be loitering at Hastings, or elsewhere in the neighbourhood, to take a sketch-book to Winchelsea Church. It is, as we have already said, full of interest. As—

"In the wreck of noble lives
Something immortal still survives;"

so in the ruins of a noble building beauty and grace remain, with the added charm that time and misfortune give.

This latter charm is over the whole place, and it has a picturesque position, placed on the top of a Mount, which can scarcely be matched.

Autumn is on us:—

"Now sheaves are slanted to the sun
Amid the golden meadows,
And little sun-tann'd gleaners run
To cool them in their shadows."

In fact, even the gleaner's work is nearly over, so that those who still contemplate a refresher away from towns should bestir themselves. The "pink-eyed pimpernel" is still in the fields, but wild flowers generally are becoming scarce: the colour of the trees is changing, and the wind is beginning to sigh through their branches for the year that is nearly gone. Use it while it lasts, and healthfully enjoy. It was a lovely day when good fortune took us to Winchelsea. The air, "stealing

and giving odour," was all abuzz; and we sang with Byron,—

"There's music in the sighing of a reed,
There's music in the gushing of a rill;
There's music in all things if men had ears;
Their earth is but an echo of the spheres."

The gardens were full of flowers,—stars of the earth, nature's mosaics,—with here a tower, and there a porch,—

"Stone porch with ancient coat and crest,
And English gables, English ivy-drest,"—

to enliven and excite. Bountiful, indeed, is Nature with her thousand tints, scattering everywhere the germs of the Beautiful and giving us the instinct to recognize and honour it!

We have run away from Winchelsea, however, without advising those who intend to visit it to choose a Monday for the purpose, that being the only day on which the ruins at "the Friars" can be seen. A modern building stands where the house of the Franciscans stood, but the chapel in ruins still remains in the grounds, an elegant remnant of the first part of the fourteenth century: a little later than the body of Winchelsea Church, and a little earlier than the monuments of which we have spoken. A noble stone arch spans its whole width at the western end (speaking ritually), and has a fine effect.

At the Friars, in 1781, two notorious highwaymen, Joseph Weston and George Weston, mystified the county for some time. Under the names of William Johnson and Samuel Watson they lived here with great show, whilst robbing in all directions. According to tradition, one of them served the office of churchwarden; but this the most recent historian of the town, Mr. W. D. Cooper, denies. They were captured in Wardour-street for robbing the Bristol mail at Hounslow, and though acquitted on that charge were convicted on others, and hung at Tyburn on September the 3rd, 1782. There are still vulgar robbers who live sleekly in a good house, serve parish offices, and are looked up to by honest neighbours.

The stately character of Winchelsea in early times is still deducible from the laying out of the streets and the character of the buildings. It is particularly curious as the best example in England of a Mediaeval town built on a scientific plan, the principal streets crossing each other at right angles only. Edward I., by whom the new town was founded, caused many such to be laid down in France, where they are known as *Villes Anglaises*. They were also called *Bastides*, and free towns (*Ville-franche* was the term). Mr. Parker, who gives a plan of Mediaeval Winchelsea, says "These towns formed an essential part of the policy of Edward I., perhaps the most wise and far-sighted monarch that England has ever had: he endowed them with special privileges to encourage inhabitants to flock to them, and in this he was very successful. They performed an important part in the progress of civilization in Europe. The inhabitants were all made free men, exempt from the power and jurisdiction of the neighbouring barons or bishops: their tenure was direct from the Crown, and they were granted the important privilege of free trade. The charter confirmed to the new town of Winchelsea is almost identical with those granted to the *Bastides*."* The houses in Winchelsea, mainly of wood, were built on nine vaulted cellars, partly out of the ground, several of which still remain. The town was divided into thirty-nine quarters or squares, exclusive of the sites of two churches. The majority were from an acre and a half to two acres and a half each, but some were more.

The ordinances still remaining show how well the town was cared for. A proclamation issued in the reign of Henry VI., about 1440, provides acutely for the sanitary state of the place, ordering, amongst other things,—

"That no manner man cast any dung, thrust, or carren over the town wall, upon payne of lesyng of jail, and hys body to prison: and that no man make any dung-

hylls in the strete nor afore theire dooris, nor to cast any carren in the strete, upon payne of forfeitur of xijd.; and that every man avoyde all socche dunghylls as ben now in the strete and afore theire dooris by Wainscotye next comyng, upon payn of losyng of viij. viijd. to be payde withoute any pardon."

It was even then, however, decaying; and towards the close of the same century Chaucer wrote:—

"But sith that terrene things ben nat perdurabil,
No mervail is, though Rome be somewhat variabil
Fro honour and fro well, sith his frendes passid;
As many another town is payrid and y-lasid,
Within these few yeris, as we mow se at Eye,
Lo, Sirs, here fast by Wynchelsea and Ry."

Descending the hill on which Winchelsea stands to proceed to the opposite hill bearing Rye, Camber Castle is seen in the midst of the salt marshes, a peculiar but striking landscape. At the base of rocky Rye runs the Rother. Rye church was built by the Normans, and the town was given to a monastery in Normandy, Fécamp, by Edward the Confessor. More of the original church remains, especially the transept, than would be supposed from published accounts of it. There is a fine Perpendicular window at the east end, disfigured with ugly glass. The whole church is large and striking. The north aisle of the choir now shut up is a very fine specimen of the Early English style, with fine lancet windows bricked up. It appears to be used as a place for lumber, and is discreditable to the Church authorities and the town. The opposite aisle is used as a school-house, with an entrance from the east. The appearance of the building externally at this end, with its added flying buttress, showing that even in the fifteenth century this part of the church required support, is very picturesque and interesting.

On the south side of the church there is a house of the fourteenth century partly remaining, including a traceried window. In the principal street there is a stately-looking house, now used as a free school, with pilasters, capitals, and mouldings all of brick. It was erected in 1638, and may have been built under the direction of Webb or some other of Isaac Jones's disciples. Within, when we entered, *Pedagogus* was at work with a number of boys in an atmosphere of poison. "Could nothing be done to ventilate the room?" we asked.

"I have a great deal to do, and am badly paid."

"You are ruining the boys, and damaging yourself."

"I am very badly paid, and have a great deal to do."

Desire to express the predominant feeling was so strong as to shut his mind against the reception of any new truth: so, as no other reply was obtainable, we came away. Perhaps some benevolent inhabitant of Rye will inquire further as to the health of the poor scholars. And Rye has inhabitants, and well-to-do ones too, notwithstanding the ancient and gone-by aspect of its streets. The Rye printer, who has a history of the town in the press (it is to be hoped that his prose is better than his poetry), writes,—

"Luxuriant the grass it does grow,
In the streets it is just like a mat;
And where is a town like old Rye,
In front of each house a grass plat."

Nevertheless, we can spy life in this very ancient town, and a tendency to rise.

Before we get home from the pleasant ramble it is night, and a threatening night, too,—a "racking night," as Alexander Smith says, when,—

"The wind
Draws the pale curtains of the vapoury clouds,
And shows those wonderful mysterious voids,
Throbbing with stars like pulses."

DIDEROT'S ESSAY UPON PAINTING AND ARCHITECTURE.*

CHAPTER VI.

WHAT I HAVE TO SAY ON ARCHITECTURE.

We have no question here, my friend, of examining the different orders of architecture, still less of balancing the advantages of Greek and Roman architecture with the prerogatives of

* Vol. xviii. p. 675.

* "Some Account of Domestic Architecture in England," vol. ii.

* See page 623, ante.

Gothic architecture; to show you the latter extending its interior space by the height of its arches and the lightness of its columns, reducing outside its massiveness by the number and bad taste of its ornaments; to preserve the analogy between the obscurity of its coloured windows and the incomprehensible nature of the Great Being there adored, but to convince you that without architecture there can be neither painting nor sculpture, and that the two imitative arts of nature owe their origin to the art which has no model subsisting under heaven.

Transport yourself into Greece at the time when an enormous beam of wood, supported by two decapitated trunks of trees, formed the magnificent and superb entry to the tent of Agamemnon; or without going back so far into time, place yourself among the seven hills when they were covered only by cots, and these cots inhabited by brigands, the grandfathers of the luxurious masters of the world.

Do you fancy that in these cots there was a single bit of painting, good or bad? Certainly you cannot think so.

And in what form do you see their gods,—these gods better revered, perhaps, than when they came from the chisels of the greatest masters? Very inferior, much worse shaped, doubtless, than these blocks of shapeless wood to which the carpenter has given what he calls a nose, eyes, mouth, feet, and hands, and before which the inhabitants of hamlets are accustomed to say their prayers.

Well, my friend, be assured that the temples, cots, and gods would remain in this miserable condition until there arrived some great public calamity, a war, a famine, a pest, a public vow, in consequence whereof you would see a triumphal arch raised to the conqueror, a great building of stone consecrated to the god.

At first the triumphal arch and temple would only be remarkable by their size; and I suppose the statue ornamenting them would have no advantage over the ancient one, except in being larger. Greater, certainly, it would be, for the host would be sized to his new abode.

From the earliest times sovereigns have emulated the gods. When a god obtained a spacious home, the sovereign enlarged his; the nobles, emulous of the sovereign, do much the same: the better class of citizens, emulous of the nobles, follow, and within a century it would have been necessary to have gone outside the circle of the seven hills to have found a cot.

But the walls of the temple, of the royal palace, of the residences of the chief men and opulent citizens, would be presenting everywhere large naked surfaces which required to be covered.

The miserable domestic deities would no longer respond to the space given them: it would be necessary to carve others.

They would be carved as best they might be; and the walls would be covered with paintings, more or less well done.

But taste, increasing with riches and luxury, the architecture of the temples, of the palaces, of the hotels, of the houses, would soon improve, and with it sculpture and painting.

I appeal from opinion to experience. Cite me a people with statues, paintings, painters, sculptors, without palaces or temples, or with temples where the sort of worship banishes sculptured stones and coloured canvases?

But if it be architecture which has thus given birth to painting and sculpture, in return it is to these two arts that architecture owes its great perfection, and I advise you to distrust the talent of an architect who is not a great draughtsman. Where, indeed, would he have formed his eye? where find the sense of proportion? whence have drawn the idea of the great, the simple, the noble, the heavy, the light, the slender, the serious, the elegant? Michelangelo was a great draughtsman when he conceived the plan of the *façade* and dome of St. Peter's at Rome, and our Perrault drew eminently well when he engraved the colonnade of the Louvre.

I will end here my chapter on architecture. All the art is comprised in these three words: solidity or security, fittingness, and symmetry.

Whence we ought to conclude that the system of Vitruvius and rigorous measures of orders appear only to have been invented to lead to monotony and to extinguish genius.

Nevertheless, I will not finish this paragraph without proposing to you a little problem to solve.

They say of St. Peter's that the proportions are so well kept, that the edifice loses, at first sight, all the effect of its grandeur and size: so that we may say of it—*magnum esse scilicet parvis*.

Thereupon we have this sort of reasoning. To

what purpose, then, have we all these beautiful proportions? To make small and common a great thing? It would have been better seemingly to have missed such an effect, and there would have been more cleverness in producing the contrary result, and in giving grandeur to something common and ordinary.

We are answered that, in truth, the building would have appeared greater at first view if the proportions had been cleverly sacrificed; and it is asked which would be better, to produce suddenly an immense admiration, or to create one which, weak at first, increases by degrees, and becomes at last great and permanent, through a thoughtful examination in detail.

It is admitted, everything else being equal, that a thin tall man will appear taller than a well-proportioned man; but it is asked whom of the two do we the more admire, and if the first would not consent to be reduced to the most rigorous proportions of the antique at the risk of losing something of his apparent height?

It is added that the small edifice which art has extended ends by being conceived exactly as it is; whereas the great edifice which art and the proportions of art have reduced to an ordinary and common appearance, ends by having justice done it. The unfavourable impression arising from the proportions vanishes by the comparison which the spectator is obliged to make with the other parts of the edifice.

It is answered that it is not astonishing a man should consent to lose his apparent height to accept accurate proportions, for he knows that it is exactly in this perfect relation between all his members that he is to obtain the advantage of ratifying to the utmost the different functions of life;—that strength, dignity, grace, in a word, beauty, of which utility is always the basis, depend on it; but that it is not thus with the public edifice which has but one end and object.

It is denied that the comparison which the spectator makes with one of the portions of the edifice produces the alleged effect, or corrects the unfavourable illusion caused by the first view. This statue, as we approach it, becomes, no doubt, colossal, and we are astonished: we infer the edifice to be very much greater than we at first conceived it to be; but our back once turned upon the statue, all the other parts of the edifice resume their empire, and re-establish the edifice—immense in itself—in its common and ordinary appearance, so that on one side every detail appears grand, while the whole remains common and small; whereas in the contrary system of irregularity every detail appears small, while all the rest is extraordinary, imposing, grand.

The talent of augmenting objects by the magic of art, that of lessening size by the intelligence of proportions, are certainly two very great talents; but which is the greater of the two? Which ought the architect to prefer? How ought St. Peter's to have been constructed? Was it wiser to reduce the edifice to an ordinary and common effect by the rigorous keeping of the proportions, than to give it an astonishing aspect by a less severe and less regular disposition?

And let no one choose hastily, for St. Peter's, thanks to its vaunted proportions, never obtains, or obtains only by degrees, that which would be accorded to it at once under another system. What is this harmony which prevents the general effect? What is this defect which gives value to all?

Here we have the quarrel between Greek or Roman, and Gothic architecture, opened to us in all its force.

But does not painting offer us the same problem to solve. Who is the great painter, this Raffaele, that you go to Italy to study, and before whom you would pass without knowing him, if somebody did not pull you by the sleeve and say, "That's he!" or this Rembrandt, or Titian, or Rubens, or Vandyke, or some other great colourist, who attracts you from a distance, and who enchains you by so strong and striking an imitation of nature, that you cannot withdraw your eyes from him?

If we met in the streets any one of the figures of Raffaele's women singly, she would arrest our attention at the instant; we should fall into the greatest admiration; we should attach ourselves to her steps, and we should follow her until she had escaped from us. And there are upon the canvas of the painter two, three, four similar figures: they are surrounded by a crowd of other figures of men, equally beautiful: everything concurs in the grandest, simplest, truest manner, in an action at once interesting and extraordinary; and yet nothing invites me, nothing speaks to me, nothing stops me! I must be warned in order to

look; my shoulder must be touched; and this at the same time that learned and unlearned, great and small, rush in crowds to the *bambouches* of Teniers.

I would dare to say to Raffaele "*Oportuit hæc facere et alia non omittere*;" I would dare to say that there is not perhaps a greater poet than Raffaele: as to a greater painter, I ask the question. But let us begin by first defining painting.

Another question.—If we have impoverished architecture in subjecting it to measures and models,—an art that should acknowledge no law but that of the infinite variety of what is convenient,—may we not have impoverished painting, sculpture, and all the arts springing from drawing, in subjecting figures to certain lengths of head, and heads to certain lengths of noses? Have we not been making the science of conditions, characters, passions, and divine organizations a small affair of rule and compass? Let people show me on the surface of the globe,—I will not say a single entire figure, but the very smallest part of a figure,—a nail, which the artist can imitate exactly. But, putting aside natural deformities to attach ourselves to those which are necessarily occasioned by our manner of life, it seems to me that there are only the gods and savages in whose representation we can follow the rigour of proportion: then in succession heroes, priests, magistrates, but with less severity. In the inferior orders we must choose the rarest individual, or he who represents best his state, and then submit ourselves to all the changes which characterize him. The figure will be sublime, not when an exactness of proportion is visible, but when, on the contrary, a system of deformities is well connected and altogether unavoidable.

In fact, if we knew well how all things hang together in nature, what would become of all our symmetrical conventions? A hunchback is a hunchback from head to feet: the smallest special defect has its influence over all the mass. This influence may become imperceptible, but not therefore is it less real. How many rules and productions are there which receive our assent only through our idleness, our inexperience, our ignorance, and our bad eyes!

And then to come to painting, whence we departed, let us remember ever the rule of Horace:—

"Pictoribus atque poetis
Quidlibet audendi semper fuit æqua potestas.
Sed non ut placidis coeant immitia, non ut
Serpentes avibus gemitur."

That is to say, you shall imagine, you shall paint, O celebrated Rubens, whatever you please, but on condition that I must not see in the chamber of a lying-in woman the Zodiac, Sagittarius, &c. Do you know what that is? Why, serpents mating with birds.

If you are for trying the apotheosis of our great Henry, elevate your fancy, dare, project, trace, crowd as many allegorical figures as your warm and fertile genius may suggest to you: to all this I consent. But if you are painting the *lingere* in the corner shop yonder; a counter, some loose pieces of linen, a measure, some young apprentices by her side, a nightgale in its cage, are all. But the fancy seizes you to transform her into a Hebe: do so if you like, and I shall no longer be shocked if I find around her Jupiter with his eagle, Pallas, Venus, Hercules, all the gods of Homer and Virgil. It is no longer the shop of the little dealer in fine linen: it is the assembly of the gods, it is Olympus. And what do I care, provided all is in keeping?

"Denique sit quodvis simplex dantaxat et unum."

CHAPTER VII.

A LITTLE COROLLARY FROM THE PRECEDING.

But what is the use of all these principles if taste be a thing of caprice, and there be no eternal, unchangeable law of the beautiful?

If taste be a thing of caprice, if there be no law of the beautiful, whence then come those delicious emotions which so tumultuously, so suddenly, and so involuntarily arise in the depths of our hearts, which dilate or close them; which force from our eyes tears of joy, of pain, of admiration, either at the aspect of some great physical phenomenon, or at the recital of some great moral incident? Away, Sophist! Never shalt thou persuade my heart that it shudders without cause or wrongly yields to the emotions which agitate it.

The true, the good, and the beautiful hold a very close relation. Add to one of the two former qualities something rare and striking, and the true shall be beautiful and the good shall be beautiful. If the solution of the problem of the three bodies be only the movement of three given points

upon a strip of paper, it is nothing, it is a mere speculative truth; but if one of these three bodies be the star which lights us through the day, the other the star which lights us through the night, and the third the globe which we inhabit, the truth, all at once, becomes great and beautiful.

One poet said of another: "He will not go far, he has not the secret." What secret? That of presenting objects of great interest,—fathers, mothers, spouses, women, children.

I see a high mountain covered with an obscure, ancient, and deep forest. I see in it, I hear descending, with vast noise, a torrent whose waters break in the rough prominences of a rock. The sun is about to set, and transforms into so many diamonds the drops of water which hang attached to irregular points of the stones. Yet these waters, after having passed over the objects which retard them, will collect into a large and spacious canal, which will then conduct them a certain distance to a machine. There, under enormous weights, we prepare the more ordinary sustenance of our race. I get a glimpse of the machine. I see its wheels whitened by the foam of the water. I make out through some willows the roof of the owner's cottage. I return home and I dream.

Beyond all doubt the forest which takes us back to the beginning of the world is a beautiful thing; beyond doubt this rock, the image of constancy and duration, is a beautiful thing; without doubt these drops of water, transformed by the sun's rays, broken and decomposed into as many sparkling and liquid diamonds, are beautiful things; beyond doubt the noise, the roar of a torrent breaking on the vast silence of the mountain and of the solitude, and shaking my soul with some new emotion of secret terror, is a beautiful thing!

But these willows, this cottage, these grazing animals, all this picture of utility,—add they nothing to my pleasure? And what a difference between the sensations of an ordinary man and those of a philosopher! It is the latter who thinks and sees in the tree of the forest the mast which shall one day oppose its lofty head to the tempests and to the winds; in the entrails of the mountains the rough ore which shall one day bubble at the bottom of fiery furnaces, and take the form of the instruments which both fertilize the earth and destroy its inhabitants; in the rock the masses of stone with which palaces are erected to princes and temples to gods; in the waters of the torrent now the fertility, now the ravages of the country, the formation of streams, of rivers, commerce and the inhabitants of the universe placed in relation, their wealth carried from shore to shore, and thence dispersed through all the depths of the Continent; and his imperishable soul will suddenly pass from the sweet and voluptuous emotion of pleasure to the sentiment of terror, if his fancy proceed to lift up the waves of ocean.

It is thus that pleasure increases in the proportion of our imagination, our sensibility, and our knowledge. Neither nature nor the art which copies it says anything to the cold or stupid man, and little to the ignorant man.

What, then, is taste? A certain facility acquired by much experience of seizing the true or good with the circumstances which render it true or good, and of being quickly and vividly touched by it.

If the experience which determine the judgment are present to the memory, we shall have an enlightened taste: if the memory thereof be passed and the impression alone remain, we shall have the tact, the instinct of taste.

Michelangelo gives to the dome of St. Peter's the most beautiful form possible. The geometer, De la Hire, struck with its form, traces the plan of the arch, and finds that it offers the curve with the greatest resistance. Who inspired Michelangelo with this curve, in preference to a number of others he could have chosen? The daily experience of his life; the same that suggests to the master carpenter, as certainly as to the sublime Euler, the angle of the buttress with the walls which threaten to fall; which teaches how the sail of the windmill may have the inclination most favourable to its rotatory movement; which often includes in its subtle calculations elements which the geometer of the Academy is unable to catch.

Experience and study, these are the preliminaries both for him who acts and for him who thinks. I must require, also, sensibility. But as we see men who practise justice, kindness, virtue, merely through a well-understood interest, through the love and feeling of order, without experiencing its delights and voluptuousness, so there may be taste without sensibility, just as we may have sensibility without taste. Sensibility, when ex-

treme, has no discernment: everything affects it equally. This man will say to you coldly, "This is beautiful;" another shall be moved, transported, intoxicated. *Saliet, tundet pede terram, ex oculis stillabit amicis rorem.* He shall hesitate, and find no expressions which describe his emotions.

The latter is doubtless the happier man.

The better judge is another matter. Phlegmatic men, severe and passionless observers of nature, often know better the delicate chords that ought to be touched: they play the enthusiast without being so; it is the man and the animal.

Reason rectifies sometimes the hasty judgment of sensibility: she appeals from it. Hence so many productions nearly as soon forgotten as applauded; so many others either unperceived or disdained; which receive from time, from the progress of mind and of art, and from a more careful attention, the tribute they merit.

Hence the uncertainty in the success of every work of genius. Genius stands alone. It can only be appreciated in bringing it directly before the bar of nature. And how do that? Only by another man of genius!

MELROSE.*

At this season of the year for renovating mind and body, when a large proportion of tourists are journeying northwards, a popular work on Melrose will be read with curiosity and interest by many. Situate on the Tweed, Melrose Abbey is some few miles out of the great highways between the south and north; but the *déjeuner* that comprises a visit to this and the other monastic remains on the silver stream is most pleasurable and memorable. The northern tourist, bearing in mind that he is traversing the *locale* of Chevy Chase and other Border battles and legends, should commence his stopping stages at Alnwick—the home of the ancient Percies. The town is entered by a massive gateway, built by the son of Hotspur; and the castle, despite the modern renovations, has many ancient and beautiful features belonging to the same stirring times. From this, going Berwick-wards, he will pass the Castle of Dunstanborough, a bold ruin, standing on a high basaltic rock on the sea shore, where the sea lashes and foams and frets up a crevasse into the castle confines. And a very few miles farther north he will pass Bamborough Castle, the right royal residence of the Saxon kings of Northumbria. This castle is now the seat of a charity, having been left by Lord Crewe as a school for boys and girls: the keep is occupied by the trustees of the immense property devised by the same philanthropist for charitable purposes connected with distressed vessels and sailors wrecked upon this "iron-bound" coast. It stands, like Dunstanborough, on an immense rock rising from the shore, and in the days of its glory must have been an invulnerable fortress. In the sea, before Bamborough Castle, are the Farne Islands, the scene of Grace Darling's heroism; and a little to the north lies Holy Island, so called from the sanctity of its inhabitants, the monks of Lindisfarne. Here king Oswald set up the cross and founded a bishopric, since merged into the see of Durham; and here Aidan trained twelve Saxon youths to be his fellow-labourers in the large field for Christian teaching thus opened out—the extent of which may be estimated by the number of baptisms, which, in seven days, are recorded to have amounted to 15,000. But the strength and pride of Lindisfarne lie in the intricacy with which its history is interwoven with that of St. Cuthbert, whose uncorrupted remains were a shrine for hundreds of years in Durham Cathedral; and whose book of the Gospels, beautifully written and illuminated, and subsequently interlined, is still a shrine to the antiquary in the British Museum, notwithstanding the lapse of more than a thousand years. Leaving the north road at Berwick, where the Countess of Buchanan was imprisoned for four years in a cage on the castle walls, for having placed the crown on the head of Robert Bruce at his coronation, and following the course of Tweed's "fair flood," Northam Castle next proudly claims a position among Border lions, albeit shorn of its might; and the large Norman church in the same village is especially worth seeing. On the banks of the river at Tilloth there is a ruined chapel, where the stone coffin in which St. Cuthbert's body floated down the stream from Old Melrose, and then stopped of its own accord, was preserved. Wark Castle is levelled to the foundation, and all

* History of St. Mary's Abbey, Melrose, the Monastery of Old Melrose, and the Town and Parish of Melrose. By James A. Wade. Edinburgh: Thomas C. Jack, 92, Princes-street. London: Hamilton, Adams, & Co. 1861.

that remains is a terrace between the castle wall and river, called the Maiden's-walk. At Kelso there are the fine ruins of the Norman Abbey Church, besides Floors Castle, the modern residence of the Duke of Roxburgh; and at Jedburgh and Dryburgh the grand remains of the abbey churches of both monasteries are even more attractive. This wealth of ecclesiastical architecture culminates, however, at Melrose, where Douglas, the foe of Hotspur at Chevy Chase, or Otterburn, lies buried, and where history, poetry, and legendary lore, all contribute to the enchantment. No words can describe it so fitly as those of the mighty genius whose strains have added imperishable lustre to a locality already most beautiful:—

"When distant Tweed is heard to rave,
And the owl to hoot o'er the dead man's grave,
Then go,—but go alone the while,—
Then view St. David's ruined pile;
And, home returning, soothingly swear,
Was never scene so sad and fair."

The first Abbey of Melrose was founded in Saxon times, on a site two miles farther down the Tweed than the present edifice. This was, like the Saxon church of Lindisfarne, described by Bede, built of oak, and thatched with straw and weeds; and, like that famed retreat, was the scene of the early years of St. Cuthbert's monastic seclusion. It is distinguished from the present building as Old Melrose. It flourished till the reign of Malcolm III., when the monks were compelled to quit, owing to their refusal to swear allegiance to that monarch; after which, it occupied a minor position, and was termed St. Cuthbert's Chapel. The much more important and magnificent abbey on the present site was founded by David I. of Scotland, who also piously founded the abbey of Holyrood, Dunfermline, Kinross, Newbattle, Jedburgh, Dryburgh, and Kelso, believing that, by instituting these nurseries of art and peace and of learning, he was advancing the interests of his kingdom. Melrose was occupied by a community of Cistercian monks from the Abbey of Rievall, in Yorkshire, who rapidly developed the resources of their new possessions. The nobles, actuated by the example of their sovereign, liberally conferred grants of land, and saltworks, and privileges of pasture for oxen and sheep; of grinding at their mills free of millage; of fishing, with gifts of nets, and of immense quantities of peat for fuel; and Melrose increased in wealth, usefulness, and fame.

The monks of Melrose possessed in the latter part of the thirteenth century more than a hundred saddle-horses, as many more for agricultural purposes, and more than three times that number in outlying mares and foals. They had 3,000 acres of land in cultivation, and 15,000 acres of forest, common, and pasture lands. They had, also, 3,000 head of oxen, 200 cows, 80 bulls, besides calves, and more than 20,000 sheep, deer, swine, and poultry. They bred, bought, and sold; they exported the fleeces of their flocks; they sold fish from their fisheries (salmon from the silvery Tweed), fruit from their orchards, butter and cheese.

In excavating, the foundations of the monastic domestic buildings are occasionally found, but no positive plan can be formed of them. They would probably have been modelled upon the plan of the parent monastery at Cîteaux, which the rules of the order compelled the abbot of this and other branch establishments to visit every four years. Besides the church, chapter-house, cloisters, dormitory, lavatory, and refectory, there were other arrangements which are not quite so familiar. There was the parlour of the monks (*le parloir des moines, colloquii locus*): the most absolute silence being preserved among the religious, this was a special parlour placed near to and leading out of the cloister reserved for those engaged in more serious studies, so that they might not be excited by the scandal of the monks. The chauffoir (*calefactorium*), where the monks warmed themselves after the morning chant at sunrise, and greased their sandals before beginning their early work; the kitchen, with its attendant offices and watercourse; the infirmary and its dependencies; lodgings for strangers; a wax-room; a small library where the brethren deposited their books. Over the monks' parlour was the great library, which was reached by a staircase in the south transept of the church, which staircase also conducted to the dormitory, so that the monks could descend from it into the church (an arrangement very apparent at Hexham). Then there was also a hall for theological conferences and discussions, which were held in great esteem in the Cistercian order. Removed from all interference with the religious and intellectual tasks of the cloister, but encompassed with one outer wall, were mills to

grind corn and extract oil, stables, granaries, hay-lofts, watercourses, lodgings, and workshops for the numerous artificers employed by the community, and flower and vegetable gardens.

Mr. Wade has collected much information about the monks as well as the abbey. Several documents are printed entire and made generally available by translations. He tells us Melrose was dedicated to the Virgin Mary on Sunday, 28th July, 1146, after having occupied ten years in building, and that the early abbots were marvels of learning and piety. Of their learning the Chronicle of Mailros bears witness. According to the rules of the Cistercians, the monks were obliged to perform their devotions seven times in the course of twenty-four hours. This rule broke up their work time and their rest into periods of short duration, which must have interfered with both comfort and health. The Nocturnal was performed at two in the morning, Matins or Prime at six, Tierce at Nine, the Sexte at noon, the None at three, Vespers at six, and Compline after seven. At Curfew, or eight, the monks retired to rest. With all this severity of discipline the abbot lived in great state and kept a sumptuous table, to which guests of a superior rank were invited, instead of being entertained as others were by the hospitaller. He owned servants, horses, hounds, hawks, boats, and many other luxuries. The prior also kept up some state as the representative of the abbot on all occasions when that dignity was absent, and was the recognized authority in all matters relating to the income of the abbey. The superior held the next rank. His duty was to superintend the discipline of the monks and convent, to see that the gates were properly secured at eve, and to read over the names of the monks after they had retired to the dormitory to ascertain if all were present. There were besides various other officers, the cellarer, the refectory, the chamberlain, the sacrist, the almoner, the infirmarer, the hospitaller, who received pilgrims, strangers, and wayfarers, and provided them with entertainment in a room devoted to the purpose called the hospice or guest-chamber; the chanter or precentor, who instructed and conducted the choir; the treasurer, who received rents and paid accounts and wages; the porter, the kitchenier, besides hepdomadaries or monks, who took weekly turns in performing certain offices. This well-ordered establishment varied in number: in 1250 there were 80 monks living there; in 1540 there were 70, and 60 lay brethren; in 1542 there were 100 monks and probably as many laymen.

The abbey and its possessors enjoyed great prosperity for a long series of years. In 1215 King Alexander II. met the northern English barons in the Chapter-house, who agreed to put him in possession of Northumberland and Carlisle if he would assist them in the assertion of their rights to King John. Pilgrims flocked to the Melrose shrines. Many bequests and donations were made, and many persons of distinction sought to be admitted as novices. The curious form of application for this privilege of a novice in an English convent was as follows:—"Syr, I besyche yow and alle the convent, for the lufe of God, our Lady Sanct Marye, Sanct John of Baptiste, and alle the howle covrte of hevyne, that ye wolde resave me, to lyve and dye here amongs yow, in the state of a monke or prebendarye, and servant unto alle, to the honor of God, solace to the companye, prouffit to the place, and helth unto my sowle." This was probably the same sort of petition as that which Mr. Wade describes every person seeking to be admitted as a novice sent to the abbot as a preliminary step to presenting himself before him. In 1296 the monastery of Melrose, in conjunction with those of Jedburgh, Kelso, and Dryburgh, swore fealty to Edward I. In 1303 the peace of the convent was disturbed by an attack in the night by Comyn, Regent of Scotland, who forced the abbey gate and killed several English soldiers, who, with their commander, Hugh Audley, were lodging there. A further scene of bloodshed was enacted in 1322, when Edward II., returning with his army from Scotland, sent forward 300 men to Melrose, to prepare for his reception. Lord Douglas, hearing of the king's movements, resolved to defeat his measures, and, unknown to the 300 men thus sent forward, obtained an entrance into the abbey. On their arrival he attacked them unexpectedly, and, killing some of them, completely routed the remainder. Enraged at their loss, the English soldiers avenged themselves on the monks, slew the prior, sabred many of the infirm monks, including two who were blind, and wounded others; and, carrying away every valuable, marched southwards, dealing death and destruction on their road. In 1326 the ravages made by the infuriated sol-

diery were repaired when King Robert granted the monks 2,000*l.* to rebuild their church. This sum was equal in value to 50,000*l.* of our present currency. Only three years afterwards this monarch died, leaving a letter to his son in which he recommended the monastery to his favour, and directed that his heart should be buried there. This interesting letter Mr. Wade presents in its entirety, along with a translation. He also relates the touching history of the royal heart. The king, ere he expired, superseded the direction given in the letter, by expressing a wish that his heart should be deposited in the Holy Sepulchre at Jerusalem. But, as Douglas was executing the royal wish, and had proceeded as far as Spain, he was killed, and, a knight bringing home the silver casket containing the heart, it was subsequently buried at Melrose, as the king had desired in his letter.

The next calamity that befel Melrose was in 1385, when Richard II. invaded Scotland with a great army. Advancing by way of Melrose, he found that the inhabitants had removed all their corn and cattle, and enraged at the privations his army encountered on account of this lack of provisions, he set fire to the monastery after having lodged there one night. Dryburgh and Newbottle shared a similar fate. Richard afterwards endeavoured to make some amends for this sacrilege, by remitting two shillings of the duty on each sack of wool the monks exported from Berwick, and giving them license to sell leather and farming stock in Northumberland, and protection from plunder. In the fifteenth century, the discipline of the monks had become much relaxed: so much so, that a commission was sent from Cîteaux to inquire into the abuses that had crept in, and to reform them. Idleness, luxuriousness of living, magnificence of dress, were the enormities brought to light of day. The abbot was deposed; but no particular improvement appears to have resulted from this measure; for, in 1527, we hear of a second commissioner from Cîteaux despatched on the same errand. The monks were complained of for gadding about, and keeping horses; having separate sleeping-chambers, and extravagantly fine clothing; further, as having gardens especially appropriated for their separate use and pleasure. The effort to revive the favour monastic institutions once held in popular esteem, was of little avail. Monachism was on the wane. In 1531, James V. finding his kingdom in tranquillity, "sent to Denmark for horses and mares, and put them in parks to improve the breed of native horses; and to Flanders and France for artillery, powder and bullets, pikes and harness, and other ordnance. He also introduced into Scotland, Frenchmen, Spaniards, Dutchmen, and Englishmen who were cunning craftsmen; gunners, wrights, carvers, painters, masons, smiths, tapesters, brousters, taylor, chirurgens, apothecaries." Perhaps it was to pay these craftsmen, that in 1535 he invested himself with the administration of the revenues of the Abbey, and in 1541 procured the resignation of the abbot, that he might confer the benefice upon his infant son. In September, 1544, an English army under the Earl of Hertford, again invaded Scotland, and Melrose was for the third time destroyed. It has, probably, remained as it was then left, except that a portion of the nave had been fitted up for parochial service, and considerable damage has been additionally effected by making it for many years the stone quarry for the neighbourhood.

Hundreds of people who make a point of visiting Melrose seldom do more to ascertain its history than to listen to the vague description of the guide, who takes more pride in pointing out the pig playing on a bagpipe carved on a gargoyle than anything else there. It is to these that Mr. Wade's book will be of real service. The illustrations are poor and skillless. A supposed restoration of the abbey church, by the author, is but very indifferently carried out. There are various opinions advanced in the course of the book to which we must demur. For instance, we cannot admit that the spire of an abbey like Melrose would have been formed of wood; nor, as Mr. Wade asserts, that ancient spires were generally made of wood. In fact, our author's knowledge of architecture appears to be but small, and this is to be regretted in a book descriptive of a piece of architecture. Still the work is modestly put forth, and as it furnishes agreeable and instructive reading for road or rail, has our good wishes.

MR. EDWARD FAULKNER, the author of "Dædalus," has just been presented with a gold medal by the King of Prussia, as a mark of His Majesty's appreciation of his work.

APPRENTICESHIPS.

At the recent Social Science Conference, in Dublin, Mr. Lushington, barrister, read a paper, entitled, "Shall Apprenticeship under Indenture be Compulsory?"

This apprenticeship question is one of great difficulty, and also one of considerable moment to the community at large. It is very certain that, amongst our large manufacturers and employers, a feeling adverse to indentured apprenticeships is rapidly spreading. The *Builder*, some time ago, remarked upon the fact that, in many of our large establishments and workshops, apprentices have almost or wholly disappeared. The views of this class of employers have been ably set forth by Mr. Napier, of Glasgow, in a paper, read at one of the meetings of the British Association. It is contended that, under the old system, where boys are secured against the contingencies of trade and uncertainty of employment for a specified season, they acquire habits of carelessness and indifference, unfitting them from becoming superior workmen; whereas, by putting them upon their mettle, and giving them plainly to understand that present employment and future success depend upon the activity and attention with which they discharge their respective duties, a race of better educated and more ingenious workmen will be produced. As a proof of the correctness of their views, the advocates of *unindentured* apprenticeships point to America, where our old English system is unknown.

Now we are not about to deny the smartness and ingenuity of our Trans-Atlantic cousins. We confess that we are not quite so go-ahead in many particulars. Builders do not build brick or stone houses in their yards, lay the floors, hang the doors, plaster the walls, execute the painting, hang the paper, finish them off complete, then trundle them along the streets a mile or two, and drop them on the site they are henceforward to occupy; neither has our ingenuity arrived at contriving a planing-saw whereby boards are delivered from the saw all ready planed up; and we rather imagine our boot-last makers will be some time before they attempt to execute their work at the turning-lathe; all which things we have been told are done in the good town of Chicago. Yet this does not prove that the unapprenticed Yankee is a better workman than a Britisher. We have had an opportunity of inspecting some novel and ingenious furniture recently received from a first-class house in New York; and if these articles are to be taken as samples of the quality of Jonathan's handicraft, why we would undertake to find a thousand Shoreditch or Bethnal-green garret-masters capable of "whipping" it hollow. In labour-saving expedients, our inferiority must be acknowledged; and it would be unwise in us to hesitate about adopting or contriving plans for the quicker execution of work; but we must earnestly protest against the adoption of any system that will train up the rising generation of workmen to disregard quality for quantity in the race for mechanical superiority.

We believe, however, that the inventive powers of the Americans is due to other causes than the absence of special trade instruction or education. The almost boundless agricultural resources of the country have been enormously developed by European demand for corn, cotton, and timber. The readiness with which these great staple products are disposed of, for hard cash, has had the effect of limiting the number of those engaged in mechanical pursuits, and at the same time stimulating demand for their productions. To meet this augmented demand there has not been, nor for ages yet to come will there probably be, any surplus labour to fall back upon. As a consequence, ingenuity has been taxed to supply the place of bone, muscle, and sinew. Working mechanics have their inventive powers stimulated by the certainty that any economical contrivance will be to their own pecuniary advantage. This, we believe, is the main reason for American cuteness in labour-saving expedients, and not in their freedom from apprenticeships.

But were it otherwise, supposing that American artisans were better workmen than British, supposing their inventive superiority were the result of being left to their own wits to learn a trade, what then? Shall we pursue a similar plan in England? We would say, no. Are we not, then, in want of clever and ingenious workmen? Certainly, but we are more in want of thoughtful, prudent, steady citizens; and we apprehend that the abrogation of indentured apprenticeships will not secure that great essential of national greatness. Vast as have been the benefits conferred upon this country by the growth of the factory system,

giant evils have grown therewith; not the least of which is the early age at which children acquire independent ideas and sever themselves from parental control. In the manufacturing districts boys and girls of fifteen or sixteen years of age earn sufficient for their own maintenance, and then they begin to think it high time to have a home of their own. Hence early and improvident marriages, with all the miseries incidental to such indiscreet engagements.

Of the tendency of unindentured apprenticeships, there can be little doubt. With no legal restraints from either parent or master, what is to prevent boys or youths from rushing into a life of privation and misery? In America, the rapid increase of population is a subject for rejoicing: there is plenty of elbow-room for myriads yet to come. In England the case is different. Here there is actual strife for the means of existence: the ranks of the unemployed are overcrowded, and every addition to the number of workers lessens the chances for the remainder; consequently increasing the aggregate of poverty, misery, and, we may add, crime.

In these remarks we are not blind to the evils of ordinary apprenticeships. In the first place, boys are generally set to work at too early an age, and before they have any clear idea respecting the new relation upon which they have entered. In the next place, apprenticeships are usually too long. We may safely affirm that, if a trade cannot be learned in five years, it never will be learned.

As one means for introducing a more hopeful state of things than now exists, we suggest that the most eminent of our manufacturers should offer to receive, as apprentices, one or more boys of sixteen, who shall have passed a specified examination in various acquirements useful and necessary in the trade they would like to learn. Shortly after the introduction of competitive examinations amongst the students of mechanics' and other institutions connected with the Society of Arts, several hundred commercial gentlemen and manufacturers signed a document to the effect that in filling up vacancies for clerks, &c., in their establishments, they would give the preference to persons who had received a certificate from the Society just named. Why not extend the principle to the taking of apprentices without premiums? and why not go still further, and offer prizes of ten, fifteen, and twenty pounds, as premiums, for apprenticing others who also passed the examination? One good effect of such a plan would be to induce working men to practise self-denial, and keep their sons at school for a longer period. It has long been a source of regret to our educational philanthropists, that the children of our working population are taken from school at such an early age, the average being about eleven years. The plain fact is, as soon as a boy can contribute to his own support, the parent, not having the remotest prospect of any advantage to be derived from a longer continuance at school, is only too glad to be partly relieved from his maintenance as quickly as possible. The first opportunity of employment is eagerly clutched at, irrespective of the moral and physical wrong the child endures.

The suggestion we offer would in some degree obviate these regrettable circumstances. We believe there are hundreds of working men who would gladly practise a little self-denial to keep their sons at school, provided they saw some prospect of it being an ultimate advantage. As it is, the great majority have not the means of apprenticing a boy, except to a trade that is already overstocked, and consequently, underpaid. The results are carelessness and indifference, where there ought to be forethought and anxiety for the future welfare of their offspring.

ORIGIN OF TRAMWAYS.

THAT Mr. Outram, of Buttery Hall, brought the iron tramway to a degree of perfection which it had not before attained, is, I believe, well established; but that the word *tram* is merely a synonyme of the name *Outram* is improbable. "The *tram*, *drum-road*, or *wagon way*, was at first only employed in transporting coals to a short distance from the pits to the places where they could be shipped, and was universally made of *wood*. When it was found that these tramways could be employed for more general purposes, they were carried to a farther extent, and the scarcity of wood, and the expense of their repairs suggested the idea of employing iron instead of wood. At first flat rods of bar iron were nailed upon the original wooden rails; and this, though an expensive process, was found to be a great improvement. The wood on which these rods rested being liable to

rot and give way, some imperfect attempts were made to make them wholly of cast-iron; but these were found to be liable to many objections, until the matter was taken in hand by Mr. Outram, who contrived at the same time to diminish the expense and improve the strength of the road" (Rees's "Encyclopædia"). These tramways were perhaps originally of German origin. At all events one of the first in Europe is said to have been that from Linz to Budweis, in Bohemia, serving to connect the Danube with the Moldau and Elbe. The line was subsequently extended from Linz to Gmünd, at the head of the Traun-See; and has been for many years used for the conveyance of passengers as well as goods, being worked by horses. On the whole, it is most probable that the word *tram* is derived from the old German word *trām* (which Wachter derives from the Greek *dōron*, lignum, by change of *n* into *m*, but which may also be connected with the Saxon *trām*, firm, strong), wood, a beam, also a tree, whence *trimmen*, and the Anglo-Saxon *trimman*, to build. Not only has the word *tram* been used for ages in Scotland to designate the shafts of carts, but it was also a name in some parts of the North of England for the coal-wagon itself. Again, one sort of silk formed by twisting two or more threads of raw silk slack is, or was, called *tram*, or shoot; the other sort being called *organize*. In modern German *tram* signifies a beam, rafter, round, or step: *tram-baum* (in mining) is a main-beam; *tram-säule*, a prop, a stay of the main-beam; *tram-seide*, wool silk, frame silk.

A great deal has been written as to the etymology of the word *best-sommer*. My impression is, that it is merely a corruption of *trabs summaria*, "the chief beam." R. S. CHARNOCK.
Gray's Inn.

THE POST-OFFICE SAVINGS BANKS.

THE amount of business transacted on the first day of opening the Post-office Savings Banks, it appears, far exceeded the most sanguine expectations of those who arranged the details of the scheme; a very large number of persons, male and female, of all ages and classes, having become depositors. The money collected was immediately transferred to the Commissioners for the Reduction of the National Debt, for investment according to law. We look forward with hope to this new plan, now fairly set a-going in some hundreds of places, of leading the industrious classes into habits of saving a little surplus of their income. It is true that we have savings banks; the Penny Banks, &c., in connection with parishes and districts in large towns: there are also provident societies, building societies, and other useful institutions, which hold out encouragement to workmen, and others of limited income, to "lay by for a rainy day," as the saying is. Notwithstanding all that has been done, however, a want of some other arrangement has certainly been felt, which would afford easy, frequent, convenient, and tempting opportunities, in numerous districts, towns, and villages, for putting away little savings as they could be spared.

The greatest difficulty in saving money is to make a beginning. Small sums, which would soon mount up to larger ones, are wasted, in consequence of people saying, "What is the use of saving these trifles?" and the money is spent on matters which might just have been as well done without. Sometimes, people do not like to go with trifling sums to savings banks; or, if they intend to do so, the deposit can only be made at certain days and hours; and, before that time arrives, the amount intended to have been put away has been in some way called for and spent; and so, for the want of some little beginning, a good intention is delayed or entirely frustrated. In order to prevent this, and give every facility for saving, banks have already been opened in connection with 300 of the Post-office money-order offices; but, as soon as possible, the banking privilege will be extended to no less than 2,500 offices, and the number will be constantly increasing. Deposits, as we have before noted, of not less than 1s. or not more than 30s., will be taken at all the offices, from ten o'clock to four o'clock, in many from nine to six o'clock, daily, and on Saturday evenings until eight o'clock. No more than 30s. will be taken from a depositor in one year, or in all 150s.

On the last day of each year the interest, at the rate of 2½ per cent., which may be easily added, being at the rate of one halfpenny a month for every complete pound, will be calculated, and added to the principal sum, with which it will therefor bear interest at the same rate. When the interest shall have brought this sum up

to 200l. no further interest will be paid. A single pound will bear interest at the same rate. A book of instructions has now been issued at a cheap rate.

Amongst the regulations it has been decided that deposits may be made in the joint names of two parties, but the signatures of both will be required on withdrawal. Youths of fourteen years of age and upwards may enter into these joint deposits; and youths of seven years of age may deposit on their own account; and their receipt on withdrawal will be sufficient discharge for the postmaster. Married women, or single women who may afterwards marry, may deposit and withdraw; unless, after such marriage, the husband shall give notice in writing to the postmaster-general that the repayment must be made to him. Certified friendly societies, charitable institutions, penny banks, &c., approved by the National Debt Commissioners, may deposit their funds in the Post-bank without any restriction: declarations will have to be signed in the same way as by other depositors. There are arrangements by which accounts may be withdrawn from savings banks to the post-office in the neighbourhood where the person who has saved the money lives. The regulations generally seem so simple, so liberal in their terms of management, and so well adapted to the use of a large class, that we earnestly hope the Post-banks will be extensively used by that large and important class whom it is sought to benefit.

PATENT RIGHTS.

PATENT rights and the law of patents formed a subject of interest and discussion at the Manchester meeting of the British Association. Sir William Armstrong and Professor Rogers both read papers, and both took extreme views against the granting of patents.

In the paper read by Professor Rogers the following conclusions were drawn:—

The privilege of patent (1) does not stimulate invention; (2) does not come within the definition of that protection to property and the acknowledged duty of the State to maintain intact the labour of individuals; (3) acts as a hindrance to improvement, by being a check on the freedom of beneficial discovery; (4) is an illogical acknowledgment that an accidental priority of discovery is the ground for allowing a sole property; (5) can have all its reasonable advantages secured by secrecy, and is constantly superseded by secrecy; (6) is a tax in the fullest sense on the consumer.

On the fifth proposition we may here observe, that though in some cases the nature of the patent may be such that secrecy may be of use to an inventor; still this cannot hold good in all cases, by a great many; the nature of the patent being frequently such that the idea of secrecy being possessed in connection with it is simply absurd.

A report by a committee of the National Association for the Promotion of Social Science on the patent laws was also read at the Manchester meeting, by Mr. James Heywood, F.R.S.

The resolutions of this report were as follows:—

1. That all applications for grants of letters patent should be subjected to a preliminary investigation before a special tribunal.
2. That such tribunal shall have power to decide on the granting of patents, but it shall be open to inventors to renew their application notwithstanding previous refusal.
3. That the said tribunal should be formed by a permanent and salaried judge; assisted, when necessary, by the advice of scientific assessors; and that its sittings should be public.
4. That the same tribunal shall have exclusive jurisdiction to try patent causes, subject to a right of appeal.
5. That the jurisdiction of such tribunal should be extended to the trial of all questions of copyright and registration of design.
6. That the scientific assessors for the trial of patent causes should be five in number (to be chosen from a panel of thirty, to be nominated by the Commissioners of Patents) for the adjudication of facts, when deemed necessary by the judge or demanded by either of the parties.
7. That the right of appeal should be to a Court of the Exchequer Chamber, with a final appeal to the House of Lords.
8. That, for the preliminary examination, the assessors (if the judge requires their assistance) should be two in number, named by the Commissioners of Patents from the existing panel; the decision to rest with the judge.
9. That the committee approve the principle of compelling patentees to grant licences on terms to be fixed by arbitration; or, in case the parties shall not agree to such arbitration, then by the proposed tribunal, or by an arbitrator or arbitrators appointed by the said tribunal.
10. That a report be drawn up in conformity with the resolutions passed by this committee, and that the council, if such report be approved by them, be requested to allow it to be read at the meeting of the British Association, to be held at Manchester this year.

In the report, it was observed that the objects the committee had in view were to devise means by which those evils that had sprung from the changes lately introduced into the patent laws

butt, the clerk of works to the corporation; who were both standing near; called him back, saying it was dangerous. He looked and saw it was so, and suggested there should be some props placed in No. 5 arch, and the next. He considered that Mr. Gilbert, as the employer of the men whose lives would be endangered, ought either to have seen to the putting up of the props or have withdrawn his men from the danger. Witness believed he said to them, "Let no more work be taken down until that arch is shored up;" and he expected that Mr. Gilbert was going to do it.

The coroner asked the jury if they would be satisfied to come to a decision in Mr. Gilbert's absence, or whether they would adjourn the inquest for his evidence? He mentioned that if they considered that the neglect had been so culpable as to justify a charge of manslaughter, it would of course be necessary to have the attendance of Mr. Gilbert. At the same time, he must tell them that the law held that, if a man acted according to the best of his judgment, even if that judgment was wrong, he was not guilty of manslaughter. Blameable Mr. Gilbert must be in not acting upon the advice of Mr. Lynde; but, taking into consideration the fact that Mr. Garbutt and others thought there was no danger, it was for the jury to decide whether Mr. Gilbert had not acted to the best of his judgment.

The jury returned a verdict of "Accidental death;" but wished severely to censure Mr. Gilbert for not having acted upon the recommendation of the city surveyor.

Mr. Gilbert has since written to the local *Courier*, explaining that his warning to Mr. Lynde had no reference to any arch but that in course of demolition; and that he did not think the other arches in danger of falling; but that he had ordered them to be shored up, and they were about to be shored up when they fell.

NEWS FROM NEW ZEALAND.

THE Presbyterian church at Napier has been opened. A correspondent of the *Hawke's Bay Herald* complains of the slow progress in building the Church of England there.

Railways.—The contract entered into by the superintendent with Messrs. Holmes & Co., of Melbourne, for the construction of a railway between Lyttelton and Christchurch, has been sanctioned by the provincial council. Messrs. Holmes & Co. have signed an agreement by which they are bound to construct the works for the sum of 240,000*l.* within the term of five years, under a penalty of 20,000*l.*: the works are to be commenced immediately. An electric telegraph wire is also to be laid down between Lyttelton and Christchurch immediately.

Wangapeka Gold Fields.—The roads thither are described as "execrable," but the diggings are "paying."

The foundation of the new Napier gaol is about to be put in.

Otago.—Another gold field has been discovered. It promises to throw the Lindis into the shade.

Lindis.—There is here plenty of gold. The only drawback is the bad state of the road from Oamaru.

PROFESSIONAL CHARGES.

SCALE SANCTIONED BY THE NORTHERN ARCHITECTURAL ASSOCIATION.

THE following scale of charges, signed by Mr. John Dobson, as "F.R.I.B.A. and President," has been issued by the Northern Architectural Society. Knowing, as their committee must know, that the council of the Institute has long had under consideration the desirability, or otherwise, of such a publication, they would have moved more wisely, as it seems to us, if they had acted in concert with the Institute, or at any rate had delayed the issue until informed of the result of its deliberation. Their scale is calculated to be more injurious than advantageous to the profession; and some of the items are, indeed, erroneous.

5 per cent. commission is charged for preparing designs, approximate estimate, contract and detail drawings, and specifications, and for superintendence, consultations, and adjustment of accounts, on the total outlay involved by the drawings, or that may come under the supervision of the architect.

32 per cent. commission is charged for preparing designs, approximate estimate, contract drawings and specifications, and for consultations, upon the amount of the accepted tender, or, in the absence of such tender, on the architect's estimate.

14 per cent. commission is charged for preparing designs, approximate estimate, and for consultations, upon the amount of the architect's estimate.

Note.—Where old materials are used, the commission is charged upon the amount of the architect's valuation

of them, as if they were new. The copyright of the designs, and the drawings, are in all cases the property of the architect.

24 per cent. commission is charged for designs, contract drawings, and specifications, abandoned for others substituted and carried out by the same architect, upon the amount of the tender, or the architect's estimate.

11 to 24 per cent. commission is charged for taking out and furnishing bills of quantities to contractors tendering. Charges are made in addition to the above—For surveying and levelling site and staking out building; for extra copies of drawings furnished for deposit or other purposes; for perspective drawings if required; for travelling and hotel expenses.

Note.—The clerk of works, though appointed through the architect, is paid by the employer.

Charges are made according to the time occupied—For measuring and valuing artificers' work; for advice and consultations only; for surveying and making plans of building ground, and for laying out the same; and for other services, at the following minimum rates:—

Principals	£3	3	0	per diem.
Clerks	1	1	0	"
Junior clerks	0	10	6	"

Valuations.

£1	0	0	per cent. commission is charged on	£500
0	10	0	"	"
0	5	0	"	next 500
0	2	6	"	next 4,000
			"	on all above.

MEMORIALS AND MONUMENTS.

THE first stone of a proposed monument to Bishop Hooper has been laid at Gloucester, on the site of his martyrdom. The monument has been designed by Messrs. Medland & Maberly of that city. It will consist, it is said, of a highly-decorated column, 40 feet high, with a full-length figure of the bishop.

A public meeting was to be held at Salisbury on the 26th instant, to consider the most appropriate form for a memorial of the late Lord Herbert, and a committee appointed for the purpose of carrying into effect the design of the subscribers. Various suggestions, according to the *Wills Mirror*, have already been made, including a new wing to the Salisbury Infirmary, the erection of an almshouse for distressed officers' widows, a statue, and a stained-glass window in Salisbury Cathedral.

A meeting has been held at Brighouse, to consider the desirability of erecting a monument in memory of the late Richard Ostler. The following resolutions were unanimously passed:—"That a suitable monument shall be erected to perpetuate the memory of the late Richard Ostler. That an appeal be made to the factory operatives of the United Kingdom, and to the public generally, for subscriptions and contributions to carry out the object of the foregoing resolution." A committee was appointed to realize the object of the meeting.—A monument has just been erected in St. George's Church, Leeds, according to the *Intelligencer*, to the memory of Agnes Caroline, the wife of Mr. Joseph Lambert, of Agnes Court, Headingley. The style is of the Decorated period. The ground is of black marble, polished. The base is supported on two carved brackets, and consists of a moulded plinth, with a quatrefoil frieze. The centre consists of a trefoil arch, foliated. On each side are double-recessed niches, with canopies and foliated terminals. The base of the gables terminates with figures. Each side niche is occupied by a statue, and the large sunk member of the arch is filled with carvings of poppy buds and leaves, emblematic of sleep. The canopy is supported by crockets and finials, carved, in which the ivy leaf is introduced. The panel in which the ivy leaf is introduced is of white marble, and the inscription illuminated in colours. The whole was designed and executed by Messrs. Dennis Lee & Welsh, of Leeds.

LLANDAFF CATHEDRAL.

OPENING OF THE NEW ORGAN.

THE recent restorations and the opening of the new organ have been the occasion of some ceremonial amongst the clergy and the laity of the diocese of Llandaff and those adjoining.

Since the last re-opening, in 1857, the subscriptions given, amounting to about 7,000*l.*, have been expended in further works; among which may be named the restoration of that portion of the nave which until that time had been a ruin, the roofing in of the same, and glazing the windows. The partition wall, which had been built across the nave during the last century, with its Palladian doorway, has been taken down. The west front of the nave has been completely restored, externally as well as internally; and the foundations and substructure of a new south-western tower have been laid. The bishop's throne, and the stall-work, with its screens, are also partly completed. This furniture is executed in teak-wood, relieved by yellow acacia and other woods of different colours, inlaid.

The organ, which has just been built by Messrs. Gray & Davison, and the case and decoration of which have been designed by the architects in the same character as the stall-work, is an instrument, according to our authority, the *Cardiff Guardian*, of great power and sweetness of tone; and the manner in which the pipes are coloured is said to be striking, and yet harmonious; but the front is said to be too crowded, as well as too highly ornamented.

A valuable addition to the effect of the interior are two pictures, painted by Mr. D. G. Rossetti, for the panels of the reredos. The principal one represents the Virgin with the infant Saviour in her arms, with a king and a shepherd who are come to adore him, and who are introduced by an angel, while other angels are grouped around and watching the scene. The type of face of the Virgin is unusual, being of dark complexion. The side picture, which is finished, represents David in the presence of our Lord, in the capacity of a king, dressed in chain or mail armour: over this he wears a rich Eastern surcoat. He is seated upon a throne ornamented with the royal peacock, and is playing on the harp. The corresponding picture of David as a shepherd, required to complete the group, has yet to be painted, as soon as funds can be found for the purpose.

Although much has thus been done, much remains to be done before the cathedral can be said to be complete; as, in fact, not only are the stall-work and the towers unfinished, but the chapter-house needs restoration: the *Alche* above the presbytery arch has only the base as yet made. The flooring and tiling, and other works of actual necessity, also demand immediate attention. The west window, and indeed nearly all the others, require stained glass. The works hitherto done have been carried out under the superintendence of the diocesan architects, Messrs. Pritchard & Seddon.

THE BUILDERS' BENEVOLENT INSTITUTION DINNER.

THE annual dinner of this excellent charity takes place on Thursday, 24th of October next, when there will, without doubt, be an unusually large muster of all interested in the building trades and in their poorer and more unfortunate brethren; as the friends of the Institution will have the special gratification of being presided over by an old friend, in the dignified and influential position of Lord Mayor of London; that right hon. gentleman having consented to act as chairman on the occasion. Now is the auspicious time for a long pull, a strong pull, and a pull altogether, so as to enable the Builders' Benevolent Institution at once to take its right position. In this we feel assured that Lord Mayor Cubitt will lend a powerful helping hand, if well supported, as he ought to be, and doubtless will be.

SURVEYORSHIP OF GLOUCESTER.

THERE were forty-four applicants for the offices of chamberlain to the corporation and surveyor to the Board of Health of this city, rendered vacant by the removal of Mr. Hanvey; and the committee selected the following eight gentlemen as being most likely to meet the requirements of the public:—Mr. J. H. Fox, assistant in the office of the surveyor to the Board of Health, Bristol; Mr. T. Richards, town surveyor, Bilston; Mr. John Laing, C.E., borough surveyor and surveyor to Board of Health, Hastings; Mr. E. W. Shaw, of Leeds, formerly in the office of the surveyor to the local Board of Health, Bradford; Mr. J. M. Pennell, C.E., of the public offices, Liverpool; Mr. W. McLandsborough, C.E., surveyor to Board of Health, and acting resident engineer, under Mr. Rawlinson, of the sewerage and waterworks, Workop; Mr. J. Ashbee, assistant to Messrs. Fulljames & Waller; and Mr. J. Ferguson, of Walworth, London.

On Tuesday last, Mr. McLandsborough, C.E., of Workop, was elected.

We are requested by the other seven gentlemen to state that they are highly satisfied with the honourable and frank manner in which the members of the Local Board of Health conducted the election.

THE PARISH OF CHELSEA.—The Metropolitan Board of Works have granted their approval, on the application of Mr. C. W. Eppy, architect, for the formation of eight new streets on ground near Hans-place. The names of these streets are to be—Hitchen-street, Palmerston-street, Howick-street, Belford-street, Lismore-street, Baldock-street, Radwell-street, and Langford-street.

PHILADELPHIA.



FIG. 3. THREE STORES.—Mr. John McArthur, Architect.

STREET ARCHITECTURE, PHILADELPHIA, AMERICA.

EUROPEAN visitors are often surprised by the costly nature of the houses erected in the principal American cities. The accompanying engravings represent the front of some of the stores in Philadelphia, and will serve to show the character of the architecture there prevailing. This city was formerly the capital of the United States of North America, and is still important. It was founded in 1682 by W. Penn; and, perhaps, possesses more historical associations than any of the other cities, since the Federal Congress was held there. The State House is still standing, in which is the chamber where the Congress was held: it is now hung round with portraits of distinguished characters. Washington's farewell address was delivered here. The Brotherhood of Quakers are residents to a

great extent,—so much so as to give it the by-name of "Quaker City." It was usually considered the most peaceful and quiet of the American cities; but of late years it has lost some of its prestige in this respect. Riots among the firemen have been of frequent occurrence. It has many elegant public buildings, among which is Girard's College, a large building entirely constructed of white marble, and of which we have before now spoken. Another important public work is the Fairmount Water Works, in which the waters of the Schuylkill are pumped up into an immense reservoir, 100 feet above the level of the river, and thence distributed to all parts of the city: by a skilful adaptation of machinery the water is made to furnish its own motive power.

The United States Mint is here; and, among its public institutions, is the Pennsylvania Academy of Fine Arts, of which several English artists and art lovers are honorary members. This is an

academy for the encouragement of the fine arts. Its schools and exhibitions are conducted very much the same as are those of the Royal Academy; but in its organization it differs from other art institutions, in being directed by both professional and unprofessional men acting jointly.

Philadelphia can boast of several magnificent hotels, many elegant private residences, churches, spacious shops, and clean and beautiful streets. Walnut-street and Chesnut-street are two of its most important thoroughfares. There are several valuable private collections of pictures and artworks in Philadelphia, with a preference for English works predominating. Not far from Philadelphia,—a kind of suburb to it,—is Bordentown, which has become rather famous as the residence of the Bonaparte family.

The jewelry-store shown by fig. 1, of which Mr. Runge was architect, is of white marble, including the statue over the entrance. Fig. 2, the store of Messrs. Caldwell & Co., in Chesnut-street, of the same material, has a frontage of 24 feet, and is of the same material. Mr. John McArthur, jun., was the architect of this, and of the group of stores shown on the other page. These latter, also of white marble, have a frontage of 100 feet.

Some of the hotels in Philadelphia are of large size, and fitted up with great completeness. In the Continental Hotel, for example, we are told, there is a steam-lift, to take the guests to bed, which cost more than 2,000*l*.

ROCK OIL: ITS GEOLOGICAL RELATIONS AND DISTRIBUTION.

ON this curious and interesting subject there is a report of investigations by Professor Andrews, of Marietta College, Ohio, in a paper in *Silliman's Journal*, to which we are indebted for the following. The professor's investigations, he states, have been directed chiefly to the oil of the coal rocks, and he gives some of his results.

"It is well known," he continues, "to scientific men, that there are in the West two distinct geological formations from which petroleum or rock oil is obtained. These are the bituminous coal measures and the Portage and Chemung groups (the Waverley sandstone of the Ohio reports). The Portage and Chemung rocks sweep around, in the form of a quadrant, from north-western Pennsylvania into Southern Ohio, and south into Kentucky. Upon these rocks the famous oil regions of Pennsylvania and north-eastern Ohio are located. The oil regions of western Virginia and southern Ohio, including a portion of western Pennsylvania, lie in the coal measures. I have assumed that the oil is the product of the distillation of bituminous strata, at low temperatures. This theory, which is a modification of the old one of distillation (at high temperatures), has recently been brought forward by Professor J. S. Newberry, and has received the sanction of many of our most eminent chemists. The chief objection to it is the fact that the coal, cannel and bituminous, in our oil regions, gives no evidence of having lost any of its full and normal quantity of bitumen or hydrocarbons, if judged by the standard of Nova Scotia or English coals. The cannel coal, although somewhat earthy, yields from 40 to 60 gallons of oil to the ton.

The other theory, that the oil was produced at the time of the original bituminization of the vegetable or animal matter, has many difficulties in its way. There is no oil, except in fissures in the rocks overlying the bituminous strata; and these fissures can be shown to have been made since the coal strata became bituminized. Again, upon this theory, it will be difficult to explain the large quantities of inflammable gas always accompanying the oil.

That the oil is accumulated in fissures in the rocks, and that these fissures are more or less vertical, there is abundant proof."

Recent advices from America state that the application of the rock oil of Pennsylvania as a substitute for coal and wood for the generating of steam for engine purposes has proved highly successful. The apparatus employed consists of a series of iron pipes, arranged within the fire-box; such pipes being perforated in the upper side with minute holes. The oil is supplied to these pipes by means of a force-pump, so that a continued pressure can be maintained. The space usually filled with fuel is thus filled with a spray of oil, which, once ignited, fills the fire-arch and flues with flame, by which the boiler is heated. The Canadians naturally attach much importance to this invention; the want of coal having hitherto been their great drawback.

AMERICAN STREET ARCHITECTURE: PHILADELPHIA.



FIG. 1. MESSRS. BAILEY'S JEWELRY STORE.—Mr. Runge, Architect.

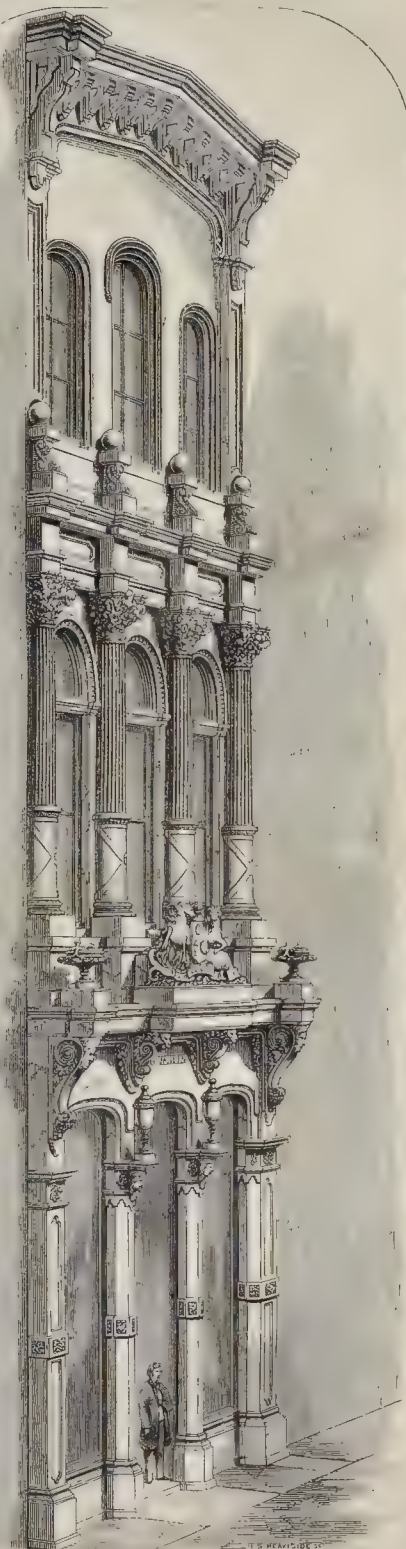


FIG. 2. JEWELRY STORE, CHESNUT STREET.—Mr. John McArthur, Architect.

FROM WESTMINSTER TO LONDON
BRIDGE.

BY A GHOST OF THE SIXTEENTH CENTURY.*

COULD you add to your kindness by informing me the most direct route to the Blue Boar Tavern, where I would fain take a cup of sack? It is the hostelry of the Blue Boar, Eastcheap, Eschepe, that I want to find. "Sorry, I do not know it," replied one, in a blue suit similar to that of the person I had previously met with at the West-end of London; and who, I am told, was one of a body of several thousand officers who are now employed to preserve the peace of the metropolis. The sight of these functionaries, by the way, causes me to ask, "Where are the rascals of the wards?" "What has become of the City watch?"—men of age and experience, somewhat feeble withal, but armed with formidable catchpoles, halberds, and other weapons: it was a goodly sight to see them by the flash of lanterns in the dark streets; and not unpleasing, when awake in the night, to hear them rattling the hours, and chanting some quaint old-fashioned tune, which reminded me of the passing time and the need of grace. These were our police in Queen Elizabeth's reign; and, although Master William Shakespeare, at the Globe, made us roar with laughter at caricatures of those worthies, many thought that they did pretty well. It is true, that the rogues were sometimes troublesome, even to our good Queen herself; and then the Recorder, well backed, could go forth, and quickly dispose of these said rogues.

In my days, a stranger would have but little difficulty in finding his way to Eastcheap; for, on the old north gate of the bridge, which was a dark and frowning archway, with ponderous doors of iron and wood, and other means of defence, surmounted by the heads of several lions, the thoroughfare ran in a straight line northward. New Fish-street, Gracious-street, and Bishopsgate-street, led to a postern in the City wall, a little to the east of the church of All-allowes-in-the-Wall. Beyond this we knew the roadway by the name of Bedlam-gate: and so on to Shoreditch Church; outside the wall, two singlerows houses stretched as far as the church just named. There was another row of houses running eastward to "St. Botolph's Church;" and from thence to the Bars north of the Tower, East Minster, the Minor's Cross, Chry Church, Hogge-lane, and St. Martin's, well known as straggling buildings of the neighbourhood of the ancient fortress. To turn, however, to Shoreditch,—there were houses north of the church; and in the little-fille, where the Romans, in times long past, were in the practice of burying their dead, there were only six tenements: in Moorfields was the Dog House, four or five windmills, and one or two houses. But now I must have been led away past the Boar's Head in Eastcheap, which was situate at a little to the left of New Fish-street: all is changed: I no longer hear the sullen roar of the water through the narrow arches of the old bridge: the gabled houses are all swept away: I see little else besides that glass-shops, I declare; and what costly commodities are offered for sale in them! gold and jewels, silks and other matters of price, are within the hand-reach of the multitude. I see men and women walking unattended, with chains of gold, watches, and other articles of value temptingly displayed; and I am told that millions' worth of property—coin, and securities of several kinds, are daily moved through the London streets; and, notwithstanding, I see no one wearing arms of defence! This makes me think that the old watch might hardly have been sufficient to these strange times.

Mingling with the crowd are persons of various kinds, in the peculiar costumes of their countries. Some of these dresses are quite new to me, notwithstanding they pass to and fro without exciting much notice. Not so in my own case; for I am, in a hurriedly passing, say that I would much better stuck up in Westminster Abbey head of gaping about here and blocking up the thoroughfare. Others divert themselves with several trifles, the meaning of which does not appear very clear to me; but often I hear reference made to my grey Fawkes. Some suggest that the gentleman must have strayed from Madame Tussaud's, and had better be taken back there. The officers whom I have referred begin to view me with questioning and suspicious looks; and my position becomes each minute more unpleasant, when I am stopped by a person of sage appearance, who,

kindly withdrawing me from the general notice, reminds me that, in so vast a city—which has become the wonder of the world for its trade, wealth, and population, since my date of about 300 years ago—I must expect to find many alterations. He points out to me that the new London Bridge had been built to the west of the old one, which caused the necessity of making new approaches: but even if this had not been so, the Great Fire of 1666 burnt here with the greatest fierceness, and left not a scrap of the houses of Queen Elizabeth's reign in existence; so that I could not expect refectation at the hostelry I was asking for. In his company I wander along King William-street, being told that this important thoroughfare is not so named after William the Conqueror or William Rufus, but after a fourth king of that name, who has not been long dead, and the effigy of which monarch stands on a block of stone, looking towards the bridge. Eastward is a monument which has been raised to commemorate the breaking out of the fire at this point. On comparing notes with my new companion, we agree that the Blue Boar must have been at about a stone's throw to the south-east of this monument; as is known by the circumstance that, after the great conflagration, the stone sign of the old tavern was found amongst the ruins. On the rebuilding of the same on the spot mentioned, this stone was placed in the front; and, on the pulling down of the tavern for the alterations in connection with the bridge, it was taken to the library of the Guildhall, where it still remains.

Great was the rejoicing, and splendid and pompous was the display, when Queen Elizabeth declared Gresham's Royal Exchange to have been opened. Since then two great buildings have been destroyed by fire; and, as I stand now, looking at the third building, which is still surmounted by the grasshopper crest of the first founder, I am impressed with the vastly increased proportions, and the much more noble aspect, of the present Exchange, in comparison with that of the first structure; and this is the case with the chief of all the public and private buildings. The long range of premises devoted to banking is another instance of the progress of commerce. In the portico of this building I hear one of the most wonderful noises of the City: the roaring of the sea, in a great storm, dashing against the rocks, is not so loud. In my time, the most of the banking business was carried on by the goldsmiths, in premises in Lombard-street and parts close by, which made but little display.

From the Mansion House, and from places surrounding, the crowding of carriages is wonderful to behold. Some are marked to go to Hammer-smith, to Peckham, and towns in other parts of Surrey, at a considerable distance off; others run to Blackwall, Mile-end, Stoke Newington, Holloway, Islington, Kentish Town, Camden Town, Kensington; and all these towns and villages, as I learn, though I can scarcely credit it, now form portions of the one metropolis.

It appears that in the London streets there are now about 20,000 public carriages plying for hire. In my days might be seen gay cavalades on horseback; but carriages for the purpose of carrying even the nobility, far less carriages for the mobility, were rarely to be seen; and such, indeed, I must admit was the ill condition of the pavement, that this now to me is not much a matter of surprise when I observe the smoothness of these nineteenth century pavements.

The houses, many of them of timber, the roofs steeply pitched, the small shops with open windows, the fountains, the cross, where the pillory was often fixed, are all gone, and not very agreeable-looking houses line this important street. Even the famous Cathedral of St. Paul, as I before suspected, is amongst the matters of the past: the old structure, however, has been most worthily replaced. Since the early part of the sixteenth century, and probably before that period, there has been a church on this site: at that early date the troubled condition of the country prevented the carrying out of decoration; but this deficiency was to some extent supplied by the son of King Offa, Erkenwald, the fourth bishop from Mellitus: this prelate was not content to expend large sums from his private means, but procured various privileges for the pope and the kings of England. Others soon followed in his path; and among them may be mentioned Kenred, king of the Mercians; Edgar, Athelstane, and Canute.

Upon the accession of William I. the church suffered much, but obtained soon after a charter from the king, conferring upon it lands in perpe-

tuity. During this reign it became a prey to fire, and a new one was erected in its place, partly by the Bishop Maurice, at the end of the eleventh century, almost at the same period that a similar building was raised at Westminster. Year after year, during the reign of Henry III., new improvements were continually made to old St. Paul's. In 1221, a steeple remarkable for its great height, and for the beauty of its architectural proportions, was erected; and again, in 1240, a new choir was added, by the influence of Bishop Roger. Large sums of money were obtained for these purposes by the granting of indulgences. A new portion was also added to the east, including the subterranean church of St. Faith, which was begun by Bishop Fulca Basset in 1256. From that time it gradually increased in beauty and magnificence. Adornment, then considered so necessary in a church, was carried to the height of extravagance; and gold and silver decorations sparkled in the church. Massive basins of gold, candlesticks, silver crosses, gold cups, and many other ornaments of the most costly workmanship, inlaid with precious stones, with pictures and statues, were treasured in St. Paul's; which, on festival days, presented an appearance of indescribable splendour.

Although within my recollection those costly matters had been removed, the interior of St. Paul's presented a most imposing appearance. An apparently endless perspective of lofty arches met the eye, which seemed to be lost in the distance in a haze of many-coloured light. For nearly 700 feet we could trace the range unbroken, from the pavement below to the arched roof. The splendid vista was terminated by a rose window of large size, but which in the distance looked no bigger than the flower from which it borrowed its name. Everything I now see is changed.

CHURCH-BUILDING NEWS.

Hereford.—The dean and chapter of Hereford have just prepared a statement of the work of restoration at this cathedral, already effected, and yet to be completed. From this statement it appears that of the sums borrowed on mortgage (£13,000), under the Hereford Cathedral Restoration Act, from 1850 to 1861, 10,000, have been expended on the external and internal restoration of the north transept and aisles, the south transept, the north aisle of the choir, including Bishop Stanbury's Chapel, the north-east transept, the south-east transept, the south aisle of the choir, the chapter-house and vestibule, the Bishop Audley's Chapel, and the external restoration of the north aisle of the nave, the north porch, the south aisle of the nave, and the great cloisters. They have, therefore, 3,000, in hand to meet the balance of existing contracts and the cost of flooring generally (except the choir), repairing and re-fixing monuments, re-leading part of the roof, repairs of inner stonework, &c. The following additional works are proposed to be executed if funds can be raised for the purpose:—Fitting-up and flooring of the choir, the restoration of the external stonework of the tower, lighting the cathedral for congregational use, and fitting-up of the Lady Chapel for service for St. John's parish. These works are estimated to cost 8,000, towards which the dean and chapter have a sum in hand and promised of 3,553. 10s. 10d., leaving 4,446. 9s. 2d. to be provided. They therefore appeal to the public for pecuniary aid, and state that if the funds were supplied the whole of the works in the interior might be completed and the cathedral opened in October of next year.

St. Briavel's, Dean Forest.—The parish church of St. Briavel's, has been restored and re-opened. The church is cruciform and in the Norman style. It was much decayed—the chapel in ruins, the roof rotten, the floor covered with high pews, while the fittings were barbarous. The interior has now been restored: the Norman columns and arches of the original structure are retained, the windows improved, the church entirely rebuilt, and covered with an open-timbered roof, stained and varnished. Open seats for 500 persons have replaced the ancient pews, and thus additional accommodation for 205 persons has been obtained. In 1830 a large square tower was erected, and the church is entered through it. The choir is placed within the piers of the ancient tower at the intersection of the arms of the church near the pulpit; and an organ, built by Allen, of Bristol, is placed in the chancel. The ornamental fittings and decorations were designed principally by the architect, Mr. J. W. Hugal. The contractors for the masonry were Messrs. Wall & Hook; and for the timber work, Mr. Resta.

Blackley.—The first stone of a new Wesleyan chapel has been laid at Blackley, on the site of the old place of worship. Mr. H. Styan is the architect. There will be seats for about 500 persons; also a school-room, infants'-room, vestries, &c. The style of architecture will be that of the twelfth century. The total height of the edifice, to the top of the gilded gable terminal, will be 63 feet 6 inches. The roof will be open-timbered, equilateral in pitch, and will span the whole width of the building. The principal front will be faced with Yorkshire parpoints and Houghton stone. There will be three lancet-headed windows to light the under side of the galleries; and above will be three windows with detached shafts, moulded arches, and at each side quatrefoil openings. In the gable end will be a rose window. The cost of the buildings will be 1,414*l*.

Bradford.—The chief stone of a new Independent chapel has been laid in Horton-lane, where new schools in connection with it have just been opened. The chapel is designed, like the schools, in the Elizabethan style of architecture. Externally, two square turrets, at the angles of the principal front, rise to a height of 80 feet, and these contain the gallery stairs. The central feature of the façade on the ground-floor is a large doorway, decorated, and with subordinate entrances on either side. The centre portion of the design, above the upper tier of windows, is crowned by a cornice, a pierced parapet, and a central niche. The entrances give access to an inner vestibule, from which both the body of the chapel and the gallery stairs are reached; and this vestibule is also connected with the schools by a covered arcade. The interior of the chapel is 100 feet in length and 65 feet in width. On the ground floor accommodation is provided for 750, and in the gallery for 600 people, making a total of 1,350. The seats in the body of the chapel are all elliptical in form, and are approached by a central and two side aisles. The pillars supporting the gallery are continued up to the chapel ceiling, the centre portion of which is raised by an elliptical vault considerably above the level of the side portions. The designs are by Messrs. Lockwood, Mawson, & Mawson, of Bradford, architects.

Aberdeen.—Mr. G. J. R. Gordon, younger, of Ellon, minister plenipotentiary at Stuttgart, has addressed a letter to the Church of England Bishop of Aberdeen, in favour of erecting a cathedral church in connection with the Episcopal body there. Mr. Gordon points to the associations which might make it desirable that St. Andrew's Church should become the cathedral of the diocese; but the building is unsuitable. He, therefore, suggests the idea of adding to the plan and funds subscribed for St. Mary's Church, so much as would be requisite, in order to give the contemplated edifice the type and size of a cathedral church. Mr. Gordon suggests the raising of the necessary funds, 8,000*l*. to 10,000*l*., by subscription.

Cork.—The east window of St. Vincent's Church, Sunday's Well, Cork, has been filled with stained glass, and other artistic features have been added to the interior. The five great lancets of the east window, which contain, we are told, upwards of 400 feet of glass, represent a series of large groups of the life of the patron of the church and the founder of the Institute under whose care it is placed. All these groups are on a large scale, so as to be quite easily made out and distinguished from the most distant portion of the building. In addition to these are a line of gigantic representations of the Virgin and Child, St. Joseph, St. Vincent, St. Patrick, and St. Finbarr. This work of art was designed by Mr. George Goldie, the architect to whom the interior finishing and fittings of the church have been intrusted; and the glass-work was executed by Mr. Wallis, of Newcastle-on-Tyne. The side screens flanking the chancel are executed in Caen stone, carved in the cornices and spaces between the arches, and with sculptured capitals and polished marble shafts. Their solid basements are inlaid towards the side chapels with embossed and enamelled tiles. The reredos of the high altar has been completed by extending it across the chancel to the side walls, with panellings carved, and marble shafts. On the epistle side of the altar have been constructed the piscina and credence table, and sedilia. The latter is a carved oak bench, with back and elbows, and an arrangement by which the vestments escape crushing; the whole set in a moulded arch of stone, with marble shafts, and a bust of our Lord, nearly life-size, projecting from the face of the pediment above. The pulpit is of Caen stone; and, like the ancient ambos of the early churches in Rome, has a projecting desk of the same material;

which, by an arrangement, forms a niche for St. John. The stonework is by Mr. Lane, of Dublin.

Tuam.—The dean and chapter, with the parochial clergy of the diocese of Tuam, having resolved to take steps for making the cathedral worthy of the importance of its situation, invited several architects to submit sketches. Those sent in by Messrs. Deane were approved of, and instructions have been given for making the requisite working drawings. It will be remembered, that at the west end of the building stands a relic of Irish antiquity of interesting character—obviously the chancel with the chancel or triumphal arch (as Dr. Petrie calls it) of an abbey. This chancel at present forms the porch, and the triumphal arch the western entrance, to the modern structure; the centre opening of the triplet at the east end of the old chancel being cut down to the ground. What is the precise date of the building used as cathedral it is difficult to ascertain. Probably in the seventeenth century (when an ugly tower was also erected), the windows of a structure of the fourteenth century were worked up into what was in all likelihood intended for the choir of a future cathedral. This is the building which is used for Divine Service now, and is entered through the ancient chancel. The modern building is unworthy of consideration. The windows, moreover, are not interesting. This being the condition of things, the architect had no easy task in arranging a new edifice in connection with the old buildings. The view taken of the matter by Messrs. Deane was, that at all events the old chancel should remain, not only *in situ*, but restored as far as possible to its original relative position with respect to the rest of the church. This was only to be accomplished by building the new cathedral westward of the old chancel. They propose therefore to do so; leaving the ancient chapel, as the easternmost portion of the cathedral, un-restored and untouched, except by the building up of the portion of wall removed from under the central opening of triplet; a reredos being erected under the arch for the altar of the new choir. The old building would receive such stone roof as would thoroughly protect it, but otherwise be left to tell its own story. The modern buildings, would, by this arrangement, require to be removed. Tuam Cathedral, besides its diocesan duties, performing also those of a parochial church, the new building will not present all the features of a complete cathedral, but will include as many as are consistent with its other uses. Messrs. Deane's design is essentially an Irish cathedral, in plan and style; the cathedrals of Kilkenny and St. Patrick, Dublin, having served for models in many respects. The characteristic crenellated battlements have been adopted throughout. The church is cruciform, and consists of a choir fitted up with the bishop's throne, stalls, ambles, &c., extending to the eastern arch of the central tower. The choir is 43 feet long and 23 feet wide; transepts, 23 feet wide; nave, having five arches, 23 feet wide; aisles, 11 feet. There are no aisles to the choir; but on the south side is a vestry for parish purposes, and a robing-room. The organ is over the parish vestry, opening into the choir and east side of the south transept. The choir will be separated from the nave only by a low screen, extending as far as the stalls; viz., about 4 feet at each side; the central part being entirely unscreeened. The congregation will occupy four bays of the nave, the transepts, the space under tower, and the part of choir unoccupied by the members of the cathedral establishment. The pulpit will be placed near the north-east pier of the tower, so as to be perfectly visible from any part of the building. The roofs are open-timber, for economy; but it was strongly recommended to groin the choir at least. Early thirteenth century is the date of the style adopted.

SCHOOL-BUILDING NEWS.

Hurstpierpoint (Sussex).—The new college, commenced in 1861, is built from designs furnished by the late Mr. R. C. Carpenter. It consists of two large quadrangles. The school-rooms, class-rooms, and library occupy the northern wing, the dormitories the south; the central building being occupied by the rooms appropriated by the provost, masters, &c. It has a cloister running round the entire building. At the north side of the upper quadrangle is the dining-hall, with a temporary chapel under; and at the east end of this portion of the building a new chapel is being erected, of which the chief stone has just been laid. The intended chapel building will consist of chapel and ante-chapel, with south transept and

tower at north-west angle seven bays in length. The total size of the chapel will be 120 feet by 37 feet, and of the ante-chapel 37 feet by 25 feet. The windows are to be of geometric tracings; the roof to have arched ribs and columns coming down to the spring of the windows; total height, 42 feet. The designs are furnished, and the work is being superintended, by Mr. William Slater, the architect of the college. The builders are Messrs. Jackson & Shaw, of London, and the works were commenced on the 9th of August.

Thorne.—The foundation-stone of Brooke's Charity School has been laid at Thorne. The new buildings are to be erected near the site of the old school belonging to the trustees (until recently occupied as a school by the trustees of Travis's charity), and which has been pulled down to make way for the new erections. The building now in progress consists of a principal or main portion, the school lying on the northern portion of the site. The main building contains the master's residence, and communicates with the school by the board-room. The boys' school will be 47 feet long by 18 feet wide, 14 feet to the wall-plate, and 28 feet to the ridge. There will be accommodation for 140 children. The general character of the building will be Domestic Gothic, as exhibited by some of the plainer conventional buildings of that style. The side nearest to King-street will be the principal front, and display a gable, pierced by a three-light window, with perpendicular tracery flanked by a porch, over which will rise a bell-turret. The tower containing the approach to the board-room and the master's residence will be pierced by two windows on either side of the entrance door, each consisting of three lights, with dormer windows to light the chamber story. The materials of the front face will be red bricks with stone dressings.

Birmingham.—St. Barnabas' District Schools are nearly completed. The building will accommodate upwards of 500 children. The principal front is towards Ryland-street, two stories high, of plain Gothic design, and constructed of brickwork. The centre, forming the class-rooms, is raised three or four feet to form an area to the basement, with three two-light windows on each story, and gables over the centre windows on the upper floor. On each side are projections forming school-entrances, one for boys and the other for girls. The ground-floor, which is appropriated to the boys, comprises a large class-room towards Ryland-street, and a school-room in the rear, 60 feet by 30 feet, and 15 feet high. The girls are placed on the upper floor, which is approached by flights of stone steps, and contains a school-room of similar size to that of the boys, with open-timbered roof, 26 feet high. There is also a class-room, 33 feet by 15 feet, with a moveable partition, enabling it to be thrown open to the girls' school, which will then form a room 75 feet long by 30 wide. A small playground is provided for the boys and girls, with all requisite conveniences. The whole of the buildings are to be warmed with hot water. The works are being executed by Messrs. Barnsley & Sons, under the superintendence of Mr. Bateman, the architect, at a cost, including fittings, of about 1,600*l*.

STAINED GLASS.

Cilgerron Church (South Wales).—Three twin light stained-glass windows have been erected in this church, executed by Mr. Ballantine, of Edinburgh. One for the baptistery contains the baptism of Christ, and Christ blessing little Children. The other two windows have illustration of the works of mercy. The subjects are surrounded with early decorated canopies, richly coloured. In the draperies the lights are brought out by partial removal of the flashed colours.

Aylton Church, Denbigh (North Wales).—Three-light altar window, with tracery, has been erected in this church, executed by Mr. Ballantine. In the central light is a figure of Christ as the Good Shepherd. In the other lights are figures of St. Luke and St. John.

St. Saviour's, Bridge of Allan (Scotland).—Three stained-glass windows have been placed in the chancel of this church. The window over the altar consists of five lights, with tracery above. The whole of the tracery is filled up with stained glass, also the middle light, in which is a painting of the Crucifixion. The window in the south aisle of the chancel contains two lights, one representing our Lord blessing little Children, the other our Lord as the Good Shepherd. We understand that these are a memorial of the baptism and confirmation of two members of the congregation. They were executed by Mr. Ballantine.

St. Mary's, Aylesbury.—A stained-glass window

has lately been placed in the south aisle of this church. The subject is Christ blessing little Children: it stands near the old Norman font, and was executed by Mr. C. Gibbs, of London, at the cost of Mr. Bigg, a descendant of a very old family in the parish. There are now eleven of the windows filled; viz., seven in the chancel, two in the north chapel, and two in the south aisle. Several others are promised. The great west window is in hand, by Messrs. O'Connor, and we understand will be placed in the Great Exhibition of 1862 before it is fixed in its appointed place.

PROVINCIAL NEWS.

Hastings and St. Leonard's.—The Local Board of Health, for upwards of two years, have been discussing the necessity of, and attempting to arrange for, the erection of a fish-market, on land occupied by a fish-stall and some boat-shops, adjoining the Custom House. The preliminaries for acquiring the site have just been made at a recent meeting of the Board. At the same meeting, the question of the appointment of a surveyor was under consideration for two hours and a half. Sixty-one applicants had sent in testimonials; and, after these were read, a vote was taken as to whether the candidates should be retained or excluded from further competition. The list was in this mode reduced to twenty persons, and the Board then adjourned.

Halifax.—The corporation have in view the carrying out of what is known as the Luddenden Valley Waterworks scheme, by which a large increase to the present water supply will be effected. The corporation have parliamentary powers to take the water, under certain conditions, in that valley; but the borrowing powers upon the waterworks are exhausted. Application is to be made to Parliament for additional powers in reference to this and other matters. It is computed that the carrying out of the Luddenden water scheme will involve an outlay of about 80,000*l.* Up to the present time the outlay on the waterworks has been upwards of 130,000*l.*

Granton (near Edinburgh).—Works are now being carried on at Granton, in the formation of the new harbour, by the Duke of Buccleuch. The Western Breakwater, which supports a pier traversed by the new branch of the Caledonian Railway, leaves the shore a little to the west of the patent slip, while the Eastern Breakwater begins at a point on the Edinburgh and Granton Railway, at a considerable distance from the pier. Both of them stretch out a considerable distance seaward, and then bend inwards like two segments of a semi-circle, with the pier betwixt them. The surface inclosed amounts in all to 131 acres; 77 of which, between the pier and the Western Breakwater, constitute the Western, and 55 to the east of the pier form the Eastern Harbour. The entrance, during the ordinary spring tides, is 14 feet deep at low water; and, as the average tidal rise may be taken at 16 feet, the depth at high water will be about 30 feet. The western pier is raised upon the foundation of a comparatively old breakwater. The new pier has, however, to a large extent been built up from the foundation. It is altogether about 800 yards in length; and for about 600 yards of that distance it is protected on the west side by a wall, about 10 feet in height, built of large block soft stone brought from Burntisland and St. Andrews. The stone for the breakwater and pier (which is also in blocks of immense size), comes from the Duke of Buccleuch's quarry at Granton. The roadway is from 24 to 30 feet broad, and is furnished with a double set of tramways. Two powerful steam cranes have been erected on the new pier. The stone-work foundations underneath the cranes have all been laid by means of the diving-bell. The Eastern Breakwater has no pier.

ACCIDENTS TO PERSON AND PROPERTY.

Fatal Ladder Slips in London.—Mr. G. S. Brent has held two inquests on the bodies of workmen, both of whom lost their lives through the insecure position of ladders while they were engaged at work. One was a painter and glazier, and was engaged in washing the walls of a staircase at No. 8, Fitzroy-square. He had fixed a plank across a ladder and a pair of steps; and while engaged in his work the ladder slipped, and he fell to the ground from a height of 16 or 18 feet; sustaining a fracture of the skull, with extravasation of blood on the brain, from which he died. The second case was that of a slater at the top of the house in Poe's-court, Oxford-street. He had fastened a ladder by means of a cord to a stack of

chimneys; and while upon the ladder it slipped, and he was thrown over the parapet of the house into the court. He shortly afterwards expired under singular circumstances. The deceased received a rupture of the spleen and lining membrane of the chest, fracture of the thigh bone within the joint, and fracture of the pelvis: there was also a quantity of extravasated blood found in the anterior portion of the brain. Notwithstanding all these injuries, however, they were not the immediate cause of death. The occurrence happened shortly after the deceased had taken his dinner; and the injuries sustained impeding digestion, the food was ejected; during which action the air passages were filled with the food, and choking was the result.

Fall from a Scaffolding at Norwich.—A bricklayer in the employ of Messrs. Ling & Balls, builders, who was pointing the brickwork on the parapet of the new building at the corner of the Upper Market, fell recently from the scaffolding, a height of 54 feet, upon a heap of lime below, which no doubt broke his fall, or the unfortunate fellow must have been killed on the spot. He sustained a compound fracture of the left leg, and a dislocation of the right ankle; having fallen on his feet.

Verdict of Manslaughter against a Contractor at Bristol.—The body of an old man having been found dead in a culvert, near St. Philip's-marsh; an inquest was held on the body; when evidence was led to the effect that the culvert was in course of construction, and not sufficiently protected at the time. The jury returned a verdict of "manslaughter" against Abraham Adams, the contractor; who was forthwith committed to take his trial at the next Gloucester Assizes. The coroner said he was willing to take bail, himself in 20*l.*, and two sureties of 10*l.* each, for his appearance at that time.

Sever Accident at Stockport.—As a heavy load of timber was leaving the goods depot at the Heaton Norris Railway Station, the main sewer under Wellington-road gave way; making a breach of several feet in diameter and depth, into which one side of the lorry fell, overbalancing the timber, which was precipitated to the ground, but fortunately without any personal injury.

Explosion of another Gasometer.—At Bury a gas tank in one of the carriage-sheds of the East Lancashire Railway Station, used in experiments for lighting railway carriages with gas, exploded on putting a light to the gas, which was being "washed out;" the purpose being to burn it instead of allowing it to escape. The man who applied the light was thrown eleven yards from the spot, together with pieces of the tank, and he was instantly killed, the body being much mutilated. Damage was also done to the premises adjoining, and a boy was injured. The cause of the explosion is said to be "unknown, though various suggestions have been made as to it" but there is only one way, we suspect, of explaining it,—namely, that air has been allowed to mix with the gas to a certain extent, so as to constitute the well-known explosive mixture of gas and air, from which all such explosions take place.

Fall of a Church Bell at Kirkcaldy.—An accident has occurred at the quoad sacra chapel in Pathhead, Kirkcaldy, through the falling of the bell, whereby five persons were more or less injured. Operations had been commenced for the purpose of raising the bell to its place; but, after it had been hoisted up to a considerable height, the rope which was being used gave way; and the bell fell through the floor of the tower on which those engaged in raising it were standing. The minister of the chapel, with four others, were all either cut or bruised—the principal sufferer being the beadle.

MATTERS THAT INTEREST US, IN THE MANCHESTER CONGRESS.

The Manchester Gas Works.—In a paper read by Mr. J. Shuttleworth, some account was given of the Manchester Gasworks, more especially since they have been placed under the management of the Town Council. The consequences had been highly important. To the inhabitants it had supplied the best and cheapest light that exists. To the public at large it had contributed regularly funds for widening old and forming new streets to an extent that had afforded needful accommodation for the vast increase of traffic, of population, and merchandise, which had grown up. Before the establishment of the present works it was the standing and universal reproach of Manchester that it was the worst and most inconveniently built town in Europe. Such were the exigencies of the town in this respect that at a meeting of

the Commissioners of Police, in 1827, a scheme of necessary improvements to meet the rapidly advancing wants of the community was brought forward which involved an estimated cost of from one to one and a half million sterling. He thought it was a happy circumstance for Manchester, in a threatened necessity of such vital importance to its prosperity, that a fund existed in the profits of the gasworks of sufficient magnitude to equal the demand. That those estimates were not overrated was clear from the fact that, in addition to improvements still in progress and still wanted, the payments from the gas profits for the purposes then contemplated have amounted to more than 700,000*l.*, besides debts incurred that were yet owing. In the first year of the establishment of the gasworks the profits amounted to 263*l.* 10*s.* 6*d.* In the following seven years they amounted to 20,000*l.*; and of this 15,000*l.* to 17,000*l.* were paid towards the erection of the town hall. From 1825 to 1839 inclusive—from the date of the first Gas Act to the grant of the charter, a period of fifteen years—the profit was nearly 172,000*l.*, or an average of 11,500*l.* a year; and from 1840, when he became a member of the Gas Committee, to 1859, when that connection ceased, a term of nineteen years, they amounted to 660,000*l.*, or an average of nearly 35,000*l.* a year, or treble that of the preceding fifteen years. The price to the consumer during the same period had been reduced from about 16*s.* to 4*s.* 6*d.* (in 1859) per 1,000 feet; and, but for a resolution of the Town Council in 1851, by which one-half of the profits was diverted from improvements to relieve the water-rate, would certainly have been reduced ten years ago to a medium of 4*s.* per 1,000 feet. According to the last published report of the Gas Committee, to June 24, 1860, the amount of capital in gasworks was 501,326*l.*; gas produced in the year ending June, 1860, 779,150,000 cubic feet; rental, 154,658*l.*, which was equal to an average charge of about 3*s.* 10*d.* per 1,000 feet. The price of gas within the city is 3*s.* 8*d.* to 4*s.*, or a medium of 3*s.* 10*d.* The cost of canal is 56,177*l.*, equal to 1*s.* 3*d.* per 1,000 feet; canal consumed, 76,039 tons, which showed a production of 10,240 feet per ton.

The Hydraulic Press.—Mr. Edward T. Bellhouse read a paper "On the Origin and Applications of the Hydraulic Press." The subject was divided into two parts, firstly, the origin and principle of the hydraulic press; and secondly, its numerous and varied applications; with a more minute description of some specific processes; combining more or less of novelty in application or design. The origin was traced to Joseph Bramah, in 1785; and the principle of operation was explained with the aid of diagrams and drawings. In adverting to instances of its application the following were mentioned, and large drawings were exhibited in illustration:—The lifting of the hydraulic tubes, the launching of the Great Eastern, the raising of ships by hydraulic lift, the packing and pressing of goods in Manchester warehouses, wool-pressing in Australia, and cotton-pressing in India and Egypt, hay-packing for the Crimea, in 1854, making clay tubes for drainage, and making lead pipes; with the pressing of oil, stearine, hops, bark, &c.; the proving of beams, and experiments on compression of materials. Speaking of the modern Manchester Shipping warehouse, Mr. Bellhouse instanced that of Mr. Sam Mendel as having a steam-engine of thirty-horse power, twelve presses of 12 inches diameter, and four smaller ones, the whole capable of exerting an aggregate pressure of 3,000 tons. The apparatus packs per day of ten hours 450 bales of 4 cwt. each, equalling 90 tons of Manchester goods. A combined lever and hydraulic press for packing cotton for India was fully described and illustrated by means of a large drawing, as recently made with the latest improvements; and an improved lever stopcock was exhibited. Mr. Bellhouse alluded to the nicety of workmanship and skill in the operation required in the construction of the hydraulic press; and concluded by expressing the wish that Mr. Bessemer or some other experimenter on metals would turn attention to the production of some metal combining lightness with great strength, in order that the parts of presses now made so heavy in cast iron may be made so as to be easily transportable in foreign countries, where means of easy transport cannot be had.

Wrought-iron Girders.—Dr. Fairbairn, F.R.S., read a paper "On the Vibratory Action and continued Changes of Load upon Wrought-iron Bridges and Girders." He had made perhaps more than two hundred bridges upon his formula, which had so far proved satisfactory. His method

was to deduct first the weight of the bridge, and then to leave the remaining strength for the rolling load. If the Conway Bridge were raised to the proportion required by the Board of Trade, it would add greatly to its weight, and in his opinion tend to destroy it. He advised that no tubes or girders should exceed one-fourth the breaking weight; and that the remaining three-fourths should be left to sustain the rolling load; being in the ratio of 6 to 1.

Water and Lead Pipes.—Mr. William Wallace, of Glasgow, read a paper "On the Composition and Properties of the Water in Loch Katrine, as supplied to Glasgow." In connection with the Sanitary Association of Manchester, he had tested 300 samples of water, and the following conclusions had been arrived at:—That the water supplied to Manchester and passing through a lead pipe, used as a supply pipe, was four days highly charged with lead compound; and that the quantity gradually decreased for six weeks, when the water ceased to absorb lead. But if during that time the water were allowed to remain in contact with the pipe for twelve hours, its action was still very marked; and at the end of six weeks the water still contained two tenths of a grain of lead per gallon; and after six months one thirtieth of a grain was to be found. He concluded his remarks by stating that, in allowing water to remain some time in the pipes, and then again bringing them into constant use, the action of the water on the pipes was greatly increased.

Arsenic in Paperhangings.—Dr. Macadam read a paper "On the Proportion of Arsenic in Paperhangings." He said that in the majority of green paperhangings arsenic was present in rough powder. He was told that generally flock paper did not contain arsenic. He exhibited several green papers in which arsenic was deposited in a rough condition. When he struck one of them with his hand a cloud of dust arose; it was arsenic which had been placed over the surface of the paper. In those packages of envelopes where there were twenty-five to each package, each packet was packed in a band of green paper to keep the envelopes together. If one purchased two packets, or fifty envelopes, there were to be found 23 grains of arsenic in the green paper bands. He had found as much as forty grains of arsenic in the square foot of green paper. With regard to the injury which such arsenic papers had upon the system, the injury in no case was carried so far as to lead to actual poisoning.

ARCHITECTS' CHARGES.

SIR.—The pointed remarks which from time to time appear in the *Builder* on this vexed question ought really to awaken attention. We see about us every day men of other vocations, who, at our own age, and in a position not any better than our own, unquestionably realize with less personal labour much larger incomes. This ought not to be so: the public do not expect it: they do not wish it.

It is well known that lawyers are very unwilling (when it suits their purpose) to recognize, as a really legal custom, the mode of charging by 5 per cent. commission. When, therefore, we complain that this customary rate is too low to be remunerative, this inquiry is forced upon us,—how came we to understand that it is customary? And when again we deplore the impossibility of altering the custom, the question returns,—what renders it unalterable?—how did it arise?—what gives it authority?

My own opinion is that the germ of the custom, the only tangible tradition which has come down to us from our predecessors, is a charge of 5 per cent. for surveying alone, not including any drawings, but including an adjustment of accounts. In proof of this, I have frequently been assured that every man of that most respectable old school whose members are now either lately deceased or in venerable retirement, was in the habit of charging for all drawings separately, and also for time in travelling. In fact, there are certain well-known practitioners still at work who invariably charge so, and make no secret of defying custom. I have myself also been asked by clients, "whether my 5 per cent. was to include drawings,"—a significant testimony that there is some notion in the public mind of a lingering custom to the contrary.

Another thing that may be affirmed, most emphatically, is, that if you demand of half a dozen of the best "authorities" a detailed application of the 5 per cent. custom, you will receive just exactly six discordant opinions. In fact, it is notorious, from the reports of a score of disputed cases, that these opinions will not only differ in

minutia, but flatly contradict each other upon the most essential questions of every-day practice. So much for the custom; for every one is perfectly sure that his opinion is founded upon "the universal custom." If I suggest the question, whether it has ever happened that an "authority" has been able to offer his retaining lawyer a *choice of customs*, I do so not to endorse the pungent remark of the judge, that a "surveyor will swear to anything that is necessary," but to point to yet another argument as to the real value of the custom. And many more might be pointed to; indeed, it can scarcely be denied that, if counsel's opinion were taken upon the whole case, it would show that custom is all at sea.

The most usual application of the custom being apparently that 5 per cent. shall pay for the ordinary routine of designs, plans, and superintendence of contract, and no more, and that all else shall be charged extra; what is universally affirmed is that this, in an average business, compared with an average business of any other kind, does not pay. It may frequently pay upon the transaction individually; but it allows no margin for that loss and waste which in all descriptions of business now-a-days make an important item.

May I venture to direct the best attention of your readers to these hasty observations? and especially to ask whether any one can give us early facts as to the history of the 5 per cent. charge?

F. R. I. B. A.

"GREAT EASTERN."

REFERRING to the disaster which has befallen the "mammoth ship," I would suggest that such large steam vessels should have two screws, one on each side of the rudder, equally distant from it. Thereby the action of the lee screw singly would bring the ship's head to the wind, and the alternate working of both screws, fast and slow, would effect steering, if the rudder should be disabled; whilst the combined power of both might cause paddle-boxes to be needless.

GEORGE WALCOTT, C.E.

MASTERS AND MEN.

SIR.—At the last meeting of the London Master Builders' Society, the secretary (Mr. Wailes) mentioned that he had received letters from leading firms in different parts of the country, urging that a general association of master builders throughout England should be formed for the sole purpose of coming to an agreement as to reckoning wages by the hour. In London the system may now be said to be firmly established, as also (I believe) in Edinburgh. Let the country masters, therefore, generally, express their wishes before the next monthly meeting of the London Builders, which will be in about a fortnight's time, and an end will be put to the arbitrary dictation of the Masons' Society, who I see have gone so far in Liverpool as to impose a fine of 20*l.* on a master, as a condition of his being allowed to resume work! The journeymen masons are united throughout England. Why not the masters? It is the only way for us to keep the control of our own business.

A LONDON BUILDER.

SIR.—Allow me to state that the stonemasons engaged upon Lord Overstone's new mansion (under Messrs. Broadbent, of Leicester, the contractors), to the number of seventy, struck work, without a day's notice, on Friday last, for a rise of wages of 6*d.* a day per man, although paid the full county and town of Northampton wages of 4*s.* 6*d.* a day for banker hands, and 5*s.* a day for setters. A majority of two carried the resolution. The minority, who would be contented to work, are afraid of the vengeance of the terrible inquisition that reigns supreme over the minds, persons, and pockets of these weak, misguided, and misnamed free masons. The emissaries of the leading strikers of the day have been busy here; and hence the strike against one of the acknowledged best and most liberal provincial firms, with a long, perhaps, hard winter approaching (God help the poor wives and children); and this in a free country: those that would, dare not work! E. D., Managing Foreman.

P.S.—Messrs. Broadbent have resolved to refuse the men's demands, under any circumstances.

ROAD MAKING.

WHEN an unscientific warehouse clerk starts out of his sphere and attempts to turn road-maker, no wonder if the product of his brain shall be of an impracticable character. At the risk, therefore, of my project being of such a nature, I send you the following:—Walking to my daily occupation, I have the opportunity of observing the roadway of part of Gracechurch-street, and also the side ironways of part of Fenchurch-street, and my brain has mingled the wood and iron together in the following order. I propose to cast honeycombed blocks of iron, about 2 feet

by 3 feet, and about 6 inches in depth, and to be flat-surfaced on the under side. Into these honeycombed spaces (which might also be concave, cubical, or diamond-shaped, as might be considered best), I propose to insert blocks of hard wood, dipped in marine glue, causing them slightly to give upon great pressure, and which glue I suppose would likewise fasten them. I would have these blocks of wood rise about half an inch above the surface of the iron, affording a surer footing for horses as well as deadening the sound of the traffic. I would prepare these blocks completely before laying them, which I propose to do upon a bed of concrete, and then I imagine a most durable roadway (though, doubtless, at the first an expensive one), would be the result.

J. N. OSBORN.

DESTRUCTION OF SCREENS.

SIR.—Can you spare me a few lines to inform your readers that the rood-screen of the church of St. Andrew, Kingston-on-Thames, has recently been removed by the vicar, under the wanton pretext that it obstructed the view of the chancel and the lantern; which said lantern he has disfigured by painting the mortar-lines black, which gives it a most ridiculous appearance. I write to you, sir, in the hope that giving publicity to this inexcusable piece of Vandalism might have the effect of preventing the destruction of any more of these screens, which must be so interesting to your architectural readers, and which are already so scarce that we can afford to lose no more.

A. S.

COLOUR AND NEW PLASTER.

SIR.—The ceiling of a church is now being plastered, and will be finished brown. It is intended afterwards to be coloured in indigo. So little time is allowed to finish the work,—only a month or less,—that I shall be obliged if any of your readers will inform me what will prevent the lime from absorbing the indigo.

T. N. B.

SUFFOLK GENERAL HOSPITAL.

SIR.—Mr. Newham concludes a very deprecatory article in your last number, on the proposed works at the Suffolk General Hospital, at Bury St. Edmund's, by asking whether it is yet too late to induce the governors to take the best obtainable advice on the matter, and reconsider it carefully.

From what I have seen of the governors, I should say that at any moment they would give the fullest consideration to any suggestion of practical utility that might be brought before them, at any time, and from any quarter.

Mr. Newham, it is true, laid before the governors a plan of his own for the enlargement of the hospital, and he need not on that account consider that he alone has read up the authorities on such subjects, or is alone able to produce a perfect plan.

I have also read the articles in the *Builder*, and the "Notes on Hospitals," and have also produced a plan which the governors have, after mature consideration, sanctioned; a copy of which, if you consider the matter of sufficient interest, I shall be happy to forward you.

For this I am responsible, and firmly believe that it will, when completed, be found to contain every requirement of the most advanced sanitary knowledge.

JOHN HENRY HAREWILL.

IS AN ARCHITECT LIABLE FOR EXTRA WORK?

A CASE of some interest to architects was tried in the Bristol County Court, on Tuesday last, before Sir J. Eardley Wilmot, Bart., as the judge. Mr. Charles Sidney Smith, carpenter and builder, sued Mr. Joseph Neale, architect, to recover the sum of 26*l.* 1*s.*, being the cost of material and labour in regard to certain work done by the plaintiff to the new Presbyterian church, Bristol, and for which it was alleged that the defendant was personally liable. The plaintiff's case was, that, in addition to the works described in the plans and specifications, various matters were done upon the building by the workmen employed in its erection. For some of the extras plaintiff had sued the trustees, from whom he had recovered his claim. The works in question, and which consisted of some brackets and ribs in the aisle roof, had not formed a portion of the claim then made, but which were omissions in the original plan which the architect had required to be supplied, and for which it was contended he was liable. In support of this view of the case "Bolt v. Thomas" was cited, in which Mr. Justice Byles had ruled that where an architect got out the quantities for a tender, and charged to the contractor the contractor's mission of 2 per cent. for so doing, there was an implied contract between them that the quantities should be reasonably correct, and that if from being otherwise the contractor sustained loss, or was put to expense, he might recover upon an action against the architect. On the part of the defendant a paragraph in the contract was referred to, by which it was provided that if it should be found necessary during the progress of the work to make any alteration in the plans, or mode of finishing, it should be in the power of the architect to direct them to be made. It was contended that the architect was only the agent of the building committee, and that an action could not lie against an agent where there were disclosed principals. It was further contended that the plaintiff had been paid for everything, and that the present action was an afterthought, the plaintiff finding that any claim against the committee would be barred by the verdict in the former action. The plaintiff and defendant were both

* The inquiry is our own: our esteemed correspondent is in error in attributing the article to Mr. Newham.—Ed.

examined, and the latter also called Messrs. Crisp & Clark, architects, and Mr. Broad, building surveyor, as witnesses in support of his case.

In giving judgment the judge said the question divided itself into three parts. 1st. Can an action be sustained against an architect for work performed by his order when engaged in his duties as architect, and afterwards adopted by his principals? 2nd. Was there in the present case any extra work done? 3rd. If extra work was done, has it been paid for? As regarded the first, he was of opinion that in the general principle an architect could not be held liable for extra work rendered necessary, even by his own negligence in setting out the quantities; the case of "Bolt v. Thomas," having reference to loss sustained by the builder in consequence of the negligence of the architect. He was of opinion that extra work had been done, but that the plaintiff had been fully paid. Judgment was therefore given for the defendant.

Books Received.

VARIORUM.

"Outlines of Arithmetic," by John Box; and "Outlines of Grecian History," by Edward Walford, M.A., are two of Ince & Gilbert's well-known series. Mr. Walford's sketch of Grecian History is exceedingly well done.—We may mention that Messrs. Blackwood have published "The Book of Farm Buildings, their Arrangement and Construction," by Messrs. H. Stephens and R. S. Burn, to which we shall return before long.—"The Way Out,"—a Letter to the Earl of Derby on the Advantages of the Suburban Cottage. By Henry D. Davis. Longman & Co.—The author of this pamphlet contrasts the evils of the overcrowded town hovel, with the advantages of the suburban cottage, and proposes the formation of boulevards around London; beginning with one stretching between Greenwich and Woolwich, with iron tramways for traction engines, and a belt of ground on either side of the way for cottages, the whole scheme to be realized by limited companies, with the object of providing suburban cottage accommodation for the humbler classes, with very cheap transit to and from the more populous districts of the metropolis. The author trusts that the select committee suggested by Lord Derby will be appointed next session of Parliament to consider the operation of railways, the overcrowding they produce, and any means by which the railway system may be rendered available for promoting the health and comfort of the population.—"Indian Railway and Motilla Guarantees." By James Mills. Mann, Stephens, 39, Cornhill.—Mr. Mills here gives extracts from the official contracts between the Indian Government and the several companies, as published by order of Parliament, with the purpose of showing that the guarantees by Government are delusive, and that the companies would rather appear to be called upon to give guarantees to Government in the shape of lines of route clear of every sense whenever Government may choose to purchase. "The Government," he also remarks, "carefully guards itself, in its contracts, against having to bear any part of the expenses or losses of these projects; and, while it reserves to itself the right of absolute control over the works, and stipulates that it shall fix the fares charged for passengers, and the freights charged for goods; it takes care to exempt itself from any participation in the losses, however occurring."

Miscellaneous.

LINCOLN CATHEDRAL OFFICERS.—We are asked to insert the following as a correct statement of the appointments referred to in a letter from "A Citizen," in our last:—"The Dean and Chapter, at their annual audit, appointed Mr. Bretham, of Stainfield Hall, to be their surveyor of landed estates; and Mr. Charles Ward, of this city, to be their surveyor and valuer of property in Lincoln and other towns, and surveyor to the cathedral fabric, in the room of Mr. Edward Betham, deceased. The honorary architect to the Dean and Chapter is Mr. Buckler, of Oxford, who has held the appointment for several years."

ABERDEEN UNIVERSITY.—NEW BUILDINGS.—The working drawings and specifications of the alterations and additional Buildings at Old Aberdeen, have been sent down from Edinburgh, for the inspection of local contractors. We understand that the east and south sides of the quadrangle were to be taken down and rebuilt; the quadrangle being enlarged about 40 feet southwards. The new library, extending eastwards about 100 feet from Cromwell's Tower, is not to be included in this contract. The old ivy tower is to be preserved. The plans have been prepared by the Crown Architect for Scotland, Mr. Robert Matheson.

GUERNSEY.—The drinking-fountain at the Terres, close by the New Harbour Works, at St. Peter Port, Guernsey, has been opened by the architect, Mr. Lyster, who is engineer of the Harbour Works. This fountain does good service. The "Brethren" are building a preaching-room near Victoria-road, in a plain style. The material is blue granite of the island. The architect is Mr. Livessy, of England; and the contractors are Messrs. Martin & Robilliard, of Guernsey.

WELLINGTON STATUE FOR LIVERPOOL.—A correspondent of the *Albion*, referring to the decision of the committee of the Wellington monument, says he is prepared to demonstrate that the advertisements as to competition were a farce, the decision of a portion of the committee having been previously arrived at. The *Albion* states the facts of the case to be as follows:—Several models, six in all, were sent in for the judgment of the committee: of these, three, numbered respectively 1, 4, and 5, were selected for further consideration; when the choice of the committee fell upon the model which had been sent in by Mr. Lawson, of Edinburgh. The *Journal* says that the design is not only characteristic of the man, but is a fine specimen of artistic skill. Mr. Lawson was the successful competitor for the column on the top of which the statue is to be placed. Government has presented the committee with the necessary quantity of bronze for the statue and bas-reliefs. The contractors have difficulty, it seems, in procuring Darley Dale stone, as the quarries have been partially closed, and Manchester is taking all that can be procured for the new Assize Courts. Means are, however, being adopted to open new beds. It will require a year or more to model and cast the statue.

RAILWAY TRAVELLING.—The number of travellers by railway in the United Kingdom last year was 163,435,678, besides 47,894 holders of season and periodical tickets; showing an average of between five and six journeys in the year for every one in the kingdom. The trains, passenger and goods trains together, travelled 102,243,692 miles, which is further than going 4,000 times round the world: 267,134 horses and 357,474 dogs made railway journeys; and the goods traffic comprised 12,083,593 cattle, sheep, and pigs, and 89,857,719 tons of minerals and general merchandise. The receipts of the railways (10,433 miles in length at the close of the year) from all sources of traffic were 27,766,622*l.*, of which 13,085,756*l.* came from passenger traffic and the mails, and the residue from goods. The expenditure was 13,187,368*l.*, or 47 per cent., leaving rather more than 14,500,000*l.* net receipts. The compensation paid for accidents and losses amounted to 181,170*l.* The quantity of rolling-stock was 5,801 locomotives, 15,076 passenger engines, and 180,574 waggons for goods traffic. Comparing last year with the year before, notwithstanding the bad weather, the passengers increased by 13,600,000, the minerals by 8,600,000 tons, the receipts by above 2,000,000*l.*, the miles travelled by trains by nearly 9,000,000. 3,896,960 trains ran in the course of the year 1860, upwards of 10,000 a-day.

THE WATER OF LEITH.—The *Edinburgh News* says:—"The *Builder* condemned the conduct of our town councillors—and justly so, to some extent—advising them, for a season at least, to give less attention to divinity and more to sewers—a bit of counsel not very pleasing, however necessary and practicable. The town council of Leith has taken the advice; or perhaps had not the misfortune to need it; and, with the aid of well-tried and experienced engineers, has proposed a remedy for the Water of Leith. It is briefly—the construction of conduits, commencing immediately to the west of Coltbridge, and following, as nearly as possible, the line of the river to St. Bernard's Well, whence to St. Mark's-place, above which the conduit would cross the river, proceeding to Bonnington, and onward till it reached Tower-street, at the Shore of Leith; having passed along the whole of which, and intercepted all the drainage of South Leith. The conduit, it is proposed, would be formed partly of iron and partly of masonry, increasing in capacity according to the amount and nature of the 'sewage,' and of such a size as to enable men to enter it for the purpose of examination or repair. Such is briefly the plan, and it seems a very feasible one. The only other important points are the cost and how to raise it. And here a new difficulty may arise. At a rough estimate, the Leith portion, from low-water mark to Bonnington, would cost 25,000*l.*; and that of Edinburgh, from Bonnington to Coltbridge, 28,000*l.*; thus making a total expenditure of 53,000*l.* Too much time has been lost: too long have we allowed the festering sore to do its deadly work: surely now there will be vigour of action."

GAS.—The report of the Wolverhampton Gas Company, after recommending a dividend of five per cent., free of income tax, states that the reduction of the maximum price to 3*s.* 9*d.* per 1,000 feet had given general satisfaction to the customers, and was expected to lead to a greatly increased consumption.—The report of the Sunderland Gas Company states that increasing business enables the directors to declare a dividend of 4½ per cent. for the half-year; which, in addition to 8½ per cent. already received, makes a total of 8 per cent. for the year.—The Kirmuir Gas Company have got an additional tank, with gasometer, finished. It is the work of Mr. Kerr, Links Foundry, Montrose, and is capable of containing 23,000 cubic feet of gas. The old one holds about 10,000 feet, so that the aggregate between them is 33,000 cubic feet. Consumers are anticipating a considerable reduction in price.

MIDLAND COUNTIES ARCHEOLOGICAL ASSOCIATION.—The last excursion for this season, under the auspices of the above-named society, took place last week; when about 114 persons visited the ancient and interesting city of Oxford. A single day is, of course, a period far too limited to allow of a thorough examination of the almost innumerable points of interest with which Oxford abounds; and the visitors were consequently obliged to make a selection, or rather to adopt the choice made for them by Messrs. J. H. Chamberlain and C. E. Mathews, the honorary secretaries, with the assistance of Dr. Acland, Mr. J. H. Parker, Mr. Spiers, and other gentlemen at Oxford. The only fault of the programme was that it crowded rather too much work into the day; but this could scarcely have been avoided, as the visitors were naturally anxious to see as much as could possibly be seen, although the gratification of this desire might in some measure abridge the time required for the satisfactory examination of particular buildings.

SOUTH WALES INSTITUTE OF ENGINEERS.—The annual general meeting of the members of this Institution was held in Swansea, on Friday and Saturday in last week. The Royal Institution of South Wales had been placed at the disposal of the Society, and the theatre of the building was appropriately fitted up. There was no public business transacted on Friday. The members and friends assembled on Saturday in the theatre of the Royal Institution, Mr. Lionel Brough, the president, in the chair. After the president's address, Mr. H. Cosham, F.G.S., read a paper on "The Working of Thin Seams of Coal," and made some remarks on the mining school of Bristol. A discussion took place on the first paper, and also a paper by Mr. Sims, on "The Cornish Engine." Mr. C. James then read a paper "On Underground Machinery," which was also discussed; and another paper by Mr. R. Schmidt, on "Professor Zeuner's Diagram, for showing the Motion of the Slide Valve," was read; and the proceedings then terminated with some formal business; after which a dinner took place, with the usual accompaniments.

NEW USE FOR SEAWEED.—Mr. E. Legon has presented a report to the Paris Academy of Sciences on the employment of seaweed, applied in layers against the thin walls of habitations, to prevent sudden variations in and excess of temperature. The marine algae, such as seawrack, may be termed, says Mr. Legon, a sea-wool, which has this advantage over ordinary wool, that it does not harbour insects, and undergoes no change by dryness or humidity, provided it is not exposed to the solar rays: in that case it undergoes a complete transformation: from being brown and flexible, it becomes white and almost rigid. In the dark, on the contrary, it is unchangeable, unfermentable, imputrescent, uninflamable, and unattackable by insects. At first it has the objection of being bygonmatic; but a single washing in fresh water removes the salt, and then its properties become so beneficial, that a celebrated architect has styled it the "flannel of health for habitations." It has been applied successfully between the tiles and ceiling of a railway station; also in a portable house intended for the use of officers at the camp of Chalons; also double panels, the intermediate space being filled with seaweed, having been prepared for the construction of temporary barracks at the Isle of Réunion. The Consulting Committee of Public Health, the Society of Civil Engineers, the Council for Civic Structures, &c., have expressed their approval of the judicious employment of the marine algae, and state that the popularization of this process will be of great service in dwellings; especially in those of the humbler class, as it renders them both more agreeable and salubrious. It can be obtained for about 20*s.* the ton, which quantity is sufficient for upwards of a hundred square yards of roofing.

A STRANGE STATEMENT.—A correspondent writes us, asking if any of our scientific readers can throw a light upon the following extraordinary circumstance, the truth of which he asserts:—Under the church of the secluded village of Wiltshire, is a vault which for many years past has been the last home of the family, who possessed estates in the parish acquired by marriage with a lady who was buried some weeks since. On opening the vault for the reception of her body, it was found that the coffin containing her deceased husband, formerly the squire of the place, had not only been turned completely round, but had actually got upon and across that of her deceased father. One who witnessed the opening of the vault was panic-struck at the discovery, though quite prepared for some little alteration of position; as, when the vault was opened for the reception of the "squire," the coffins of his son and daughter had shifted a considerable distance across the capacious vault; and the same person witnessed that the daughter's had done so when the son was buried. All were in lead coffins, and all were placed on the stone floor. Had this been witnessed by but one person, it might have been doubted; but many saw it. Our correspondent says he repudiates all superstitious notions, and publishes in the hope that "chemistry may unravel the mystery." [Not very likely.] The disturbed coffins had all become rounded on the top, evidencing the existence of gas within. None but members of the last family had ever been found displaced, neither had the other coffins become rounded. [A similar case is said to have occurred in France not very long since, and to have been authenticated by the local authorities.]

THE TRAMWAY SYSTEM.—As all who have noted the unscrupulous tactics introduced into the metropolis by the General Omnibus Company, in their endeavours to monopolize the street passenger traffic, must have anticipated, an inveterate practical opposition is being kept up against the introduction of tramways. Mr. Train's system is regarded as a monopoly, inasmuch as he has taken care to have tramways not generally useful; but still more monopolizing in their desires and practices are those who oppose him. The General Omnibus Company started a new carriage of their own upon Mr. Train's tramway at Bayswater, so that his monopoly is not altogether insurmountable; and much more objectionable is the "nursing" system, stupidly so called. It is to be hoped the Bayswater people will compel their representatives to reconsider the decision which has led to the pulling up of the tramway. In the Blackfriars-road a new sort of tramway, which may be preferable to Mr. Train's for all that yet appears, has been commenced by Messrs. Mowlem, Burt, & Freeman, contractors, on the west side of the Blackfriars-road, and which will be extended to the Elephant and Castle, Newington-butts, *via* the London-road. Instead of the tramway consisting of smooth iron plates, these are in blocks of cast-iron, about 18 inches square and 4 inches in thickness; the surface being chequered with small oblong blocks protruding, so as to give horses good footing when passing over the metal way; but, it is said, not causing the slightest obstruction to the wheels of vehicles travelling upon it. The blocks are laid upon a substratum of concrete, and will be on a level with the other portions of the road. Arrangements were concluded on Saturday in last week with Mr. Charles Hathaway, of Philadelphia, United States, the street railway contractor, by several capitalists, who have recently embarked in this enterprise in connection with Mr. Train, to transfer the metals and timber of the tramway now in course of being lifted in the Bayswater-road, within one week, from thence to the Surrey side of the water, to form a part of the connecting link of street-railways from the Victoria and Pimlico Railway Station to Blackfriars and London Bridges. The balance of the work required to effect this proposed extension of the Victoria-street and the Westminster Bridge-road lines now in operation, to the points mentioned, is also undertaken by Mr. Hathaway. In Liverpool a "Street Railway and Omnibus Company" (limited) has been started by the principal omnibus owners of the town. They are said to claim no monopoly in the right of way, and to be prepared to incur all cost connected with the laying down and removal of the tramways. Mr. Newlands, the borough engineer, we may observe, has made a report to the town council, disapproving generally of Mr. Train's plan of rails, and recommending for adoption the plan tried in Manchester, of mere wheelways, and a guiding line an inch deep in the middle of the horse track. The whole matter has been referred to the Health Committee.

VOICES TO ORDER.—A discovery of the utmost importance, says the *Leipsiger Zeitung*, is said to have been made in America, viz.—the artificial formation of any kind of human voice. Unfortunately the probability of this is as unlikely as it is important, though the American papers announce the fact, and that the discoverer is a certain Dr. Potsdell, a medical genius. This gentleman, it is said, has succeeded in producing, at pleasure, bass, baritone, tenor, or soprano voices, in the human larynx, by means of a slight and simple operation, quickly performed, without pain or danger; and in a week, or a fortnight at farthest, those who have submitted to it have become perfect phenomena, although their voices before were most unmusical. A tenor or soprano voice requires a somewhat longer time, because a tendency to hoarseness is apt to follow the operation. America is a land of wonders, but not seldom is it one of "lying wonders," and we give this new wonder just for what it may be worth. One way or another the invention is certainly curious as well as ingenious.

THE WOODS EMPLOYED IN THE NAVY.—At the late meeting of the British Association, Dr. Grace Calvert, F.R.S., stated that he had examined different woods; and the superiority of foreign woods over English oak could not be too strongly expressed. If English oak has hitherto stood so high it must have been owing to our ignorance of the valuable properties of some of those grown in tropical climates, in which the soluble and highly decomposable tannin of oak is replaced in some instances by resins, and in others by substances similar to caoutchouc. This is the case with Moulmein teak, Santa Maria Mora wood, and Honduras mahogany, which gives to them a great advantage over oak for iron ship-building. Thus he has found that, in the same time and under similar circumstances, oak will attack iron twice and three times as rapidly as the woods above mentioned. He has also remarked that cubes of wood left in contact with water for five months lose respectively the following per centages of their weight:—Unseasoned oak, 24; seasoned oak, 12; African teak, 3; Mora wood, 4; Honduras mahogany, 3; Santa Maria, 1.6; Greenheart, 5.6; Moulmein teak, 1.7. The facility of mildewing or decaying is as follows:—Unseasoned oak, rapid; seasoned oak, much less; African teak and Honduras mahogany, limited; Mora wood, Santa Maria, and Moulmein teak, none. He had found a great difference between oak felled in summer and that felled in winter. The oak felled in winter was rich in tannin, while that felled in summer contained little or no tannin, but a large quantity of gallic acid; and in examining some specimens of wood from the unsound gunboats furnished to him by some of her Majesty's officials, he found that the chemical composition of the unsound gunboats was identical with that of unseasoned summer felled oak.

THE MULLER HOSPITAL FOR ORPHANS AT BRISTOL.—Mr. George Muller has just sent out another "Brief Narrative of Facts" relating to the New Orphan Houses (for 1,150 children), on Ashley Down, Bristol. "In the exercise of an unbounded faith" he has determined upon erecting two more orphan houses, a fourth and fifth, for 850 more orphans, making in all 2,000! To carry out this contemplated enlargement further contributions to the amount of 50,000! will be required. May not a perilous hand-to-mouth system like Mr. Muller's be carried too far? The list of last year's contributions is a curious one. Amongst them are the following:—Six copper teakettles, three dozen snuffers, thirty-five chamber candlesticks, one dozen dust-pans, nine tinued iron saucepans, three meat choppers, one dozen scissors, and two dozen kitchen spoons (all new). A glass manufacturer gives all the glass required for 390 windows. An individual, who unexpectedly receives 1,000*l.*, sends 800*l.* "for the Lord's work." A baker in Worcestershire sends a small per centage on every sack of flour he bakes. A poor widow at Ipswich sends 2*s.* 9*d.* to the little orphans. From Abergavenny comes 12*s.*, being a "penny for each job during the past year; a free-will offering." Anonymously—a set of artificial teeth set in gold. During the year many pounds were obtained by teeth set in gold! From Bristol 1*l.* 2*s.* saved in penance by a family of four children. Amongst various other trinkets a negligee from Herculanum. From a Bristol house of business all the fruit for Christmas puddings to the orphans. From a farmer 5*l.* 18*s.* "obtained as a reward for the best mangold wurzel, and second prize for the best pig!"—and so on. The sale of the various articles during the year produced 763*l.* 1*s.* 4*d.*, and the amount received under this head alone since the beginning has realized 6,387*l.* 14*s.* 4*d.*

THE FIRST ENGLISH CHURCH IN AUSTRIA.—On Friday, the 13th of September, the first stone of an English church was laid at Carlsbad, in Bohemia. For upwards of five years this project has been under discussion, and many hundreds of English families yearly visiting Carlsbad have had meanwhile no better place of worship than a ball-room or the saloon of an almost inaccessible Gasthaus. The design, by Mr. Ewan Christian, is that of a simple Early English chapel, with high pitched roof and bell turret.

PROPERTY AT BRIGHTON.—The freehold of the mansion on the West Cliff, for many years the abode of the late Lady Jane Seymour Hotham, and known as Western House, was on Saturday last submitted to public sale by Mr. Wilkinson, at his rooms in North-street. The biddings, after reaching 5,500*l.*, were narrowed to three gentlemen,—the agent of a noble duke; Mr. Butler, M.P., and it was said, Sir Francis Moon, Bart. Eventually, however, the lot was knocked down to Mr. Butler, M.P., at the sum of 5,900*l.*, and he afterwards purchased several of the adjoining freeholds.

NEW THEATRE FOR LEEDS.—There is at last a fair probability of Leeds possessing a good theatre. Mr. W. S. Thorne, who has for many years conducted the Princess's Theatre, is about to erect a more convenient building, and has purchased, as the site, a plot of land in Great George-street, adjoining the coach manufacture of Messrs. Clarke. The designs and plans for the theatre have been prepared by Messrs. Lockwood, Mawson, & Mawson, architects; and the building, which will be commenced forthwith, is expected to be completed not later than next Whitautide. It will be a brick and stone structure, and the internal arrangements will be of a very superior order. There will be two tiers of boxes, a pit, and gallery; and the whole theatre will accommodate about 2,000 people, leaving room for a spacious stage, &c.

FOOD AND WORK.—I have ascertained in England, says Mr. Chadwick, that, in highly-cultivated districts, where agricultural labour costs 14*s.* and 16*s.* a week, the work is, for quantity, as cheap as in districts where agriculture is lower and where wages are only 8*s.* or 9*s.* a week. A mile of road made by Lancashire navvies, earning 3*s.*, 3*s.* 6*d.*, or 5*s.* 6*d.* per diem, has been executed in a much shorter time, and has been finished as cheaply, as a mile of precisely the same sort of road done in Ireland by pauper labourers whose wages were only 1*s.* per diem. My noble friend Lord Shaftesbury, brought down to his estate in Dorsetshire a foreman accustomed to superior labour at piecework. Judging of what would be his answer, I said to this foreman, "Will you not get your work done cheaply: here the labourer are got for only 8*s.* per week?" "But they would be dear at 6*s.*," was the reply. "How is it here with your other classes of artisans?" I inquired.—"Your journeymen bricklayers, for example: what sort of workpeople are they?" "Such as, from their wages, you, sir, would expect," was the answer. "And what wages are those?" "About 12*s.* per week." "And how many bricks do they lay in a day?" "Not more than three or four hundred." And how many of your town bricklayers lay, to whom you pay double wages?" "More than a thousand a day!" was the answer.

HOW TO CALCULATE THE AGE OF TREES.—"W. S. P." inquires "How can I calculate the age of a very large and old favourite tree, by the usual rule that each annual ring represents a year's growth, without cutting it down?" If "W. S. P." will make an incision on the two opposite sides of his tree, say to the depth of 2 inches, and count the number of annular rings in each; then add the number of rings found in the two together; the half of the product will be the mean of the number of rings in the trunk. Then ascertain the diameter of the tree by the common rule, deducting the thickness of the bark: multiply half the remaining diameter by the mean obtained above: the result will be a close approximation to the age of the tree. Plug up the two incisions to exclude wet, and the tree will sustain no injury. Those who have been in the habit of calculating the age of trees by the number of annular rings or zones, will have remarked how they vary in breadth, a circumstance depending on the season and climate—a narrow ring indicating, with great precision, a cold or ungenial season, while a broad one indicates a good one; hence the cross section of a tree, presuming it to be growing in an exposed situation, will give a more correct meteorological report of good and bad growing seasons during the period of its existence, than all the weather tables hitherto published.—*The Scottish Farmer.*

The Builder.

VOL. XIX.—No. 974.

The Mechanics of Construction.

On this subject, which is one of the highest importance to the architect, we have before us the most recent work that has appeared. It is intended to supply a want that all must have felt who have endeavoured to study architecture scientifically; namely, that of a small and compendious volume on the practical application of the theory of the strength and resistance of materials, together with the principles of the construction of roofs and arches.* One feature in the book which recommends it especially to the student of construction is the great number of practical examples by which the various formulae are elucidated, and also the method of determining the dimensions of the different parts of a structure in order to fulfil certain conditions. We must, however, caution the student against expecting to find this work easy of comprehension: there is no royal road to the acquirement of any branch of science; and those who wish to understand the greater part of this treatise must first become masters of the elements of mechanics, geometry, algebra, and the differential calculus.

For the benefit of such of our readers as are not mathematicians enough to read the work for themselves we proceed to give a brief summary of the various subjects which are discussed therein.

Resistance to Extension and Compression.—It is found in practice that most substances used in construction may be said to be perfectly elastic, and provided the straining or compressing force to which they are subjected does not exceed a certain limit; that is to say, they will return to their former volume and shape immediately the force is removed. But if the strain on a body is pushed beyond a certain limit, the body takes a permanent set; its interior structure becomes changed and its strength weakened. The transition to this state is called the *limit of elasticity*. As long as the straining force for each square inch of section (S) does not pass the limit of elasticity, the extension or compression (l) of a prism whose original length is L bears a constant ratio to the force S; if we call the constant E, then we have $l : L :: S : E$. E is called the *modulus of elasticity* of the body, and is found by experiment and tabulated for every kind of material. The constant E is in fact the force necessary to elongate a prism whose section is 1 square inch, by a quantity equal to its original length, or to compress it to one-half its original length; not that this is generally possible, but it is a convenient term for calculation. If A is the sectional area of the prism in inches, P the straining force, then $l = P \cdot L \div E \cdot A$, and also $P = E \cdot A \cdot l \div L$, or $PP = A \cdot S$. Or, avoiding algebraical formulae, the elongation or compression produced in a prism by any straining force or weight, is found by multiplying that weight by the length of the prism, and also multiplying the sectional area of the prism in inches by the modulus of elasticity, and dividing the former product by the latter. For

example, what extension will be produced in a round bar of iron, 3 inches diameter and 400 inches long, by a weight of 84,000 lbs. suspended at one end; the modulus of elasticity being 28,000,000 lbs., and the weight of bar 480 lb. per cubic foot. Here the weight of the bar is $785\frac{1}{2}$ lb., which must be added to the weight 84,000 lb. suspended at one end, giving 84,785 $\frac{1}{2}$ lb. to be multiplied by 400, the length of the bar, or 33,914,112 for the dividend: the sectional area of the bar is 7.07, which, multiplied by the modulus of elasticity, gives 197,960,000 for the divisor; and performing the division, we find the extension produced to be .171 of an inch.

When the force S is such that fracture is about to ensue, it is called the *coefficient of absolute strength*. There is also a *coefficient of safety*, which is the amount of strain that can safely be applied permanently to a body, and its ratio to the *coefficient of absolute strength* varies in different materials: in wrought-iron it is as 1:3, in cast-iron (steady load) as 1:4, in timber as 1:10, in stone and brick as 1:8.

Tables are given in Mr. Fenwick's book of the values of S in different materials for resistance, both to crushing and to stretching. The values there given appear to be the same as those which Mr. Eaton Hodgkinson deduced from his experiments. In trying experiments on wood, Mr. Hodgkinson found that, if the specimens were soaked in water, they lost half their strength of resistance to crushing.

Resistance to Flexure.—If a beam be fixed in a horizontal position, and subjected to a vertical strain, it will assume a curved form: the fibres of the convex part will be elongated, and those of the concave part will be compressed. There must exist some part where the fibres are neither elongated nor compressed; and this part is called the *neutral surface* of the beam; the line in which it is intersected by a cross section being called the *neutral axis* of that section.

If the resistances to extension and compression are proportional to the forces of extension and compression, and if the resistance to extension equals the resistance to compression, then the neutral axis of any vertical cross section will pass through the centre of gravity of that section. Experiments have shown that this hypothesis is a correct one up to certain limits, which ought never to be exceeded in practice. When the resistances to extension and compression are different, the relation between the parts into which a cross section is divided by the neutral axis and the forces of extension and compression is determined by the equation $A \cdot x + A' \cdot y = E \cdot l \div E$; in which E and E' are the *moduli of elasticity* of the extended and compressed fibres respectively; x, the distance of the centre of gravity of the upper part of the cross section from the neutral axis; y, that of the lower part; A, the area of the former; A' that of the latter.

Moment of Resistance to Transverse Strain.—When a force acts at the end of a lever or arm, of which one point is fixed, the product of the force into the perpendicular from the fixed point on the direction of the force, is called in mechanics the *moment* of that force about the fixed point. The *moment of inertia* of a particle is the product of its mass into the square of its distance from a fixed line: the *moment of inertia* of a body about any line is the sum of the *moments of inertia* of its particles, and is found by means of the integral calculus. Now, in order that there may be equilibrium between the force P acting transversely to a beam, and the interior forces of any cross section, the moment (M) of P about the neutral axis must equal the sum of the moments of the interior forces taken about the same neutral axis. This equilibrium is expressed by the equation $M = E \cdot I \div r$, I being the *moment of inertia* of the section relative to the neutral axis, r the radius of curvature at the section. If S is the permanent force of extension or compression which each unit of surface of the cross section can sup-

port with safety at a distance x (the distance of the extreme fibre of the section) from the neutral axis, then the equation becomes for permanent constructions, $M = S \cdot I \div x$.

These formulae will in general be sufficient for the solution of all the ordinary cases which occur of transverse strain, when the strain is kept within the limits of safety.

The Exterior Forces.—In order to apply the foregoing results it is necessary to find an expression for the moment of flexure in terms of the exterior forces; this varies according to the manner of fixing the beam.

1. Let a beam of length l be fixed at one end and loaded at the other; the moment of the strain on the section of fixture is $M = W \cdot l$. If the load is uniformly distributed along the whole length of the beam, it will bear double the weight that it will bear if hung from one end.

2. A beam AB is supported at the two ends horizontally, and loaded at any point C; in this case $M = W \cdot AC \cdot BC \div AB$. If C is the centre of the beam, $M = \frac{1}{4} W \cdot AB$, in which case the moment of the strain is greatest.

3. A beam AB is supported and loaded as before, to find the moment of the strain about any other point D of the beam: in this case it is found that $M = W \cdot AC \cdot BD \div AB$.

4. A beam AB, supported as before, is loaded with a weight uniformly distributed; to find the moment of the strain, at any point C: in this case we find $M = \frac{1}{4} W \cdot AC \cdot BC \div AB$.

If C is the centre of the beam, then $M = \frac{1}{8} W \cdot AB$. Hence it follows that the strain on any point of a beam by a weight uniformly distributed is the same as that produced by half the same weight suspended from that point.

Applications.—In order to apply the previous formulae, we must equate the moment of the exterior forces with the moment of resistance of the beam.

Now the moment of the exterior forces is $M = m \cdot W \cdot l$, where m is a coefficient depending on the disposition of the load. And the moment of resistance to the beam is $S \cdot I \div x$. Therefore $m \cdot W \cdot l = S \cdot I \div x$.

The following are some of the values for m:—

1. Beam fixed at one end and loaded at the other, $m = 1$.

2. Ditto, ditto, and uniformly loaded, $m = \frac{1}{2}$.

3. Beam supported at both ends and loaded in middle, $m = \frac{1}{4}$.

4. Ditto, ditto, and uniformly loaded, $m = \frac{1}{8}$.

When the section of the beam is a rectangular, $I = \frac{1}{12} b \cdot d^3$; where b is the breadth and d the depth of the section; also $x = \frac{1}{2} d$, therefore $W = \frac{1}{2} S \cdot b \cdot d^2 \div m \cdot l$. Or, avoiding algebra, to find the breaking weight of a rectangular beam supported at both ends and loaded in the centre, multiply the breadth by the square of the depth in inches, and the product by one-sixth of the tabulated *co-efficient of fracture* for the particular material of which the beam consists, and divide this product by one-fourth of the length of the beam in inches. For example:—a rectangular beam of elm, 10 inches deep and 8 inches broad, rests on two supports 10 feet apart: find the breaking weight suspended at the centre, the *co-efficient of fracture* being 7850. Here the dividend is the product of 8, by 10 times 10 or 100, by one-sixth of 7850 or 1308 $\frac{1}{3}$; and the divisor is one-fourth of 120 inches, or 30 inches; this gives the breaking weight 34,889 lb.

Solids of equal Resistance.—If instead of the beam having a constant section, we have one whose cross section is so varied that S shall be constant in all the sections, then the body is called a *solid of equal resistance*.

Suppose the sections are all rectangles of uniform width, but the height variable from middle to end, the beam resting horizontally on supports at its ends and uniformly loaded; it is proved that in this case the vertical section from end to end should be an ellipse, in order that resistance may be the same for every section.

* "The Mechanics of Construction." By Stephen Fenwick, F.R.A.S., of the Royal Military Academy, Woolwich. Bell & Daldy, London, 1851.

If the height of the beam remains constant, and the breadth varies, the horizontal section from end to end is shown to be a parabola, in order that the resistance may be the same for every section; the vertex of the parabola being at the middle point, and the two sides being symmetrical.

Deflection of Beams.—The determination of the deflection of a beam under a given weight is in some cases of more importance than the finding of its breaking weight. To obtain a solution of this problem, the moment of the resistance of the beam must be expressed in terms of the radius of curvature of the neutral line of the beam, and of its coefficient of elasticity (E). From this we obtain the equation, $\text{deflection} = W \cdot l^3 \div 48 E \cdot I$, where l is the length of the beam, and the weight W is hung from the centre of the beam. When the same weight is uniformly distributed over the whole length of the beam, the deflection is $\frac{5}{8}$ of that produced when the weight is hung from the centre. There is misprint here in the book, which just reverses this result as obtained from the formulae.

When the section of the beam is rectangular, b the breadth, and d the depth, then $I = \frac{1}{12} b \cdot d^3$, and therefore $\text{deflection} = \frac{1}{48} W \cdot l^3 \div b \cdot d^3 \cdot E$. In order to find the deflection caused by a weight hung from the centre of a beam of any material, multiply the cube of the length in inches by one-fourth of the given weight for a dividend; and also, multiply the breadth by the cube of the depth in inches; and this product by the modulus of elasticity, for the particular material of the beam, for a divisor: the result of the division will be the deflection in inches, or parts of an inch. For example:—a rectangular beam of oak, 10 feet long, 10 inches broad, and 12 inches deep, rests horizontally on two supports at its ends: to find the deflection caused by 35,000 lb. hung from its middle, the modulus of elasticity being 1,492,000. Here the dividend is 120 times 120 times 120, or 1,728,000, multiplied by 8750; and the divisor is 10 multiplied by 12 times 12 times 12, or 1,728, multiplied by 1,492,000: the result of the division is .588 of an inch for the deflection in the centre of the beam.

Resistance to Torsion.—When a prism is subjected to exterior forces tending to twist it about its axis, the angle of torsion is that which two lines originally parallel, and passing through the centres of the two cross sections indefinitely near to each other, make between them after the twisting of the prism. In the case of a cylindrical shaft, it is found that the angle of torsion is directly proportional to the sum of the moments of the exterior forces, and to the distance between the extreme ends of the cylinder.

Resistance of Columns.—Under this head the author merely gives Mr. Eaton Hodgkinson's formulae for cast-iron columns, published in the year 1840, an account of which will be found in the *Builder*, vol. XI. p. 532. But Mr. Fenwick has omitted to notice that, from more recent experiments, of which the results were published in 1858, Mr. Hodgkinson has found it necessary to modify his previous formulae, the later experiments having been made on larger pillars than were used in the earlier. A notice of these experiments appeared in the *Builder*, vol. XVI. p. 531, and the formulae are given below, together with those of 1840, as mentioned by Mr. Fenwick.

	Formula of 1840.	Formula of 1858.
Hollow cylindrical column	$W = 44 \cdot 3 \frac{D^3 \cdot l - d^3 \cdot l}{l^2}$	$W = 45 \cdot 3 \frac{D^{3.5} - d^{3.5}}{l^{1.5}}$
Solid ditto	$W = 44 \cdot 1 \frac{D^3 \cdot l}{l^2}$	$W = m \cdot \frac{D^{3.5}}{l^{1.5}}$

Where W is breaking weight in tons, D and d the external and internal diameter in inches, l the height in feet, m a constant varying in different kinds of iron from 49.9 tons to 33.6 tons, the ends of the columns flat, and the height exceeding thirty times the diameter. In order to facili-

tate the application of these formulae, we have calculated by logarithms the values of $D^{3.5}$ and $d^{3.5}$ for a few cases, similar tables being given for $D^{3.6}$ and $l^{1.7}$, in Mr. Hodgkinson's work on cast-iron, published in 1840, p. 336.

Powers of Diameters in Inches.	Powers of Lengths in Feet.
$2^{3.5} = 11.31$	$5^{1.63} = 13.78$
$3^{3.5} = 46.77$	$10^{1.63} = 42.66$
$4^{3.5} = 128$	$15^{1.63} = 82.61$
$5^{3.5} = 279.5$	$20^{1.63} = 132$
$6^{3.5} = 529$	$30^{1.63} = 255.7$

An example will show how to make use of these tables and formulae. A circular hollow column of cast-iron is 4 inches external and 2 inches internal diameter, the length 10 feet, to find its breaking weight. Here the dividend is formed by subtracting 11.31 from 128, and multiplying the result by 42.3, which gives 4936; divide this by 42.66, and we obtain 115½ tons as the breaking weight. If we calculate the same from the formula of 1840, we find the breaking weight to be 119½ tons, so that for practical purposes it matters little which formula is employed. The weight with which they can be trusted in construction is a different thing.

Roofs.—The simplest kind of framed roof is that formed by two principal rafters held together at their feet by a tie-beam. In this roof the thrust along each rafter is $\frac{1}{2} W \cdot \text{cosec. } a$, and the horizontal thrust along the tie-beam is $\frac{1}{2} W \cdot \text{cot. } a$; W being the total weight on each pair of rafters, and a the angle which the rafters make with the tie-beam. By the term "cosec. a ," is meant the length of the rafter divided by the height from the tie-beam to the apex of the roof: "cot. a " is the half span of roof divided by the height: if the former is multiplied by one-fourth the total weight on each pair of rafters, we get the thrust along each rafter; and if the latter is multiplied by one-fourth of the same weight, we get the horizontal strain along the tie-beam. The tie-beam, when of timber, is generally required to carry the weight of a floor or ceiling, so that, in estimating the strain on it, the thrust of the rafters need not be considered, as the tensile strength of the beam is much greater than is required to resist their horizontal thrust. But when it is used only for the purpose of a tie, a very light beam suffices, as the resistance of timber to tensile strain is very great. In such case, however, an iron rod is generally employed, the dimensions of which for different spans are given in the *Builder*, vol. XI. p. 771.

The next form of trussed roof is called the king-post roof, in which the rafters may be stiffened by struts resting on the foot of the king-post. The compression on each strut is $\frac{1}{2} W \cdot \text{cosec. } a$. If W' is the weight of the tie-beam and whatever it carries, W' that of king-post and struts, then the tension of the king-post = $\frac{1}{2} W + \frac{1}{2} W' + W'$

In finding the thrust of each rafter the tension of the king-post must be added to the vertical weight laid on the rafter, and this resolved in the direction of the rafter gives the thrust of rafter = $\frac{1}{2} (W + \frac{1}{2} W' + W'') \cdot \text{cosec. } a$. And the thrust along the tie-beam = $\frac{1}{2} (\frac{1}{2} W + \frac{1}{2} W' + W'') \cdot \text{cot. } a$.

The foregoing results may be stated in words without the use of algebraical symbols. To find the compression on each strut of a king-post roof, multiply the length of the rafter by one-eighth of the total weight laid on each pair of rafters, and divide by the height of the roof. To find the tension of the king-post, add together one-fourth of the total weight laid on each pair of rafters, one-half the weight of the tie-beam and any floor or ceiling which it carries, and the weight of the king-post and struts. To find horizontal thrust along the tie-beam, add together the weight of king-post and struts, with one-half that of the tie-beam and floor which it carries, and three-fourths of the total weight laid on each pair of rafters; multiply the sum by one-fourth the span of the roof, and divide by the height.

Other forms of roofs are also treated of in the work.

The Arch.—In order to ascertain the strength of an arch constructed of stones cut in a wedge form, it is necessary first to discover the mode in which the arch is most likely to rupture. The mode of fracture to which the circular arch is most commonly exposed is by dividing into four pieces. The crown settles down and the haunches spread out; there are thus three points of fracture; the vertical joint at the crown opens at the intrados, and the haunches at the extrados. Another but rather uncommon mode of fracture ensues from the sliding of the upper voussoirs down their joints; but this is generally prevented by the friction of the surfaces. There is a third mode of fracture by rotation in Gothic arches, and in circular arches lightly loaded at the crown and overloaded at the haunches; namely, by the crown rising and the haunches falling in, in which case the vertical joint at the crown opens at the extrados and the haunches at the intrados. But this mode of fracture is very uncommon. The method used in investigating the stability of the arch is to take the half-arch from the springing to the crown, and let N be the horizontal thrust at the crown of the other half, P the weight of the half arch; and since the tendency is to turn round a point at the haunches on the intrados, we must take the moments of these forces about that point, and in order to have equilibrium we must have $N \cdot y = P \cdot x$, x and y being the length of the lever arms of P and N about that point.

Since the tendency of the horizontal thrust, N , is to cause the semi-arch to turn round the outer edge of the pier, therefore, in order that equilibrium may exist between the semi-arch and pier, the moment of N must be less than the sum of the moments of the semi-arch and pier: all these moments being taken about the point on which there is a tendency to motion.

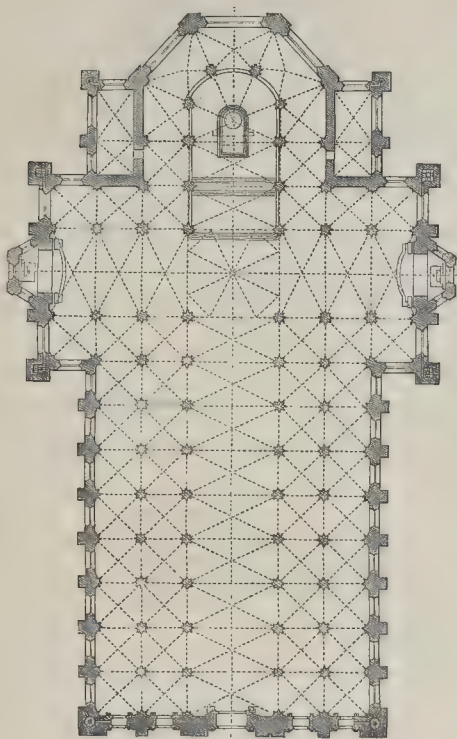
For the investigation of the practical formulae for the stability of the arch and pier, the reader is referred to the work itself, in which the subject is thoroughly examined in a manner more practical than we have usually found it in other treatises, and many examples are given of the application of the formulae. It is stated that the greatest horizontal thrust on a circular arch is at the haunches; the corresponding joint making an angle of 60° with the vertical.

The conditions of equilibrium in the elliptic arch are deduced from the circular arch, since the horizontal thrust of an elliptic arch is nearly that of a circular arch of same span; but whose vertical depth exceeds that of the elliptic in the ratio of the semi-major axis to the semi-minor axis of the ellipse, the two arches being loaded in the same manner.

Suspension Bridges.—In the concluding chapter are investigated the nature and properties of the curve taken by a chain suspended loosely from two points, the curve being called the catenary. When the chain is of uniform thickness and density, the curve is called the common catenary, in which the tension at any point is proportional to its distance from a horizontal line, called the directrix, placed at a certain depth below the chain: the tension is least at the lowest point, and is the same for two points on the same horizontal line. When the chain is of uniform density, but of strength varying according to the tension, the curve is called the catenary of equal strength. The problem which is approximately that of suspension bridges, is the finding the equation of the catenary when the weight of each element of the curve varies as the horizontal projection of that element, the solution of which shows that the curve is in that case a parabola. Several examples are given in this chapter of the practical application of the theory of the catenary to the suspension bridge.

We cordially recommend Mr. Fenwick's book to the attention of architects, and especially of architectural students, who will be amply repaid for any pains the study of it may cost them.

PLAN OF MILAN CATHEDRAL.



Scale, 100 feet to an inch.

PLAN OF MILAN CATHEDRAL.

WITH reference to the notice of Mr. Beresford Hope's interesting work, "The English Cathedral in the Nineteenth Century,"* which appeared in our columns, we were favoured with an engraved plan of Milan Cathedral, of which use was not then made. We take an opportunity that now occurs to insert it. Commenced in 1385, consecrated in 1418, and finished about 1440, Milan Cathedral is called by Mr. Fergusson the largest of all the Medieval churches, covering 107,782 feet. It is certainly the most gorgeous, though far from the most beautiful. The plan was given by Mr. Hope as affording a striking example of a feature advocated by him, namely, a chevet, or aisle round the eastern apse, the convenience of which is not to be questioned. It is here carried around the apse without any diminution of the width of the internal nave and choir aisle of which it is the prolongation.

Mr. Hope's book contains much that deserves the most serious consideration of all church-builders.

A FURTHER REVIEW OF BLOTS IN SHEFFIELD.†

STREET scavenging appears to be but imperfectly applied at Sheffield. The streets are partially swept before the shops are open in the morning; consequently, when these are to be cleaned out, the sweepings which are thrown upon the streets remain all day long, to be trodden into a thick greasy crust. Of this we had ocular demonstrations during our long perambulations of almost every street and road in the town. That some scavenging is actually performed, we are convinced, as we get near one of the four great deposit heaps of the corporation. Proceeding down Victoria-road past

the Cattle Market, past the hide and skin market, under a railway arch, past a large open space, with heaps of coal-ash, and cinders, and broken bricks, in front of a row of three-storied houses, with street doors opening into the rooms, and a great ash-pit for all at the end of the row, we arrive at an area of nearly two acres in extent, completely covered by huge hillocks of filth. A special heap in one corner belongs to the Duke of Norfolk, as the sweepings of his grace's markets and properties are brought here, and upon which children, not pigs, are grovelling, whilst one infant sits playing with offal, and gnawing a decayed leek. We ascertain that the dispersion of these vile accumulations is left to the mercy and convenience of the farmers who buy them. We are told "they were never known to be so full as they are this year, because the agricultural season was late, and the farmers otherwise occupied." We must protest against this dangerous system of collecting the scavenger, and allowing it to rot in the midst of a town. Street scavenging is a most valuable institution, but it remains to perfect the mode in which it is carried out, and simply to remove the dirt from a large flat surface to heap it up in a smaller one is not the right way. There is no doubt that the scavenger forms a first-rate manure; but if it require keeping, let it be kept away from the nostrils of a hard-working population, whose trade is not too conducive to health. The system should be so ordered that, either by rail or canal, both of which are so ready at hand, the contractors should be obliged to remove the sweepings periodically, out of harm's way. The railway company to whom the deposit track belongs, appear to have found out that the manure business is a profitable one, as they have given notice to quit, or of an increase of rent. The scavengers must not be confounded with the "muck getters out," who buy and empty the contents of the swarms of private cesspools and privy pits from the persons who own them, and afterwards sell them at a profit,—these not coming at all under the authority of the corporation.

Leaving this neighbourhood, we skirt the canal basin, picking our way between mounds of sifted

coal-ash, mill and engine coals, iron bars, steel bars, and lumps of bars in boxes,—a rusty, dusty, gritty place to remember,—passing the Corn Exchange,—a long colonnaded building, with a covered tribune in the centre; and presently come into High-street. This is the centre of the retail commerce. Here is Whelan & Whitty's cloth hall; there are Levy & Son's commercial buildings, having a facade like that of an East-end theatre; and here is Foster's tailoring establishment; with a fair proportion of hatters, bootmakers, hosiers, silversmiths liberally introduced between them. Like all the Sheffield streets, it is inconveniently narrow, improving but little in this respect when it takes the name of Fargate. Gryn's Exchange Drapery establishment, with a lofty arched arcade entrance and Italian superstructure, was striking enough in its street effect to cause regret that there were not others of equal consideration. The rest of the shops, with perhaps the exception of Moses's large-paneled frontage in Moses's usual grandiose style, are poor and dingy; and the dull, red-bricked, antiquated Assay Office might be well included in the latter category. The Cutlers' Hall is close by,—a heavy Classic building, which may have been thought sufficiently stately when it was first erected, but cannot now be considered to afford adequate accommodation. It contains a council-room, reception-rooms, kitchens, and a dining-room,—the latter adorned with portraits of the Earl Fitzwilliam and Lord Wharfedale. At the annual cutlers' feast, the number of guests to be entertained is limited by the size of the dining-hall to 250; and, when the mayor and corporation gave their first dinner, last August, in the Free Library, they could not invite, to meet the borough members and master cutlers more than 80 guests; so it must be allowed that the civic and public hospitalities of a population exceeding 180,000 persons are but scantily provided for. The erection of a new hall, as broached at the latter banquet should not be overruled, for the implied necessary taxation which the mayor urged as a difficulty need not stand in the way. With the co-operation of the neighbouring nobility and gentry and the wealthy Sheffield manufacturers, the scheme might be carried out by means of subscription shares. The proper site is evident: save the present so-called Town Hall, with the gin-palace at its side, and the great ash-pit in its rear, and any number of the tenements around it, and a new building corresponding with the still increasing importance and wealth of Sheffield would be a municipal, architectural, and sanitary improvement.

Modern commerce has swept nearly every ancient building out of Sheffield except the perpendicular parish church. This is in the centre of a large well-filled graveyard, now properly closed, but which when purified by time will be an airy open place for a town much in need of one. The shabby iron railings should be replaced with new, if only as a tribute to the wealth and benefits the parish has derived from metal; these, of an artistic character, with a few young trees, would brighten and beautify a spot in an important situation in view of High-street and the Cutlers' Hall. The Sheffield Savings Bank deserves a word for the clever way it has in some measure overcome the difficulty of a narrow street. It is a neat, substantial, and somewhat ornate Italian building, with a centre which is set back, and two side porticos which keep the line of houses. In Norfolk-row there is a large handsome Decorated Gothic Roman Catholic chapel, with transepts and spire, the effect of which would be much heightened by the removal of a low dirty little cigar divan, and a still dirtier little vegetable shop, occupying the important corner site into Norfolk-street. This is the boundary line of a parallelogram of rectangular streets in which the principal public institutions, the residences of the medical profession, large and small factories, a brewery, and railway receiving and order warehouses are situated. The same blotchy encrustations on the roads, and the same channels running across the footways, with liquid manure from houses and stables, are too frequent. Chapels are thick upon the ground in this quarter, exceeding for the various dissenting denominations forty in number in all Sheffield. A Wesleyan and Independent chapel opposite Harrison, Brothers, & Howison's (cutlers to her Majesty); are both but square roomy brick boxes, with stone fronts, but they set the commendable example of standing back from the street line behind railings. At the corner of Arundel-street the severe Assembly Rooms look askant at the blank, featureless theatre at their side. Then come the doctor's houses, Mr. Moseley, the advertising surgeon-dentist, being here, as everywhere else; Rollason & Son's meta



* John Murray, Albemarle-street. 1861.
† See p. 641, ante. We take the opportunity to mention that Mr. J. G. Weightman (not Wilson) was the architect of the new works lately erected for Messrs. Joseph Rodgers & Son. The market of which we spoke was designed by Mr. Haddfield.

warehouse; Gillot's metallic pen depot; Drs. Shearman, Smith, and Elam, till at the corner of Tudor-street the Free Library stands confessed, externally, a miniature copy of the Reform Club, but so black internally, in process of re-embellishment. The Smoke Act was partially applied to Sheffield some time ago, in so far as the smoking of chimneys was, as a compromise, limited to twenty minutes an hour; but even this half-and-half arrangement has been, by the *vis inertiae* of the authorities, thrown overboard, and every chimney performs the part of a crater, unheeded. Smoke, assisted by the metallic dust raised by the process of grinding, and further aided by the porous nature of the stone, tones down every stone building to an indian-ink tint. The Philosophical Museum—all the more valuable and accessible for the learning and urbanity of the curator—is also in this district, and a Music Hall, with Subscription Library, albeit in the heavy jocular's Doric style, is, nevertheless, another useful institution. More surgeons,—Messrs. Porter, Perry, Willington, and Barber, and Dr. Bartolomé! past Truswell & Co.'s brewery, Walker & Hall's, electroplaters and bronzers, Edward Hunter's, manufacturer of fine scissors, past the vile and dismal Froggatt-lane, opposite Eyre-street Works, Lister & Co.'s railway receiving and order warehouse, past Corsaw, Denton, & Burdakin's, and the same preternatural science reigns around. The "Shevild chap's" have struck work for the day, and have besieged and taken the Botanical Gardens, where there is a brass band contest taking place.

A school of art was originated in the bygone days by poor Haydon, the painter, Dr. Harwood, and Mr. J. Jobson Smith, now president of the Chamber of Commerce. The latter of whom has happily lived to see the fruit of the seed thus early sown, not only in the material shape of a handsome new Romanesque red-and-black brick building, erected in 1855, but in the appreciation of the teaching by a large body of students, and its effect upon the artistic character of the manufactures. Perhaps the harvest may have been gathered in, so to speak, when the superiority of Mr. Smith's metallurgy was acknowledged in the late Sultan's orders for mantel-pieces and stove-grates at a price of a thousand guineas a piece. Inscribed in letters of gold, we observe in large tablets hanging on the walls of one of the principal rooms, the names of the annual mayors and annual master cutlers, who have awarded ten guinea prizes to the pupils who have produced the best designs of Sheffield manufacture, and the names of the fortunate recipients thereof. For the same purpose, and with equal incentive, a Norfolk prize has been instituted.

At the poorer extremity of this same parallel-gram, we perceived a notification of "a working man's college and penny savings bank," with a charge of "threepence per week for elementary branches." It would be well if sanitary science were studied at this and similar institutes. This would be the more desirable, because in Sheffield there are many working men who are freeholders of small properties, and who systematically oppose sanitary improvements for fear of extra taxation. If they could be brought to see the wisdom of giving a penny to save a pound, buying health instead of paying to be cured of disease, our end would be in great measure gained. All this neighbourhood dips down to the valley of the Porter and the Ponds into which the natural drainage must necessarily descend; and stand intact the side of the alcoved apse of St. Paul's Church, at the head of Howard-street, under the shadow of the dome-covered tower, and thinking of this, the pale cholera monument looking down from the hill opposite, seems like an admonition.

The "Shevild Chap's" penny song says:—

"S stands for Surrey Music-hall, with its decorations fine,
Tint baffles all description, and our theatres far out-
-shine.
T stands for talent there employed to try to please each
-night,
And when our approbation gain, they meet it with
-delight."

Among ham and beef shops, oyster shops, and cigar divans, next door to a pawnbroker's and at the corner of Workhouse-lane, in West Bar, is the establishment thus eulogized. Like Holder's Music-hall at Birmingham, from small beginnings the proprietor, Mr. Yondan, by getting the favour of the working men, has been enabled, with the result of their patronage, to erect this building, capable of accommodating 4,000 people. On payment of 6d. the visitor is free to boxes, pit, mezzanine under the pit, and dancing-room under the stage; 4d. admitting him only to the gallery. Entering a lofty saloon, on one side of which is a large gaudy refreshment stall and tavern bar, we

find our way into the so-called music-hall, which, in construction, is a theatre. It is crammed full of an audience of men, women, and children, enveloped in a stifling haze of tobacco smoke. We should have been glad to have found a higher class of entertainment than that afforded by the bill of fare,—“A female Blondin, double trapeze, globe perche, barrel dancer and clown, highly-trained dogs, bottle and chair performer, tight rope dancing negro vocalist, and Paddy Carey in Irish character,” and would take this opportunity to impress upon the purveyors of the artisans' amusement the possibility of combining instruction with amusement. A little good music, judiciously introduced, *à la* Julien, would lead the way to a preference for something more elevating. The museum contains a correspondingly heterogeneous collection of objects: Chinese implements, collected by Sir John Bowring; the Judgment of Solomon in life-size waxwork, in a glass case, the figures dressed partly in modern costume; coloured lithographs of fruit, landscape, and architectural subjects; stuffed beasts, reptiles, birds, and butterflies; framed testimonials to the proprietor, models of engines and men-of-war, and peep-holes into dioramas.

Another morning we visit this same locality by daylight, as it lies in our road to a crowded locality of working bees in the busy hive of Sheffield, and to the reservoirs from which the town is supplied with water. We find the streets as dirty as they were overnight: though well paved, the roads are covered with a thick, hard, cheesy crust, and with the loose sweepings of the shops: sawdust and other sweepings, have choked up the gutter gratings. The water provided for general use being of a colour we do not esteem nor envy, we are further bent on visiting the sources of supply to examine into their condition, in order to clear up certain doubts we entertain respecting them. From West Bar Green, into which six streets converge, the steep ascent begins which leads into the west country. The long irregular road, first called Tenter-street, is intersected with crofts and alleys which are full of small two-storied houses. In these the artisans reside, and in some of them carry on their trade. Old clothes-shops, old furniture shops, the shop of an optician calling himself “A Blessing to the Aged,” rag and bone shops and petty hucksters, including “A Co-operative Store,” make up a dingy line of thoroughfare. Up Court No. 1 a cesspool is being emptied, the contents wheeled out, after nine o'clock in the morning, into the main street, and thence shovelled into a cart, causing a horrible stench: children newly washed and clean are playing round about the corrupt ashes, dung, and slime. In all the courts there is but one huge ash midden, into which the privies in common empty, for all the inhabitants. They are nearly all furnished after one type, with a public privy and a public—shudder. The small workshops are generally ill ventilated. Still ascending Tenter-street, past Wade, Wingfield, and Rowbotham's, up School Croft and down White Croft, where the channels from houses to gutter are all in great favour, and the roads gritty with fine ash, fine sawdust, and fine filths, till St. Vincent's Church and Schools present a clever and pleasing architectural contrast. An infant school, with a dry asphalt pavement and asphalt walls, is black outside and very narrow and dirty within: with too little light: a decorated Virgin and Child in a niche over the mistress's desk, affording a strong contrast, and, perhaps, by way of compensation, a large ashpit and cesspool in the high corner of the play-yard. From this to more Crofts, to S. Bacon's stag, bone, black buffalo and hard wood, haft and scale cutters, S. Gill's cutlery factory and clean whitened door-steps, and houses from Nos. 76 to 82 in Hollis's Croft, making way for a particularly clean court, No. 9, proving that all might be cleaner than they are; but even in this there were the common privies and the one huge ashpit; and still onwards, unmindful of the invitation implied by the sign-board “The Grinder's Rest,” past Burgen and Wells's black rickety steel works, and Beardshaw, Stevenson, & Co.'s, every here and there noting ashes thrown out of windows from little furnaces, and water soaking out of houses from wet grinding; past lodgings for travellers, where the toilets of women are performed within sight of foot-passengers; and past a neat Temperance Hall, 1855, to which a flight of twenty external steps is attached with but a very weak iron rail, which is evidently, for a crush, “marked dangerous.” In Newcastle-lane another and still larger ash and privy pit was being emptied at mid-day: a Wesleyan drinking-fountain, with a thermometer and lamp attached to it, is on our road, inscribed “Rest for the Weary. James Montgomery, etat 80, Redhill Wesleyan Sunday-school Drink-

ing Fountain and Montgomery Memorial. Whosoever drinketh of this water shall thirst again.” Soon after this, and still ascending, the road breaks into St. George's-square, with St. George's Church in the centre of it—a modern late Perpendicular edifice, with a square tower, and flat roof with pianacles. The Free Grammar School is also in St. George's-square. In the corner of the playground there is a group of ruined privies, close to a row of houses. The windows are broken, and the building generally not in good repair. At the corner of the square and Portabella-place, is the new-built factory of S. Laycock & Son, for hair-seating and curled hair, and C. Johnson Western's works, next door, Regent-street, farther on, is neat and clean, with little enclosed fore-courts; but every third house is detached by a passage, which the tenants of all must use to remove the contents of the common privies. St. George's National School, an immense establishment built at the angle of Rect-street, is by far the handsomest school building in the town. Three large school-rooms, with masters' houses between each, built of stone in the Norman style, with columns at the angles of walls and windows; with no lack of zig-zag, or billet ornament; and with, for the only drawback externally, a travertine of a Norman tower at one angle. Internally, a deficiency of light and room in the infants' class-room, is a grievance: bonnet and cloak places are wanted in lieu of the existing arrangement of hanging these all round the schoolroom:—and the great sore of open ashpits and privies prevails even here.

From this, through a suburban district of small villas and large houses, set back within well-ordered flowery grounds, climbing up a further ascent, we make our observations upon the first great dam or reservoir. Although on so elevated a site, the ground around is still higher and slopes towards it, and reeds and rank grass, and overhanging trees, fringe the banks. There is a dam house close by, the well-stocked gardens of which must to some extent affect the purity of the water. The dead leaves are floating upon the surface, and in one bend, the corner nearest the garden, a thick slime was upon the waters. Moreover, ducks were swimming about in it. The next dam communicated by means of an open channel, from which a trough was filled; and horses and cattle were drinking from it in the corner of a field. Higher up, from dam to dam, and up to the great Hadfield reservoir, the same imperfections present themselves: banks that should be lined with sloping stones, and not an atom of decayed vegetation allowed to mix with the water, are planted to the water's brink with overhanging trees, and rank grass and weeds grow apace upon the shallow muddy shores. The highly discoloured and slimy state of the water may in like manner be attributed to the position of the dams, which admit of the land-drainage of higher grounds undoubtedly filtering into them.

We remember that the attempt to apply a Town Improvement Act, about five years ago, was frustrated by the artisans themselves, who, possessed of small properties, were afraid of extra taxation. Considering the pulmonary diseases to which the Sheffield workmen are especially liable, as fully described to them by Dr. Holland, a staunch sanitary reformer, in his work “On the Diseases of the Lungs from Mechanical Causes,” it is a miracle that they do not jealously insist upon the removal of every other exciting cause of ill health. It is allowed that when the operatives, grinders especially, resided in the country, and had to walk daily to some distance to their workshops, which were once situate in rural places, on the banks of the streams which furnished the required water power, the mortality rate was not so high as it is now. The same liability to inhale dust while at work existed: the same constrained position while at work was maintained; the work-places were as ill-ventilated then as now; in fine, the same causes existed which are supposed to act deleteriously upon the present workmen's health. To what circumstance, then, should the excess in the mortality rate be ascribed? Simply that then the workman passed part of his time in *pure air*. Now, either in or out of the workshop, he breathes an atmosphere impregnated with excremental and putrefactive smells, and charged with dust. How can it be otherwise, when this immense concourse of persons live, eat, drink, and sleep in a space crammed with cesspits full of their own ordure, and where the contents of their heaped-up ash and offal middens are retained within sight and scent of their dwellings?

The result of these investigations prove that, although Sheffield possesses a medal of honour conferred at the hands of the Emperor of the

French, it is as devoid of the decencies of civilization as it was in the Dark Ages. We read of such a community with much the same feeling that we read of the benighted inhabitants of the Great Salt Lake city. Even in the Dark Ages such a condition of life as is existing at Sheffield have been deemed "an oppression by nuisances."—

"And if one person do lay timber, faggots, stones, lime, sand, gravel, dung, or any other thing, upon or against the house of another, which do rot, putrify, corrupt or impair the walls, timber, or other part of the same house, or any corrupt, noisome, or stinking thing, the sauer or smell whereof is offensive to the inhabitants of the same house and his family, that is an oppression of the same inhabitant."—(Fitz. Nat. Bre. 184.)

There is much to interest in Sheffield, much to praise, but our object on the present occasion is to point out what there is to amend.

REPORT ON DECAY OF THE STONE AT THE NEW PALACE AT WESTMINSTER.

The report of the committee appointed by the First Commissioner of Her Majesty's Works and Public Buildings, to inquire into the decay of the stone of the New Palace at Westminster, and into the best means for preserving the stone from further injury, with the minutes of evidence, has been published as a "Return to an Order of the Honourable the House of Commons, dated 1st of August, 1861," and can be obtained by the public in the usual way. The committee met thirteen times (between March 23rd and August 7th), irrespective of the meetings of sub-committees; examined thirty-one witnesses; and considered seventy-seven communications submitted to them. The following, addressed to the Right Hon. William Cowper, M.P., is their

REPORT.

Sir,—We, the undersigned, being the committee appointed "to inquire into the decay of the stone of the New Palace of Westminster, and into the best means of preserving the stone from further injury," have the honour to submit to you the following report, in which we have adopted, as the objects of our inquiry, the several points referred to by your letter of appointment and instruction,* viz. —

"I. The extent and position of the decay.
The causes to which it is attributable, taking into consideration the composition of the stone, and the influence exerted upon it by moisture, and by the acids diffused in the London atmosphere.

"III. The best means of preserving the stone from further injury.

"IV. The qualities of the stones to be recommended for future use in public buildings to be erected in London."

1. In proceeding with the important inquiry thus intrusted to this committee, we beg to state that we first made a careful inspection of the whole of the buildings; and that after this inspection we proceeded to obtain such evidence as appeared to us best calculated to facilitate the inquiry intrusted to us, by examining a considerable number of witnesses who had been connected with the building from the commencement, or who had been concerned in the various processes which had been actually tried for arresting the decay which had occurred; and also another class of witnesses, who had suggested various theoretical remedies for the same purpose.

2. We delegated to a sub-committee, specially appointed, an examination and inquiry into the condition of other buildings erected in the metropolis,

* The letter of appointment and instruction was addressed,—"To Sir Rodrick Impey Murchison, Bart., Esq., LL.D., F.R.S., Director-General of the Geological Survey of Great Britain; William H. St. John, Esq., M.P., President of the Royal Institute of British Architects; Sydney Smirke, Esq., Royal Academician, architect; George Gilbert Scott, Esq., F.R.S., and Matthew Digby Wyatt, Esq., vice-presidents of the Royal Institute of British Architects; Augustus H. Pugin, Esq., LL.D., F.R.S., Professor of the Royal College of Chemistry; Edward Frankland, Esq., F.R.S., Professor of Chemistry at St. Bartholomew's Hospital; Frederick Augustus Abel, Esq., F.R.S., Chemist to the War Department; David Thomas Ansted, Esq., M.A., F.R.S., Professor of Geology; James Tennant, Esq., Professor of Geology at King's College, London; George Townend Burnell, Esq., civil engineer; Thomas Hawksley, Esq., civil engineer; Charles Harriott Smith, Esq., one of the Commissioners for the selection of the stone for building the Houses of Parliament;" and Edward Whitley, Esq., Associate of Royal Academy, and architect in charge of the Houses of Parliament, the committee appointed by the First Commissioner of Her Majesty's Works and Public Buildings to inquire into the decay of the stone of the New Palace at Westminster, and into the best means for preserving the stone from further injury." Mr. Alfred Bonham-Carter acted officiously as Secretary.

polis, in which magnesian limestone had been used; and we particularly called the attention of the scientific chemists, who had been appointed on the committee, to several points peculiarly within the limits of their acquaintance with chemical subjects.

3. We also considered it expedient to invite by advertisement the attention of chemists and others to the subject submitted to the committee; requesting that any plan or suggestion for the prevention of decay, or for arresting its progress, might be brought under our notice.

4. Having thus premised the course the committee thought it expedient and desirable to take; we now proceed to report *seriatim* on the subjects brought under our notice by your instructions, and in the order adopted therein.

I. The Extent and Position of the Decay.

5. It is extremely difficult to give any very exact account either of the extent or actual position of the decay. It seems from the evidence that it first began to make its appearance in the portions of the Palace at Westminster executed at the commencement of the building about seven years after their execution; and yet, in some of the most recently executed portions, viz., those towards Old Palace-yard, facing Henry VII.'s Chapel, the decay appears to be as obvious as in any other part of the building.

6. In the earlier works, viz., those towards the Thames, the decay is most apparent in the lower portion of the building; and in this portion the decay is confined to what may be called "zones," or general levels; which would seem to suggest that it depends as much upon position in the building as upon the use of particular beds of stone from the quarries employed.

7. The same remark applies to the part of the palace fronting the approaches to Westminster Bridge, where the decay of the lower portion is considerable; but, in the newest work, facing Henry VII.'s Chapel, the decay occurs in positions which are more varied, and under circumstances which it is exceedingly difficult to appreciate.

8. We have examined with much care the upper portions of the building; and we cannot perceive that the decay has made any important inroad upon those much more exposed portions, where decay might more reasonably have been expected. The decay, however, occurs again to a considerable extent in the inner courts, which are sheltered in a great measure from external influences; and, perhaps, the very worst specimen we have noticed is to be found in the small archway leading to the reporters' gallery, near the entrance to Westminster Hall; a part of the work as much sheltered as in the nature and circumstances of a public building it could well be.

9. The general result of our observations, confirmed by the evidence, would seem to suggest that the stone used in the palace of Westminster is much more likely to decay in damp and sheltered situations than where it is exposed to the full action of atmospheric influences. In the east and north fronts, before adverted to, the worst symptoms occur in the ashlar between the upper and lower mouldings of the plinth, and under the first cornice, where the exposure is considerable; but the dampness, arising from the drip of the mouldings and from the action of capillary attraction, in cases where projections hold the moisture, appears to exercise an important influence on the condition of the stone itself.

10. It does not appear to us that the decay is attributable, as is commonly supposed, to the stones in the building not being placed upon what is technically called their natural bed, or in the same relative position as they occupied in the quarry: thus, stones which are found horizontally in the quarry appear to have been often placed perpendicularly in the building, and used for purposes of the most delicate decoration without any injurious result. As an instance of this fact, we may point out the elaborately carved shields of arms under the range of the first-floor windows: the stones used for these shields, though universally placed perpendicularly to their natural position in the quarry, present, so far as we are aware, few, if any, symptoms of decay.

11. The extent to which the decay on the whole surface has proceeded, it is not very easy to estimate. At the present moment the actual decay is, doubtless, considerable for a building so recently erected; but the change of colour in the stone itself, and the "fretting out of the surface," which are suggested as the first symptoms, lead us to apprehend that there may exist much more mischief than at present is actually apparent.

12. One of the witnesses examined, however, and whose judgment as a practical man is of

considerable value, is of opinion that the decay, after proceeding to some depth in the stone, stops of itself; that an induration of the surface takes place, and that no further decay ensues. The committee would willingly accept this opinion, if they considered it well founded; but they cannot conceive that it is true to any considerable extent, notwithstanding there may certainly be some few indications which lead to the belief that in some cases it may be correct.

13. At present the decay appears for the most part on the plain surfaces, whilst the finer and more elaborately-wrought portions of the building, unless under projections, are not seriously affected. And however disappointing and disfiguring these defects may be, especially in a building so recently erected, the committee are of opinion that at present the decay does not affect the stability of the structure.

II.—The Causes to which the Decay is attributable.

14. This part of the inquiry naturally leads to a reference to the evidence which has been obtained by the committee on the subject of the stone itself. The result of this evidence may be thus briefly stated. The stone recommended by the commissioners for this building was that from the quarries of Bolsover Moor and its neighbourhood; and this stone was actually contracted for in the first instance. Before the work began, however, it was found that blocks of sufficient size could not be procured from those quarries; and in consequence, one of the commissioners was appointed to proceed to the spot, to ascertain whether other quarries might not be discovered furnishing stone in beds of greater thickness and of larger dimensions. These conditions were found in the quarries at Anston, and the stone of greater thickness procured from these quarries has been used not only in this building, but in all the other buildings constructed of magnesian limestone in the metropolis, after the quarries of Bolsover Moor had been abandoned, for the reason above stated.

15. The recommendation of the Bolsover stone in the report of the commissioners was founded on its similarity to that used in the Norman portions of Southwell Minster, which were stated in the report to be in a high state of preservation. Evidence has since been adduced, in a letter from Mr. Scott, to be found in the Appendix, which renders it probable that the stone of this Minster was really obtained from the ancient quarries at Mansfield Woodhouse. The latter quarries were reopened, and a considerable quantity of stone from them (exceeding 20,000 cubic feet) was made use of in the Palace at Westminster; but in their turn they were relinquished, from dissatisfaction as to the size of the blocks, though we have it on evidence, confirmed by our own observation, that the stone used from these quarries has stood remarkably well.

16. The evidence brought before your committee on the subject of the stone obtained from the Anston quarries is very conflicting; the contractor and his principal foreman stating that the stone was, with slight exceptions, extraordinarily good; while other witnesses maintain that even in the quarries themselves there are stones in a state of actual decomposition; and one very important witness, a foreman employed at the Palace at Westminster, asserts he knew that certain beds in some of the quarries were liable to decay, and that he abandoned them in consequence. With reference to the selection of stone, the committee venture to remark, that it is much to be regretted that the offer made by one of the commissioners, particularly well acquainted with the selection and working of stone, to examine that used in the Palace at Westminster for the moderate salary of 150*l.* per annum, was not accepted; owing to some difficulty in regard to the party who was to be held responsible for this unimportant amount; and that the matter was left to persons who admit they had little or no prior experience of this description of stone, though they evidently entertained suspicions of the durability of some of it which they were employing.

17. With reference to the very natural and important question of the actual causes of the decay of this stone when exposed to the London atmosphere, the committee take the liberty of referring to the report of the chemists, who were members of the committee, to whom this question was specially referred. This will be found in the Appendix.

III.—The best Means of preserving the Stone from further injury.

18. This part of the inquiry referred to the committee naturally divides itself into two ques-

tions;—namely, as to the steps that have hitherto been taken, whether experimentally or otherwise; and as to those that are to be recommended for adoption hereafter. With regard to the first question, we have ourselves examined with care the result of what has been done at the Palace itself, either experimentally on the river front, or, as in the inner courts, by actual coatings or washings over large surfaces. With regard to the second question, our inquiries have been earnest and elaborate, and we have examined many witnesses and given much time to the consideration of the various propositions obtained by advertisement or otherwise. As will be seen in a subsequent part of the report, we finally referred this question to the further consideration of the professional chemists who were on the committee.

19. On the first question, the committee are decidedly of opinion that it is not necessary nor desirable to proceed with any general coating, painting, oiling, or washing of the whole building. It is quite obvious, in their judgment, that a very large proportion of the stone does not require any such application; but that what is wanted is some efficient process which should be applied to the surface of any stone that begins to show symptoms of decay, with a view to arrest its progress. The committee believe, that the persons to whom the care of the building is entrusted ought to watch it, and note, in the very earliest stages, wherever decay is perceptible, by efflorescence, change of colour, crumbling, or slight decomposition.

20. In cases where the decay is important, and evidently occasioned by the fall of rain on an upper projecting or exposed surface, protection should be afforded by a covering of sheet zinc or lead; and if, hereafter, any composition should fortunately be discovered, by which the decaying stone could be at once covered or coated, and the injurious influences of the atmosphere prevented from further acting upon it, the difficulty would be solved. In some extreme cases, the decayed stone might be cut out, and replaced by a new one. With regard to the processes which have actually been applied, whether experimentally or extensively, your committee are decidedly of opinion that the discovery of a proper mode of treating stones in a state of decay has not yet been made; and there is no evidence whatever on the building itself to induce them to believe that the decay, where decay has arisen, has been arrested, or that permanently the decay has been prevented, by any of the processes yet applied.

21. With reference to the second question, we found ourselves unable, after much labour, to come to any definite conclusion; and we finally requested the chemists in the committee to examine and report upon it; but those gentlemen state, as appears by their report in the Appendix, that the nature of the inquiry is so extensive, and that time is so important an element in the solution, that they are unable to give any opinion upon the subject. They further state, that they spent five whole days in the examination of only one suggested remedy; but they are unable, notwithstanding, to give any opinion on even that one suggestion. They allude to secret processes, regarding which they say they can offer no opinion; but they express a doubt of the applicability of any suggestion which would demand the veil of secrecy for protection. Concurring in this view, it may be further noted that even if such applications were found successful in sample or experiment, no security would be afforded for a corresponding success in any subsequent large operations. They recommend that a series of experiments should be conducted, under chemical supervision, for a considerable period of time; and the committee are most reluctantly compelled to coincide with them, and to urge upon the Government the adoption of such a course.

IV. "The Qualities of the Stones to be recommended for future Use in Public Buildings to be erected in London."

22. On this head of the inquiry the committee have been unable, in the time allotted to them, to go into any very extensive examination. It is obvious, however, that although some varieties of magnesian limestone are an excellent and durable material, when not exposed to the deleterious influences of the London atmosphere; yet that in London it is subject to causes of decay, which render it an undesirable and unsafe material for the construction of public buildings.

23. It is equally obvious that Portland stone, well selected, has been used in buildings in London for many years, and that its durability, under circumstances of great exposure, and with most successful results. Portland stone is a material to

be obtained in any quantity, and in blocks of any size, beautiful in colour and texture, reasonable in price, not by any means so hard as the Anston stone, and yet with a power of resisting the influences of the London atmosphere, that leaves little to be desired. It must be remarked, however, that Portland stone should be carefully selected; an operation which would be the most satisfactorily effected by an agent at the quarries.

24. On this subject the commissioners could of course bring much personal experience to bear; but, after the valuable explanation of the principles upon which the decay of stone depends in populous places, as given by the chemists, in their report before referred to, the committee refrain from repeating those conclusions; in which, however, they entirely concur.

25. During the inquiries of the committee, one of their members, Mr. Burnell, who is well acquainted with architectural and engineering works in France, undertook, at his own expense, a journey to Paris, to inquire into the practice of the French architects engaged in the Government works in that metropolis. There, the stone used, the "calcaire grossier," though a carbonate of lime of tertiary age, and therefore of very different mineral composition from our magnesian limestone of the much older Permian age, seems to suffer also from decay in a comparatively pure atmosphere, and where wood is chiefly used as fuel.

26. From the evidence of Mr. Burnell, it does not appear that French architects or chemists have been more successful than ourselves, either in the use of materials not subject to atmospheric influences, or in the application of processes for their preservation, when it has once begun. The opinions of the most scientific chemists and architects in France on this subject have, however, in this way, been obtained; and it is extremely probable that the inquiries undertaken by them, simultaneously with those undertaken in this country, may hereafter lead to some successful result.

27. The committee have to thank the Government for the facilities given to Mr. Burnell in this important part of the inquiry, by providing him with an introduction which obtained for him the active assistance of Her Majesty's ambassador at the court of the Tuilleries.

28. The committee delegated, as before stated, to a sub-committee, the duty of examining the various buildings in London in which magnesian limestone from the Anston quarries has been introduced in the external architecture. The report of this sub-committee forms part of the appendix; and we beg to refer to that report as confirmatory of our opinion of the uncertain character of magnesian limestone, and the risk attending the use of it in London.

29. In conclusion, the committee venture to recommend that the architect of the Palace of Westminster, assisted by scientific chemists, should examine and record the actual state of the stone work of the building at the present moment; that experiments should be made by their direction, under various conditions of height, exposure, and aspect, with such preservative materials and agents as the chemists may suggest from time to time; and that researches should be continued into the effects of the various alkaline silicates, the phosphates, and other substances which have been brought under the notice of the committee, or suggested in Germany, France, or elsewhere; that where decay arises from damp, means should be taken to protect the stone, as has been before suggested; that any stone extensively decayed should be removed and replaced; but that in particular the earliest symptoms of decay should be carefully watched, and examined, with the view to the application of some immediate remedy. The committee believe that a very large portion of the stone in the Palace of Westminster is of a very durable nature; and they entertain a confident expectation that a remedy will soon be found to arrest or control the decay when it has unfortunately begun to appear.

WILLIAM TITE.
ROD. I. MURCHISON.
SIDNEY SMIRKE.
GEORGE GILBERT SCOTT.
GEORGE GODWIN.
M. DIGBY WYATT.
A. W. HOPMANN.
E. FRANKLAND.
F. A. ABEL.
JAMES TENNANT.
GEORGE R. BURNELL.
THOMAS HAWESLEY.
CHARLES H. SMITH.
EDWARD M. BARRY.

ALFRED BONHAM-CARTER, Secretary.

Report of Sub-Committee, of Chemists, referred to in the foregoing: and addressed to Chairman of the Committee.

17 June, 1861.

Sir,—We have the honour to inform you that we have complied with the wishes of the committee, by examining into the several proposals which have been laid before them for the preservation of the stone of the New Houses of Parliament; and that we have arrived at the following conclusions:—

1. Amongst the processes proposed, varying in principle and value to a very considerable extent, there is not one which we at present feel justified in proposing that the committee should definitely recommend as a preservative, either for general or local application.

2. A minute examination into one class of processes, submitted to the committee at an early period, has convinced us that, surrounded with great difficulties as the subject appeared at the outset, the obstacles eventually met with in an effective experimental inquiry are of a far more formidable character than could have been anticipated. Having devoted five days exclusively to the practical study of one of those processes (Ransome's), and having been unable, in that period, to elaborate even this single process sufficiently to warrant us in expressing a definite opinion upon its merits, it is obvious that anything like an elaborate examination of the numerous proposals which have only just now been submitted to us would require the expenditure of a far greater amount of time than the committee could place at our disposal.

3. Whilst regretting that it is not in our power to lay before the committee a positive recommendation of any particular process, we beg to submit the following observations:—

An examination into the nature of the several processes proposed leads to their classification, under two heads:—

(a) Processes which are likely to afford permanent protection to the stone.

(b) Processes which are only calculated to afford protection of a temporary character.

In both of these classes there are proposals which may at once be excluded from further consideration, on account either of their inapplicability to stones when placed in a building, or of the obvious misapprehension, on the part of the proposers, of the problem to be solved.

A proposal to protect stones by immersion in a boiling mixture of pitch, or resin, and oil, may be quoted in illustration of the processes which are only applicable to stones previous to their having become integral parts of any structure; again, the suggestion to cover the building with a coating of a mixture of silica with sulphur, applied in a semifluid condition, would involve almost insurmountable difficulties in its practical application; not to speak of the inflammability of the sulphur, which is only slightly diminished by the presence of the silica; or the uncertainty of the temporary character of the protection which, under the most favourable circumstances, could be afforded by this material.

Several of the suggestions are based upon notions so obviously erroneous, such as coating the building with sulphate of lead, and procuring an alleged galvanic protection by establishing connections of this coating with plates of zinc, or of ridding the building of the principle of decay by fermentation, that no object whatever could be gained by entering more fully into the merits of these proposals.

Of the processes which are intended to afford permanent protection to the stone, and the use of which is not precluded by the conditions of the case, there are several which claim a careful investigation. These processes may be classed under the following heads:—

1. Application of silicates of the alkalis, in various states of concentration.

2. Application of silicates, in conjunction with various saline compounds, intended to produce double decomposition.

3. Application of hydrofluoric or hydrofluosilicic acid, or their saline compounds.

4. Application of phosphoric acid, and acid phosphates.

5. Application of solutions of the alkaline earths, or their bicarbonates, in water.

All these processes are more or less based upon chemical considerations, which are supported by analogy, and which, in the case of the two first-named classes have received considerable experimental confirmation. The experiments which are now in progress with several of the processes included in the two first sub-divisions will, we believe, in the course of a few years, furnish ample

data for correct conclusions regarding their applicability. In the mean time it might be advisable to apply to portions of the New Houses of Parliament actually undergoing decay, certain processes selected as representatives of the remaining classes above enumerated, in order that their merits might be submitted to the only conclusive tests,—those of actual application, and protracted exposure to the corrosive influence of a London atmosphere.

The second division of processes, namely, those which are only calculated to afford protection of a temporary character, are, from their very nature, of minor importance for the purposes of the Committee's inquiry; nevertheless, as the claims to permanence of none of the processes of the first division have as yet been substantiated by the test of time, we would recommend that, in addition to the experiments already made in this direction, further trials be instituted of some of the more promising materials of this particular description. This recommendation is based upon the consideration that substances, included under the appellation of organic, differ essentially in their powers of resisting the destructive action of the atmosphere. Whoever is acquainted with the nature of organic substances, cannot fail to appreciate the different degrees of stability under atmospheric influence exhibited by gluten, gelatine, or starch (which we find enumerated among the proposed protective agents), and by bees-wax and paraffine, not to speak of many of the fossil gums, which exhibit a degree of permanence approaching that of mineral substances.

The materials which we would recommend for selection to be tried in comparison with linseed oil, are paraffine, bees-wax, and some of the more permanent gums and resins, applied in the form of solutions in volatile solvents.

We should not omit to remark, that some of the witnesses, and others, who have addressed the Committee, speak of secret processes. We cannot, of course, offer any opinion regarding such proposals; but we should doubt the applicability of any suggestion which would demand the veil of secrecy for protection.

Finally, we beg to state, as the result of the experience which we have been enabled to acquire during the prosecution of our investigations on this subject, that a definite solution of the question at issue can only be arrived at after the lapse of a considerable period; since the relative merits of the processes which we recommend for trial can be established only by the test of time.

A. W. HOPMANN.
E. FRANKLAND.
F. A. ABEL.

Report of Sub-Committee on Nature and Causes of Decay of Building Stones.

17 July, 1861.

SIR,—Having been requested to submit to the Committee our opinion on the nature and causes of the decay of building-stones generally, and of the stone employed in the construction of the New Houses of Parliament in particular, we now have the honour to submit the following observations:—

Building-stones in general may be divided into two classes:—

1. Those which consist of materials not easily acted upon by acids.
2. Those composed of materials which are, partially or entirely, acted upon by acids with facility.

As an illustration of the first class, granite, porphyries, and serpentines may be quoted; whilst the second belong to limestones, dolomites, and certain sandstones, containing carbonate of lime as cementing material.

The stone used in the New Houses of Parliament belongs to the second class of building materials; consisting, as it does, almost entirely, of the carbonates of lime and magnesia. The following analyses of several varieties of dolomite by Professor Daniell and Messrs. T. Ransome and J. Cooper, are quoted in illustration of the general composition of the stone in question:—

	Bolsover Moor.		North Anston.		Woodhouse.	Steeley.
	Daniell.	Ransome & Cooper.	Ransome & Cooper.	Ransome & Cooper.	Ransome & Cooper.	Ransome & Cooper.
Carbonate of lime	51.1	52.07	51.87	55.37	52.50	53.95
Carbonate of magnesia ..	49.2	46.69	42.07	41.71	41.31	43.78
Sulphate of lime .....	..	..	..	..	..	trace.
Protoxide of iron .....	..	0.89	0.49	0.73	0.61	0.64
Oxide of iron and alumina ..	1.8	..	..	..	..	..
Peroxide of iron .....	..	0.83	0.24	..	..	..
Protoxide of manganese ..	..	trace.	trace.	1.68	Carbonate.	..
Silica	3.6	3.64	6.6	0.92	1.84	0.14
Water	3.3	0.48	0.51	0.45	0.23	0.12

	Roach Abbey.	Huddlestone.	Park Moor.	Lindley's Bolsover Quarry.	Woodhouse, near Mansfield.
	Daniell.	Daniell.	Daniell.	Ransome & Cooper.	Ransome & Cooper.
Carbonate of lime	57.5	54.19	55.7	54.05	54.05
Carbonate of magnesia ..	39.4	41.37	41.6	38.58	38.58
Protoxide of iron .....	..	..	..	0.74	0.74
Peroxide of iron .....	..	..	..	0.12	0.12
Oxide of iron and alumina ..	0.7	0.30	0.4	..	..
Carbonate of manganese ..	..	..	..	2.43	2.43
Silica	0.8	2.53	0.9	1.30	1.30
Water	1.6	1.61	2.3	0.46	0.46

Regarded from a purely chemical point of view, the difference in the resisting power to corrosive agents of different stones would appear, at first sight, to depend entirely upon their chemical composition; but even a moderate acquaintance with the properties of the components of such building stones demonstrates that there are other conditions at least equally instrumental in determining the degree of permanence of different stones.

It is a well-established fact that the same chemical substance exhibits, in different conditions, a great variation in its behaviour with chemical agents. Numerous examples might be quoted in illustration of this. Thus, marble and chalk are chemically identical; but, owing to the difference in their physical structure, the one being crystalline and the other amorphous, the former is much less readily acted upon by acids than the latter. Again, artificial peroxide of iron is readily soluble in acids; peroxide of iron, in the form of hematite, is attacked with difficulty by acids; and the same oxide, after exposure to a powerful heat, is almost entirely insoluble in acids. The influence of aggregation in these instances, and in numerous others which might be quoted, is obvious and generally admitted by chemists, however different and imperfect may be their views regarding the connection between physical condition and chemical effect.

The observations just made regarding the behavior of substances such as enter into the composition of building stones cannot but apply with equal force to the aggregates of such components to the building stones themselves.

The atmospheric influences to which building stones are subject are many of them essentially chemical actions, involving processes analogous to, or identical with, those performed in the laboratory; although, from the extreme dilution of the chemical agents, as existing in the atmosphere, they must necessarily be of a very gradual character.

There are few instances in which the influence of the state of aggregation upon the permanence of a building stone is more apparent than in that of the dolomitic limestone, used in the construction of the new Houses of Parliament. Here, in one and the same block of stone of comparatively small dimensions, we find certain portions of the surface powerfully disintegrated, while others appear in a perfectly sound condition. Chemical analysis has hitherto failed to establish any important difference in the composition of sound portions of such stones and those parts which are subject to decay; it is therefore legitimate to attribute the unequal permanence of the stone, under atmospheric influences, to such structural differences as may be comprehended under the term—state of aggregation.

Before proceeding to an examination of the particular character of the decay observed in the stones of the new Houses of Parliament, it may perhaps be desirable to glance at the nature of the changes to which building stones generally are subject under atmospheric influences. Under normal conditions these changes must be ascribed to the action of the oxygen, carbonic acid, nitric acid, and water, in the atmosphere. In the air of towns, however, there are certain other constituents, such as several acids of sulphur, and occasionally hydrochloric acid, which cannot fail to exert an additional disintegrating influence upon building stones.

The action of oxygen must be of comparatively a subordinate character; its effects being confined

to constituents which occur but rarely, and generally in limited proportions, in building stones; such as the sulphides of iron, and the protoxides of iron and manganese; these compounds, being very prone to oxidation, would tend to disintegrate the stones by the absorption of oxygen. Of far greater importance are the effects of carbonic acid and water. Carbonic acid, in the presence of water, is a powerful solvent: it not only corrodes the calcareous and magnesian carbonates (more or less powerfully according to their state of aggregation), whether they form the principal constituents of the stone, or are only present as cementing materials; but is capable even of attacking and gradually decomposing the hardest and most indestructible rocks.

In the case of the calcareous and magnesian constituents of stones, carbonic acid acts by transforming the insoluble earthy carbonates into soluble bi-carbonates, which are thus removed from the substance of the stone; whilst its influence on silicious rocks consists in the elimination of the alkaline bases, in the form of carbonates, and the separation of the silica in a more or less friable condition. The weathering of granites, and their gradual transformation into the several varieties of porcelain clay, afford an interesting illustration of the latter kind of action. In the changes just mentioned, the carbonic acid and water are equally concerned; the water serving not only as a vehicle for the introduction of the carbonic acid into the pores of the stone, but also as a solvent for the products of its action. There are changes, however, to which building stones are subject, in which water is the sole agent, and which are more of a mechanical than of a chemical character. The expansion which water undergoes on freezing, and the irresistible force which it then exerts, are well known: it is obvious that water freezing within the pores of a stone must exercise a disintegrating action not less powerful than those above referred to.

Recent researches have demonstrated that nitric acid is a frequent and perhaps even a normal constituent of the atmosphere; and, as such, must undoubtedly assist in the destruction of magnesian and calcareous stones; but the proportions in which this acid has been found are so minute, that it need not be dwelt upon as an important destructive agent. This remark, however, does not apply to the acids referred to above, as existing in the atmosphere of towns. The quantity of sulphur-acids in the air of towns, where a considerable amount of coal is consumed, is quite appreciable. According to the determinations of Dr. Angus Smith, the air of Manchester contains an average proportion, corresponding to one part of sulphuric acid in every 100,000 parts of air, which, in the centre of the town, rises to twenty-five parts in 100,000. No numerical data exist with regard to the proportion of sulphur-acids in the London atmosphere; but it can scarcely be doubted that, in the neighbourhood of the new Houses of Parliament, they are present to an extent equal to the average amount found in the Manchester air: they must, therefore, be regarded as among the more important agents, destructive to stone, which are present in the London atmosphere.

A few observations remain to be offered regarding the particular nature of the decay manifesting itself in some of the stone of the new Houses of Parliament. It has already been pointed out that, so far as our experience goes, we are inclined to attribute the local character of the decay to struc-

* The analyses by Daniell are quoted from the "Report of the Inquiry undertaken under the Authority of the Lords Commissioners of Her Majesty's Treasury, by G. W. Daniell, Esq., H. T. De la Beche, Esq., W. Smith, Esq., and Mr. Charles Smith, with reference to the selection of materials for building the New Houses of Parliament," those by Ransome and Cooper are extracted from a paper "The Composition of Limestones used for Building Purposes, especially on those employed in the Erection of the New Houses of Parliament," contained in vol. ii. of the "Memoirs of the Museum of Practical Geology."

tural differences, obtaining in different parts of the stone. The general structure and the composition of the stone in the new Houses of Parliament render it, moreover, amenable to all the sources of disintegration which we have above enumerated, with the exception perhaps of oxygen, which can scarcely produce any appreciable alteration in dolomite. Thus, the chemical action of carbonic and sulphuric acids, in combination with water, will gradually dissolve and remove the carbonates of lime and magnesia, whilst the porous nature of the stone renders it liable to the mechanical effects of water under the influence of frost. The presence of sulphuric acid in the air of towns appears, in the case of magnesian limestone, to bring into play another process of destruction. This acid not only corrodes and renders soluble, as we have pointed out, the earthy carbonates (in which respect it resembles carbonic acid in its effects), but, forming with magnesia a readily crystallizable salt, the well-known sulphate of magnesia, remarkable for the large proportion of water of crystallization which it fixes; it gives rise, in addition, to a mechanical destruction of the stone precisely similar to that produced by freezing water. The powerful mechanical effects resulting from the solidification of water, induced by crystallization, are well known; although it would appear that they have not hitherto been sufficiently appreciated as auxiliaries in the process of disintegration of stone. The analogy between the solidification of water, by freezing and by crystallization, is perfectly obvious; and a French chemist has suggested, as a means of recognizing stones liable to disintegration by frost, to immerse them in a solution of sulphate of soda, and to note the subsequent effects of its crystallization within the stone.

We have ourselves recently had occasion to observe some phenomena which go far to elucidate these destructive effects of crystallization. The exfoliations exhibited by many of the fictile vases deposited in the British Museum were found to be due to the formation and crystallization, within the substance of the vessels, of nitrate of lime. Again, in experiments on the preservation of fabrics by impregnation with saline substances, it was found that the crystallization of sulphate of magnesia, within the material, produced a disintegrating effect upon the fibres, sufficient greatly to weaken the material.

In conclusion, we would remark, that the effect attributed to the crystallization of the sulphate of magnesia, in assisting the decay of dolomitic stones, and more particularly of those used in the construction of the new Houses of Parliament, is borne out by the existence of a marked efflorescence of sulphate of magnesia upon those portions of the stone where exfoliation has taken place.

A. W. HOFMANN.
E. FRANKLAND.
F. A. ADEL.

We shall give other parts of the Return next week.

THE NATIONAL EXHIBITION IN FLORENCE.

A MEMORABLE day was the 15th September for Florence, — the joyous excitement shared by all classes, the richly varied decoration of streets, the display on every side of national colours and symbols, and the enthusiastic reception given by this people to their king, altogether combining in what seemed the highest expression of that new life to which liberated Italy has awakened; and at the same time asserting for her — the "Etrurian Athens," that brilliant position vindicated by her past and present; that title which, whatever be future contingencies, must continue to command regards and honours for her as, by indefeasible right, the intellectual if not the political capital of united Italy. As for the scene in the palace of the National Exhibition that morning, it was rather a court ceremonial than anything else, though, indeed, most beautiful to behold, and attended with demonstrations most fervent. The opening address by the Marquis Ridolfi, the reply of Victor Emmanuel, and the thrilling recital of the National Anthem, sung by Piccolomini, have been done justice to in all the papers; but subsequently have come the opportunities for appreciation, and estimating the real value of this, Italy's first national and general display of her produce from genius and industry. The exhibition remaining open six days of the week, the concourse has been, as expected, great, but not overwhelming, and the liberal system of gratuitous days (every Sunday), has completely answered. On the first day the visitors

numbered 21,000, yet, though naturally, including the humblest classes, a throng that occasioned not the slightest disorder, affording, indeed, additional proof in favour of the opening of places for intellectual recreation on that festival, now carried out in regard to every art-gallery and museum in Florence, — all thus made accessible on the Sundays since the change of Government in 1859.

The practice of annual displays, to show the progress of commerce and industry, was adopted by Florence first among Italian cities, and from an early period in her brilliant Mediæval history. These *mostre*, as they were called, used to coincide with her great religious anniversary, the festival of St. John; and, indeed, became the special pageantry of that day, the piazza around St. Giovanni, the present baptistery, being then converted into a pavilion of azure draperies embroidered with the French lily, spread over every house-front; and along the principal streets were exhibited, at stalls, or by other arrangements outside the houses, the manufactures in woollen, silk, velvet, brocade, and the costlier wares of the goldsmith, in all which this city's produce was then supreme as to quality and quantity. These displays, says the historian Goro Dati, "would have sufficed to adorn ten kingdoms." Such was the festival of the Baptist in Florence of the olden time!

The story of Italian exhibitions, industrial and artistic, may be said to have its centre in the Tuscan examples. Under the boldly-innovating government of Peter Leopold was ordered the first public exhibition of fine arts this country had yet beheld, in 1791. French invaders next set the examples, to be followed with more systematic procedure in the present century; and under their auspices took place at Turin, 1805, '11, '12, the first series of general exhibitions for all local produce, artistic, industrial, agrarian. After the legitimate restorations, were founded in the same kingdom, under Charles Felix, triennial industrial exhibitions, the first of which took place in the beautiful suburban palace of Valentino, near Turin, in 1829, the number of exhibitors being 502; and with what success this system advanced in subsequent years appears from the steady increase of those numbers, till, in the last instance, at the Turin exhibition of '58, it reached the maximum of 1781, among whom 931 then received prizes.

Two extraordinary exhibitions at Genoa, within recent years, have borne proof of the progress and energies that have especially marked the Piedmontese above other Italian states, — one in 1844, to honour the meeting of the first *saravans* in this country; the other, in 1854, to coincide with the opening of the railway between that city and Turin. In the papal states, Bologna, ever foremost, and in many respects bearing away the palm from Rome herself, first followed the example by instituting agrarian and industrial exhibitions in 1851; and it seems efficiently promoted by the Pontifical Commissary, who had governed the four legations since 1849. The last Bolognese exhibition, in 1856, was such an improvement on all preceding, that the halls and corridors of the University (not a very extensive building) could scarcely contain the numbers attracted to that locality chosen for the display. Nor should it be forgotten that the Lorraine Government in Tuscany, whatever its defects otherwise, acted laudably in promoting public interests and improvements through similar means; for it was in Florence, 1839, that the first exhibition of arts and manufactures unitedly took place under Italian régime, ordered to be triennial, and first held in the Palazzo Vecchio, with no very great *éclat* indeed, seeing that the exhibitors were only 66; but, on the last occasion, before the fall of that dynasty, in 1854, their numbers had risen to 730, the prizes distributed to 148; and, from this last Florentine exhibition, it was judiciously ordered, should be selected all the products of native art and industry deemed worthy to compete on a much greater arena in Paris, 1855. Other exhibitions, exclusively industrial, were given here in 1851 and 1854, with eminent success.

The grander idea of the national Italian display to include every illustration of the art, industry, manufactured and natural produce of the whole peninsula, sprang from that more limited one, mooted soon after the change of government in Florence, of an exclusively Tuscan exhibition, universal in respect to these provinces alone; and the merit of the first project rests with Signor Sella, a young man, author of several useful writings, and professor of geometry at the Technical Institute in Turin, who brought forward

this idea the first day he sat in Parliament as Deputy for the province of Biella, his native place, the 12th June, 1850; nor were authorities tardy in acting upon the happy suggestion, as, four days afterwards, the project was discussed, formalised into a bill drawn up in parliamentary phrase; and on the 8th of July following appeared the royal decree assigning 150,000 francs to the Ministry of Commerce and Public Works as subsidy for the National Exhibition, and appointing a committee, to hold its inaugural session in Florence on the 20th August. This body was brought to its full complement by appointments from different sources: by the Crown being named the president, Marquis Cosimo Ridolfi the vice-president, Professor Amici (Director of the Technical Institute), and the secretary-general, Signor Carega, Professor of Agriculture at the Florentine Institute; by the Ministry, seventeen members; and twenty-eight more by the several chambers of commerce at the principal cities, were united under one Italian Crown on the mainland and in Sicily. The works admissible were prospectively divided into twenty-four classes, the last three being the branches of fine art, among which architecture is represented by drawings; and it was decided that objects produced in Italy, whether by natives or foreigners, should be admitted alike with those by Italians resident in other countries, though under the restriction that works of fine art should have previously received approbation from academies or institutes empowered by the royal committee.

The Palace, which has sprung out of a railway station with marvellous rapidity, was brought to the completeness requisite for the inauguration within seventy days from its commencement, by the labours of more than 1,300 workmen, relieving each other day and night without intermission. Within about a fortnight before the 15th of September, were thrown up two wings, each 50 metres long, to contain sculpture and agrarian machines or implements. One's evening walks to the Cascine were, at this period, rewarded, from time to time, by a spectacle of progressive construction that often amazed, suggesting the idea of the enchanter's wand. The station, raised in 1849 by Signor Presenti, of Cortona, still forms the nucleus to the vast edifice that leaves scarcely one external trace of that original structure we might suppose completely swept away; and, though a magnificent design for the new Palace was presented by Signor Barbetti, the one eventually chosen was that of Chev. Martelli, superintendent of the Royal Factories in Tuscany, but not before his composition had been subjected to many curtailments and brought within proscribed limits of time and cost, much to the detriment of its beauty.

The peristyle, projecting at the centre into a wide semicircle of Ionic columns, supporting a cnpola, with a group of colossal statuary, Italy in the midst, on the frontispiece of the attic above (in Martelli's first design), would indeed have been more imposing and graceful than the rather too narrow and simple façade we now see erected, with a plain rectilinear colonnade, also Ionic, and a frieze above the architrave to illustrate the progress and glories of art, commerce, &c. Three wide gateways have been opened to admit into the Cascine from the Lung' Arno promenade, the central with colossal statues on the two great piers flanking the entrance. These gateways have at least the merits of solidity and simplicity; and, as we approach the new structure, with its many outworks, gain much in picturesqueness from the clustering foliage of noble trees and the background of mountains. In front, within the enclosed esplanades before this edifice, stands an equestrian statue of the king, painted to imitate bronze, rather theatrical, but entering well into the ensemble.

On the whole, the exterior of this palace gives but faint suggestion of the splendour and vastness that take by surprise in its interior. Looking from a balcony that runs along the upper story at one end, across the level gardens, with an octagonal conservatory in its centre, and the ephemeral structures of glass and wood forming its boundaries on every side, to that prospect beyond of fair cultured environs, hills studded with groves and villas, and majestic Apennines sweeping far as the eye can reach, the scene is truly fascinating. What extent of these structures remains yet to be finished and opened cannot be divined till one has perambulated the whole; indeed, so incomplete was the achievement on the day of inauguration (supposing no return to it since), can have received little idea of what was intended; and the public report is, that at least 1,500 cases were that day still unopened. The number of exhibi-

bitors has been stated at 6,000; and was certainly, as announced from credible quarters, beyond half that amount two months before the 15th September. A new periodical, with illustrations, *L'Esposizione Italiana del 1861*, commenced its career on the 15th July, expressly dedicated to this subject, to all interests, and all species of information connected with the Exhibition: this, now appearing twice a week, forms a creditable and useful addition to the somewhat overloaded supply of journalism in Florence; the engravings, from remarkable artistic works exhibited, generally executed well enough to enhance the value of this appropriate publication. On the very day of the inaugurating ceremony, another less ambitious journal began its campaign, trusting for success to special notices on the same absorbing topic, very cheaply supplied; this being, so far as I can reckon, either the 22nd or 23rd periodical now active in Florence!

A far deeper interest than attaches to the objects severally, in all this collection of Italy's produce, is in the evidence of that union so long craved, and here, at last, pacifically attained, which renders the vast aggregate so truly the trophy of a national cause, aptly symbolized by the armorial shields of all the Italian cities, with names in large letters painted on the compartments of that field of glass which over-roofs the great central body, divided by an arcade into two equal naves. And Venice, we rejoice to see, no less than Rome, has surmounted restrictions and jealousies by contributing in honourable abundance; many articles from the provinces still under Austria being enabled to arrive hither only by making a circuit through France,—some even by way of Constantinople.

The sculptures, which fill twelve rooms (besides two of casts), seemed to me altogether, for Italy, a disappointing collection: the preference for trivial subjects is carried to wearisome extent; and one looks with indifference on such an array of Bacchante and dancing girls, nymphs and shepherds, without individuality. Among the works of Florentine sculptors, most noticeable are the fine colossal figures of Boudini, by Fantocchietti, and Burlamacchi, by Cambi; an affecting monument to an English lady (Mrs. Spence), by the first of these artists; a Madonna of the Immaculate Conception, by Santorelli. By Bartolini (deceased) is a group of Charity, by no means among the finest by that artist, whose Tuscan reputation claimed for him higher place than any other competitor of his time; and Powers, the American, exhibits a female figure, the *United States*, one of his best, stamped by a heroic character. Conradin on the Scaffold throwing down his Glove (a subject rather for painting) is a statuette of much spirit and feeling, by Costantino, a Milanese. From Rome, as might be expected, come the works that eclipse the greater part of those surrounding them, especially the Eve at the Moment of Temptation, by Bezzoni, which stands pre-eminent for majestic grace and deep æsthetic truthfulness. Fabris sends a pleasing group of Psyche gazing on the sleeping Cupid; Jassi, a romantic Medieval warrior, who might represent St. George; and Fabj Altini (young artist), Beatrice in her ecstasy, as depicted in the "Paradiso," lovely, and all kindling with rapt emotion. Elsewhere one notices a magnificent specimen of wood carving, the portal of a Russian chapel, built by Prince Demidoff, near Florence, an elaborate work of Barbeti, divided into numerous compartments, containing reliefs to illustrate the entire Old Testament story, from the creation of man to the captivity in Babylon, reminding naturally of Ghiberti's immortal performance. Near this is a beautiful relief in a marble model of Della Quercia's *Ugolino*, with its many sacred and allegoric reliefs, on the piazza of Siena,—indeed, a restoration, for the original is woefully impaired,—by Gatti, of that city, executed for Lord Northesk. The gallery of paintings, two very long suites, the whole, impresses more favourably than that of sculptures. Few foreigners are aware of the high present attainment of the schools of the extreme north and south of Italy, Milanese and Neapolitan, is in the walks of landscape, history, and genre figure pieces. Pagliano of Milan, Mura, Mancinelli, and Celentino, of Naples, exhibit groups that no one could pass by without lingering, more or less fascinated by each; these are all surpassed by Morelli (also Neapolitan), whose powers of composition and colouring, of truthfulness, and rich but subdued effects, give life, free from exaggeration, to his group, struck me as the finest (their class cabinet-romantic pieces—the Byzantine Iconoclasts in the church where an artist monk is paint-

ing, who beholds their devastations with horror; a Venetian Serenade; a scene in the Pompeian *Thermae*, &c.). Landscapes of considerable beauty, evincing study of nature, are contributed by Vertunni (of Naples), Induno (of Milan), and Camino (of Turin); and especially the Alpine scenes by the last impress by their calm grandeur, by the rendering of nature's most solemn effects from a poetic genius, superior to the conventional, and without the least touch of mannerism. One should notice, for the honour of the Tuscan school, the power of colouring, that reminds, in its best examples, of Titian, in the works by Puccinelli—Leo X. and his courtiers, at the Medici Villa of Careggi (near Florence), and Lucrezia Borgia mixing poison in a wine-goblet, a single figure, life-size, dress black velvet, terribly beautiful; also the grand composition, of numerous figures, by Bizznoli (lately deceased); Charles VIII. entering Florence with his army. A unique and very interesting series of small distemper pictures, altogether 150, by Bussoli, illustrates the entire story of the late Italian campaigns down to the siege of Capua, both grouping and landscape, the effects of nature, and the dread realities of battle, rendered with great ability; indeed, more to be prized when we know that this indefatigable artist (who executed the whole series for the Prince di Carignano) accompanied the Piedmontese army throughout, so as to sketch the sites, and so far as possible the very actions of the eventful drama he has thus admirably depicted, from reality. The "hall of gems," including cameos, mosaics, *pietra dura*, scagliola, gold and silver wrought objects, &c., offers a rich treat of marvels in material and workmanship, Rome here fully sustaining her character as the city of cameo and mosaic art; and among her contributions is a single cameo (two classic heads, one in relief beyond the other), by Girometti, valued at 30,000 francs, set as a brooch, but far too large for wearing, and not, I thought, so exquisitely beautiful as others; for instance, a Hercules head by the same artist. In this room, one most conspicuous among other treasures, is a tabernacle for a high altar, with a deep niche for the exposition of the Sacrament, in chiselled silver, by the brothers Mariotti, the design Italian Gothic of the fifteenth century, the ornamental details in low relief, of graceful character and most delicate finish. One becomes tired of likenesses of the King and Cavour; not so of the fine, frank aspect of Garibaldi, here seen (as to be expected) in all possible modes and sizes; and the continual recurrence of the patriotic tricolour, in draperies and banners profusely disposed over every part, forms an accessory, rich and appropriate, to the *vest ensemble*.

After five years, Florence is to have another national exhibition; fraught, it is to be hoped, with yet ampler and more nobly distinguished produce from all works of genius and industry; in eloquent proof how all things flourish amid the healthful atmosphere of liberty.

THE ART-UNION OF LONDON AND THE GOVERNMENT SCHOOLS OF ART.

A COMMITTEE appointed to examine the works submitted in competition for the premiums offered by the Art-Union of London have made the following report to the council:—

"Your committee have had in view the original purpose for which the Art-Union was established; viz., to promote the knowledge and love of the fine arts, and their general advancement in the British empire, by a wide diffusion of the works of native artists; and to elevate art and encourage its professors, by creating an increased demand for their works, and an improved taste on the part of the public.

The committee have called to mind the various efforts which the council have made during a period of twenty-five years to fulfil its mission. In various departments of the fine arts their aim has been to create a love and taste for their study and productions; uninfluenced by any personal motive, whether of rivalry, reputation, or profit. The attention of the council has long been directed to one branch of their duties as specially worthy of consideration; namely, the application of the principles of high art to objects of common use or ornament in which all classes may take pleasure. The collections in the British Museum, not to speak of those of Naples, Rome, Paris, and Germany, show how intimately high art may be allied with the commonest purposes of life; and how intention, thought, and grace may be embodied, so as to cause general pleasure and produce refinement.

There is no reason why our manufactures may

not arrive at the same excellence in an artistic point of view as is shown in older works. Is not the whole sphere of nature as open to us as to the ancients; demanding to be studied with equally high aspirations and with clear comprehensions? Is our national history to be read in vain? Are our poets, our traditions, to be overlooked? Why should not these be brought into play, and made to keep alive in our minds an admiration and reverence for excellence and beauty, by being transferred to the art-productions of our manufactories. This, however, is not to be effected by puny efforts, but by high aims and by constant laborious study; by a careful avoidance of meretricious ornament, and a disregard of the praise of the ignorant, whose conceptions of excellence do not go beyond the most common-place and inferior representations of nature and art.

The superiority of the French in many branches has made itself felt, not only in composition, form, and execution, but in lowness of price; and thus their productions have been of great material benefit to them, even in a commercial point of view. It has long been the desire of the Art-Union to contribute to the formation in this country of a class of art-manufactures of the highest character. With all the mechanical contrivances so abundant in Great Britain, the feeling for the beautiful ought to keep pace with the progress of science. But although much has been done during late years, yet very much is still wanting to enable us to equal the works of the past schools of Italy, and the past and present schools of our neighbours. There is still a wide field open, as witness the vast difference in the various types of Italian, French, and German taste.

The council could not but recognize the efforts for good made by the Government in its elementary schools of art, and have sought to second, and carry still further, what has been already effected. They, therefore, issued a prospectus, offering premiums for drawings and models by the students. They had hoped thus to stimulate the students to higher aims; not by the money-value of the premiums, but by the more than local fame which would attach itself to the rewards of the Art-Union of London. It is with deep regret and disappointment that the committee report that the expectations of the council have not been realized; that in too many instances the efforts have been feeble; that the schools have not shown any daring anxiety to ensure the nobility of success in the eyes of the British public, and to stamp their respective establishments with the distinction of pre-eminence in this general contest.

The Art-Union of London would not appear to shrink from the responsibility they have assumed, but desire to show their sincerity by awarding premiums, on the present occasion, for efforts, which they trust will at future periods be far excelled, and thus justify the experiment to excite emulation in those occupied in the art-productions connected with manufactures. They hope that those who have withheld now will hereafter offer their works in competition.

The council, in its programme, stated "that they considered it desirable to promote specially the study of the human and animal forms; containing as they do, so much of interest, variety, and beauty; and the full acquaintance with which once attained, seconded by freedom and mastery of handling, will give the student larger powers of conception, and greater facility of treatment than was previously possessed—qualities essential for raising ornamental art to a high state of perfection. Your committee regret to perceive, that the human or animal figures introduced in these designs are negligently treated. They are disappointed (except in the case of one drawing) at the want of knowledge of anatomy shown in drawings from the model, and at the absence of a just appreciation of form and proportion in the designs for vases, &c. A model of a tazza, and a drawing from the life, from the School of Kensington, show promise, but do not possess sufficient merit for a premium.

It is with much satisfaction that the Committee recognize in one of the designs for a majolica dish, a boldness of conception, a freedom of handling, and knowledge of the treatment necessary for the special object, which are extremely satisfactory. They therefore recommend to the Council to award to the author one of the highest premiums,—10%; and beg to suggest that he should be communicated with on the subject of completing his design, and producing a dish to serve as a prize in the next distribution.

The following are the premiums which the



Committee recommend to the Council to award,— viz.: 10*l.* to Mr. M. R. Elden, of the Stoke School of Art, for a majolica dish, just now referred to; 5*l.* each to Mr. A. T. Elwes, of the School of Art, South Kensington; and to Miss C. Phillott, of the Female School of Art, Queen-square, for drawings of animals from life; and 5*l.* to Mr. Frederick Gentles, of the Birmingham School of Art, for a design for a majolica dish."

STONE ALTARS.

MR. HUMBERT, writing to the *Builder* about the altar-stone just discovered at St. Cross, Winchester (p. 647), suggests that it will be advisable to get a list of the "altar-slabs" at present remaining in our churches. Stone altars complete, however, will be more interesting still; so, having just seen four of them in one parish in Herefordshire, I send you sketches of the same for insertion in the *Builder*, if you think it worth your while to engrave them.

A is the one as it now exists in the church at Peterchurch, about a dozen miles from Hereford. It is at the east end of the apse, as shown in the plan B of this curious Norman church; for, with the exception of tower, spire, and porch, the whole building is of that period.

C is another stone altar, which is at the east end of a desecrated Norman chapel adjoining Urishay Castle, in the same parish.

A carpenter, I found, had taken possession of the chancel, making use of the altar, of course, as may be supposed. The nave appeared to be the place for making up mortar, stowing away rubbish, &c., &c. A thick wall, with square modern opening, separated nave and chancel; and on the western side of this wall, and on each side of entrance to chancel, appeared to be a stone altar with a Norman piscina, as shown in sketch D. These two altars, if they are such as I believe them to be, were in such a state that no traces on

either could be found of the five crosses, which, however, were perfect on the high altar C, and also on the one, A, at the parish church. Mr. Arncliffe, the hospitable rector (one of the old school) at Peterchurch, informed me of the chapel at Urishay, in his parish, or I should probably never have heard of this out-of-the-way little building. The castle, an old house, has been very interesting: the staircase is very good; so are some of the rooms, which have been admirably fitted up by Mr. Blackiston, a gentleman now residing there. It is to be hoped that the pages of the *Builder* will be made use of to follow up this subject of stone altars; and that before long we shall have descriptions and engravings of all that remain in this country.

GEORGE TRUEFITT.

PROPOSED LONDON CONGRESSES
IN 1862.

It appears that the fourth session of the International Philanthropic Congress is to be held in London next year, on the occasion of the Great Exhibition. Among those who have expressed their concurrence are, Lord Brougham and the Council of the National Association for the Promotion of Social Science, the Earl of Shaftesbury, the Earl Ducie, the Earl Portescue, Lord Ebury, Lord Raynham, the Right Hon. W. Cowper, M.P., Sir Thomas Phillips, and other well-known men.

A circular, in the French language, signed by Mr. T. Twining, jun., and which has been extensively circulated abroad, gives the subjoined list, as suggesting some of the desiderata with respect to which co-operation would be most valuable:—

"Architecture.—Models, plans, and working drawings of buildings conformable to the principles of hygiene, and intended for the use or benefit of the working classes; e.g., *cités ouvrières*, model dwellings for town and country, hospitals and asylums, infant nurseries, baths and wash-

houses, working men's coffee-houses, public slaughter-houses, depositories for the dead.

Building Materials.—Cheapness, durability, impermeability, &c.

Cottage Furniture.—A sanitary committee, appointed by her Majesty's Commissioners for the International Exhibition of 1862, proposes to organize a series of experiments on the relative value of appliances for warming, lighting, &c. Manufacturers are also invited to undertake careful experiments,* and to transmit the results to F. R. Sandford, Esq., the secretary of the International Exhibition of 1862.

Clothing.—Fabrics and articles of clothing deserving of attention in a hygienic point of view; costumes for children and adults adopted by charitable institutions or public establishments, or customary in certain industrial occupations; national costumes.

Food.—New resources; preservation; purification; analysis with respect to the nutritive properties, detection of fraud, &c. (For details, see the memorandum entitled "Museums for the Working Classes," to be had at the Society of Arts.)

Working Conditions.—Safety.—Hygiene.—Protection against inundations, &c.; drainage; sewerage, water-supply; ventilation; prevention of damp, smoke, &c.; cheap hygienic and medical appliances; means of relief for infirmities of every kind, and of occupation for the infirm; improved ambulances; protection against beasts of prey, vermin, &c.; means of relief for cases of poisoning, asphyxiation, &c.; means of safety against shipwreck, fire, railway accidents, &c.; protection against excessive heat and cold; means for the prevention or relief of the injuries and diseases to which the working classes are liable in the exercise of their occupations (see the memorandum mentioned above); contrivances for lightening labour, for facilitating conveyance of burdens, &c.

Popular Education.—This important department could not be overlooked in an exhibition organized by the Society of Arts, whose influence has of late years been so successfully directed to the education of the industrial classes. A committee, which includes men of eminence in this department, has drawn up a detailed list of educational appliances, which may be obtained on application, either to F. R. Sandford, esq., Office of the International Exhibition of 1862, No. 454, Strand, London; or to P. Le Neve Foster, esq., Society of Arts, Adelphi, London. The friends of popular improvement will doubtless be glad to co-operate, by promoting the exhibition of everything which their respective countries can supply, best calculated for the education of the poor, and for the easy and agreeable development of the mind, with a view to the practical purposes of life."

I can understand, also, that the Congress of the
 Social Science Association will be held in London
 next year, and that H. R. H. the Prince Consort
 will be asked to preside. Various other arrange-
 ments are in progress, which will tend to increase
 the interest and excitement that will necessarily
 attach to 1862. We trust that the Royal
 Academy and other art bodies will not be behind-
 hand, and will organize arrangements for the
 reception and entertainment of the distinguished
 foreign artists who may be led to visit the metrop-
 olis on the occasion of the approaching Exhibition.

MONUMENT IN WOKING CEMETERY.

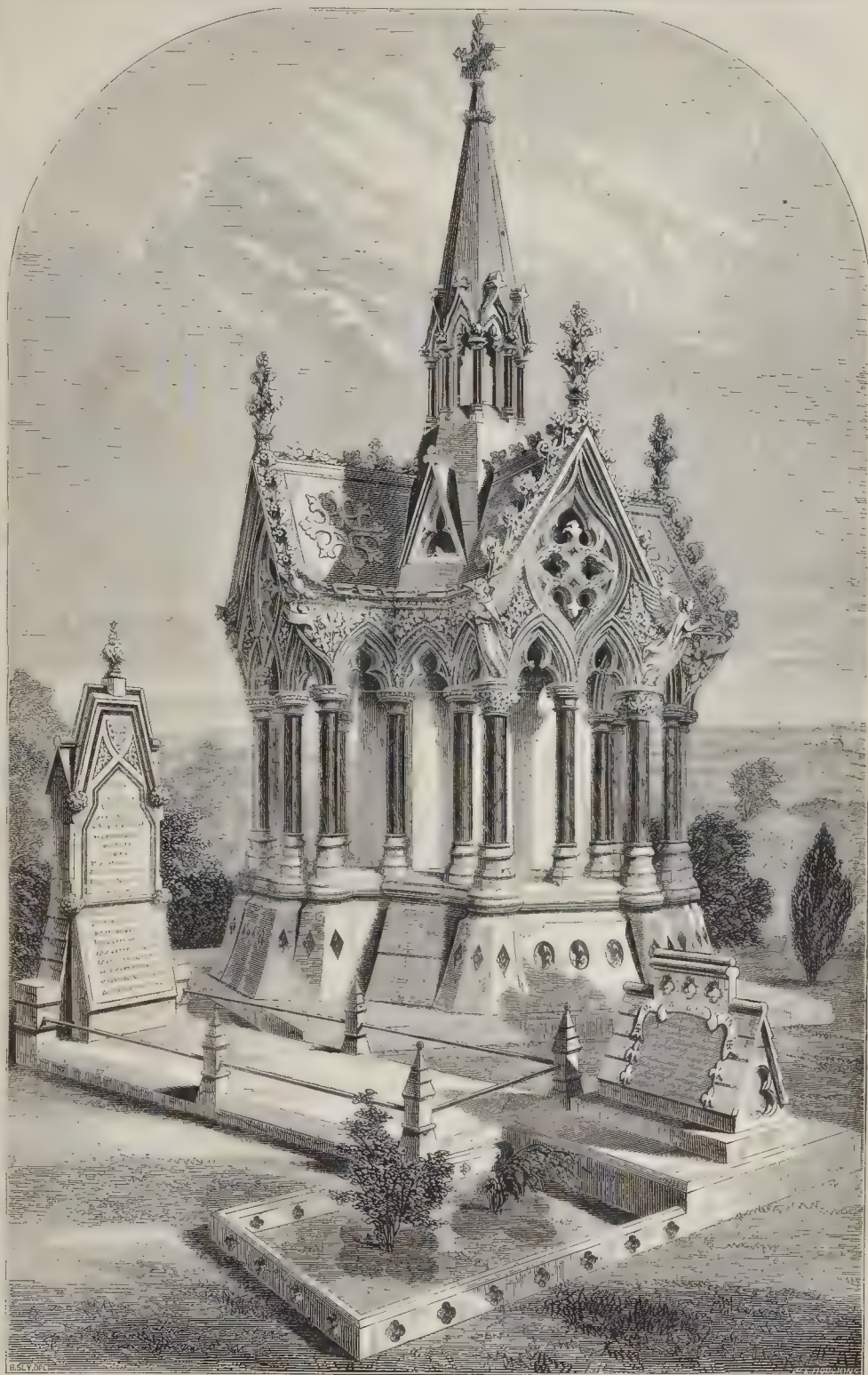
DESIGNS FOR TOMBSTONES.

THE principal subject in the accompanying engraving is a monument that has been erected in the London Necropolis, Woking, in memory of the late Mr. Bent, from a design by Mr. Alfred Smith, architect, of Buckingham-street, Strand. The material is Bath stone, with Derbyshire spar for the shafts of the columns, and the cost was about 250*l*. Mr. Osborn Place was the contractor.

The cemetery, it will be remembered, is on the South-Western Railway, and consists of 1,200 acres, 400 of which have been enclosed, and separately apportioned to the Church of England Dissenters, Roman Catholics, and other religious bodies.

We have engraved in the foreground two designs for tombstones of much less importance sent to us by Mr. S. Dutton Walker, architect, Nottingham. Mr. Walker says,—"It has occurred to me that the lettering when coloured should be coated over with soluble silicate of soda or liquid glass: if this could be done, it would at once preserve the inscription, and render it more legible. But this is merely a suggestion which I throw out for experiment."

* Indications of the mode in which it is desirable that these experiments should be performed will be supplied to the committee.



MEMORIAL OF THE LATE MR. BENT, WOKING CEMETERY. — MR. ALFRED SMITH, ARCHITECT.
AND TWO DESIGNS FOR TOMBSTONES, BY MR. S. DUTTON WALKER.

SOME GLEANINGS FROM LORD BACON'S
ESSAYS ON OLD LONDON GARDENING
AND ARCHITECTURE.

GREAT as is the reputation of Lord Bacon, both as a philosophical and as an eloquent writer, with a large portion of general readers, his works are but little read. It may therefore not be without interest or use if we gather a few extracts in connection with matters which come within our province.

His notes connected with gardening have a particular interest, inasmuch as they show the productions of the gardens of the Londoners in the reign of Queen Elizabeth and of James I.

Bacon was born on the 22nd of January, 1561, in York House, Strand, and baptized in the old church of St. Martin-in-the-Fields, which stood not far off: his career is so generally known that it is not necessary to enter now into particulars: it will however be worth while to glance at the "Prefatory Epistles" to the "Essays." The first is dated "From my chambers at Gray's Inn, this 30th of January, 1597." (Bacon would then be about thirty-six years of age), and is an address to "Mr. Anthony Bacon, his dear brother:—

"Loving and beloved Brother,—I do now like some that have an orchard ill-neighbour'd, that gather their fruit before it is ripe, to prevent stealing. These fragments of my conceits were going to print: to labour the stay of them had been troublesome, and subject to interpretation: to let them pass had been to adventure the wrong they might receive by untrue copies, or by some garbishment which it might please any that should set them forth to bestow upon them: therefore I hold it best discretion to publish them myself."

Another epistle is addressed "To my loving brother Sir John Constable, knight." This is dated 1612; but the place is not mentioned. In this address we find Francis Bacon stating that "My last essays I dedicated to my dear brother Mr. Anthony Bacon, who is with God. Looking among my papers this vacation, I found others of the same nature, which if I myself shall not suffer to be lost, it seemeth the world will not, by the often printing of the former. Missing my brother, I found you next; in respect of bond, both of near alliance and of straight friendship and society, and particularly of communication in studies; wherein I must acknowledge myself beholden to you; for as my business found rest in my contemplations, so my contemplations ever found rest in your loving conference and judgement. So wishing you all good, I remain, your loving brother and friend, Fra. Bacon."

The next introduction to the Essays is addressed to the Duke of Buckingham, and is subscribed "Fr. St. Alban." In this Lord Bacon says that his Essays have been more current than any of his works, "for that, as it seems, they come but to men's business and bosoms. I have enlarged them both in number and weight, so that they are indeed a new work. I thought it, therefore, agreeable to my affection and obligation to your grace to prefix your name before them, both in English and in Latin; for I do conceive that the Latin volume of them, being in the universal language, may last as long as books last. My instauration I dedicated to the king, and my History of Henry VII., which I have now translated into Latin, and my portions of Natural History, to the prince; and these I dedicate to your grace, being of the best fruits, that, by the good increase which God gives to my pen and labours, I could yield."

At about the time when the first of these prefaces was written a large portion of the great blocks of houses in Gray's Inn were built, and that which was partly occupied by Bacon still remains. It would, however, be vain (unless they have been very recently better informed) to inquire of any of the porters or other functionaries of this ancient inn for information. The curious in these matters will be told that they do not know the name in that neighbourhood; nevertheless, it was here that the future Baron of Verulam, Viscount of St. Alban, and, in the reign of James I., Lord High Chancellor of England, delighted in the garden and in the grounds, which had been in part newly laid out and much improved, in all probability by Bacon's suggestions. Some of the trees which still remain may have been planted by the hands of the philosopher. There is a view, of the date of the reign of Charles II., in the British Museum, which shows that the prospect from the grounds to the north must have been very beautiful. There was then nothing to impede the view, which was bounded by the heights of Hampstead and Highgate.

In the reign of Queen Elizabeth, and for some time afterwards, large gardens surrounded York

House, and most of the residences of the nobility which stood along the Strand; and some idea of the luxuriance and beauty of these may be learnt from the following account, which it will be observed was "painted for the climate of London." Bacon says "God Almighty first planted a garden; and indeed, it is the purest of human pleasures. It is the greatest refreshment to the spirits of man, without which buildings and palaces are but gross handyworks; and a man shall ever see that when ages grow to civility and elegance, men come to build stately sooner than to garden finely, as if gardening were the greater perfection. I do hold it, in the royal ordering of gardens, there ought to be servants for all the months of the year, in which, generally, things of beauty may be then in season. For December and January, and the latter part of November, you must take such things as are green all winter: holly, ivy, bays, juniper, cypress-trees, yew, pines, fir-trees, rosemary, lavender; periwinkle, the white, the purple, and the blue; germander, flag, orange-trees, lemon-trees, and myrtles if they be stoved, and sweet marjoram, warm set. There followeth, for the latter part of January and February, the mezerion-tree, which then blossoms; crocus vernus, both the yellow and the grey; primroses, anemones, the early tulip, hyacinthus orientalis, chamsiris, fritillaria. For March there come violets, especially the single blue, which are the earliest; the early daffodil, the daisy, the almond-tree in blossom, the peach-tree in blossom, the cornelian-tree in blossom, sweet briar. In April follow the double white violet, the wall-flower, the stock gilliflower, the cowslip, flower-de-luces, and lilies of all natures; rosemary flowers, the tulip, the double peony, the pale daffodil, the French honeysuckle, the cherry-tree in blossom, the damascene and plum trees in blossom, the white thorn in leaf, the lilac-tree. In May and June come pinks of all sorts, especially the blush pink; roses of all kinds except the musk, which comes later; honeysuckles, strawberries, bogloss, columbine, the French marygold, the Africanus, cherry-tree in fruit, ribes, figs* in fruit, rasps, vine flowers, lavender in flowers, the sweet satyrian, with the white flower; herba muscaria, liliun convallium, the apple-tree in blossom. In July come gilliflowers of all varieties, musk roses, the lime-tree in blossom, early pears and plums in fruit, geninites, codlins. In August come plums of all sorts in fruit, pears, apricots, berries, liberts, musk-melons, monks-hoods of all colours. In September come grapes, apples, poppies of all colours, peaches, melocotones, nectarines, cornellans, wardenes, quinces. In October and the beginning of November, come services, medlars, ballaces, roses, cut or removed to come late; hollyhocks, and such like. These particulars are for the climate of London; but my meaning is perceived, that you may have 'ver perpetuum,' as the place affords."

After noticing, that "because the breath of flowers is far sweeter in the air (when it comes and goes like the warbling of music) than in the hand" the essayist remarks, that it is important to know those which do best to perfume the air; he therefore mentions some of the flowers and plants which have the sweetest smells. He then gives his ideas of a prince-like garden, which "ought not well to be under thirty acres of ground, and to be divided into three parts; a green in the entrance, a heath or desert in the going forth, and the main garden in the midst, besides alleys on both sides; and I like well that four acres of ground be assigned to the green, six to the heath, four and four to either side, and twelve to the main garden."

The green hath two pleasures. The one, because there is nothing more pleasant to the eye than green grass, kept fluently shorn; the other, because it will give you a fair alley in the midst, by which you may go in front upon a stately hedge, which is to enclose the garden; but because the alley will be long, and, in great heat of the year or day, you ought not to buy the shade in the garden by going in the sun through the green. Therefore, you are, on either side of the green, to plant a covert alley, upon carpenter's work about 12 feet in height, by which you may go in shade into the garden." The author considers the use of different coloured earths as but toys, and we are informed that "The garden is best to be a square encompassed on all the four sides with a stately arched hedge; the arches to be upon pillars of carpenter's work of some 10 feet high and 6 feet broad, and the spaces between of the same dimensions with the breadth of the arch. Over the arches

let there be an entire hedge, of some 4 feet high, framed also upon carpenter's work; and upon the upper hedge, over every arch, a little turret, with a belly enough to receive a cage of birds; and over every space between the arches some other little figure; with broad plates of round coloured glass, gilt, for the sun to play upon: but this hedge I intend to be raised upon a bank, not steep, but gently slope, of some 6 feet, set all with flowers. Also, I understand that this square of the garden should not be the whole breadth of the ground, but to leave on either side ground enough for diversity of side alleys," &c. The ground within the great hedge is to be laid out in a varied design; but whatsoever form it is first cast in, it must not be too heavy or full of work, "wherein I, for my part, do not like images cut out in juniper or other garden stuff: they be for children. Little low hedges, round like welts, with some pretty pyramids, I like well." After referring to geometrical forms without any bulwarks or embossments, and a mound to be 30 feet high, and some fine banqueting-house, with chimneys neatly cast, and without too much glass, we are told that fountains have a great and refreshing beauty, but pools mar all, and make the garden unwholesome and full of flies and frogs. "Fountains I intend to be of two natures,—the one that sprinketh or spouteth water, the other a fair receipt of water of some thirty or forty feet square, but without fish, slime, or mud. For the first the ornaments of images, gilt or of marble, which are in use, do well: but the main matter is so to convey the water, as it never stay either in the bowls or in the cistern; that the water be never by rest discoloured, green or red, or the like, or gather any mossiness or putrefaction. Besides that, it is to be cleansed every day by the hand; also some steps up to it, and some fine pavement about it, do well. As for the other kind of fountain, which we may call a bathing pool, it may admit much curiosity and beauty, wherewith we will not trouble ourselves,—as that the bottom be fluently paved, and with images; the sides likewise; and withal embellished with coloured glass, and such things of lustre, encompassed also with fine rails of low statues; but the main point is the same which we mentioned in the former kind of fountain, which is that the water be in perpetual motion, fed by a water higher than the pool, and delivered into it by fair spouts, and then discharged away underground by some equality of bores, that it stay little; and for fine devices of arching water without spilling, and making it rise in several forms (of feathers, drinking-glasses, canopies, and the like), they be pretty things to look on, but nothing to health and sweetness."

For the heath, or third part of the plot, it is desirable that this be framed as much as possible to be a natural wilderness. It is, says our author, desirable to have trees in it, but some thickets made only of sweetbrier and honeysuckle, and some wild vine amongst; and the ground set with violets, strawberries, and other plants suitable for such a situation. The side grounds should be full of alleys, to give a full shade—some of them wheresoever the sun may be: some should be so framed that they may afford shelter from the sharp wind, and in some of those alleys there might be planted fruit trees, and set with flowers, "but thin and sparingly, lest they deceive the trees." There might also be some mounts, of a height leaving the wall of the enclosure breast high, to look abroad in to the fields.

For aviaries Bacon does not care, except they be of that largeness which may be turfed, and have living plants and bushes set in them, that the birds may have more scope and natural nesting, and that no foulness appear on the floors of the aviaries; and "so," says the essayist, "I have made a platform of a princely garden, partly by precept, partly by drawing; not a model, but some general lines of it; and in this I have spared for no cost; but it is nothing for great princes, that, for the most part, taking advice with workmen, with no less cost set their things together; and sometimes add statues and such things for state and magnificence, but nothing to the true pleasure of a garden."

Thus discourses Francis Bacon on this subject. Let us now see how he writes respecting the erection of dwellings.

"Houses," says this authority, "are built to live in, and not to look on: therefore let use be preferred before uniformity, except where both may be had. Leave the goodly fabrics of houses for beauty only to the enchanted palaces of the poets, who build them with small cost. He that builds a fair house upon an ill seat, committeth himself to prison: neither do I reckon it an ill seat

* There are still fig-trees in Gray's and Lincoln's Inn, and the tradition of such trees is preserved in Fig-tree-court, in the Temple.

only where the air is unwholesome; but likewise where the air is unequal; as you shall see many fine seats set upon a knap of ground, environed with higher hills round about it, whereby the heat of the sun is pent in, and the wind gathereth as in troughs; so as you shall have, and that suddenly, as great diversity of heat and cold as if you dwelt in several places. Neither is it ill only that maketh an ill seat, but ill ways, ill markets, and, if you will consult with Momus, ill neighbours. I speak not of many more: want of water, want of wood, shade and shelter, want of fruitfulness, and mixture of grounds of several natures; want of prospect, want of level grounds, want of places at some near distance for sports of hunting, hawking, and races; too near the sea, too remote; having the commodity of navigable rivers, or the discommodity of their overflowing; too far off from great cities, which may hinder business, or too near them, which lurcheth all provisions, and maketh everything dear; where a man hath a great living laid together, and where he is scantied; all which, as it is impossible perhaps to find together, so it is good to know them, and think of them, that a man may take as many as he can; and, if he have several dwellings, that he sort them so that what he wanteth in the one he may find in the other. Lucullus answered Pompey well, who, when he saw his stately galleries, and rooms so large and lightsome in one of his houses, said, 'Surely, an excellent place for summer; but how do you in winter?' Lucullus answered, 'Why do you not think me as wise as some fowls are, that ever change their abode towards the winter?'

After remarking that although such huge buildings, the Vatican and Escorial, and some others, scarce contain a fair room in them;—the famous Lord Chancellor continues:—

"First, therefore, I say, you cannot have a perfect palace, except you have two several sides,—a side for the banquet, as is spoken of in the book of Esther, and a side for the household; the one for feasts and triumphs, and the other for dwelling. I understand both these sides to be not only returns, but parts of the front; and to be uniform without, though severally partitioned within; and to be on both sides of a great and stately tower in the midst of the front, that, as it were, joineeth them together on either hand. I would have on the side of the banquet in front, one only goodly room above stairs, of some forty feet high; and under it a room for a dressing or preparing place at times of triumphs. On the other side, which is the household side, I wish it divided, at the first into a hall and a chapel (with a partition between), both of good state and bigness; and those not to go all the length, but to have at the farther end a winter and a summer parlour, both fair; and under these rooms a fair and large cellar sunk underground; and likewise some privy kitchens, with butteries and pantries, and the like. As for the tower, I would have it two stories, of eighteen feet high a piece, above the two wings, and goodly leads upon the top, railed, with statues interposed; and the same tower to be divided into rooms, as shall be thought fit. The stairs, likewise, to the upper rooms,—let them be upon a fair and open newel, and finely railed in, with images of wood cast into a brass colour; and a very fair landing-place at the top. But this to be,—if you do not point any of the lower rooms for a dining place of servants; for, otherwise, you shall have the servants' dinner after your own, for the steam of it will come up as in a tunnel. And so much for the front; only I understand the height of the first stairs to be sixteen feet, which is the height of the lower room."

Besides, Lord Bacon suggests that beyond the front there should be a fair court, three sides of which should be of much lower buildings than the front. He says, "Let the court not be paved, for that striketh up a great heat in summer, and much cold in winter; but only some side alleys, with a cross, and the quarters to graze, being kept shorn, but not too near shorn."

The row of return on the banquet side, let it be all stately galleries; in which galleries, let there be three or five fine cupolas in the length of it, placed at equal distance: and fine coloured windows of several works: on the household side, chambers of presence, and ordinary entertainments, with some bed-chambers: and let three sides be a double house, without thorough lights on the sides, that you may have rooms from the sun, both for forenoon and afternoon. Cast it also, that you may have rooms both for summer and winter; shady for summer, and warm for winter. You shall have sometimes fair houses so full of glass, that one cannot tell where to become to be out of the sun or cold. For embowed windows, I hold them of good

use (in cities, indeed, upright do better, in respect of the uniformity towards the street), for they be pretty retiring places for conference; and, besides, they keep both the wind and sun off; for that which would strike almost through the room doth scarce pass the window; but let them be but few, four in the court, on the sides only."

Beyond this court, it is proposed that there should be an inward court, of the same square and height, which is to be environed with the garden on all sides; and in the inside, cloistered on all sides upon decent and beautiful arches, as high as the first story or the under story, towards the garden. "Let it," says Lord Bacon, "be turned to a grotto, or place of shade, or estivation; and only have opening and windows towards the garden, and be level upon the floor, no whit sunk under ground, to avoid all dampness; and let there be a fountain or some fair work of statues, in the midst of the court, and to be paved as the other court was. These buildings to be for privy lodgings on both sides, and the end for privy galleries; whereof you must foresee that one of them be for an infirmary, if the prince or any special person should be sick, with chambers, bedchamber, 'antecamera,' and 'recamera,' joining to it; this upon the second story. Upon the ground story a fair gallery, open, upon pillars; and upon the third story, likewise, an open gallery upon pillars, to take the prospect and freshness of the garden. At both corners of the further side, by way of return, let there be two delicate or rich cabinets, daintily paved, richly glazed, with crystalline glass, and a rich cupola in the midst, and all other elegancies that may be thought upon. In the upper gallery, too, I wish that there may be, if the place will yield it, some fountains running in divers places from the wall, with some fine avoidances. And thus much for the model of the palace, save that you must have before you come to the front three courts,—a green court, plain, with a wall about it; a second court of the same, but more garnished with little turrets, or rather embellishments, upon the wall; and a third court, to make a square with the front, but not to be built nor yet enclosed with a naked wall, but enclosed with terraces leaded aloft, and fairly garnished on the three sides, and cloistered on the inside with pillars, and not with arches below. As for offices, let them stand at a distance, with some low galleries, to pass from them to the palace itself."

ARCHITECTURAL PRIZES, PARIS.

THE exhibition of designs for the grand prize took place on the 18th, 19th, and 20th of September. The subject was a bathing establishment. The prizes were awarded as follows:—First grand prize to Mr. Constant Moyaux, of Azin (Department Nord), aged twenty-six years, pupil of Lebas. Second grand prize to Mr. Jules Nicolas Flon, of Hainswilliers (Department Oise), aged twenty-three years, pupil of Guenepin. Additional second grand prize to Mr. François Willrod Chabrol, of Paris, aged twenty-six years, pupil of Lebas.

STEAM-POWER ON CANALS.

NOTWITHSTANDING the general introduction and use of railways, canals still continue to convey an enormous amount of traffic. Coals, in vast quantities, and of different kinds, are brought to, and taken from, London: building materials of all descriptions are carried about: wood for firing is taken in quantities which would surprise those who do not give much thought to the requirements of our monster metropolis: thousands of barrels of country ales are brought to town: piles of packages of manufactured goods; Birmingham wares; pottery wares; indeed, a hundred different commodities, in vessels of various sizes and description, which crowd these inland water-ways; and, notwithstanding the prognostics to the contrary, made by many when the railway system was proposed, there is still ample employment on the canals for some thousands of industrious men and women. It is strange, however, that but few efforts seem to have been made to get beyond the jog-trot of horses as a means of propulsion. We are well aware that there are difficulties in the way, such as the influence of the wash of the water on the canal banks; but experiments have occasionally been made which, ever and anon, we recollect, have been declared to have proved the possibility of obviating such difficulties.

In some of the tunnels,—that, for instance, on the Regent's canal, which passes below part of Islington, and in which there is no path for horses—a steam-engine has long been used. This

tunnel is, however, of considerable size; and appears, so far as the writer can judge from having made two or three voyages through it, tolerably well ventilated. Besides this, those dwelling along the margin of the canal way have for some months past noticed that, to some of the barges of the Grand Junction Canal Company, small steam screw propellers have been fixed. The first of these vessels so constructed was the *Pioneer*; and since then others have been fitted in a similar way. By this means two barges are moved at the rate of from four miles to five miles an hour; and the plan is said generally to work well, and also to be very economical.

In connection with one of these steam barges an extraordinary accident has recently happened; causing two deaths and injury to other persons. It appears that on the Grand Junction Canal Company's line there is, at a part of the works near Blisworth, in Northamptonshire, a tunnel in which there is no towing path for horses; and, until steam propellers were brought into use, the barges were moved along by the extraordinary process called "legging." An old proverb says that one half the world does not know how the other half earn their bread: here is one of the proofs of the truth of the old saying: for how few of our readers have even heard of the business of a "legger." We doubt if, amongst the multitude of names of the different kinds of labour which are recorded by the Registrar General, this one is to be met with. The "leggers" are men who lie on their backs on the barges; and, by pushing with their feet at the top of the tunnel, move the boats along. Notwithstanding the deficiency of height, there is room for two barges to pass; but in one part of the tunnel the road was narrowed by some piles which had been driven in for the purpose of making necessary repairs: near this one of the steam vessels with a barge in tow met another barge in which the leggers were at work. An entanglement took place: the boat in tow of the steam was cast off and left behind: the smoke from the engine fire became dense, and so much affected the "leggers," that they could not work; and on board the steam-barge its effect was such that it suffocated two men, one of whom fell into the water and was not found until some time afterwards; while a young carpenter, who had been taken as a passenger, was found lying dead in the boat, his life destroyed by the want of proper ventilation for this steam traffic. Two engine-men besides were severely burnt, and a boatman suffered from the effects of suffocation and immersion. It is reported that this tunnel is only ventilated by a shaft near the middle; but that this being near the village, and being dangerous, has been hoarded by brickwork. No doubt, by some very simple means used in the restoration of this shaft to its proper use, the tunnel might be made safe for steam propulsion, and we trust that the "leggers" may then find some employment which will be more suitable for a human being. At any rate, if the steam service is to be brought generally into use, a careful examination of all the tunnels should be made in order that such accidents as this should for the future be prevented.

METROPOLITAN BOARD OF WORKS.

At the meeting of the Metropolitan Board of Works held on the 27th ult., the following report was presented from the Main Drainage Committee on the subject of the embankment of the Thames:—

"Your committee have to report that, in obedience to the resolution of your honourable Board of the 20th instant, referring to them for consideration the correspondence between the First Commissioner of her Majesty's Works, &c., and the chairman of the Board, on the subject of the Thames embankment, and as to the course to be pursued with reference to the proposed bill for carrying out the work, they have carefully considered the subject. The chairman of your honourable Board has laid before your committee a letter addressed to him by Mr. Baxter, the Parliamentary agent, stating that he had been instructed by Mr. Cowper to prepare the notices and arrange for the preparation of the bill; and that Mr. Cowper was desirous that any suggestions which might occur to him with reference thereto; and, having reference to all the circumstances of the case, your committee, after much consideration, have arrived at the conclusion that the most eligible course to be pursued with reference to the proposed bill would be that the chairman should receive the communications which the Parliamentary agents for the bill are instructed by the Chief Commissioner of

Works, &c., to make to him, that he should consult with them as to the preparation of the notices and the draft bill, and should report from time to time to your committee; and they accordingly recommend that course for the approval of your honourable Board.

The motion was carried by a majority of 16 to 8.

A report was brought up from the Main Drainage Committee, recommending that the salary of the Clerk of the Board be increased from 400*l.* to 600*l.* per annum, and that the resolution of the Board of the 2nd December, 1859, be so far varied as to admit of such increase. This was carried.

The following are the sums which will be required from the different parishes and districts of the metropolis for the main drainage rate of 3*d.* in the pound for 1861-62, and for which precepts were ordered to be issued:—

City of London.....	216,354	0	0
St. Marylebone.....	12,210	5	0
St. Pancras.....	10,402	0	0
Lambeth.....	7,992	10	0
St. George's, Hanover-square.....	11,796	4	0
Chelsea.....	6,857	3	0
Holborn.....	2,392	3	0
Shoreditch.....	6,580	5	0
Paddington.....	1,629	0	0
Northampton, Surrey.....	3,000	0	0
Camden.....	1,125	0	0
Westminster.....	6,393	15	0
Clerkenwell.....	2,767	3	0
Chelsea.....	2,938	2	0
Kenington.....	3,936	7	0
St. Luke's, Middlesex.....	1,114	11	0
St. George's, Southwark.....	2,125	0	0
Barnes.....	1,675	0	0
St. George's-in-the-East.....	2,123	6	0
St. Martin's-in-the-Fields.....	2,233	17	0
Mile-end.....	2,029	17	0
Woolwich.....	1,037	10	0
Rotherhithe.....	1,043	15	0
Hampstead.....	1,201	19	0
Whitechapel.....	3,152	4	3
Westminster district.....	5,413	5	0
Greenwich district.....	3,037	2	6
Wandsworth district.....	4,517	10	0
Hackney district.....	3,680	10	0
St. Giles's district.....	2,271	4	0
Holborn district.....	2,245	10	9
Strand district.....	3,354	7	0
Fulham district.....	1,671	10	0
Lincoln's Inn district.....	2,225	12	3
Poplar district.....	3,406	0	0
St. Saviour's district.....	1,050	0	0
Plumstead district.....	1,311	12	6
Lewisham district.....	1,907	10	0
St. Olave's district.....	1,246	5	0
Charter House.....	21	7	0
Gray's Inn.....	158	9	0
Collegiate Church, St. Peter.....	17	15	0
Inner Temple.....	253	10	0
Middle Temple.....	162	12	0
Lincoln's Inn.....	225	5	0
Staple's Inn.....	26	18	0
Furnival's Inn.....	39	11	0
Total.....	215,749	0	9

SOME NOTES ON FURNITURE AND HOUSE-FITTINGS.

As regards chimneys, it is difficult to learn the precise period at which they were invented. For stove we are indebted to the ingenuity of the Germans, and other northern nations; and, as early as 1388, we find them in use in the royal residences and galleries of Paris. Benches and stools were formerly the most common seats, even in the palaces of princes: chairs were very rare conveniences. The bed, which is now an article of furniture so requisite that not even a labourer's hut is complete without it, was an object of luxury with the Greeks and Romans, who readily adopted mattresses, leathers, and beds of down, as substitutes for the couches of leaves and skins on which their more hardy ancestors reposed. The bedsteads were costly; some were of ivory, some of silver, and others were made of ebony or of cedar.

The earliest coverings with which the walls of rooms were hung consisted of rush and straw mats, the colours being chosen with taste and blended together with great skill. Some of this description of manufacture may even now be found in the Levant, where they value them for the vivacity of their colours, and the beauty and symmetry of the figures on them. Although hangings of needlework were in use in England by the Anglo-Saxons, linen and silk tapestries were not generally used till about the twelfth century. In the fifteenth century a kind of tapestry, termed *gobelins* and *basse lisse* was invented in the Netherlands, which was quickly introduced into France: it was of very high price; and, consequently, far above the reach of persons who were in but middling circumstances. But the most noted kind, and which eclipses the productions of any other age or country, is the manufacture of the Gobelins, which was established in France under Henry IV. Colbert, aided by the talents of Le Brun, the painter, brought this description of house-decoration to a great state of perfection. Damask was an article much used;

it took its name from the city of Damascus, in Syria. In addition to these may be mentioned the Venetian brocatelle, the printed linens of Persia and India, the tapestry constructed of the cuttings of coloured woollen cloths attached to canvas with gum, and embossed, painted, and gilt leather. This was used in Spain before its introduction into this country.

Of mirrors or looking-glasses—the first were of polished metal: we find Moses makes allusion to them. Mirrors of polished silver were first used by the Romans in the time of Pompey. Metal mirrors may be seen amongst the Egyptian, Greek, and Roman antiquities; and Pliny speaks of shining stone being adopted for the reflection of objects. This probably was talc, which may be separated into very thin laminae, or scales; and when laid upon metal would have power sufficient to reflect objects tolerably well. It is, however, to the Venetians that we are indebted for the manufacture of our modern mirrors. They, it appears, were the first in Europe who became possessed of the secret of manufacturing them with glass and the metallic composition now usually adopted. Towards the conclusion of the crusades mirrors of crystal were imported into Europe.

A quaint writer of the sixteenth century observes respecting a few of these articles of domestic convenience,—"What a multitude of chimneys have lately been erected! Why, in my young days there were not above two of them, if so many, in many uplandish towns of the realm (the religious houses and manor places of the lords always excepted, and peradventure, some great personages). And as to lodging, why, our forefathers, and we ourselves, have lain full oft upon straw pallets, covered over with a coarse brown sheet, under coverlets made of dogs' skin, and a good round log under their heads instead of a bolster. If it were so with the good man of the house that he had a mattress or flock bed, and thereto a sack of chaff to rest his head upon, he thought himself as well lodged as the lord of the tower, so well were they contented. As for servants, if they had any sheets above them, it was well, for seldom had they any under their bodies to keep them from the pricking straw that ran through the canvas." And further he says, speaking of the exchange of wooden platters into pewter, and wooden spoons into silver and tin; "so common were all sorts of wooden vessels in old time, that a man should hardly find four pieces of pewter (of which one was, peradventure, a saltbox), in a good farmer's house."

SANITARY CONDITION OF SHREWSBURY.

WORKING on the statements we have made, the *Shrewsbury Chronicle*, we are glad to see, is urging on the town. "To see ourselves as others see us, may," observes the *Chronicle*, "sometimes be as salutary as it is always curious; and on this account the articles which we took the liberty of extracting from a London contemporary, the *Builder*, a few weeks ago, possess a peculiar value. They are the impressions of an intelligent stranger, who visits us for the first time; knowing nothing further about Shrewsbury than that it ranks amongst the highest of those towns in which the rate of mortality exceeds the average. Indeed, it was probably into the causes of this unenviable position that he was specially commissioned to inquire; and, if so, he may perhaps be excused for passing over the more agreeable features of what we must still consider our fine old town, to dwell so much at length on its more repulsive features. But what a picture did he present to us! Open channels in the public streets, festering with mud; untrapped gratings steaming forth their fetid exhalations to poison the surrounding atmosphere; footpaths impassable for filth; courts and alleys without the accommodation decency demands; and cesspools and manure heaps polluting the air and offending the eye, where such things ought never to exist! And yet who shall say the picture is not true? Nay more, is it not still imperfect; and might not we, who are necessarily more intimately acquainted with the place, easily add one or two touches to the sketch by way of rendering it complete? But the task is not to our mind, and the readers of the *Chronicle* must fill it in as they please. It is sufficient for our present purpose that the familiarity which begets indifference to such a state of things has no weight with the stranger; and it is mere childishness to feel angry at the exposure. Let us rather thank him for his candour; and digest, as we best may, the unpalatable truth; taking care at least to profit as far as possible by the lesson. For nothing can be more easy than this. Sanitary economy is a science by no means difficult to understand; its laws are so clear and its results

so palpable, that those who run may read; and the neglect of its principles bears the same relation to disease as ignorance to crime. In many instances, indeed, it is the sole cause."

"It was in the year 1853 that the inhabitants of Shrewsbury suddenly woke up to a sense of their disgraceful position in sanitary matters. The Board of Health was memorialized on the subject, and a commission of inquiry was instituted. The facts brought forward on that occasion will be familiar to most of our readers. There could be no doubt about the matter; something must be done: the Public Health Act must be enforced, or we must grapple with the evil ourselves; and so the latter course was adopted, as opening the widest path for a little political jobbery,—and hence came that miserable thing of shreds and patches called the Shrewsbury Improvement Act.

And what has it effected? Of good, nothing—of evil, much. Has any one of the nuisances, we would ask, of which the gentlemen just mentioned were induced to make special complaint been yet removed? Has one single sewer been laid down? Is fever less rife in certain localities than formerly? In a word, is the mortality of Shrewsbury yet reduced to a level with that of other towns? or has any attempt been made likely to effect such a purpose? *None!* But something has been done: the rates have been *rather more than doubled*: that is to say, that whilst the rate under the old Street Act averaged, for the last five years it was in force, a little over 10*d.*, the Improvement rate during a like period has reached an average of more than 1*s.* 8*d.* in the pound. And little wonder, when we look to the machinery by which it is worked."

CHURCH-BUILDING NEWS.

Thurston (Suffolk).—The restored church of Thurston has been reopened. The restoration, or rebuilding rather, was effected under the direction of Mr. Hakewill, architect; Mr. Farrow, of Bury, having executed the works. The details of the original structure have been adhered to generally, except in a few minor features of the exterior and in the fittings of the interior. The roof has been raised again some 6 or 7 feet; thereby diminishing the apparent height of the tower, which, however, is slightly increased. The walls are faced with undressed flint, with stone arches and quoins, up to the string-course, above which the flints have been dressed. Two bands of red brick have been introduced to give additional strength. The arches are of red brick alternated with dressed flints above the dripstones of the windows. In rebuilding the tower, in which later work had been introduced, the architect has restored the original design both in the buttresses and in the traceried windows of the belfry. Inside the church the old stones of the pillars have been replaced, except unsound ones. The whole of the area of the new nave is thrown open, and filled with oak benches with carved poppy-heads; the chancel, which remains much as it was, being furnished with the original stalls. The organ, which fills the north-west corner, is almost entirely reconstructed; the fall of the tower having nearly destroyed the former one: the builder was Mr. Cotton, of Yarmouth. Above, a simple wagon roof of stained wood has been substituted for one of the Perpendicular style, with cross-beams and carved openwork; and the carved ends of the corbels have been repainted. The floor of the church contains a slab to the memory of the vicar, whose remains were laid beneath it before the work was completed.

Ely.—The lantern tower of Ely cathedral is about to be rebuilt. The cost will be between 5,000*l.* and 6,000*l.*; and the first portion of the work has been entrusted to Messrs. Freeman & Son, of Ely, builders, who are commencing the preliminary staging and scaffolding. The architect is Mr. G. G. Scott. The new lantern, like the present one, will be of oak and cased with lead; the windows will be Gothic. The roof of the nave of the cathedral and the inner ceiling are now under repair. The decoration is the work of Mr. W. Le Strange, of Hunstanton. New chorister schools and master's residence, we may here add, are in progress in the High-street; the architect being Mr. G. W. Fawcett, of Cambridge.

Fordham (Essex).—The church here has recently undergone internal and partial external renovation. The chancel has had the thick coat of plastering removed from the outside; and the flint work, which was found to be in good condition, has been fresh pointed in blue mortar, and restored. A new coping has been placed upon the

east gable, and the old cross restored. The windows throughout have had new tracery leads, and the old mullions re-worked and filled with cathedral glass. A new east window, the gift of the rector, the Rev. W. H. Herring, B.A., has been added, with a border of stained glass, and filled with L.H.S. quarries, intermixed with others of a suitable pattern. The old high pews have been removed, the floor of the church throughout raised four inches as a preventive of damp, and the aisles paved with red and buff Staffordshire tiles. Open deal benches, stained oak colour and varnished, have been substituted for the high pews, thus giving fifty additional sittings; and in the chancel, benches with carved poppy-heads have been introduced of pitch pine and stained. The arches to arcades have been cleaned and restored, and the tower arch at the west end, which has hitherto been blocked up and plastered over, has been opened and restored. The north doorway has been re-opened, and new oak door added. The whole of the work has been carried out by Mr. Joseph Grimes, of Colchester, builder. The cost of the restoration exceeds 700*l*.

Kettering.—A new Baptist chapel has been opened at Kettering. The chapel was commenced in May, 1860. It was built according to designs and under the superintendence of Mr. Edward Sharnan, of Wellingborough, architect; Mr. W. S. Peebles, clerk of works; Messrs. Henson, Buswell, & Buckley, contractors. The style may be said to be Lombardic, with Gothic in the details. The front is built of Ancaster stone, ornamented by a pediment with a one-storied porch, the whole enriched with coloured tiles, and some carving. The chapel will seat about 850 people. It is 70 feet long, 50 feet wide, and 30 feet high under the tie-beams, with a covered panelled plaster ceiling, and a second cove rising as high as the collar-beams, at which level there are four skylights, which light the upper cove, and serve the purpose of ventilation. The minister stands in a semicircular carved oak platform, projecting from an ornamented Caen stone recess, with approach from behind. The end gully and seats under are semicircular in plan. All the interior woodwork is of clear varnished deal or oak. It is lighted by pendant starlight gas-burners, and heated by water-pipes. Behind and adjoining the chapel is a deacons' and minister's vestry, and lecture-room, 40 feet and 20 feet, and a school-room over, 90 feet and 20 feet. The whole cost, including materials from old chapel, is about 4,000*l*., raised by voluntary subscriptions.

Stapleley (Beds).—At one extremity of the village of Stapleley a church has been lately erected, from designs by Mr. Hy. Pearson, of Luton, architect; and the work has been done by Mr. E. O. Williams, of the same town. The style chosen is Early English. The church consists of nave and chancel, built of grey brick, with freestone dressings. The length of the building is about 80 feet, and the height to the ridge of the roof about 40 feet. The west gable is terminated by a bell turret, and the east gables by ornamental crosses. The stone pulpit is divided into panels by dog-tooth ornament; these are charged with monograms and sentences, coloured.

Littlehampton.—Rustington church, after having undergone a repair and renovation, has been reopened. The repairs included entire re-roofing. Of the other parts, the plan adhered to has been, as far as possible, to preserve the original designs, with open seats. The pulpit and reading-desk are of old oak, from the cathedral *débris*, in Gothic, and the communion chairs are of the same material, from Etchingham church, before its restoration, and the design is "constructed without the aid of glue, nail, or peg." The mural monuments are many, and have had attention. The cost has exceeded 1,300*l*.

Tottenham (Wills).—The memorial church which has been built by the Marchioness of Ailesbury to the memory of her mother, Katherine, Countess of Pembroke, was consecrated on the 21th ult. It is ultimately to be a district church, and will supersede the private chapel till lately existing in the house at Tottenham. It is a large structure, consisting of nave, north aisle, north and south transepts, chancel with eastern end of polygonal form, vestry, and robing-room. The tower, placed at the angle of the nave and south transept, forms in its lower stage the porch, giving entrance to the nave and south transept. The tower is surmounted by a spire, reaching to a height of about 120 feet. The church is faced with flint, relieved by horizontal bands of Saracen stone, with Bath stone quoins, &c.; the windows, buttresses, and all the moulded stone work, with the spire, being of Bath stone: relieving arches of red, green, and grey stone are introduced over

all the openings of the doors and windows. The whole of the interior walls of the church are lined with Bath stone. The roofs are of open timber-work, boarded, and with carved bosses and spandrels; there being no plastering used in any part of the building. The roofs are covered with dark-coloured tiles of different forms: the chancel roof is crested with gilt ornamental iron work. The spire is surmounted by a carved finial with iron gilt vane. At the east end of steps, flanked by spandril walls, enclosed by ornamental iron railings and gates, leading to the family vault, which extends under the whole space of the chancel. The style of architecture adopted is Geometric. Internally the transepts are separated from the nave by stone screens, filling up the whole area of the arch; the tracery being supported by four marble shafts of red colour, with carved capitals. The responds of arcade between the nave and north aisle are also of red Devonshire marble, and the carved corbels of the nave roof have similar shafts of marble resting upon them. The chancel arch mouldings are carried by carved stone corbels and red marble columns. The five sides of the eastern end of the chancel are finished by a reredos of deeply-coloured majolica tiles of ecclesiastical design, surmounted by a text, also executed in majolica. The whole body of the nave and chancel is paved with Minton's tiles, of varied design; those in the chancel combining rich patterns, in which blue, green, and white are introduced with the union of other colours. The gangways in the aisle, transepts, &c., are also paved with Minton's tiles. In the north transept is placed the organ, from the manufactory of Bevington & Sons, of London. The windows throughout the church are of stained glass, and contain whole-length figures and subjects taken from the Old and New Testaments. Of these windows thirteen are by Messrs. Lavers & Barrand, three by Messrs. Heaton & Butler, two by Mr. A. Gibbs, and one by Mr. O'Connor. In the entrance porch, and under a groined ceiling of stonework, is placed the memorial, in a crocketed canopy, surrounded by various sculptured emblems and supported by angels. It is of marble, dove-coloured, and the inscription is in gold letters. The church has been erected by Mr. Daniel Jones, of Bradford-on-Avon, from plans and elevations furnished by Mr. T. H. Wyatt, architect. The various tiles of Minton and majolica were in the floors, reredos, &c., have been all arranged and laid out by Mr. William England, of London. The carvings and sculptured works of the church, in wood, stone, alabaster, and marble, were executed by Mr. G. A. Howitt, of Devizes, who also did the pulpit, font, altar-rail, credence-table, poor-box, &c., &c.

Devizes.—The building committee for the restorations of St. John's Church have entered into a contract with Mr. Mullins, the builder, for a portion of the works contemplated, at a cost of 1,736*l*., viz., to rebuild the arcades, to put a new roof on the nave, to extend the nave and aisles one bay to the westward, and to seat the new bay, according to the specifications of Mr. Slater. There was a deficiency of funds for these works; but the late rector guaranteed 100*l*. in addition to his former contribution of 25*l*.; and the new rector guaranteed 100*l*.

Cricklade (Wills).—Latton Church has been restored and re-opened. During the incumbency of the present vicar, the south side of the nave has been rebuilt, the tower opened, and the transepts restored. A new chancel has been added. The architect is Mr. Butterfield, who has superintended the whole of the restorations. One step leads through the ancient Norman arch into the choir, which is fitted with stalls of carved oak. The roof is supported by open timber work. Two steps then lead through a pointed arch into the sanctuary, the roof of which is of stone vaulting, with pointed arched ribs. Another step leads to the footplace, where the altar stands on a slab of Parbeck marble, surrounded by encaustic tiles. The walls of the sanctuary are ornamented with encaustic tiles. The east window is fitted with stained glass, by Mr. A. Gibbs, of London. One of the south windows of the chancel, also by Mr. Gibbs, is a memorial window presented by Mr. J. Habgood, of Faringdon. The whole of the works have been executed by local workmen, under the superintendence of Mr. John Roscliffe, of Latton, the builder.

Hawkechurch (Dorset).—The chief stone of a new church has been laid here by Mrs. Adams, wife of the rector of Hawkechurch. In the early part of last year, the Rev. E. C. Adams stated to a vestry meeting the bad state of the church, and said if they would agree to have a new church the

tower would remain, and the whole amount which he, Mr. Adams, would ask the rate-payers for would be only 250*l*., the parish to be allowed four years to pay that amount. The church would cost somewhere about 2,000*l*.; and by the parish paying 250*l*., and the amounts that he should get from the Salisbury Diocesan Fund, and from the Building Society in London, he hoped to be enabled to carry out the works. The meeting agreed to make a church-rate towards the 250*l*., that sum to be paid in four years. The tower was repaired in the latter part of last year, but the church was allowed to remain until July last, when it was found to be in a very bad state, and was pulled down. The contract for the new church has been taken by Messrs. Chick & Sons, of Baiminster, builders, for 1,936*l*. The stone work has been taken by Mr. Patten, of Bridport, builder, from Messrs. Chick & Son, and Mr. Trask, of Stoke-under-Norton, is going to supply Hamhill stone required. The building is now going on under the direction of Mr. Patten.

Lindridge (Worcestershire).—The parish church has been rebuilt from the foundation upon an enlarged plan, and consists of a nave and south aisle, with tower and spire at the south-west angle, chancel, vestry, and organ chamber, with a crypt under the latter for warming the church. The design is Decorated Gothic. The walls are built externally with native stone, laid as random-ranged work, the various dressings being executed in free stone. All the interior constructional work and facings to walls are executed out of Bath stone. The roofs are framed of oak, all the timbers being visible, lined with oak boarding, set diagonally, and covered externally with tiles. A sheeting of Croggon's felt is laid between the tiles and oak boarding, to exclude draughts and regulate the temperature. The sittings are all open, and arranged to accommodate nearly 400 persons. The several floors will be ceased with encaustic tiles. The south aisle is divided from the nave by a double arch, springing from carved wall corbels, and carried in the middle upon a pillar with foliated capital. It presents two gables to the south, with a three-light tracery-headed window in each. The nave has to the north three two-light tracery-headed windows, and a four-light window to the west. The chancel is divided from the nave by a wide arch, springing from enriched corbels. The east window of the chancel is composed of five lights, with tracery; and on the south side of the chancel are two two-light tracery windows; the easternmost one finishing inside as a sedile. Between the two windows is a priest's door. An archway decorated with ball flowers opens into the organ chamber on the north side. The tower is divided into three stages, the lower being used as a porch; the west wall pierced with a two-light window; and the next stage will be used as a ringing loft, and is approached by a geometrical stair. From the tower springs a broad spire, pierced above the broad with four spire lights. All the windows throughout will be filled with painted glass. The church has been erected from the designs and under the superintendence of Mr. Thomas Nicholson, diocesan architect, Hereford.

Bromsgrove.—The new Primitive Methodist chapel, lately opened here, is built of red relieved with white and blue bricks; partly in the Italian style of architecture; and, rising to the height of 44 feet, is lighted by twelve windows. The works have been carried out under the direction of Mr. Bowater, of Wolverhampton. The length of the chapel is about 46 feet, and the width 31 feet. A school-room is underneath the chapel. The chapel and house, when completed, and the chapel fitted up with seats and gas fittings, will cost 700*l*.

STAINED GLASS.

St. Mary's, Newfoundland.—Messrs. D. Evans & Sons, of Shrewsbury, according to the local *Chronicle*, have forwarded two windows for the church of St. Mary, Newfoundland. They had previously supplied the stained-glass windows of the cathedral there. The windows are two single lancet lights, 12 feet by 2 feet; the one containing the figure of our Saviour as the Good Shepherd, and the other St. John the Baptist. The argument of St. John's consists of his usual garments of camel's hair, and a blue mantle. Each figure stands under a foliated canopy on a diapered ground; the back being also diaper work. The whole is surrounded by a border. The windows were ordered by the Rev. J. Pearson, incumbent of St. Mary's Church, St. John's, Newfoundland, where they will be placed.

The Old Church, Agr.—Some time ago it was

resolved to supplement the recent additions to the decoration of this church by putting in an illuminated window behind the Trades' loft. The promoters of the improvement had several designs submitted for inspection, and selected that supplied by Messrs. Ballantine, of Edinburgh. The shields and mottoes of the incorporated trades have been placed in the base; whilst scriptural illustrations and texts have been introduced in the chief portions of the window. On the one side David is represented singing; and on the other Solomon is delineated as dedicating the temple. The design is of early character.

PROVINCIAL NEWS.

Colchester.—The contract for the formation of the artesian well in connection with the new system of waterworks, for the old and new camps at Colchester, according to the *Chelmsford Chronicle*, has been taken by Mr. Clarke, of Tottenham, and the work will be proceeded with immediately. The plans for the new cavalry barracks have been agreed upon; and the contracts for the works are likely to be taken within a few weeks; it being the determination of the War authorities to expedite the erection of the barracks as much as possible before the arrival of winter. There is no intention of increasing the infantry accommodation, which is now sufficient for 3,000 men. The new camp will be constructed upon an elevated plot of ground immediately adjoining the infantry barracks; affording every facility for the most perfect drainage; and having, it has been asserted, an almost exhaustless supply of water.

Winchester.—The want of sufficient accommodation in the Hants county hospital, and a proposal to erect a new hospital on another site, are at present under consideration.

Mathon.—New schools have been opened here. The buildings are of a simple character, and were designed by Mr. W. J. Hopkins, of Worcester, architect; the builder being Mr. George Warner, of Malvern Link.

Liverpool.—It may be remembered that one of several projects submitted by the local improvement committee, for the consideration of the council, consisted in the formation of a new street or road from Smithdown-lane to West Derby-road; and, although the scheme as a whole was much criticized and condemned, this portion of it is now in course of execution. Workmen have commenced operations at the West Derby-road end of the promised new route. The new road commences close to the Newham House gate, and immediately opposite to the Belmont-road, from Richmond-hill, of which it will be a continuation. It strikes through the fields in a straight line to the Old Swan-road, in the neighbourhood of Kensington, and terminates at the junction of Lodge-lane and Smithdown-lane. The new road, or street, will be 60 feet in width, and its exact length 1 mile, 4 furlongs, and 14 yards. It runs for a great part of its course through land belonging to the corporation. It is intended to construct a substantial sewer along the entire length of the proposed new road.

Birmingham.—The music hall was lately offered for sale by public auction, by Messrs. Gallows & Smith; but a sufficient sum was not bid to induce the proprietors to sell. The hall has since, however, been disposed of to a Birmingham gentleman for 3,400*l*. The original cost of the building was upwards of 12,000*l*. The hall will be available for the same purposes as heretofore.

Bolton.—The new workhouse at Fishpool, for the Bolton Union, has been opened. The cost of the land, building, fittings, &c., has been upwards of 32,000*l*., the accommodation being for 1,000 inmates. Mr. Robert Neill, of Manchester, has been the contractor; and Messrs. Leigh, Hall, & Woodhouse were the architects.

FALL OF AN IRON BRIDGE AT YORK.

A TRIFLING accident took place on Friday last week, in connection with the new bridge in course of construction at Lendal, York. The bridge, which was to cross the Ouse at Lendal Ferry, in the line of a new street from the railway station to the cathedral, was, as we have before intimated, on the lattice girder principle of Mr. Dredge; and the present is the first example of a girder bridge which has been thrown across any river in England. The construction of the girders was carried on so that when completed they might stand like walls of iron trellis-work across the water; and as each was completed it was, by means of hydraulic power, raised from its supports, which were then taken away, and the iron gradually lowered to its

place upon steel rollers let into the buttresses; this description of bed being adopted for the purpose of allowing of the contraction, expansion, or depression of the iron when under the influence of heat or cold or excessive pressure. Only a short time ago two of the four girders of which the bridge was to consist were completed and successfully lowered to their places; and, as these were the heavier portions of the lattice-work, which were to divide each side of the road from the footpath, it was naturally anticipated that the main difficulties in connection with the structure were over. There, however, remained two lighter girders to complete; and one of these was ready, and was in the course of being lowered at the time when the accident took place.

The outer or footway girders still remained on "chocks." It was agreed to remove the "chocks" or wedges connected with one of the lattice girders, so as to place it in its final position. Prior to the completion of this operation Mr. Pickersgill, the city surveyor, and Mr. Ackroyd, his assistant, had passed over the bridge, and just departed, when Mr. Moore, the clerk of the works, in the employ of Messrs. Calvert, the contractors for the construction and the erection of the ironwork, and who was superintending the workmen, directed that the remaining "chocks" should be taken away on the west side of the river. For this purpose the hydraulic engine on the spot had to be brought into requisition. The girder was raised: a few wedges or packings alone remained to be removed; when a low rumbling sound was heard to emerge from the structure; succeeded by a tremulous motion of the moving girder, which directly after careened over on to the other adjoining one (although stayed by 11-inch beams); in which its turn carried away the next; and this giving way also, the outer girder was forced over, and fell bodily with a terrific force into the water, carrying everything before it. Huge beams cracked and snapped like dried twigs, and all the massive scaffolding, with its iron supports, and the side of the ponderous gantry were brought down with a tremendous crash, as was also directly afterwards one of the immense travelling cranes. Thus in a few moments the lattice girder bridge, which for so many months has been in course of construction, and the completion of which was shortly to have been fulfilled, disappeared, leaving only a bare wreck behind.

Six persons have been killed by this lamentable accident, and several others injured.

BUILDING ACCIDENTS.

SEVERAL accidents have of late unfortunately occurred at the Exhibition building. In one case a workman, whilst engaged on one of the lofty scaffolds hauling up timber, together with two others, walked backward, fell from the scaffold to the ground, a distance of upwards of 60 feet, and was killed on the spot. Other two men appear to have been seriously injured on the same occasion. Accidents of a similar nature have since occurred to other workmen, but none of them were killed.—A workman, employed on the works of the Metropolitan Underground Railway, while working on the top of one of the lofty shafts, by some means overbalanced himself and fell from the top of the shaft, a distance of 60 feet, into the tunnel. The poor fellow was crushed in an awful manner, life being quite extinct.—On Wednesday morning, Mr. Brent, the deputy-coroner, opened an inquiry, at the board-room of the Royal Free Hospital, Gray's-inn-road, touching the death of Edward Richard Hodgkinson, aged 33, a painter, who was killed in the stone-yard of Messrs. Cubitt, Gray's-inn-road. It appeared that the deceased, along with some other men, was engaged on Friday afternoon last painting the framework of a new stone-cutting machine. The deceased and a smith put up a ladder against one of the rails; and just as the smith was in the act of leaving, two very large and heavy stones fell and struck him, breaking his legs. The deceased was knocked off the ladder, and one of the stones fell on him. They were both taken to the Royal Free Hospital. The deceased expired in about an hour after he was admitted. The jury returned a verdict of accidental death, and expressed a hope that more care would be taken for the future to see that the stones were safe.

CHERTSEY ABBEY.—The result of the excavations on the site of this abbey has been to expose the foundations of the east end of the church and part of the cloisters; and a large quantity of encaustic tiles, pieces of sculpture, &c., has been found.

STRENGTH OF CAST-IRON COLUMNS.

SIR.—In a recent impression you gave us a paper of Mr. Shields's, as to iron construction, read at the meeting of the British Association, which, on its perusal, rather led me to a disappointment. After reading the paper, I have come to the following conclusions, which are based upon probably as much experience and practice as our author may boast of:—

1. That columns of cast-iron, 20 to 24 diameters in length, with flat ends and base plates, and with $\frac{1}{2}$ -inch metal, will bear with safety not merely 2 tons per square inch of metal, sectional area, as he would advise, but 4 tons per square inch of metal. The actual breaking weight, as deduced from the most reliable and recent experimental resources, is, for columns of this form, about 16 tons per square inch of section. And this (if he be an engineer) he ought to have been aware of when he wrote the paper in question. (See Rankine and others).

2. That cast-iron arches, well braced and kept in a truly vertical position under their load, are quite as able to take 5 tons (and not, as Mr. S. says, 2½ tons) per square inch of sectional area of metal, as are wrought-iron ribs loaded with 4 tons per square inch of sectional area. But it must not be the cinder iron which seems uppermost in our author's mind, but *bond fide* cast-iron, made of mixed ore and of uniform quality. This is superior under a compressive strain to any (even the best) wrought-iron, as all manufacturers and engineers well know. All designs and drawings should assume good material, and insist upon it, thus designing up to a perfect article, and not down to a bad one.

3. Small castings (that is to say, of thin scantling) are generally made of better quality than large ones; and are, therefore, able to bear comparatively a greater weight, and not the reverse of this, as our teacher at Manchester inculcates. This is patent to all who know what iron is, and does not want any enlarging upon.

4. The system of designing the middle section of an arch as a girder of a corresponding span, as suggested apparently for the first time, is now somewhat antiquated; and the wrinkle, if of worth, might have been learnt by Mr. S. a long time ago; as witness the works of Mr. Page at Westminster New Bridge, and many others.

IRON AGE.

*** We believe, notwithstanding the assertion of our correspondent, that the practice of many of the best engineers coincides with what Mr. Shields has stated in his paper; and that it is the custom of eminent bridge builders, including Mr. Edwin Clark, Mr. Fowler, and Mr. Page, to keep the pressure on cast-iron arches within 2½ tons per square inch. Again, few men were better versed in this subject than the late Mr. Brunel, who was in the habit in his extensive practice of loading columns to 1½ ton per square inch only; and the experience of Mr. Shields himself at the Crystal Palace, where vast numbers of columns were tested by every variety of live and dead loading, ought to be of much value. Thin columns are not necessarily cast of better quality than thick ones; and the liability, common to all columns, of being cast thicker on one side than on the other renders thin columns peculiarly subject to the risk of wanting, in some portion of their circumference, the requisite thickness for stability. This danger occurs especially at the centre of the column's length, where the liability to bend or buckle is greatest: it increases as thinner columns are used, and therefore necessitates increasing precaution in using them.

TRAMWAYS IN ST. SAVIOUR'S, SOUTHWARK.

ON perusing my *Builder* of last Saturday's publication, I observe at page 672 an article under the head of "The Tramway System," in which you allude to a new sort of tramway being laid in Blackfriars-road.

I beg to inform you that this District Board of Works (St. Saviour's), with a view of testing the durability of iron and stone trams, when laid in a situation in which the iron and the stone would have about the same amount and sort of traffic and wear, ordered Mr. Stephen Cary, of Clink-street, Southwark, to lay iron trams in blocks 18 inches by 18 inches, part of them 7 inches deep, and the other part 5 inches deep, from the south side of Stamford-street to Holland-street, on the west side of Blackfriars-road, about 230 feet in length.

And also ordered Messrs. Mowlem & Co. to lay in continuation of the line northward to Upper

The Princess.—Mr. John Brougham's comedy, "Playing with Fire" has the great merit of being very amusing, and not without a purpose. With few parts in it, and all fairly good, and only two scenes required for the five acts, Mr. Brougham may expect to have it played all over the country. At the Princess's, the piece introduces to us a new actor, Mr. George Jordan, from America, who has good looks and figure, with a gentlemanly mien and to aid him. Like other actors, however, from his country, he needs some good advice as to pronunciation. Mr. Brougham's own part, *Dr. Savage*, suits him, and is exceedingly well played. Mr. Widdicombe, too, who enacts *Pinchbeck*

rascally assistant of the *Doctor*—and Miss Rose Leclercq, contribute materially to the good going of the piece. The drawing-room scene, at Mr. Herbert Waverly's, in which much of the action takes place, is exceedingly well fitted up. Mr. Fechter's "Othello" is looked for with great expectation.

Books Received.

A Guide to Typography; Literary and Practical, or, The Printer's Handbook and the Author's Vademecum. By HENRY BRADNELL, Printer. London: F. Bowering, 211, Blackfriars-road; and by all Booksellers.

MR. BRADNELL'S very able and practical treatise on typography is now completed. It comprises two distinct parts or treatises,—one which is more especially the printer's handbook, and the other the author's vademecum; each of which, either as a volume, or serially, in nine fourpenny (or, by post, free, fivepenny) parts, may be had separately; but authors and printers would do well to procure both treatises; the one as a useful and valuable complement to the other. Indeed, much of the one is essential to an enlightened appreciation of the other. For behoof of the student, also, in the first part, the principles of English orthography are illustrated more at large than in any English grammar; especially as regards the proper formation of derivative, inflected, and compound words; and we have syllabification; punctuation rationally discussed; hints to unpractised authors on the preparation of copy for the press; and other useful and important matters. For the compositor (and for the author much of it as well), in the second part, there is an interesting and excellent summary of the history of printing; explanation of the various sized printing types; practical instructions of great use to the tyro in the art; the rationale of numerous schemes of "Imposition;" a scale of prices for compositors' work; short but comprehensive explanations of several foreign alphabets; with the plans usually adopted for the arrangement of the letters in the cases; instructions respecting job work and law work; with other judicious hints on numerous subjects interesting to the printer; and a supplementary chapter to the first part, on the changes which letters undergo in words derived from the Greek and Latin, with other interesting matter.

While the work was in progress, we expressed our decided opinion that Mr. Bradnell's masterly and valuable treatise was destined to form a reliable authority, and reference book, in many cases of difference, both in opinion and in practice, amongst printers, and also amongst authors, as well as between authors and printers, on typographical subjects; and we need only now remark, that the progress and completion of the treatise fully confirm us in our belief.

Miscellaneous.

THE EXHIBITION OF 1862 AND AMERICA.—We are glad to hear that her Majesty's Commissioners for the International Exhibition for 1862 have received a communication stating that a commission has been appointed to represent the interests of exhibitors from the United States of America in the coming Exhibition, consisting of the Hon. William Seward, Secretary of State, the Hon. Edward Everett, and several other distinguished gentlemen. We feared at one time that America would not be represented. We would express a hope that arrangements will be made to enable American artists, resident in England, to submit some of their works for exhibition.

RENNIE'S FLOATING DOCK.—On the south shore, near Greenwich, inside the *Dreadnought* hospital ship, is one of the four floating docks which are being constructed by Messrs. George Rennie & Sons, for the Spanish naval arsenals. It consists of large rectangular pontoons, divided into several water-tight chambers, or compartments, but united as a whole. The dimensions of the base in length, and 12 feet 6 inches in depth; the total displacement being somewhat over 13,000 tons, capable of lifting vessels of at least 7,000 tons. On the longer sides of the base are constructed hollow walls; the outside being perpendicular, and the inside with shoring steps, such as in ordinary graving or dry docks; but they differ from them, in having no well at one end, or less at the other; both ends being open, so that the length of the vessel to be docked is not of so much consideration as its height. The mode of sinking a vessel is very similar to that in the ordinary process.

THE GURNEY MEMORIAL FOUNTAIN AND OBELISK AT STRATFORD.—In the Broadway, Stratford, has been opened for the public use a set of drinking fountain, which, together with an obelisk, have recently been erected in memory of the late Mr. Samuel Gurney. The movement originated about two years ago, being set on foot by a working man in the neighbourhood, who has earned some local reputation as a public speaker in the temperance cause. The obelisk is in grey granite, 40 feet in height, and about 65 tons weight; it was executed by the Cheesewring Granite Company, from the designs of Mr. John Bell. On two sides of the base are drinking-fountains—the water flowing from sculptured groups of water-lilies in white marble; and on a polished slab forming the front of the base is the inscription in gold. Four lamps, erected by Mr. Casselton, of Stratford, stand at the corners of the structure.

SCHOOL OF ART FOR ANDOVER.—A public meeting was lately held in the Town Hall, Andover, to hear an address from Mr. Buckmaster on the aid given by the Department of Science and Art to classes established for giving instruction in elementary science. The meeting was very numerously attended. Mr. Buckmaster gave an explanatory statement of the nature and conditions upon which the Department rendered assistance. The chairman, the Hon. and Rev. Samuel Best, in some remarks on the value of education as a means of success in life, said science was not only of practical value in the industrial arts, but it was a valuable mental discipline for young men. It taught persons to think. He thought the scheme which had been explained one of the most perfect and ingenious he had ever heard of. It depended on their own exertions, and he hoped such excellent opportunities would not be lost by their indifference. A vote of thanks to the chairman and Mr. Buckmaster concluded the business of the meeting.

TELEGRAPHIC PROGRESS.—At the shareholders' meeting of the United Kingdom Electric Telegraph Company (limited), recently held, the chairman stated that, "in the face of the un-English opposition they had to encounter, their works had rapidly proceeded towards completion, and their lines were now up the whole distance between London, Birmingham, Manchester, and Liverpool, and would soon be placed in their hands by the contractors. The company had already had communication between London and Oxford, Wolverhampton and Chester, as well as with Manchester and Liverpool, and their wires extended over about 360 miles." He also said that, "estimating that they had seven working hours a day, and considering that they would only charge 1s. for a message to Liverpool, which existing companies required 4s. for, they might look forward to a dividend of even 20 per cent." The wires of this company are chiefly suspended upon posts along the banks of canals and by the side of turnpike roads. At present the wires are confined to the northern portion of the kingdom, the farthest points reached being Manchester and Liverpool; but it is intended to extend them to the south, and generally throughout England.—A telegraph cable has been patented by Mr. J. Branscombe, of Islington. The insulated wires are coated with leather, which is by preference sewed around them, the external protecting wires being then laid over the leather. The leather makes a bed for the protecting wires to lie upon, and prevents them cutting into the insulating material; while at the same time the leather, particularly when in a moist state, is a sufficiently good conductor of electricity to admit of any defect in the insulating material being detected.

According to an invention by Mr. D. Ker, of Plymouth, the core of the cable which constitutes the electric conductor is formed of copper wire, either single or twisted: this is covered with a mixture of gutta-percha with a little vegetable or other wax added to it. The conductor thus protected is inclosed in a metallic tube, which is coated with a waterproof composition, such as marine glue, or gutta-percha and tar. A covering of whalebone, cane, or hard wood is laid round the cable, and another coat of the marine glue or composition is applied. A covering of zinc, in strips, is next laid over the cable, the flat part of the metal lying upon the cable, so as to remove the liability of cutting the composition with which the wire is insulated.—Mr. Joseph Rogers complains that his submarine telegraph cable, in which hempen rope is used, has been described as a desideratum in the report of the Government Commission, without mention of his name or invention; and that the Government engineers have refused to test his cable.

THE LATE HERR ZWIRNER, ARCHITECT.—Our readers will have heard of the death of this distinguished architect, who was mentioned in our columns quite recently in connection with some new works. We may be enabled to give some particulars of his career hereafter. He had been long engaged on the restoration of Cologne Cathedral, and was elected an honorary and corresponding member of the Royal Institute of British Architects in 1847.

SUDDEN DEATH OF SIR THOMAS BLAIKIE.—Sir Thomas Blaikie, formerly for several years Lord Provost of Aberdeen, has died very suddenly. He received the honour of knighthood from her Majesty, in 1856, in recognition of his long and efficient public services. The family of Blaikie have long held a high local standing. Sir Thomas was the head of a firm that carried on an extensive business as plumbers, &c.; and he was also a member of the firm of Blaikie Brothers, founders, conducted by his brother, Mr. David Blaikie.

MONUMENT TO THE REV. JOSEPH HUNTER.—A monument, executed by Mr. Edwin Smith, to the memory of the late Rev. Joseph Hunter, has been placed over the grave, in Ecclesfield churchyard, where the learned historian was interred in May last. The memorial consists of a plain slab of granite, sustaining a stout wrought-iron fence, and bearing the following inscription in capital letters:—

H. S. E.

JOSEPH HUNTER, S.A.S.

SACR. SCRIBITORVM VNVS DE VICE-CANTABRIGIENSIVM,
QVI CVM IN ARCHIVIS NOTRIS VERSARETUR,
SVMMO REVM ANTIQVARIVM SVTDIO PROCVCTVS,
SVLTA DOCTE, LAVLENTER, ACCVTRATE

SCRIPSIT.

SED PRÆSESTIN HVIVSVE AGRI

ANNALES LABORE EXPLORAVIT HISTORIQUE

NANDAVIT.

NATVS EST SHILFEDDIE VITO DIE FEBRVARI

AO SALVTIS HVMANÆ MCM CC LXXIIIIO.

MORTVVS LONDINII IXIO DIE MAI

ANNO M DCCC LXIIO

QVO IPSA VIVENS DESIGNAVIT LOCO

IN FACE DEFUNCTI.

Above the inscription, a bronze tablet, containing the arms of the deceased, granted June 26, 1843, modelled by Mr. Smith, is let into the stone: technically the insignia may be thus described:—Or, a buck's head, caboshed sable; on a chief, indented, of the second, three crosses pattee of the first. Crest, a beagle argent, his dexter fore paw resting upon a closed book. Motto (on a ribbon disposed above the shield), "*Vita, si cœcina.*"

SANITARY REFORM AT BEDFORD.—The town council of Bedford are at present discussing the advisability of having "the Local Government Act of 1858, or any part or parts of it," adopted in the borough. The local *Times*, in a leading article on the subject, says—"It is a fact, and it is of no use to try to hide it—the drainage of the town is utterly inefficient; and, as the necessity for drainage daily increases, something must be done to improve it; or the accumulations, and other things (which, if smothered, will appear again in a worse form) will assert a deadly dominion over us." The writer, however, adds:—"It may be considered very irreverent, but we would rather trust the present sanitary committee of Bedford to report accurately on the condition of the drainage and water supply than the dilettanti staff of the privy council: nay more, we would rather trust to our own observation, and to our own nose, than to the great Chadwick's. If, then, we may be permitted to offer a suggestion to those who are more immediately concerned in the discussion of the question at this moment in Bedford, we say,—Find out what is really necessary to be done, and then do it yourselves. Of course, there will be a demur on the part of somebody to any proposal that may be made; but the time is gone by for rank absurdities to find favour with the people. We are quite sure that if any one were now to stand up at a public meeting and tell the poor that they were going to be robbed because a sensible scheme of improved drainage was attempted, he would take very little by his motion. The working man knows very well that if the drainage is bad the springs will soon be affected, and that his family will have polluted water as well as tainted air; and that one case of sickness in his house will cost in money value alone more than any taxation which local boards could possibly lay upon him. The people have, we admit, been slow to learn this, but they have learnt it, many of them from very sad experience. It will not do, therefore, to hold up to popular prejudices the bugbear of 'taxing the poor' in a case which is truly one where the wealthier classes will so largely contribute to the advantage of the poorest. This is especially the time when the subject may be fairly entered upon in Bedford."

REQUIRED, in a Country Office, an IM-
PROVER, who would have every facility for perfecting himself in the duties of the profession of an Architect and Surveyor.—Address, E. W. S. care of Housekeeper, 3, Great James street, Bedford Row, W.C.

The Builder.

VOL. XIX.—No. 975.

Paris and French Architecture.



IN the series of articles we are publishing, relating to the great work now in progress in Paris, to its immediate and future effects on the condition of the people, and to architectural art, we have ever had uppermost in thought that the good and evil to be taken note of, should not be lost as example, or a warning, wherever an increase of population in advance of the due provision for it might have been suffered to accrue, or a due appreciation of the art be lacking. Therefore, whether it be that we are to get an additional spur to the improvement of London, and of the condition, in the widest field of view, of its inhabitants,—in the formation of many

new and adequate lines of communication between its several districts and to its suburbs, by construction of the number demanded of well-planned places of habitation, in the acquisition of architectural character in streets, and the better choice of sites for public edifices, as also through the perception of the utility of beauty as to be exhibited in every building; whether it be that there is a lesson in administration to be learned from the present dearthness of living and rents, or from the prospective issue of the finance, of Paris; we have every reason to calculate upon the continued interest of our readers, in the information which we collect, and in the opinions we are able to offer.

Since our last article appeared, on the improvements of the French capital, the Boulevard Malesherbes, or new line to the Parc de Monceaux and to the vast and hitherto useless area beyond, has been completed and inaugurated with even more than the usual *clat* of Parisian festivals. There were the tall masts with banners; and, along the line of causeway, numerous garlands and shields, and at night stars of gas; the yet unoccupied ground for a considerable distance; and the faces of earth and rock, actual cliffs, left by the excavation of the road, were screened by tiers of festoons of leaves, suspended from poles, and reaching to about five-and-thirty feet in height; the scaffolding of the new church in progress, and ending the *vista* of the first portion of the boulevard from the Madeleine, became the framework of decoration, terminating with a cross of coloured lamps; and the park, on the night of the Emperor's *fête*, with Bengal lights, myriads of paper lanterns, or, say fifties to a tree, and margins of gas to the grass-plots, presented an effect which was singularly fine. The opening of the Boulevard on the 13th of August, and the *fête* on the 15th, were evidently planned for a telling demonstration on the occasion of achievement of a most important section of the new works. When our first article, this year, appeared, the bulk of the work in excavating and in the removal of houses for this boulevard, had to be commenced; and we do not know of any instance of the realization of a similar work in so short a time. The houses up to the Place Laborde, where the church is, are being completed; but as what we have said above may

show, there is one part of the line where the sites have to be cleared, and the ground lowered, and streets have to be connected which are now out of level. The Emperor was received under a large tent, after having passed under a triumphal arch, and across an area bordered by ranges of seats. The decorations of the whole were exceedingly rich, and very tasteful. Baron Haussmann's address was a carefully-worded exposition and defence of the principle and details of the business he has in hand. Some of the chief points, we have given in articles of recent date; and others, and those in the Emperor's reply, we may notice hereafter.

There are, it is true, some questions discussed in the French press, on which it is not easy to come to a decision at present. Supposing that it be admitted that the action of the municipality, at least subsequent to the completion of the Rue de Rivoli, and the formation of the Boulevard de Sébastopol, Rive Droite, has not caused the deficiency of *logements*, that a considerable amount of inconvenience is unavoidable and necessary, and that what has occurred has been somewhat overrated, and that it be admitted that the municipality, being directly aided by the State, are financially right (viewing the comprehensive plan and calculation) in destroying newly-built houses at a certain loss in those cases; and that the *octroi* duties have not been maintained at a rate to occasion the cost of living; the question seems to be left,—are others, as the *Compagnie Immobilière*, in whose hands lie the building and letting of houses, able to suffer a considerable *abaïssement* in their demands; that is to say, will the building of the houses wanted, be, or not, eventually left to the municipality, who it has been so much contended should never have parted with the business? That is what, in this place, we cannot attempt to answer,—important though the question be.

Certain it is that the rents of *appartements* not for the artisan class, in the first houses built by the *Compagnie*,—those at the Rond Point or intersection of the Boulevards Malesherbes, de l'Etoile, and Pereire, which now, since the opening of the line inaugurated on the 13th of August, is but a short walk from the Madeleine,—are exceedingly moderate. An *appartement*, of four rooms and a kitchen, with closets, cellar, servant's room in the roof, and every convenience,—the floors parquetted, each room handsomely papered and *orné de glaces*,—in a stone-fronted building of the now usual character as regards elaborate decoration,—we know may be had for 50*l.* or 60*l.* a year: whilst in the upper floors, with one room less, the rent is not more than 36*l.* In contrast with this extremity of what is now called the "West End" of Paris, we may mention what exists in a central quarter. An *appartement* near the Boulevard Montmartre, consisting of one room about 13 feet square and three mere closets,—the windows looking into a confined court, the rooms bad, and the stench in the staircase disgusting,—commands a rent of 28*l.* The *appartement* we speak of is occupied by one whose business, or profession, most of all demands in a house the conditions of health. It has been inspected by the officers of the municipality, who, we suppose, considering what was available elsewhere, did not feel able to condemn it. Recollecting the great deficiency of the water-supply, it is extraordinary that at this season the mortality of Paris is not higher than it is. The mortality of young children, we have reason to believe, is great.

Though we cannot now pursue some of these questions at the length we should wish, enough has been said to show that evils of a dense population, alluded to at the outset, are only fostered by the hesitation about actual measures, or entrusting a responsible body with the requisite funds, which has been habitually practised in our own metropolis. Even now, what has been commenced in London, the main-drainage, the formation of one or two streets and railways, the

planning of a portion of the Thames embankment, and the scheme for one additional route across the river, form an insignificant portion of what is required. Viewing the comprehensiveness of planning, and the activity in executing, of the French, we have really no reason to congratulate ourselves upon the hopes of our comparative position in ten years. Viewing even the improvements in English provincial towns, which are an example to London, we have not more reason.

It may be true that it is the habit of the French to wait for inspiration from a central authority: at least we hear them making this accusation of themselves every week. "Decentralization," however, is not merely talked and written about: the elevation of the provinces, and the development of the whole country, are going on now at a remarkable rate; and will be contributed to by the acts of the Government, such as the recent measure relating to the formation of vicinal roads. Every chief town of France seems to be following the example of the metropolis, constructing its new lines of street and its places for public recreation; rebuilding its *hôtels* and offices for the prefecture or other administration; constructing a suitable location for its public library and museum; improving its water-supply; or erecting better means of defence against inundations. Much is required; and the financial difficulties especially are very great; but the work is going on at Marseilles, Lyons, Bordeaux, Havre, Rouen, Caen, and many smaller places and a considerable portion of the proceedings of the last session of the legislative bodies related to the demands of such towns, for authorization to borrow money, with a view to improvements, on security of their *octroi* duties. There are many who say that the borrowing is going on too fast,—that towns and all governments at this moment are embarked in a course which must end in bankruptcy. Mr. Louis Jourdan is one of those who have written best on the subject, as, for example, in controversy of a theory by Mr. Delangle, the minister of justice, who lately hazarded the assertion that the principle of the administration of the head of a family, in proportioning expenditure to resources, was false as applied to a *département* or town, or to the State. There is also an important article by Mr. A. Clément, in the last number of the *Journal des Economistes*, entitled "*Des Nouvelles Tendances imprimées aux grandes Administrations Municipales de la France*." But we merely point to the fact of a movement which is little perceived by the English public; and we believe, whatever may have been rightly said as to the ambition of some *sous-préfet* in having a house as good as his neighbour's, that the majority of the works alluded to, will be found profitable investment. There are some descriptions of improving work that neglected, each year find the quantity and area for the improvement, as well as cost, doubled through the neglect alone. A country which could endure the extravagance of a monarch who spent forty millions sterling at Versailles, and enormous sums at so many other palaces, and for no adequate result, and which could pass through, and survive the phases of prodigality and anarchy that followed, must have some elements of prosperity not easily to be withdrawn. France needs only the continuance of the present policy, or its extension, and the application of the funds now disbursed on the army, to the improvement of the means of communication, and to the provision of better education for the inferior classes, in the rural districts, in order to reach an immense development of its great wealth.

Taste in the new buildings of the provincial towns, is of much the same quality as in those of Paris,—too much relying on ornament, too little appreciative of the value of plain surface and too little of that of well-grouped arrangement of stories and well-demonstrated basements; but is nevertheless characterized by many of the greatest beauties to be expressed in our art. We spoke some time

back of what had been done in Rouen. In some of the buildings in Paris, there is little that is good but the ornament,—often with excellent figure-sculpture,—and the *porte-cochère* and view through it to the *fontaine*, or brilliant bit of green, which terminates the perspective; but these are often enough to detain the eye for a good half-hour. "Ornament," however, and the exhibition of effort after general adornment, are not the only matters to be noted of the works now in progress in France, as we have already shown. Marseilles, Bordeaux, Caen, Dijon, and Besançon, and even smaller towns, as Auxerre, St. Quentin, and Saint-Dizier, have had their exhibitions of works of industry and art, as Nantes and Metz are having them now. Sanitary improvements are projected, or in some cases far advanced. The importance of good water-supply especially is felt. Strasbourg and Lyons are keeping up the celebrity of their schools of painting, and many other towns that of institutions, and pursuits scientific, literary, or antiquarian. Now, whilst we write, the columns of the *Moniteur* are giving the report of a commission charged with the examination of 5,940 *mémoires* received, on the main question of education to which we have already alluded. Lille is one of the great centres of increasing manufacture in the north. Tours has just voted nearly as much as 40,000*l.* towards building a theatre. Indeed, a recent writer, Mr. Leon Plé, in *Le Siècle*, showing that there is nothing to be feared of absorption of the force of the country in Paris, says the latter has much to envy.

We might fill an article from the publications during many weeks past in the *Moniteur*, of the laws authorizing the towns or departments to contract loans and impose duties. In the general text, the amount to be borrowed, say one million francs, the rate of interest, five per cent., and the period in which the sum will be reimbursable (thirty years from 1869 in the case of Caen), and the objects to be attained, are first stated. It may then be said that the loan is allowed to be realized by advertisement and competition, by way of subscription, or by means of "obligations" to bearer or transferable by endorsement, or directly from the *Caisse des Dépôts et Consignations*, or from the *Société du Crédit Foncier de France*, conditions of subscription having to be submitted to the Minister of the Interior. It will then be added that the town is authorized to impose extraordinarily by addition "*au principal des quatre contributions directes*," a certain number of *centimes*, serving with other resources to the reimbursement of the loan and interest. Investment of the savings of the industrious classes of France in the "obligations," should promote the desire for peace. The cost of things, however, as in the matter of rents, may not be exclusively confined to the capital: at least it is asserted by the Prefect of the Seine that a great rise in prices has prevailed throughout France. We shall have a future opportunity for showing what is being done in Paris towards sanitary improvement unconnected with the mere opening of the new routes. But, it will have been already seen, and will be still further, that the French metropolis is offering an example to our own, which deserves our closest attention.

What is required in London must be on a plan as comprehensive in principle as, and greater in extent than, that of the Paris improvements. The Metropolitan Board of Works took steps some time since, towards informing themselves of the different propositions which had been from time to time published. We have not heard, however, that such a plan as we refer to has been prepared. Many good suggestions which appeared in the exhibition at Westminster Hall on the occasion of the competition for the Government Offices, must now be regarded as lost. The most extensive of those projects, however, only went to the western portion of the Strand and Southwark: besides, the railways since commenced have to be taken into consideration. A plan for the whole

metropolis, therefore, should be made. It should be carefully matured; but, after that, the work might be done in a dozen years, if the public mind were only ripe to see that it will have to be done, and that ten per cent. addition will make the difference between structure and art, and were able to confide in some central authority. If the case of Paris were well studied, any defects in the manner of proceeding there could be avoided. Thus, attention would not be limited to the long, wide, main routes to be provided; nor would it be considered sufficient to get the invested money returned from the new premises of greater value than those destroyed; but improvement would extend to adjoining streets, sufficiently to provide other habitations in lieu of those of the industrious classes displaced. One error committed in Paris, as we showed in our last article, has been in the supposition that the artisan-class were immediately adequately provided for, through the erection of buildings at a distant locality, and that they could move from one spot to another with the same facility as persons in a different rank or occupation. In London, when new streets have been formed, the expropriated inhabitants have not been provided for at all; whilst wide tracts of ground have remained for many years unutilized. It seems to have escaped the attention of the Prefect of the Seine, judging from his address to the Emperor on the opening of the Boulevard Malesherbes, that the complaints against his management, though heard with reference to the more recent works, may be really due to the formation earlier of the Boulevard de Sébastopol, with the opening of the Rue de Rivoli. That complaints were not made in those cases, does not show that the municipality were at that period on a right course when they caused 458 houses to disappear between the Place du Château and the Boulevard St. Denis, building only 204, and 230 to disappear between the Place du Louvre and the Hôtel de Ville, building only eighty-nine; and nothing is here said as to the comparative numbers of the *logements*. The French press did not speak so plainly then as it speaks now. The inconvenience was endured; and outcry has only broken out at the time when the municipality have discovered, and are, we make no doubt, most anxious to alleviate, the suffering, which is to be referred to various causes,—increase of population being not forgotten. We know nothing, however, that tells against the French management so much as the history of the two Victoria streets, Smithfield Market, and the Fleet Prison site, tells against our own. Since the bulk of this article was written, it has been announced, though prematurely, that the construction of a model *cité* in the Faubourg St. Antoine is contemplated. According to the account, it would cover 20,000 square metres, and would provide (in the front, of 80 metres in length) furnished *chambres* at a rent each of ten francs the month, and in the rear, buildings containing altogether 1,819 *appartements*, each of three rooms and a closet large enough for a cradle. The *cité* would also include buildings for a *crèche*, or nursing establishment, an *asile* or infant school, a school for young girls, with an *ouvroir* or work-room, probably with work furnished by the administration of the hospitals; also an *ouvroir* for adult women; fourteen *ateliers* for *apprentissage* to the several trades of cabinet-makers' work, carving, joinery, mechanical engineering, general smiths' work, and tapestry work, with steam-power equal to that of fourteen horses,—dormitories containing 550 beds being attached to this department; a cooking establishment, and refectories; a bathing establishment; a wash-house and drying-room, to be available without charge, a dispensary, a library, and a chapel. The whole of the *appartements* would be heated from one immense *calorifère*. Water would be communicated to each story; as shortly seems to be intended that it should be, for the whole of Paris. We are not at present able, for the

from the reports of the proceedings of the "*Conseil d'Hygiène publique*," in which the description of this project appears, the exact reasons of an unfavourable opinion by that authority. But the description seems to indicate the correct view of what is wanted. It would be necessary only to avoid the evil, to which such plans are liable, of closed-in and ill-ventilated passages or streets. The Municipal Council, however, to whom the project was first attributed by *Le Siècle*, took alarm at the attribution, and have since sought to re-assure builders that they have no intention to interfere in competition with private industry in such undertakings.

It has we think appeared from what we have already said, that such particulars as we are giving of the circumstances in Paris, defects and advantages, attending the actual provision of places of habitation, and of the architecture, may be interesting, if not more permanently useful. We have shown in a previous article that the population of the French metropolis is exceedingly dense. The contrasts, however, of every kind between different quarters, and between spacious boulevards and narrow streets, are very remarkable. In the third and fourth *arrondissements*, ("Du Temple" and "de l'Hôtel-de-Ville") and in great part of the fifth *arrondissement* ("Du Panthéon") the worst conditions for health exist. The streets commenced or projected in such districts, and the new routes to the outskirts, or to unoccupied or improvable ground at no great distance, will surely permit of a different arrangement of things. Still there is much required, even of better building regulations.

In the fashionable quarters of Paris, nay in the Faubourg St. Honoré, or Faubourg St. Germain, where the streets are still narrow, and the deprivation of light and air very great, the more modern the structure, the greater seems its subjection to the tendency to cover every portion of the ground, and to build up a frontage such as may give a large number of *appartements* for letting. Whatever be the law, an excessive altitude in proportion to the width of the street is common in new buildings. In the districts recently annexed to Paris, the appearance is less uniform; but new buildings have generally the full number of stories.

In the *Revue Européenne* have recently appeared several articles, in a series, entitled "*A Travers Londres: Esquisses Anglaises*." Such articles are becoming frequent in the French reviews; and it is a good sign. We like also to see what is said in them of our country; and we would not treat observations as unworthy of notice, because there are some mistakes in trifling matters. If we read that the omnibus conductors in London, in calling for passengers, hold up a number of fingers to indicate the number of pence of the fare, or if we find that a writer has attracted somewhat too much importance to North End, as a district, misled as to the omnibus men by a practice of his *compatriotes*, which is very embarrassing, in pecuniary transactions with Englishmen; and in the latter matter by what we know of the "West End," we feel that it has been at some cost if we have ourselves escaped errors in points of more serious character. But when the writer in the *Revue Européenne* describes certain aspects of London which are not slightly, we have something to say of the existence of features in Paris which are worthy of his attention, as those which he treats of are deserving of ours. In naming the latter, he only speaks of defects acknowledged, and matter of long-standing self-reproach. The French writer, Mr. A. Legrolle, enters London by the Old Kent-road; and he gives, fairly enough, what we have often said should be deprecated, a foreigner's impressions of the British capital, on entering it. We do not, indeed, see that the liquor trade takes possession of corner houses in England especially, recollecting the "*Au bon coin*" which we read frequently in Paris; or that

walls are more defaced by the bill-sticker than are ends of houses with gigantic representations of the "Redingote Grise" and the "Bon Diable." These advertisement-pictures are common enough in Paris; whilst we may add, exhibitions, and other matters to come off, as well as publications, are not advertised enough for the convenience of persons interested. But we admit all the sarcasm, and much of the truth of what he says; and we are prepared to add that there is no cause for national pride; but, by singular accident, the French writer does not seem to have ever entered Paris by any of the routes which a British traveller and author would take, were he now writing before the advent of railways. We happen to be particularly well acquainted with that part of the route from St. Denis which is within the fortifications, or La Chapelle, as the district is named; and we suggest observation of the features of that line, or of those of La Villette, east, and Montmartre, and the Batignolles, west, as very necessary to information of the whole character, decorative and sanitary, of the splendid capital of France. But of some districts of this character we have spoken in a previous article.

To understand how the contrast between Paris within the line of the former barrier, or external boulevards, and the district beyond that has accrued, we must keep in consideration the respective tendencies of fashion and of the desire for cheap living. Such articles of consumption as wine at least, were cheaper in an important degree beyond the range of the *octroi* duties; and it is only lately that the half-but, half wine-shop character of building, and substitute for architecture, which was the result, has been there ameliorated, attendant upon the emigration from the centre, and settlement of families of the middle class, with whom cheapness of residence was a consideration. In fact, the Parisian has been a lover of the life of the boulevards, and the amusements of the theatre; and so much is this still the case, that the opening required to complete the Boulevard du Prince Eugène, as well as to commence another line, is deferred because, according to the Prefect of the Seine, it had been feared to "trouble the pleasures of the laborious classes, in demolishing the theatres that they prefer, previous to the reconstruction of new buildings." The "laborious classes" spend upon amusements, sometimes as much as would procure them better *logement*; or what, if laid by, would preserve them from the painful incidence of that absence of demand for their labour which they must from time to time expect. From whatever cause, however, it is only within recent years that compression of the residential population has been much diverted from central Paris. We have given in a previous article what have been the numerical results in some of the districts already spoken of, reaching to the fortifications, and now annexed for *octroi* purposes; and we have shown also that there is still considerable space and room for improvement. Amongst the number of larger buildings which are now being erected, are many which are as worthy of notice as those of any part of Paris.

The suburban villa is chiefly seen westward, in the vicinity of the Bois de Boulogne: there are several good examples about Passy, as between the Portede l'Assy and Portede la Muette. The composer Rossini resides in one of them. In some of these latter examples, coloured materials are introduced with good effect. The mansard-roof, enclosing a lofty story, lighted by dormer-windows, richly sculptured in stone, and perhaps an attic over all, lighted by lucarnes ornamented in zinc, is very prominent in the design, and constitutes the prevailing type of the villa. In the street-architecture proper, the features mentioned are more subordinate. Much taste is shown in the out-houses and lodges of villas, especially in the carved woodwork adapted from Germany and Switzerland. There are many picturesque specimens of this class of building in the Bois de Boulogne.

Since the completion of the railways, however, people have begun to live altogether out of town, and "*une folie maison de campagne*" is the frequent heading of advertisements. It is a new opportunity for developing an old taste, and it will shortly effect great changes in the country about Paris, if not in the city itself.

The French court has never been very settled in its place of abode. The tendency of fashion was to dwell near to the spot favoured by royalty; and when the king came to reside in Paris, impulse was given to building. The evidences of that during the time of Louis XV. are almost inexhaustible. The aristocracy rich enough to have houses entirely to themselves, occupied, when not at their *châteaux*, the houses "*entre-cour-et-jardin*;" and many of these in the Faubourg St. Germain, notwithstanding the tendency we have spoken of, still remain much as they were. There are numerous examples also near the Palais Royal and in other quarters; though many of them are now altered from the original destination. The defects of the ornament during one part of the Louis XV. period have been often spoken of; the architecture which led up to that period, and indeed much of the fanciful detail which was contemporaneous with the *Rococo*, deserves to be better known. The iron-work we may especially mention. It is found in profusion, as balconies, in every quarter of old Paris; and is remarkable for variety and the beauty of its curved lines. Generally there is no "ornament,"—no chased or pincers'-wrought work. Draughtsmen should look at it in the streets, and search it in the courts: there are, however, thousands of examples. When the labour of the iron-workers was diverted to military engines, as in the time of the first Napoleon, the art went back; and what was executed in Roman taste, and even from the designs of Percier and Fontaine, was greatly inferior. The art has since had the benefit of the Mediæval study; and balconies of many of the lately-built houses show that the taste and skill have been in great measure revived.

CHICHESTER CATHEDRAL AND ITS RESTORATION.

VISIT TO THE MONUMENTS, PAINTED WINDOWS, ALTAR TOMBS, AND ANTIQUITIES IN THE CHOIR AISLES, NORTH AND SOUTH TRANSEPTS.

ON visiting the cathedral a few days ago, I find the ground has been excavated to the depth of 13 feet for the four tower piers, and a layer of cement concrete filled in 4 feet in thickness, on which is placed massive masonry, consisting of large blocks of hard Purbeck ashlar, laid in regular courses in cement. The foundations of two piers have already been brought to the floor level. The masonry is being prepared for the other two, and is in a forward state for laying, and will be finished about the middle of October next. By the kindness of Mr. Marshall, who is engaged as superintendent by the architect, I have had an opportunity of closely inspecting the works, which are being carried on with great energy. I must not forget to mention that I also observed the complete manner in which the old piers of the nave and choir, and angles of transepts have been under-pinned, a work of great engineering difficulty, which appears, however, to have been accomplished with complete success, without having disturbed in the slightest way the original parts of the sacred edifice. I have but little doubt that the cathedral will, if adequate funds are supplied, be restored within the time specified by Mr. Scott (five years), and to a complete resemblance to the edifice as it was before the late disaster. However happily, though, the restoration of a work like the tower and spire may be effected, there must be a feeling of non-identity established in one's mind, of which it will be impossible to divest it. Still we shall have a counterpart, doubtless, of the late beautiful spire, its original elegant outline, chasteness of design, and correct proportion, all studiously copied; and if not to our minds the spire of our childhood, yet a faithful portrait of a departed friend. Although the work of restoration is going on, still we believe visitors may inspect portions of the cathedral. I will therefore draw their attention to some of the monuments, painted windows, altar tombs, and other works of art and antiqui-

ties in the choir aisles, north and south transepts, &c. The north transept chapel is undoubtedly the oldest portion of the cathedral, and tradition assigns this to a period anterior to the Norman conquest, and as having formed part of the ancient monastery of St. Peter. This chapel is truly an interesting piece of architecture of the thirteenth century, and originally contained two altars. The moulded ribs of the roof have the tooth ornament, a characteristic of this style. The marble column in the centre has induced many to think this was the ancient chapter-house of the cathedral; but the two chapels, with piscina and other adjuncts, prove this notion is not founded in fact. The very peculiar staircase leading to the room over, in which there is a piscina, induces the belief that it was never other than a chapel, and the apartment over was formed evidently for the use of the chantry priest. In ascending the staircase, one ought to notice the billet moulding of the old Norman windows, and the small triforium windows over, now blocked up, but forming part of Bishop Ralph's original Norman church. The corbel-table is here very curious; the carving is rude, but characteristic; one corbel in particular may be said to symbolize the fall of man, the evil genius having got a man's body wholly within his jaws. Entering the choir north aisle from this chapel there is an effigy on a recessed altar-tomb, in spar, and is supposed to perpetuate the memory of Adam de Moleynes, some time bishop of Chichester, who was assassinated at Portsmouth, and the popular belief is at the instigation of Richard, Duke of York. This tomb received no injury from the late catastrophe. Near to this monument may be found a brass plate inserted in the wall, with the following quaint inscription:—

"(Balle jaces) Juste cunctis defendas amelis
Omnibus (heu) triste funere Balle jaces"
(Balle jaces) vite cunctis exemplar honeste
Dilectionis verbi buccina Balle jaces"
Pauperibus pater Egreus Solamen est istis
Edibus al. merito gloria (Balle jaces)
Dilecti quondam Bielei Præsulis ossa
Juxta, hic quondam marmore Balle jaces"
Henricus Biles, Lechfieldæ natus, comita
Stafford: in utroq. collegio Wichamio il-
lo Wintonie, altero Oxoniæ educatus
Sacre theologie doctor, hujus ecclesie
Precentor, et archidiacon Cices
Tren: hoc tumulo tegitur. Obiit
30th Mar A^o 1663, ætatis sue 50^a.

The transformation of Ralph's Church into its present form ought here to be noticed. A casual observer will readily see that the massive round arches have been removed, and slender pointed arches, with vaulting shafts, ribs, and marble columns introduced, and are of the time of King John.

The Perpendicular windows are nearly two centuries later.

I now bring my readers to a painted window by Willement, put in in 1811, in memory of Edward Freeland. The colouring is good, but we cannot help noticing the drawing of Eve and other principal figures: early art truly was not a model for a sculptor. This window is for harmony of colour one of the best in the cathedral, and it is a subject of regret that the artist should have so closely copied the human figure after some of the very early masters. Eve, we are told, was fairer than any of her daughters; but she does not here certainly appear as the generally conceived type of female beauty. Close to this window, which I am glad to say is uninjured, is the chapel of St. Mary Magdalene, now the mausoleum of the Miller family. The monument here erected to the memory of Sir Thomas Miller, Bart., is in the debased style so prevalent from the Reformation to within the last twenty years, since which time memorials are being designed to harmonize with sacred edifices, of which they ought, certes, to form an homogeneous part. A few paces from this spot is the ante-chapel of Ralph's lady-chapel, and is interesting. The presbytery, erected either by Neville or Gilbert St. Leonards, bishop of Chichester, is well worthy of notice. This is unquestionably a master-piece of the style of their time (thirteenth century), and entitles our cathedral to claims of beauty peculiar to itself. The pier arches are stilted, three centred, and slightly curved inward between the cord line and the capitals: the clustered marble columns which support them are very early examples. Similar columns, in miniature, may be seen at Bosgrove church. These arches are very dissimilar to the Moorish, or horse-shoe arch, being wide in proportion to their height. Walking a few paces westward, and turning to the east, one cannot help admiring the beauty of the richly-moulded Pointed arches within circular arches of the triforium windows, the large hollows of which are filled in with grotesque animals, chasing each other. The play of

light and shade here is very satisfactory, and shows the skill of the ancient sculptor. These cuttings require only to be relieved of their hideous coats of whitewash to bring out their original beauty. Near to the lady-chapel, on the north side, the low coped tomb, inscribed to Radulphus Episcopus, may be noticed. This is the tomb of Ralph, the founder of the original church, and one of the oldest in England. On the opposite side are two similar tombs, but without inscriptions: they have croziers in the usual form, and are supposed to be the tombs of Bishops Seffrid and Hilary. They stand in a position in which the original founders of a church would be interred. Near these may be noticed the monument of Thomas Bickley, Bishop of Chichester, who died 1596; he was one of the many instances of men who have been the architects of their own fortune. The monument to his memory is of a style so prevalent during the reigns of the Tudor and Stewart families. Some of my readers may recollect that just at this spot was an ancient slab of Parbeck marble, containing a carving of the heart of one Maude, with its inscription:—

" Ici git le cœur de Maude."

The slab is not destroyed, but will eventually be replaced in its original position, when the restorations now in progress are complete: the slab, which was much decomposed, was removed to prevent its being defaced. Just at this spot may be noticed a mural tablet, with an inscription to the memory of John Farhill, of Chichester, who died 1830, or thereabouts; the lines are as follow:—

Within the precincts, where religion throuws
A pious sadness o'er the grave's repose,
Lies here entombed a scholar's mortal part,
Who stored true knowledge in a Christian heart,
And gave up meekly 'neath the chastening rod,
A calm existence, to rejoin his God.
Accept, dear shade, how'er released from earth,
A brother's tribute to departed worth.

Next may be noticed the Chapel of the Virgin, which is situate at the east end of the choir south aisle. The painted window to the memory of the late Dean Chandler's sister, has received no injury. The designs, typical of the charitable disposition of the lady are taken from the 25th Chapter of Saint Matthew. The window has a scroll borne by three angels, on which appears this comforting passage of Holy Scripture,—"Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me." The fine marble bust in memory of the amiable and excellent Bishop Otter, is intact; a fact we mention with reference to the sad fall of the tower and spire. The bust is by Towne, and bears a strong resemblance to the good prelate. I have now brought my readers to the south choir aisle, where the first object that strikes the eye is a panel of ancient carving, said to have been removed from Selsey Cathedral: subject, Mary and Martha at the Feet of the Saviour. The carving is rude but effective. A similar panel, the Raising of Lazarus, will be found a few yards westward. These curious old panels have suffered much from time and change, and are evidently not in their entirety. The painted window to Bishop Shuttleworth, deserves attention: the following truthful inscription may be seen:—"Sacred to the deeply-revered memory of Philip Nicholas Shuttleworth, D.D., the lamented, pious, and beloved Bishop of Chichester. He departed this life January 7, 1842, in the 60th year of his age." The colours of this window are rich and harmonizing. The full-length figures of St. Paul, Our Lord, St. John the Baptist, and St. John the Evangelist, are here represented. The beautiful window, I am sorry to say, was somewhat injured by compression of air, when the tower and spire fell in, but the damage done to it has been skillfully remedied by Mr. George Knight, the cathedral plumber and glazier, and himself an artist. Near to this window, is the superb monument to Bishop Shurborne, which fortunately received no injury whatever. The monument composed of alabaster, attracts general admiration. Robert Shurborne was appointed Bishop of Chichester in 1508. He greatly, it is said, embellished the church, and spent very large sums of money on it. We are indebted to him for the historical paintings and portraits of kings, queens, and bishops in the south transept, of which I will speak more fully presently. Bishop Shurborne's tomb is still in perfect preservation, and bears a recumbent effigy, coloured and gilt, in pontificals, within an arched recess, richly canopied and moulded, and guarded by angels; and a very good idea is here given of the monuments peculiar to the age, and contrasts strongly with the tame and unmeaning memorials of later times. The following beautiful inscription may be seen:—"Non intres in iudicium cum servo

tu domine, Robert Shurborne." Near this spot may be seen a plain mural tablet to perpetuate the memory of Bishop Buckner, who died at the advanced age of ninety years. Here are two doorways in the south wall of this aisle. The one with the pointed arch, an insertion, leads into the dean's vestry, probably the original chapter-house. In the room are paintings,—portraits of James II., William III., Anne, and George I., in good preservation, in massive frames, gilt and ornamented. The east window of this room is what is called a three-light window, and is unquestionably one of the finest in the cathedral. Here also is an ancient piece of furniture—a reliquary, said to have contained the rich vestments and jewels which adorned the shrine of St. Richard de la Wyche. This is a valuable relic; the carving is good, and the whole nearly perfect. The slit to receive the offerings of the faithful is still to be seen. This is the room in which it is supposed that Sir William Waller's soldiers discovered the communion plate secreted behind the wainscot. I now have brought my readers to what remains of the south transept. Here were to be found the historical paintings to which I have already briefly alluded. The portraits of the kings and queens were very much injured and broken at the time of the melancholy catastrophe. Mr. George Dale, of Chichester, took shortly after some very beautiful stereoscopic views of these paintings; and he also reflected from various aspects several other most successful scenes of this interesting portion of the cathedral. Mr. Dale's views include the large historical paintings which represent the foundation of the see at Selsey, in 680. St. Wilfrid, accompanied by the monks of Selsey, appears before Ceadwall, king of the West Saxons, with a scroll in his hand, on which is written "Da Servis Dei locum habitationis propter Deum." The king's answer appeared in an open book held by one of his attendants—"Fiat sicut petitur." In the second painting is represented Bishop Shurborne petitioning Henry VIII. for a confirmation of the charter granted by Coadwalla. On the scroll held by the bishop was the following inscription:—"Sanctissimus rex; Propter Deum confirmas ecclesiam tuam Cicestrum jam cathedralem, sicut Ceadwalla, Rex Sussexie, Ecclesiam Selseiensem olim Cathedralem, confirmavit." The king consents—"Pro amore Jesu Christi, quod petis conceda." Mr. Dale's stereoscopic slide includes, with these interesting paintings, the portraits of some of the kings, His second slide takes in the portraits of bishops of Selsey and Chichester; and he also took a view of the large and very beautiful window in the south transept.

The recumbent effigy with Gothic arch, in memory of the late John Smith, of Dale Park, father of Mr. John Abel Smith, who faithfully represented the city of Chichester in Parliament for twenty-eight years, was not at all injured. Bishop Langton's altar-tomb, also, in this transept, escaped unhurt. St. Richard's shrine and its altar-tomb stood here (south transept), and was only taken down and removed into the lady chapel on the morning of the late melancholy catastrophe.

I have humbly attempted thus briefly to give my readers a description of this part of the sacred edifice and of the objects most worthy of attention.

Now I am upon the subject of the cathedral, I will take the opportunity of mentioning that I have recently had the privilege of viewing a most exquisite miniature counterpart of the tower and spire, carved in wood by an amateur artist, who employs, it would seem, his few leisure hours in chiselling flowers, fruit, and churches, and other picturesque buildings. His productions are of extraordinary beauty, and possess great delicacy of workmanship. I should be neglecting the old axiom, "*Palam qui meruit ferat*," by withholding the name of the successful and tasteful carver, therefore I will observe that Mr. Holmes, of Chichester, is the artist to whom I allude. The pretty model is in cedar, and stands 18 inches high, and moulded on a scale of 10 feet to an inch. The chaste and delicate tracery panel bands that surrounded our once beautiful spire, and the turret windows and pinnacles above the tower, are truthfully depicted in this very interesting little work of art, in the execution of which Mr. Holmes has proved himself a carver of no mediocre order.

I find by the subscription-lists (for the cathedral restoration fund) now lying at Messrs. Gruggen & Comper's bank, the London and County Bank, and at Messrs. Mason & Wilmshurst, book-

sellers and publishers, Chichester, that some liberal additions have been made to the lists in aid of the restoration of the cathedral. I will just name a few among the many contributors who have come forward in the good cause since the reopening of the nave for Divine service, which took place a short time ago, where a collection was made, after an earnest appeal by the Lord Bishop of the diocese, amounting to 93*l.* 12*s.* 10*d.*—Benjamin Bond Cabell, esq. (Aldwick), has given the magnificent sum of 500*l.*; Major and Mrs. Drewe (Chichester), 25*l.*; H. Norris, esq. (Swalcliffe-park, Banbury), 25*l.*; Miss F. Horace (Chichester), 20*l.*; Henry Duke, esq. (Barnley), 25*l.*; the Rev. Henry Sockett (Petworth), 50*l.*; the President and Fellows of Magdalen College, 50*l.*; F. D. Asley, esq. (Westdean House), 100*l.* Very good collections also have been made, after sermons preached in compliance with the request of the bishop, in the churches in the parishes of his diocese. With all these recent donations the amount now subscribed in aid of the restoration does not, we fear, exceed 33,000*l.*; and it must be borne in mind that according to Mr. Scott's estimate the sum of 50,000*l.* is required. F. W.

Westgate, Chichester.

ON THE ARCHITECTURAL ACCESSORIES OF MONUMENTAL SCULPTURE.*

The subject of "The Architectural Accessories of Monumental Sculpture" embraces so wide a field of research, and the line to be drawn between architectural accessories of sculpture, and sculptural accessories of architecture, is in many instances so little defined, that to draw that line, and to sketch, even superficially, the leading features of the whole subject, would be matter for a volume. The narrowness of the limits of one evening's paper, therefore, constitutes in itself an apology for its incompleteness. All that can be done is to point to a few examples of the ancient schools, and where the actual examples are wanting, to quote the authority of those who, from the obscure hints of ancient historians, have brought to light some of their principles of art. And if we compare with the few examples that remain the efforts of our modern schools (our own especially), we shall find that, obvious as these principles may appear, they have, been sadly misunderstood, and too often utterly ignored by our artists. Perhaps the fault will be found to exist, not so much in the want of talent in these times, as in the spirit of utilitarianism, which, by insisting on the union of the artist and the tradesman in the same person, limits the artist to a single branch of art, and practically ignores that union of the three sisters in which alone true strength in art can be found.

Taking as an axiom that the object of a pedestal is to give dignity and importance to the group or figure which it supports, rather than to act as an architectural feature having a primary importance and interest of its own, our first desire in studying the subject is to find some fixed principle of design and rule of proportion to guide us in our combinations, such as are found to exist more or less positively in the architecture of every school. But if in the study of the present subject we turn to architecture, it seems at first sight to offer but little assistance; for when once we have established that the object of a pedestal is to give importance to the feature which it supports, the analogy in the application of the pedestal in the two arts seems to stop; for the precise and geometrical lines, and the spirit of line and rule which constitute the essence of architecture, have nothing in common with the flow of line—the ever-varying, and as it were accidental forms of sculpture. Yet though it may not be possible to establish a direct and palpable parallel, or to apply the rules which govern the proportion and form of architectural pedestals to those of sculpture, still the spirit which pervades one branch of art will be found to exist in the coeval works of the sister art, and a thorough acquaintance with the one cannot fail materially to assist us in our study of the other.

If we compare the few remaining examples of architecture and sculptural pedestals in the antique schools, there will be found a coincidence of principle in each school which will afford reasonable ground for adopting the architectural principle, where examples of the other are want-

* The "Papers read at the Royal Institute of British Architects, Session 1856-7," have been issued to the members in a collected form; and, with reports of discussions, comprise 295 closely-printed pages, with illustrations. They form a very valuable and interesting volume, and show strikingly the large amount of energy exhibited by the Institute during the last session. All the papers, with one exception (that by Mr. F. P. Cockerell), were given in our pages at the time they were read. This we now print.

ing. We cannot enough regret the scarcity of authentic information on the subject of Greek pedestals, but such hints as are afforded by written descriptions and the paintings upon vases, &c., should be regarded as the Sybilline books, and turned to account as best we may. It is no platitude to repeat that the Greek school is that from which all that is good in art is derived more or less directly: it is that which beyond all others evinces the deepest thought and the most unerring principle, and which is least subject to that caprice which so frequently bewilders us and throws us off our scent in modern schools. Horace, in the often-quoted passage,—

"Exemplaria Græca
Nocturnâ versate manu versate diurnâ,"

says only what scores of writers and artists of all times have said or implied, if not with the same eloquence, with equal insistence.

Of the earliest style of art but little need be said, for though the monumental sculpture of the primitive schools of Greece (commonly called the Dædalian School) and of Egypt, has great and peculiar qualities of its own, they are not such as will materially tend to illustrate the subject under consideration. It is not unworthy of remark, however, that the coincidence between the works of architecture and sculpture which we shall find in other schools, exhibits itself also in the primitive works by the fewness of parts and the almost entire absence of those accessory features (as the pedestal) which are used in other schools to give scale and dignity to the leading features, and which the massiveness of the forms in the earlier schools seems to render less necessary. In the Egyptian and Assyrian architecture the columns generally stand upon the ground, or where they are raised upon a stylobate (as for example in the small temple at Philæ, commonly called the *Bed of the Pharaoh*), the latter is of a height which gives it rather the importance of a leading feature than an accessory. The pedestal, properly so called, belongs altogether to a later and more complete style of art, and seems a natural step in the development as well of sculpture as of architectural composition. Even with the Greeks this feature is but rudimentarily treated in the earlier works, the stylobate of three steps (*κρητίζματα*) being the only approach to the idea of a pedestal until the introduction of the Ionic order. The temple of the Giants at Agrigento is the only example that I am aware of in which a base is applied to the Doric order. This, and a greater number of steps in the stylobate, seems to show marked progress in the development of the principle involved in the use of the pedestal. As in the earlier architecture so in the sculpture, where is an entire absence of what may properly be called a pedestal. The sphinxes of the sacred way at Philæ have only a low square plinth, without architectural features of any kind. The colossi of the Plain of Thebes, of the rock-cut temple of Isamboul, and many other examples, are treated in the same way. It should be observed, however, that in none of these examples is the secret of scale, namely, the subordination of parts and gradation of dimension, entirely omitted, though it is not applied by means of architectural accessories. The colossi are surrounded by smaller figures of nymphs and divinities, and the sphinxes and caryatid figures have hieroglyphs and incised ornaments upon the square plinths which assist materially in giving importance to the principal object.

Of Archaic Greek sculpture of monumental scale and character but very few examples exist. The sitting statues of the sacred way at Branchidæ, none of which is in the British Museum; those cut in the rock at Palæozoûlo—the ancient Acroë in Sicily, and a colossal lion, also cut in the rock, at Naxos, are some of the examples that I can quote. Pausanias mentions and gives descriptions of several, which it would be foreign to our subject to refer to. These are very similar to the Egyptian sculpture and are evidently derived from it, and they always exhibit the same absence of architectural accessories. There are many small statuette of the Dædalian school, which were no doubt in many cases copies of colossal statues, and were used as votive offerings. Their pedestals (if any) have not been preserved. One of the volumes of sculpture published by the Dilettanti Society gives an example of a statuette of Minerva of this character, which has a pedestal. This is clearly a copy of a colossal statuette, but it is highly improbable that the pedestal may have been added to the original statue in later times, as in the case of the Apollo of Amyclæ and in other instances.

Having thus briefly noticed the earlier practice and the absence of the feature which forms the

substance matter of our consideration, we now come at once to the great times of art when sculpture had reached its highest development, and when, as we may naturally suppose, the architectural accessories had reached the same pitch of perfection. It must be a matter of great regret that the sources of information upon this subject are so few, and that of the thousands of statues which adorned Athens and the other great cities of Greece, none of the pedestals remain; so that the scanty descriptions given by Pausanias, Pliny, and other writers, and the conventional representations on vases, are the only sources of information. We may, however, derive some assistance in developing these scanty hints from the architectural pedestals of the period.

The schools from which our modern practice is chiefly derived, if indeed it can be said to be derived from any school at all, is the Roman; a mere vulgarised imitation of the Greek, in which the substance is copied but faintly, and the spirit not at all.

In looking through the examples of Greek architecture in which the pedestal occurs, one is struck first with the relative importance of the dimension of the column to that of the pedestal, in which such a marked difference from the Roman appears. In the Greek the pedestal never exceeds the height of the entablature, and is more generally about one-sixth of the height of the column, while in the Roman the proportion is usually not less than one-fourth. There are some examples of Roman architecture in which the Greek system has been adopted, as in the temples at Assisi and at Pola, and in the building called the *Incantada*, at Salonica. In the latter the pedestal is less than one-eighth of the height of the column; but these are exceptions to the Roman rule. The loftiness of the Roman street architecture appears to have rendered it necessary to elevate the order in public buildings and temples upon a higher pedestal, so as to give it a proper importance in relation to the surrounding houses. This necessity would hardly be felt in the same degree by the Greeks in their less crowded spaces. A second and not less important characteristic of the Greek pedestal is, that the width of the die is not much larger than the diameter of the column itself (namely, about one-sixth of its height); while in the Roman the width is equal to that of the base of the column. Thirdly, the Greek die commonly diminishes upwards, thus preserving in the pedestal the character which the entasis gives to the column, and as it were uniting the pedestal and column in one composition, and avoiding the apparent break in the line which is so observable in the Roman. Fourthly, the small dimension of the pedestal causes the cap and base mouldings to assume an importance which they have not in the Roman (without the actual size of the mouldings in reference to the column being increased), thereby imparting a rich and composite character which, while, adding to the mass, affords a valuable contrast by its horizontal lines to the vertical lines of the column.

In the Italian revival the Roman exaggeration of the pedestal was carried still further, until it became necessary to give such a development to the capping that it assumed the importance of a complete cornice, with bed mould, corona, and cymatium, instead of the simple moulding used by the Greeks. Thus the pedestal might almost be said to have ceased to be a part of the order incorporated with it and forming merely a base to it, and to have become a separate feature with an importance entirely its own. The Taylor and Randolph Institution at Oxford affords an example of the low pedestal used by the Greeks. Those who are acquainted with that building will hardly fail to recognise the beauty of this feature.

Of sculptural pedestals of the Roman school a sufficient number of examples remain to trace the presence of the same defects which characterise the architectural pedestal. It will therefore not be an unwarrantable assumption to suppose that the same affinity between architecture and sculpture existed in the Greek, and the very scanty information which we have seems to confirm this supposition.

Thus much for the elementary principle of form and proportion *per se* independently of the very important subject of the application of it to the various conditions of small, life-size, and colossal statues, which the small space of this paper will allow us to treat but superficially.

The next and most important principle which we have to consider is the giving of scale to the principal object by the introduction of ornamental and sculptural detail in the pedestal. The principle involved in this practice is, as we have observed, not forgotten in the earlier works of

sculpture, but it is applied to the sculpture itself and not to the pedestal (there being none to apply it to). The advantage of its application to the pedestal instead of the principal object is obvious. There seems to be an irrationality in grouping together giants and pigmies in one composition, as in the rock-cut temple of Isamboul, and many other examples, where a small figure stands by the legs of a large one. One accepts the expedient as one of necessity, and its grotesqueness is rendered less prominent by the conventional character of the whole work; but where the same thing occurs in later and more perfect works, as in the *Toro Farnese* at Naples, and the *Nile God* in the Vatican, one is at once struck with a sense of disproportion, and one is disposed to question whether a better means of giving scale might not have been used. There are not wanting those even who question the propriety of making the sons of Laocoon so much smaller than himself. When, however, the smaller figures are contained within the lines of an architectural form, and are subordinate to it, forming its enrichment only, they cease to come in competition with the statue, and only act as a foil. They are then no longer of the same nature with the statue. The fact of their forming a part of the architecture conventionalizes them and renders them inanimate things, stone or metal, while the statue represents a living creature. Quatremère de Quincy, in speaking of the Victory in the hand of the Olympian Jupiter at Elis, says, "There is no comparison to be established between the Victories placed in the hands of statues and the statues themselves. The figures of Victory in question, if one considers the usual conventions in this sort of composition, play the part only of images and not of living beings." The greatest examples of the importance of the principle which we are now considering, namely, that of gradation, are the works of Phidias, the Chryselephantine statues of Jupiter of Elis, of Minerva at Athens, and many others.* In these statues the smaller figures were not confined to the pedestal, but were introduced in every available space. The throne of the sitting figures, the shield of the Minerva, even her very sandals (on the edge) were covered with subjects; but these are mostly in basso relievo, and in those parts where it is supposed that complete figures were introduced, they formed part of some conventional object, as griffins subduing Greeks, which supported the arms of the throne. I find in Q. de Quincy an observation upon the importance which Phidias must have attached to the pedestal. He says:—"We may conclude from a passage of the orator Themistocles, that the bassi-relievi of the pedestal occupied Phidias a long time. Although this artist says he had great ability in the art of representing in gold and ivory the figures of men and gods, nevertheless he required much time and leisure to finish these works. It is reported, indeed, that in the execution of Minerva he employed a considerable space of time in the works of the pedestal of the goddess." Pliny particularly dwells upon this fact. He says:—"Among all nations which the fame of the Olympian Jupiter had reached, Phidias is looked upon, beyond doubt, as the most famous of artists. But to let those who have never seen his works know how deservedly he is esteemed, we will take this opportunity of adducing a few slight proofs of the genius which he displayed. In doing this, we shall not appeal to the beauty of his Olympian Jupiter, nor yet to the vast proportions of his Athenian Minerva, twenty-six cubits in height, and composed of ivory and gold; but it is to the shield of this vast statue that we shall direct attention, upon the convex face of which he has chased a combat of the Amazons; whilst upon the concave side of it he has represented the battle between the gods and the giants." Upon the sandals, again, we see the wars of the Lapithæ and Centaurs, so careful has he been to fill up every smallest part of his work with some proof or other of his artistic skill. To the story chased upon the pedestal of the statue the name of the birth of Pandora has been given; and the figures of the assisting gods to be seen upon it are no fewer than twenty in number."

These statues are briefly described by Pausanias and Pliny, and they have been further illustrated by the learned and intelligent researches of M. Quatremère de Quincy. It will be sufficient to quote what he says about the pedestal of the

* Minerva of Poliene; Minerva Polias; Minerva of Lemnos, said to be his best work; bronze Apollo in the Acropolis of Athens; Minerva of Plata, in marble and gilt wood; Venus Urania, in the temple of that name; The Mother of the Gods, in the Metrum of the Ceramic; Minerva Hygieia, in bronze, on a gilt throne; Venus Celestis, at Elis; Minerva Ergane, in the Citadel of Elis; and the Jupiter at Olympia.

Minerva of the Parthenon. He illustrates several others very fully, as the Jupiter of Elis, the Apollo at Amycloe, &c., &c.; but we shall more readily realize that of the Minerva, knowing, as every one does, the copy of that statue in the Studi at Naples, and that at Deepdene. In describing the statue, he says:—"Her height, according to Pliny, was 26 brachia, or 37 feet French (about 40 English), without including the base, of which I shall speak in its place, and to which, as we shall see, it is not possible to give less than 8 or 10 feet; consequently, the whole must have been about 45 feet (French), a height perfectly in accordance with that of the Naos, which, as we shall see, could not have been much more than 60 feet (French), if we suppose the ceiling to have been horizontal." He says further on:—"The height results necessarily from the two data which we possess, viz., the height of the temple, and that of the statue. Now we have shown that this height could not exceed 10 feet for the pedestal, a proportion perfectly in accordance with the method followed by the ancients in the relation of statues to their bases in the class of colossal sculpture in question," namely, that which is seen only from a limited distance. He again quotes Pliny, who says:—"On the base is engraved (*graves*) what Phidias called the birth of Pandora: one sees it in the birth (generation) of twenty divinities." He then goes on to show that, taking 6 of the 10 feet for the figures, and appropriating the other 4 feet to the capping and base, there must have been two rows of figures, as there would not be room for the whole number if they were of a size to occupy the whole height of 6 feet. "As to the division of the base reliefs into two rows, one over the other," says he, "I could, if necessary, quote a great number of examples in the antique." Having thus determined the height, it is evident that the width of the pedestal could not have been less than 18 feet, considering the expanse that must have been given to the lower part of the figure by the shield, the griffin, and the serpent.

If we restore in imagination these and other examples of which Pausanias and Pliny give descriptions, we shall find in them an illustration of what we constantly hear of and never see, namely, perfect simplicity and unity, together with the greatest amount of richness and interest. In these the natural union of the arts of architecture and sculpture is most completely carried out, each preserving its own character, while, by the due relation of the one to the other, they combine in perfect harmony in one homogeneous composition. So soon as we turn from the Greek to subsequent schools, we find this quality of unity gradually disappearing; the architectural element dwindling away, and giving place to an exuberance of sculpture and ornament. The first step in this direction is the general substitution of alto for basso relievo in the Roman pedestals.* Of this there are abundant examples; for instance, a pedestal in the Studi at Naples, with figures of cities, which I believe formed the base of a statue of Titus; that in the Vatican Garden; and many other examples.

In the Gothic, I am not aware of any examples of monumental sculpture not forming part of an architectural composition (except Calvaries); but in general we find that the due relation between architecture and sculpture is almost entirely lost sight of, as in the porches of cathedrals, &c., where it is difficult to say whether the sculpture is made for the architecture or the architecture for the sculpture. Richness seems to be the object aimed at: the result obtained is profusion, not to say confusion. (I would not, however, be understood to disparage Gothic sculpture, which I have studied and drawn most reverentially, and in which I find inestimable beauties which belong entirely to itself. I am only speaking, as my subject requires, of the scientific relation of one art to the other.) In the revival, the Greek principle is recognized, though not so generally carried out. There are, no doubt, abundant instances of pedestals in which the relation of the architecture to the sculpture is well preserved; but in general, where richness and effect were sought, it was at the expense of the architectural element, while the monument, instead of being a statue or group, became a complete family, in which the accessory figures were scarcely subordinate to the principal, and the architectural part was merely something for them to sit upon. In the composition of tombs this prodigality is carried still further. One constantly finds little figures, mere dolls, each with its little niche, and

each as complete in all its parts as the principal figure. No doubt, the object sought, of giving importance to the principal figure, is obtained; but it is at the expense of the small figures, which appear insignificant, instead of preserving their own dignity while adding to that of the whole.

One of the most practically important points to consider in this subject is the difference of relative scale between the pedestal and its statue in the different conditions of small statues or statuettes, colossal statues, and life-size statues.* The latter case, again, is subject to a great variety of conditions, as the public statue in an open space, the memorial statue of less dimension in cathedral or hall, and the statue placed as an ornament in a gallery. Each of these conditions being so different from the other, and each again being subject to so many other conditions of its own, it would be impossible to attempt any rule which should be of general application. It is obvious that the smaller the statue the greater will be the necessary relative height of the pedestal, in order that it may be in some degree raised out of the way of harm, and placed fairly in view. It is not necessary to speak of small statuettes for ornamental purposes, as in such objects which do not aspire to be ornamental, any caprice is more or less admissible. The subject of pedestals appropriate to a statue of a height of 3 or 4 feet, is one which comes more daily under our notice; but where the statue is placed upon the level of the eye and the whole of the pedestal is below it, the detail is a matter of little importance, and the proportion is all we have to consider. In the paintings upon Greek vases there are two distinct classes of pedestals represented for small statues. Those of 8 or 4 feet high are generally placed upon a low square pedestal of about the same height as the statue. A subject frequently represented, and in which this occurs, is the Family of Priam taking refuge at the Altar at the Sack of Troy, and also Diomed carrying away a Statue from the Altar. It cannot be said that the proportion is a particularly agreeable one, and one must suppose that the comparatively large surface of the top of the pedestal was intended for the convenience of placing votive offerings, and that it was rather an altar than a pedestal. The other class of pedestal is the *Stylé*, a small square column six or seven diameters high, and of about the height of the human figure (more or less). Sometimes it takes the form of a small Doric or Ionic column, and this, again, is sometimes placed upon a plinth or pedestal. This form of pedestal seems only to be applied to small images, a foot or 18 inches high. This principle appears to be most suitable to its purpose, and is, indeed, that which in modern times is most frequently adopted for busts and small groups or statues. The form, however, which is generally adopted, namely, a shaft, without moulding or finish of any sort, and not diminishing, is not a very happy application of the principle. The simple hints given by the Greek vases are well worthy of attention.

Of the pedestals of colossal statues for exterior positions I have not been able to find any very reliable examples. What little information I have been able to gather, however, seems to show that it was low in proportion to the height of the statue. A coin of Athens, given in Millin (*Galerie Mythologique*), and also in Professor Donaldson's recent learned work, "*Architettura Numismatica*," representing the Acropolis of Athens, shows the statue of Minerva Polias. Of course, in a conventional representation on so small a scale, it is impossible to depend upon the exactness of the proportion; but it is sufficient to show that the pedestal is not only low, but also very narrow in reference to the bulk of the figure. The restoration given in Quatremère de Quincy of the statue of Apollo at Amycloe, the pedestal of which was of the time of Phidias, or thereabouts, shows the same peculiarity. The remarkable coincidence between these examples and many examples in architecture of the smallness of the pedestal, seems to confirm the supposition that the pedestal of colossal statues was generally small in bulk compared to the base or lower part of the statue, which must almost have appeared to overhang the die of the pedestal. In the best works of the revival we find the same character. Many examples in Italy are familiar to every one; the colossal angel on the top of Castel S. Angelo; the colossi of David, by Michelangelo, and that of Hercules and Caco; the statue of Marcus Aurelius at the Capitol, &c., are all examples of this in a greater or less degree. This principle is remark-

ably illustrated in the Perseus of Benvenuto Cellini; but the exuberance of ornament in the pedestal deprives it of the simplicity and unity which we find in the Greek. The importance which it gives to the statue, however, must, I think, strike every one. These, however, are but pigmies compared with the colossal statues of the ancients, the only things which approach to which in modern times are the statues of Bavaria, at Munich, and of S. Carlo Borromeo, at the Lago Maggiore. With the latter I am not acquainted. That of Bavaria affords, by contrast, an excellent illustration of the merit of the Greek principle. The height of the pedestal is rather more than one-third of the statue, and the width equal to the height. Thus the bulk is so considerable that, when near the monument, one sees nothing but the pedestal, which, at a distance, the statue having no preponderating relation to it, does not serve to give scale as an object of comparison. This defect is no doubt met by the contrast of the portico, consisting of a small Doric order, which surrounds three sides of the figure, and from most points of view forms a background to it. There are, however, necessarily points of view in which the eye does not embrace the monument and its background at once. In these aspects one cannot fail to be struck with the want of detail in the pedestal, which, having no features except the capping and base, and a moulded panel in the die, seems by its size to diminish rather than to give scale to the statue.

In the best examples of equestrian statues the pedestals are also generally small (relatively), though the proportion must naturally be influenced to a certain extent by the actual dimension of the statue. The pedestal of Marcus Aurelius, in the Capitol, is not so high as the horse's shoulder: those of Castor and Pollux, at the top of the steps of the Capitol, are scarcely higher: that of the equestrian statue of the Grand Duke, in the Piazza Granduca, at Florence, is still smaller. Many other instances might be quoted. But on the other hand, instances of the opposite system are not unfrequent. The statues of Bartolomeo Colleone, in the Campo S. Zani Polo, in Venice; that of Gatta Melata, in front of the Santo at Padua, and King Charles, at Charing-cross, all have pedestals of a very tall proportion. The necessity for reducing the bulk of the pedestals of equestrian statues seems to have been universally felt. This has been done, in most cases, by breaking the pedestal in its length, and making the ends semicircular on plan, by this means preserving such a length as shall be in accordance with the impression of motion inseparable from a horse. In the crowded streets of modern cities, a statue placed upon a pedestal of so low a proportion as some of those quoted would be lost, unless the statue itself were of colossal size. This difficulty has been admirably met in several of the compositions of Rauch, in which the pedestal itself being small, is raised upon a plinth, which is, in some cases, again subdivided or elevated upon a stylobate of steps. Thus the barrenness of the long unbroken line so constantly adopted in our own statues is avoided. The moulded capping and base, and other enrichments, have a rich and full proportion in reference to the die of the pedestal, without the exaggeration of actual size which becomes necessary in the large pedestals so commonly in use. Thus the outline of the pedestal, rich in itself without crudely salient features, combines harmoniously with the statue, and with it engages the eye; so that the plinth or podium below, being of the most simple and severe form, may be raised or lowered without materially affecting the composition of the principal object. We must suppose that it is this difficulty of the unavoidable prominence of the capping in large pedestals which has obfuscated the genius of some of our own sculptors, and driven them to the disastrous expedient of dispensing with all moulding in their pedestals* and placing their statues upon the chopping-blocks which offend our eyes in too many of our public places. It is not so easy to find a reason for the prodigious bulk of some of them, which are large enough to admit of a house being built upon them over the statue's head. I have not been able to discover the authority for the rapid diminution of the block sometimes adopted, which gives to the pedestal the character of a truncated pyramid: neither is the advantage of it at once patent. Much might be said upon the subject of

* For proof of the use of basso by the Greeks, see quotation from Pliny, above.

* The expression, "life-size," must be taken to mean something more than life-size, this varying according to condition of situation.

* There is a moulding which, though unknown to architects, is in frequent use as a base moulding in these monuments. It resembles a reversed echinus, and is, as I am credibly informed, called a thumb-moulding. The name, at least, has the merit of being in unity with the principle of design employed in the rest of the pedestal.

and pedestals, but such has been the neglect this accessory of monumental art that there would be but little room for favourable criticism. Sculptors can scarcely be aware how much the indiscriminating, though deserved abuse, of the public monuments is due to the entire absence of design and proportion in the pedestals. We must suppose that they do attach the same importance to the subject as architects do. If they did, some knowledge of architectural detail, and a more careful attention to the examples exhibited by the revival schools and the more recent works of some other countries (Prussia in particular), would save our public monuments from many a deserved reproach. In these days of hero-worship, when so many statues springing up, the subject is one of daily increasing importance, and calls for a unity between the sister branches of architecture and sculpture, through their professors, to avert the torrents of abuse which, rightly or wrongly, are poured upon each new monument.

STONE ALTARS AND ALTAR SLABS.

I HAVE noticed the following stone altar-slabs in Suffolk during a recent ecclesiastical excursion that county.

In Little Welnetham Church, near Bury, the original altar-stone lies immediately under the present holy table: it is raised about 6 inches above the pavement, and is cracked across the middle. There is also a Romanesque piscina in the north wall of nave, and a good Perpendicular cross slab (monumental) at the east end of chancel externally. The foundations of old Norman ones are visible about 20 feet beyond.

At Reydon Church, near Southwold, there is another altar-slab, where (horrible to relate) it is placed immediately at the entrance of the porch, so that it is hardly possible to avoid treading it under foot. I did not notice it till I came out of the church. Both these have the crosses uppermost. I have seen another in the south aisle of Saint Alban's Abbey, Herts, where it forms the top of a high tomb; and several others have fallen under my notice in various parts of Essex, Suffolk, Norfolk, Bedfordshire, and Kent; but I cannot at present recall the exact localities to mind.

In the "Handbook of English Ecclesiology" (Masters & Co.) the following list of altars and altar-stones is given:—

High Altars.—Only three are known to exist; St. Mary Magdalen, Ripon; Forthampton, Gloucestershire; and Dulais, Herefordshire.

Chantry Altars.—Jowany Abbey, Yorkshire; Lepton; St. Alban's Abbey, Herts; Grosmount, Countydown; Eastone, Oxon; Arundel, Sussex; Chapel of the Pyx, Westminster; Shottiswell, Warwickshire; Warmington, Warwickshire; Abbeywold, Herefordshire; one in the chantry over the Lady Chapel, in Gloucester Cathedral, and several in the triforium of the same cathedral.

Altar Stones.—Cherry Hinton, Cambridgeshire; Lincoln Cathedral, 5; Coates, Sussex; Selmeiston, Sussex (restored to its original use); St. Robert's, near Knaresborough; the Holy Chapel, Madron, Cornwall; Cookham, Berks (with the crosses inlaid with brass); Wing, Bucks; Stretham, Cambridgeshire; Barton-on-Humber; Kirtton, Irtam, Laughton, Northope, Thornton-Curtis, the Bede House, Stamford, all in Lincolnshire; Frenze, near the tower of London; Flixton, and Fressingfield, in Suffolk; Hayle, Somersetshire; Hove, near Boxgrove, Sussex; and in Yorkshire, at Bridlington; Cottingham; Kirk-Fenton, where there are two close together; Myton-upon-Swale; and St. Martin-le-grand, York.

I have seen a modern stone altar in the interesting church of Bapchild, Kent: it does not join the east wall. ARTHUR HENRY BROWN.

P.S.—Can any one state why the altar-stone was always left so strikingly plain, even when the adjoining recesses, sedilia, piscina, or rood-screen are often elaborated to the utmost degree? "Thou shalt not lift hammer or tool upon it" would hardly apply to the five crosses.

IN furtherance of the suggestion made by the Rev. Mr. Humbert, of St. Cross, Winchester, respecting "Altar Slabs" which remain undestroyed in the several churches of this country, and the desirableness of obtaining a list of them; I have to mention that last week, in examining the little parish church of Ashurst, near Tunbridge Wells, I discovered under the paving a large stone, which by its size I guessed to be the ancient altar slab. It was laid face downwards. On its being taken up, I found the verge was boldly

chamfered, and the incised Maltese crosses well executed at each corner; the centre one now being worn away. This slab it is proposed to use again, mounted on a solid oak table. I have frequently met with fragments of ancient altar slabs in churches: I do not think, however, that they were wilfully broken; their usual massiveness making them proof against moderate violence. I believe an accidental fall in removal has destroyed many of them, and then the pieces have been used for common paving in the aisles. At the Priory Church, Christ Church, the entire altar remains *in situ* in the Lady Chapel.

BENJ. FERREY.

HERE, in Warwickshire, almost every church retains its altar slab: they are generally of a coarse, hard, red sandstone, and are turned down in the pavement, sometimes serving as coverings to vaults, coalholes, &c. Many churches have more than one; and it is not at all unfrequent to find them somewhat near the position of the side altars they have served. A stone altar, complete, exists still in Solihull Church, in a side chapel. The high altar slabs are generally from 6 feet to 7 feet long; some even longer. The side altars vary from 5 feet to 6 feet, though some seem to have been very small. I will send you from time to time particulars of those "turned up" in the various restorations in this archdeaconry.

GEO. T. ROBINSON.

IN the chancel of Arundel Church, Sussex, there are several stone altars, marked with crosses, similar to those at Peterchurch. The chancel is in a very bad condition, not being used for service, as it belongs to the Duke of Norfolk, who is a Roman Catholic. J. REYNOLDS DOWSON.

I BEG to inform you that in the private chapel of the Vicars Choral, in the Vicars' Close, Wells, there is an altar slab forming the pavement on which the present wooden altar stands. This, also, is in perfect preservation; and the five crosses are distinctly marked. It is 7 feet long, by 2 feet 9 inches wide. The thickness I cannot tell, by reason of its present position. From its appearance I judge it to be Douling stone, which is chiefly used in this neighbourhood. The date of the chapel is of the fourteenth century, having been founded by Bishop Ralph de Salopia.

ARTHUR DUCANE, Priest Vicar, Wells.

ORIGINAL ALTAR-STONES.

AN Exeter correspondent, writes as follows:—"A Council of Paris, in the year 509, decreed that no altar should be built but of stone.

It was sometimes sustained on a single column, as in the subterranean chapel of St. Cecilia, at Rome; and sometimes by four columns, as that of St. Sebastian, of Crypta Arenaria.

In the church of St. Columb Major, Cornwall, the original slab, with its crosses, stands now on four granite shafts; which, unless corbels, as are so often seen, supplied the place of the under-shafts, were probably its original supporters. It is figured in the "Transactions of the Exeter Diocesan Architectural Society," vol. ii., p. 158.

In the ruins of St. Juliot's Chapel, Tintagel, Cornwall, in 1855, the Rev. J. Wilkinson found the original stone altar.

In the first stage of the tower of St. Michael, Penkivel, Cornwall, is an oratory with stone altar and fittings in the eastern wall, with a window of "Vesica Piscis" form over it.

In the Early British Chapel of St. Piran, Cornwall, recovered from the sand in 1835, was the stone altar with its crosses.

In many more instances it has been discovered doing duty as pavement."

IRISH BUILDING NEWS.

A NEW church is about being erected for the Ecclesiastical Commissioners, on the estate of Mr. Edgar Blake, at Renvyle, co. Galway. The plan is a rectangle, consisting of a nave 42 feet 6 inches, by 20 feet 6 inches; chancel, 17 feet by 14 feet; south porch, 5 feet by 6 feet 6 inches; and vestry-room at the north side, 7 feet by 6 feet. The height of the nave, from the ground line to the wall plate, is 14 feet; and to the ridge is 28 feet; and it is lighted by five two-light windows in the flank walls, and two single-light windows in the western gable. The chancel, which is 24 feet high to the ridge, is lighted by three single-light windows. The roof will be open-timbered, and stained and varnished. There is a belfry carried up on the west gable. Messrs. Welland & Gillespie, architects; Messrs. Stringer & Emerson, contractors.

Sandford Church, Dublin, has been enlarged to meet the increased demands for accommodation. A new front has been added to the building, as a memorial to the Venerable Henry Irwin. The enlargement provides accommodation for 140 additional worshippers. Messrs. Lanyon, Lyne, & Lanyon, architects; Mr. Butler, contractor.

A new church has been erected on the Adelaide road, Dublin. The plan is a rectangle, of about 60 feet by 30 feet. The building is 12 feet high from the floor level to the wall plate, and 40 feet high to the ridge, and is lighted by ten two-light windows in the flank walls, and also by a three-light window in the southern gable. Externally the walls are faced with granite, having horizontal bands of black limestone, running through the face of the work. The dressings to the windows are of red and black brick and limestone, internally: the passages between the sittings are to be laid with Maw's encaustic tiling. The building is to be heated with Musgrave's patent slow-combustion stoves. The roof, which is supported on carved corbels, is open-timbered, and will be stained and varnished, the spaces between the rafters being plastered. The three-light window in the south gable is filled in with stained glass, from the manufactory of Mr. McCann, of Abbey-street. The style of the building is Early English. Mr. Trevor Owen (Board of Works), architect. Mr. Cahill was originally the contractor, but the building is now being completed by day work.

OLD AND NEW BATHS.

"QUEEN ANNE'S BATH," ENDELL STREET, LONG ACRE.

THINGS move in a circle. Saying nothing of the fact that the Romans, when they were here, say sixteen hundred years ago, formed what we now call Turkish baths, remains of which are constantly brought to light,—in the seventeenth century such baths were not uncommon. The description given of "The Duke's Bagno," by Samuel Haworth, M.D., in 1683, would apply to those that are now to be found in all parts of the metropolis. Dr. Haworth says, "The Duke's bagno is erected near the west end of Long-acre, in that spot of ground which is called Salisbury-stables. At the front of it next the street is a large commodious house, wherein dwells that honourable person Sir William Jennings (of whose great worth, and services to his majesty at sea, not only the king himself, but almost the whole nation besides, is sufficiently sensible), who, having obtained his majesty's patent for making of all public bagnios and baths, either for sweating, bathing, washing, &c., is the only undertaker of this new building. In this house there are several rooms set apart for the accommodation of such as shall come to the bagno; and to the further side of it the structure of the bagno is adjoined, so that the first room we enter to go into the bagno is a large hall, where the porter stands to receive the money. Hence we pass through an entry into another room, where hangs a pair of scales, to weigh such as out of curiosity would know how much they lose in weight while they are in the bagno. Through this room we pass into a large room called the dressing-room: this room hath on each side several private boxes for persons to undress and dress themselves in. The middle walk between the rows of boxes is paved with black and white marble. This room is also moderately warm, to prevent taking cold when the body is stripped. It is 32 feet in length and about 30 feet broad: it is flat on the top, and covered with lead. At the further end of this entry is a door or passage into the bagno itself, which is a stately edifice, of an oval figure, in length 45 feet, and in breadth 35 feet. It is covered at the top with a high large cupola, in which there are several round glasses fixed to let in light, which are much larger, and no fewer in number than those at the Royal Bagno. This cupola is supported by eight cylindrical pillars, each of which is 20 inches in diameter and 16 feet high. Between these pillars and the sides of the bagno is a sumptuous walk, about 7½ feet broad, quite round the bagno, so that the middle of the bagno within the pillars and just under the cupola is 36 feet long and 26 feet broad; yet the heat within the columns and likewise around them is exactly in the same degree. The above-mentioned walk in the bagno is arched over with brick; which arch, with the cupola, and all the top of the bagno, is covered with lead. The top of the bagno is paved with marble, and in the middle of it is placed a marble table, which is 20 inches high and 6 feet square. The sides of the bagno are covered with white gully-tiles; and in the wall were made ten convenient seats, such as are



"QUEEN ANNE'S BATH," LONG ACRE.

in the baths at Bath. There are also fourteen niches in the walls, in which are placed so many fonts or basins, with cocks over them of hot and cold water, for the convenience of washing. On one side of the bagnio hangs a very handsome pendulum-clock, which is kept to give an exact account how time passeth away. Adjoining to the bagnio there are four little round rooms, about eight feet over, which are made for degrees of heat, some being hotter, others colder, as persons can best bear and are pleased to use: in each of these little rooms is fixed a leaden cistern, about 2 feet high, 6 feet long, and a foot and a half broad: over every one of these cisterns are placed two cocks, the one to supply the hot the other the cold water. These rooms are also covered with cupolas, and their walls with gully-tiles."

The inside of this bagnio being thus described, it now is requisite to say something of the manner of entertainment in it, which was as follows:—

"The person that comes to receive the benefit of this bagnio, when he first enters pays his money to the porter,—a person appointed for that purpose; then, if he pleaseth, he may be weighed in the scales. Whence passing into the dressing-room, he is received by the barbers, and presented with a box to himself; his particular barber attending him, who completely undresses him, causing him to sit down on the squab, or lie on the couch placed in the box. Being thus undressed, and his head wrapped round with a napkin, he hath a linen cloth put round his middle, which hangeth down to his feet, and another thrown about his shoulders, which hangs like a mantle down to his middle. He hath a pair of slippers given to him, and so passeth to the entry of the bagnio attended by his barber, where he is met by a particular rubber, destined to wait upon him, who brings him a pair of wooden clogs, which he changes for his slippers; introduceth him into the bagnio, and then leaveth him to walk about, or sit down on one of the seats, or else lie alone upon observing the clock, which best pleaseth him. Thus, long as he pleases. If he purposes to sweat much, and desireth a greater degree of heat, he may walk into one of the little rooms designed for that purpose; and if he finds himself almost overcome, or ready to faint, he may pass thence into another of these little rooms on the other side of the bagnio, which is much cooler, and then find present relief; or if he pleases, he may call for a bottle of diaphoretic liquor, which an apothecary hath always in readiness, which is a very pleasant cordial, and will both prevent fainting and will quickly restore him from it if he has already fainted, and likewise much promote his sweating.

After he hath been in an hour, more or less, he calls for his rubber, who first causeth him to sit down in a chair over against one of the stone basins of that bagnio; then, with his hands, he artificially begins with the arms, &c. After this, to make the parts more pliable, the rubber stretcheth every link of the body, and distends every joint in each link. After there having been water thrown on the skin, it is then thoroughly washed. Having this done, he takes him to a little room which is a degree colder; then he rubs his body all over with a hair-chamelot glove, which gently scratcheth the skin, and is exceedingly pleasant to the senses. After he hath continued this pleasant sort of friction for some time, more or less, as the person desires it, he fetcheth a basin of perfumed lather, with which he washes the body all over. This, the rubber tells you, he finds at his own charge. This being finished, he rinseth the body with water, and then fills the leaden cistern, setting the cocks of hot and cold water both running, whereby the cistern is soon filled with water moderately warm. The cocks being then both stopped, the person is desired to lie or sit in the cistern of water; and the cocks being at hand he sets the cold water a running, which renders the water colder and colder. Thus he cools himself at pleasure; and when he thinks himself cool enough, fresh linen is brought him. He then walks to the door of the bagnio, where his barber meets him with a pair of slippers, and a long white linen frock, which having put on, he is again conveyed to his box, where lying upon a couch he is with fresh linen wiped dry, and covered with clothes for some time, where he lies until he is desirous to dress. The barber then brings him his shirt, warmed at the stove, which is in the corner of the dressing-room: he then dresses, his shoes being ready cleaned. Then the barber shaves him if he desires it. The person then repairs to the scales, and sees what he has lost; and then, leaving the bagnio, he betakes himself to his business or pleasure, finding himself as brisk, active, and vigorous as if he had just skipped into the world, and never wearied his active members by an exercise or occupation."

Having thus described the process of the bagnio, the author further says, "On the east side of the Bagnio there is a coffee-house fronting the street, with this inscription upon the sign:—'The Duke's Bagnio Coffee-house.' Near the end of this coffee-house is the great gate, which opens into a large courtyard, convenient for the receiving of coaches. In this courtyard is visible the front of the bagnio, having this inscription upon it in golden letters, upon a carved stone:—'The Duke's Bagnio.' On the left of the yard is a very

convenient building, erected for the accommodation required for the bath, on the outside of which is inscribed in like manner—'The Duke's Bath.' The building is about 42 feet broad, 21 feet deep, and three stories high. There are, on the lower story or first-floor, several partitions; on the west side of it is a narrow room for a laboratory, in which are chemic furnaces, glassess, and other instruments necessary for making the bath waters. At the east end a door opens that on which persons that come to the bath first enter, into an entry, and then turn on the right into a convenient room appointed for their reception; and on the further side of this room a door opens into the bath, round about which, within the partition, is a place for the friends or servants attending such as go into the bath to stand, who may lean over and see those that wade in the water. At one corner of the bath are five or six steps down into the water. This bath is about 10 feet long, 7 feet broad, and 5 feet deep. Though it is seldom or never quite full up to the top, it holds about 10 tons of water according to the rules of gauging."

On the accession of the Duke of York to the throne, the baths were altered and improved, and reopened, under the name of the "King's Bagnio," in 1686, by Leonard Cunditt, who, in a puffing advertisement, says,—“There is no other bagnio in or about London besides this and the Royal Bagnio in the City.” This, Malcolm supposes, was in allusion to that in Bagnio-court, Newgate-street, which seems to have been the first bagnio we had in the capital. The City bagnio is said to have been a neatly contrived building. Strype describes it as being after the Turkish fashion.

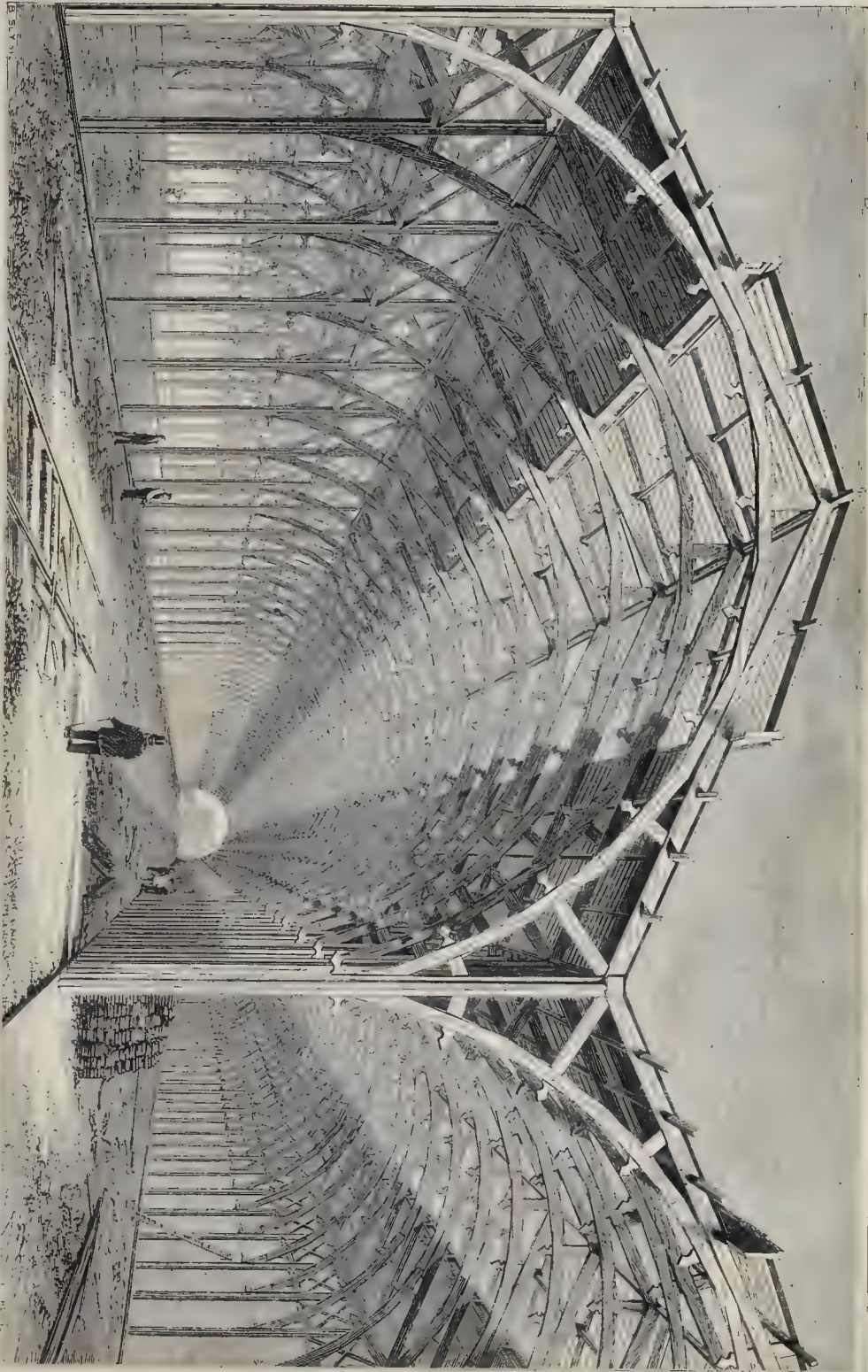
In the advertisement mentioned, Leonard Cunditt refers to a bath called the Hummums; but says that his establishment is much superior. Respecting the Hummums, near Covent-garden, Malcolm says,—“The bagnio at the hot baths at Sophia, in Turkey, is thus described by Lady Mary Wortley Montague, in her Letters, vol. i., p. 159, first edition; and I think it probable that her description suggested the name of the Old and New Hummums.” Lady Montague says,—“It is built of stone, in the shape of a dome, with a window but in the roof, which gives light enough. There are five of these domes joined together; the outermost being less than the rest, and serving as a hall, where the portress stood at the door. Ladies of quality generally gave this woman a crown or ten shillings. The next room was a large one, paved with marble, and all round it are two raised sofas of marble, one above the other. There were four fountains of cold water in this room, falling first into marble basins, and then running on the floor in little channels cut for that purpose, which carried the streams into the next room, which is something less, and fitted with the same sort of marble sofas; but from the streams of sulphur proceeding from the bath adjoining to it, it is impossible to stay with one's clothes on. Through the other two doors were the hot baths; one of which had cocks of cold water turned into it—tempering it to what degree of warmth the bather please to have.” Malcolm says,—“The

Arabic root *hama*, حمى, signifies *calescere*, to grow warm: hence, by the usual process of deriving nouns from verbs in that language, *hummum*, حمام, a warm bath. They are known by that name all over the East.”

At the back of the house No. 3, Endell-street, Long-acre, on the west side of the street, there is a bath still remaining, which has for long been called “Queen Anne's Bath.” The accompanying sketch shows its appearance a few years ago. Since then it has been converted into a warerom by an ironmonger, whose shop is in the front of the premises. The part occupied by the water has been boarded over, leaving some of the Dutch tiles which line the sides of the bath visible. The water, which flows from a copious spring, is a powerful tonic, and contains a considerable trace of iron. Twenty or thirty years ago it was much used in the neighbourhood, when it was considered good for rheumatism and other disorders. The house in which the bath is situate was formerly No. 3, Old Belton-street.

It does not seem clear how this place obtained the name of Queen Anne's Bath. It might be supposed that this had been a portion of the King's Bagnio. Old maps of London, however, show this could scarcely be correct, for the Duke's, afterwards the King's, Bagnio was on the south side of Long-acre, and the bath engraved is about a hundred yards to the north of that thoroughfare. It is of the same character as the cold plunge-bath described above in connection with the bagnio.

VIEW OF THE "ANNEXE," FOR MACHINERY, AT INTERNATIONAL EXHIBITION BUILDING. — DESIGNED BY CAPTAIN FOWKE, R.E.



THE BUILDINGS FOR THE INTERNATIONAL EXHIBITION.

So much is being written concerning the buildings which are in course of erection in Drompton for the International Exhibition of 1862, and so many illustrations of one sort and another are being published, that it is scarcely possible to avoid being forestalled, and forced to present to our readers what they already possess in another shape. The only way to prevent this would be to abandon altogether the idea of illustrating them farther, and this we are not quite prepared to do.

The engraving in our present number represents what is called the "annexe," a temporary structure for the exhibition of machinery, which adjoins the main building, and is on the west side of the land leased to the Horticultural Society. We have before now spoken of it as a very clever piece of economical construction. It is about 900 feet in length by, for the most part, 200 feet in width, in four spans of 50 feet each. For a portion of its length, nearest the main building, it is narrower, and is in three spans. We show this annexe in its present state, with the ends open (as best explaining the construction), but these hereafter will of course be brought close up against the main building. The circular ribs forming the roof are about 15 feet apart, and each is, in the whole, 3 inches thick, consisting of two 1-inch deals, closely nailed against a piece 1½ inch thick. The stuff can scarcely be said to be cut, so that there is no waste. Four trees are at present enclosed at the northern end. Each span is lighted at the top, from the crown: there are flaps, hung with hinges, for ventilation; and some openings at the bottom will probably be found necessary hereafter.

An official account of the buildings, with illustrations, has been recently published at a very low price,* from which we take some statistics, though at the risk of repeating part of the information we gave at an earlier stage of the proceedings. The buildings cover in the whole nearly 21 acres. The principal picture gallery, which is in Cromwell-road, is 1,150 feet long, 50 feet wide, and 50 feet high above the ground-floor; being about as long as the Gallery at the Louvre in Paris. The construction of this is of brick-work. The piers at the entrance are 14 feet wide, and 7 feet thick; and the foundations throughout are of concrete, 5 feet thick. The walls will be lined with wood, and pictures may be hung, if desired, to a height of 30 feet. It will be lighted like the Sheepshanks Gallery. The entrance to this gallery in Cromwell-road will be through three very large recessed arcades, each 20 feet wide, and 50 feet high. The visitor enters a vestibule and hall, 150 feet long, and together 110 feet wide, which leads to the Industrial Halls and Galleries; whilst two flights of steps, 20 feet wide, lead on either side up to the Picture Galleries. The Auxiliary Picture Galleries are in Prince Albert's and Exhibition-roads. These are 25 feet wide and about 30 feet high, and jointly 1,200 feet long.

The Industrial Buildings will be constructed chiefly of iron, timber, and glass. They consist of the following parts:—Two duodecagonal domes, which will be 160 feet in diameter, and 250 feet high,—the largest of ancient and modern times. The dome of the Pantheon is 142 feet in diameter and 70 feet high: the dome in the Baths of Caracalla was 111 feet: Brunelleschi's, at Florence, is 139 feet in diameter, and 133 feet high: the dome of St. Peter's is 158 feet in diameter, and 263 feet high from the external plinth: the dome of St. Paul's Cathedral is 112 feet in diameter, and 215 feet high. The domes will be of glass, with an outer and inner gallery; and it has been proposed to erect one of Messrs. Chance's dioptric lights at the top of one of them, and to illuminate it at night. The vista from dome to dome, through the nave, is 1,070 feet. Each of the domes springs from the intersections of the nave with the two transepts. The nave and transepts are 100 feet high, and 85 feet wide: the nave is 800 feet long, and the transepts are each about 635 feet long, including the domes. They are lighted on both sides by clerestory windows, 25 feet high. That there will be more than enough light we are not quite sure. At 25 feet from the ground a gallery runs at each side of the nave and transepts. There is more than a mile and a half of upper galleries, some 50 feet and some 25 feet wide; two courts, each 250 feet by 86 feet; two courts, each 250 feet by 200 feet; two central courts,—that at the

north 150 feet by 86, that at the south 150 feet by 150 feet. All these glass courts are 50 feet high, and lighted from above.

The entrances to the Industrial Buildings are in Prince Albert's-road and Exhibition-road. They are constructed in brick, and each entrance is 55 feet wide.

A bed of gravel underlies the whole ground. The foundations have been excavated to the gravel, and a base of concrete put in, on which brick piers, with York stone slabs, have been placed to receive the iron columns. The slabs for the columns of the great domes weigh upwards of a ton. The bricks are from Kent, and have been supplied by Messrs. Smeed, of Sittingbourne. Upwards of ten millions will be used.

The iron castings, as we have before now stated, are being executed at the Staveley Iron-Works, Derbyshire. There are 166 round columns for the nave and transepts, 12 inches in diameter, connected with a like number of square pilasters; 312 eight-inch round columns and 149 twelve-inch square columns, for the galleries; 138 eight-inch square clerestory columns, and 160 ten-inch square columns, supporting the floors of the Picture Galleries; 62 round columns for supporting the roofs of the glass courts; 1,165 girders throughout, 11,600 feet of pipes, 15,000 feet of gutters, 14,000 feet of railings, 1,000 brackets, 700 trusses and girders, 1,400 shoes, &c.: the whole is estimated to weigh nearly 4,000 tons.

The wrought iron is supplied by the Thames Iron Company. This will be used chiefly in the great domes, and for the roofs. It is estimated to weigh about 1,200 tons. The bracings, trusses, railings, bolts, &c., are made by the contractors. Mr. Ashton, who fixed the iron-work for Sir Joseph Paxton's two glass buildings, is charged with the same duty here. The timber-work is being executed partly at Messrs. Lucas's works at Lowestoft, and partly at Mr. Kelk's works at the Grosvenor Canal. It is estimated that about 17,000 loads will be consumed. For the top lighting of the galleries, 45,000 feet superficial of frames and glass are in preparation. For the clerestory lights of the nave and transepts, nearly a mile length of frames, 25 feet high, is preparing; and for the courts, upwards of 30 miles of sash-bars and glass.

The roofs will be covered with slates for the great Picture Galleries, and elsewhere with felt, except in parts, to show how ornamental roofing may be hereafter applied. The contract for the whole works, as our readers know, has been let to Messrs. Kelk, and Charles & Thomas Lucas, Brothers, whose tender was the lowest. The whole responsibility for the nature and execution of the works rests with them. Mr. Meeson, C.E., prepares the working drawings for them. All proceedings are submitted to Capt. Fowke, R.E., who acts for her Majesty's Commissioners. He confers with a building committee, consisting of the Earl of Shelburne, Mr. W. Fairbairn, and Mr. W. Baker; and her Majesty's Commissioners reserve to themselves the final approval of everything. Captain Fowke is assisted by Captain Philpotts and Lieutenant Brooke, and certain non-commissioned officers of the Royal Engineers. Mr. Clemence is the contractors' foreman of works. The contract, it will be remembered, is of a three-fold character: for the use and waste of the buildings a sum of 200,000*l.* is to be paid absolutely: if the receipts exceed 400,000*l.*, then the contractors are to take up to a further sum of 100,000*l.*; and if this sum is fully paid, then the centre area of the great Picture Galleries is to be left as the property of the Society of Arts, who will pay the "1851" Commissioners a ground rent calculated at the rate of 240*l.* per acre per annum. Lastly, the contractors are bound to sell absolutely the remaining rights over the buildings for a further sum of 130,000*l.*, which may possibly be paid by the surplus receipts of the Exhibition, if the success be great, of which there can scarcely be a doubt. We sincerely believe it will be such an exhibition of Art and Industry as the world has never yet seen.

THE THAMES EMBANKMENT.

For long, by means of sketches and otherwise, the *Builder* has endeavoured to show the urgent necessity, particularly in the metropolis, of clearly defining the margin of the Thames; and, when once that limit has been distinctly appointed, using all endeavours to keep that channel clear, even if necessary by flushing with water from some distant source, provided that the drainage of various lands should diminish the waters of the Thames. In the notes referred to, from old plans and statements, the immense encroach-

ment of the land upon the river is shown; and how, in our times, in consequence of the landing-places for coal-barges and other obstructions, the great shoals or mud-banks have in parts become solid ground, and in others an inconvenience and pestilence to neighbourhoods. We must not continue to tamper with this noble stream, in the very heart of the most famed of modern cities, until it becomes, in succeeding generations, a lost water, like the Fleet and the other rivulets which formerly ran right merrily along.

In days gone by there were thousands of Londoners who had faith in the Fleet; which, notwithstanding, became a ditch, and then a sewer. With these examples, it seems by no means unlikely that Father Thames himself, if not provided with the most excellent advice, may in some years to come be so much dwindled and so contemptible as a river, that he, like the Fleet and those other waterflows which were excellent in the times of the Roman occupation, and in the Anglo-Saxon and more recent reigns, may be hidden by arches from the general sight,—a thing most unadvisable and contrary to all right taste; for what, in connection with architecture, with the rugged and mighty scenery of mountain districts, in forests, in parks, or indeed anywhere, is such a beautiful adjunct as water; either that which rolls along or that which rests by some mysterious process in solemn silence? We trust, therefore, that, in many ages yet to come, we shall have a noble flow of water through the metropolis; and just now is the time to decide whether we shall have this great and useful decoration of a vast city permanently continued or not.

Looking from Waterloo and some of the other bridges; glancing at the shores, say at Hungerford Bridge and in the coal-barge loading-places which extend to a considerable distance from thence,—it must be clear to the most common observer that unless changes be made we shall, ere very long, need no bridges from the north of the metropolis to Southwark. It has therefore, most wisely, as we think, been determined, as a first measure, to embank the north side of London, from Westminster to London Bridge. This is, indeed, an operation needed for the carrying out of the important "Main Drainage" system. But for this we must have had those crowded thoroughfares, the Strand, Fleet-street, &c., &c., blocked up, for the construction of the intercepting sewer; and some idea of the effect of such an arrangement may be conceived by looking just now at the Clerkenwell Workhouse and some of the streets through which the underground railway is now in course of construction.

For years we have had all manner of speculations respecting the Thames Embankment. The majority of intelligent persons must have seen the absolute necessity for such a work; and yet, while the Thames has been yearly getting into a worse state, there has been a battle of opinions: in fact, while physicians were consulting, the patient was being sacrificed.

At length the Government has determined upon a plan for the northern embankment: the raising of the money for this great work has been arranged: the sanction of Parliament is only needed; and now arises a dispute between the Metropolitan Board of Works and the Government. There is also opposition from those who have wharfs and other property along the river side; and wishes have been expressed for the formation of a roadway; and, inland, a series of small docks or basins. Looking at Puddle-dock, and reading accounts of other creeks which have been allowed to branch from the Thames,—knowing how much they impede the right course of the river, and how unwholesome they become,—it is not to be thought of, whatever may be the additional expense, that we are to have harbours for the collection of mud and other offensive matters, thus causing ill-health to those dwelling near, and making the proposed new roadway anything but pleasant and salubrious. Whatever may be the line determined upon, it is clear that a solid embankment, without docks or any creeks, must be made.

According to the plan proposed, there will be a considerable quantity of land saved. At Richmond-terrace there will be 230 feet in breadth: at Hungerford, where there is at low water such an accumulation of mud, there will be 320 feet; at Somerset House, 120 feet; and at the Temple, 220 feet.

At the present time there can be nothing more unpleasant than the general appearance of the margin of the Thames during its course through London; but now is afforded an opportunity of remedying an evil which has been with so much justice complained of.

* "Some Account of the Buildings designed by Francis Fowke, Capt. R.E., for the International Exhibition of 1862, and Future Decennial Exhibitions of the Works of Art and Industry. With Illustrations and a Map of the Site." London: Chapman & Hall. 1861.

While, doubtless, much of this extensive space may be devoted to purposes which would reduce the large outlay, this should be a secondary consideration to that of rendering the Thames bank a beauty and adornment to the metropolis. In front of Somerset House will be a space of forty yards, part of which might be spared for the purpose of planting with trees, shrubs, and flowers: in other parts there will be opportunities of making a similar display.

We have now the Houses of Parliament, Somerset House, and the Temple, which make a fair show towards the water. Elsewhere much might be done by means of a screen of good architectural design, which might be devoted to the purposes of business; for it is shown in these days that, for practical uses, a warehouse or manufactory does not need to be a deformity; and along the whole line a view should be had to such an architectural display that in ages to come it may be creditable to our own era.

We trust, therefore, that before operations are commenced, a general plan will be most carefully considered and determined upon; and that the effect of this great work will not be left to chance. Such an opportunity as is now afforded will not be likely to occur again for centuries.

The formation of the north embankment will show the necessity of a similar plan on the south; and the sooner this can be effected the better; in order that we may have the extent of the Thames clearly marked, and leave no possible excuse for future encroachments or stoppages. The interests of the coal wharfers must be fairly valued; but, in considering this part of the subject, it must not be forgotten that the method of carrying on the coal trade is undergoing a great change. Immense and increasing quantities of coal are brought by the railways: great steam-ships bring the material from the North to the Victoria Docks, and some other places near, where the vessels are unloaded by steam-machinery. Along the North London line of railway, there are great depôts of the black diamonds. At these places the waggons which convey the coals throughout the districts are loaded with great ease and rapidity. Let any one look at these operations, and then take a walk into the neighbourhood of Hungerford: first, it might be worth while to see the colliers unloading in the Pool, near the Tower, exactly in the same manner as was followed two centuries ago. The barges bring the coals by a tedious process to the river-side of the Strand; then men, with great labour, carry them along planks, &c., to the waggons. From the river-side to the Strand is a steep incline, up which, with difficulty, the coals are dragged by teams of strong horses to the roadway. All these operations must greatly increase the cost of fuel; and, when we look at the progress which is being made in all directions, it is certain that such an unsatisfactory and antiquated plan will fail in being able to compete with the other methods. It may be worth while for the coal dealers to consider if they would not be best consulting their own interest by effecting a change: at any rate, we must not have the Thames embankment rendered imperfect by the formation of creeks and docks for the convenience of this traffic.

THE DANGER OF COW-SHEDS IN CROWDED NEIGHBOURHOODS.

FROM time to time we have directed attention to this very unsanitary arrangement, which is bad for those who live near the pent-up cows; very bad for the children and others who use the milk; and, perhaps, worse than all "for the coos" themselves; as George Stephenson, the engineer, might have said, if asked for an opinion. Even with the best arrangements and the best drainage, a number of cows kept in a thickly-populated neighbourhood is most unpleasant. In towns, cows are fed on materials quite different from the sweet meadow grass, the wholesome turnips, and such like. The refuse of brewers, compositions of very questionable shape, invented and mixed in districts not far from Bow-creek, and elsewhere,—"washes," as they are called,—are made for the cows, to increase the quantity of what is by many thousands of Londoners, who know no better, regarded as genuine milk, but which these "washes" render pernicious rather than beneficial to those who use it.

Some years since we mentioned that, in a house in the Old St. Pancras-road, three children, who, but a few days before, had been in excellent health and strength, were stricken, and died of scarlet fever. Through the house which this family then occupied passed a broken drain, which in parts had overflowed, and in others was

stopped up: this drain came from a cow-shed, which at all times tainted the atmosphere; and it cannot be doubted but that, in all neighbourhoods which are crowded with people, health suffers from such causes.

The other day, a poor woman in the employ of a dairyman and cow-keeper in Eagle-street, Holborn, died while under the care of a midwife, after having, a few hours previously, given birth to a boy. On the following day, two of her children were seized with scarlet fever, and died the same evening; and then the infant died: thus four people were left dead at one time in the same room; and there, in this scene of death, the eldest daughter was lately lying without hope of recovery.

We would ask those who doubt the sure consequences of sanitary neglect, to visit this place. Although, now that disease has done its work, it will no doubt be looked after, for a time, by the parish officers; still it will be seen to be very dangerous, and an admitted evil, in these days, when a disposition is shown to care for the welfare even of dumb animals, and when endeavours are so generally made to improve the healthy condition of the poor.

REPORT ON BUILDINGS RECENTLY ERECTED IN LONDON, IN WHICH MAGNESIAN LIMESTONE IS EMPLOYED.

THE following is the report of a sub-committee appointed to examine into the state of the buildings of the metropolis, addressed to the chairman and members of the Committee for inquiring into the Decay of the Stonework of the Palace at Westminster:—

In compliance with the request made to us at the last meeting of this Commission, we have visited, and carefully examined, the external masonry of some of the most important buildings, recently erected in London (and in which the magnesian limestone, from the Anston quarries, has been employed), for the purpose of examining the condition of that material in other buildings exposed to the action of the London atmosphere, than in the new Houses of Parliament. We have now the honour to submit to you the result of our observations, as follows:—

The buildings we examined were,—1. The Amicable Fire Office in Fleet-street; 2. The Record Office in Fetter-lane; 3. The new Hall and Library of the Honourable Society of Lincoln's Inn; 4. The Museum of Economic Geology; 5. The Ordnance Office in Pall-Mall; and 6. the restored flying buttresses of Westminster Abbey. We have examined other buildings in which this material has been employed, in the metropolis; but as, in those buildings, the conditions of its action under atmospheric influences are (in the main) identical with those of the buildings above enumerated, our remarks will be confined to them only.

1. *The Amicable Fire Office.*—This building, erected about 1842—43, has its principal elevation towards the north, and is entirely faced with Anston stone. As a general rule, the state of the stonework is very good; and the only indications of the existence of any injurious action upon it are to be discovered on the under beds of the bold projecting cornices. In some cases it would appear that the evaporation (from the soffites) of the water which has fallen upon and soaked through the cornice has given rise to an efflorescence which has slightly disintegrated the surface of the soffites. There are hardly a dozen stones so affected on the Fleet-street elevation: all the rest are intact.

2. *The Record Office, Fetter-lane.*—This building, commenced in 1851, is still unfinished. It presents two elevations, respectively facing north and south, executed with Kentish rag and Anston stone dressings: the projections are not very bold; nor are there any architectural details of a character to retain water. We found, however, that the Anston stone exhibited symptoms of decay; and we apprehend that these symptoms justify a belief that the decay will hereafter become important.

3. *The Hall, Library, &c., of the Honourable Society of Lincoln's Inn.*—These buildings were erected in the year 1813; and they are executed in red brickwork, with Anston stone quoins and dressings; the elevations of all sides being detached from surrounding buildings. On all these façades numerous symptoms of decay may be observed; especially in positions where the stonework is able to take up water, either from the direct rainfall or by capillary action. The coping of the inclosure wall towards Lincoln's Inn-fields is much decayed; and the plinths, weatherings,

strings, quoins, and, in fact, all the stone of the principal buildings, are seriously affected.

4. *The Museum of Economic Geology.*—This building was erected about 1850; and it consists of an elevation of the Anston stone only towards the north, or in Piccadilly, and of an elevation of white brickwork with Anston stone dressings towards the south, or in Jernyn-street. Nearly the whole of this stonework is intact; and it is only in a few cases that the decay, previously noticed as occurring in the soffites of the projecting courses of the Amicable Fire Office, can be here observed. Evidently the stone used in this building was carefully selected by competent parties, and we have reason to believe that the late lamented Sir H. De la Beche himself paid great attention to this selection.

5. *The Ordnance Office, Pall Mall.*—This building is of rather more recent date than the Museum of Economic Geology; but it already exhibits, on the north front especially, indications of decay.

6. *The Restorations of Westminster Abbey.*—About 1849 some of the flying buttresses were restored in the Anston stone, which was used for the saddle-back copings, the arch stones, haunches, &c. The stone has, in this case, decayed irregularly; some blocks yielding rapidly, others more gradually: on the whole the Anston stone has not proved to be more durable here than it has been in the Houses of Parliament. In this case the stone was introduced, we believe, experimentally, by the late Dean, Dr. Buckland.

After making due allowances for the quantities of stone contained in the respective buildings above enumerated, it appears to us that they may be thus classed with respect to their relative conditions of decay:—

1. The Lincoln's Inn Hall, &c.
2. The Record Office.
3. The Ordnance Office.
4. The buttresses of Westminster Abbey.
5. The Amicable Insurance Office, and the Jernyn-street Museum.

CHARLES H. SMITH.
JAMES TENNANT.
GEO. R. BURNELL.

THE KING OF THE FOREST.

ON the coach-road from Aberystwith to Hereford, within a few yards of Ty-ricket Mill, near a little village called Erwood, eight miles below Builth, there is an oak, lately bought for 20*l.*, and felled by D. Williams, Garth Mill, near Builth, consisting of an enormous trunk and three monstrous branches, each having smaller branches as large as an ordinary tree, and measuring as follows:—

	Solid Ft. In.
The trunk	321 5
First branch and its branches	407 0
Second " "	230 0
Third " "	172 0
Total	1,132 5

The trunk, when standing, measured near the ground, 50 feet 9 inches in circumference. It is perfectly sound in every part, and the quality is first-rate. As will be seen from the number of solid feet, it is equal to from 10 to 12 of the largest oaks found now-a-days.

LEICESTER ARCHITECTURAL SOCIETY.

THE annual meeting of this society was held at Lutterworth, when the members, after some formal business, went to the church, accompanied by Mr. M. H. Bloxam and the friends of the members, when Mr. Bloxam pointed out the architectural features of the edifice. He also read a paper on the subject in the evening. The museum was opened in course of the day, and the objects of interest collected were commented on by the Revs. E. Woodcock and Thomas James, and by Mr. Bloxam. In the afternoon, Misterton Church was visited, and a public dinner was afterwards provided at the Denbigh Arms, the president, the Rev. J. P. Marriott, in the chair. In the evening a public meeting was held in the town-hall, which was crowded. Here Mr. Bloxam read his paper on Lutterworth and the Wickliffe relics, the genuineness of which latter he assailed so forcibly that a gentleman afterwards got up and asked to be informed whether it was certain Wickliffe had ever existed, or had lived in Lutterworth. The Rev. T. James then read a paper on the Battle of Naseby and Naseby Field. Next day an excursion took place to the site of the ancient station of Triptonium, and to Libbourne and its church, on all of which Mr. Bloxam made remarks; to Stanford Church, the painted win-

dows of which the Rev. Mr. Poole described; Sibbertoft Church, near which lunch was partaken of; Naseby battle-field, where the Rev. Mr. James acted as *cicerone*; as well as at Theddington Church, which was the last place visited; after which the party returned to Lutterworth.

WORCESTER DIOCESAN ARCHITECTURAL SOCIETY.

THE annual meeting of this society took place at the lecture-hall of the Natural History Society at Worcester. Sir Edmund Lechmere, Bart., was called to the chair, in the absence of Lord Lyttelton. From the report it appeared that during the past year several places of worship within the diocese had been re-opened, and that the work of renovation was making great progress. Some discussion afterwards took place as to the visit of the Archaeological Institute to this city next year; it being agreed that the best means to be taken in order to make the visit successful would be the appointment of a committee of the members of the society, who would collect every information as to the chief objects of local archaeology within the neighbourhood. On the day following the meeting, some members and friends made an excursion to inspect several churches south of Worcester, including Kempsey, Pirtton, Strensham, and Hill Croome.

THE EDINBURGH ARCHITECTURAL ASSOCIATION.

THE opening meeting of the session, 1861-62, was held on Wednesday in last week, at Johnston's Temperance Hotel, Waterloo-place; the president, Mr. F. Stanley, in the chair. After some introductory business, the president proceeded with his inaugural address, which was chiefly explanatory of the aims of the Association, and of the means by which these are to be obtained. After the inaugural address, Mr. R. Thornton Shiells read a paper on the "Architectural Features of Chester and Oxford." Mr. Shiells supplemented his address with photographic engravings and rubbings from brasses in Lichfield Cathedral, and the New College Chapel, Oxford. A number of works of art connected with architecture were hung on the walls, the most important of which, according to the local *News*, were several works in oil and water-colour by Mr. W. P. Burton.

LICHFIELD CATHEDRAL.

THE re-opening of this cathedral, after its partial restoration, will take place on Tuesday, the 22nd of October. The particulars of what has been done are thus referred to in a statement just furnished to subscribers:—"It will be seen with satisfaction that the liberality of the diocese has enabled the greater part of the dilapidated or wantonly destroyed stonework to be restored, the whitewash of long standing to be removed, the Bishop's throne and stall-work to be completed, the pavement of the choir to be ordered (although it will not be entirely laid), and a light and open screen to be substituted for the former complete separation of the church into two parts; besides the introduction of many costly requisites,—the organ, the font, the lectern with Bible and litany-desk, lighting standards, and candlesticks, books of service, embroidered altar-cloth, poor-box, &c., many of which have been the gifts of individual benefactors." The same statement thus explains the reasons which have led to the re-opening at present:—"It has been thought desirable not to delay any longer the re-opening of the cathedral, in order that the whole of its area may be henceforth available on the various occasions which collect within it large numbers of worshippers from different parts of the diocese. Future progress in the restoration will not interrupt the daily services." From the same document it may also be inferred that, if the opening be postponed until all deficiencies are supplied, many years must pass before the entire cathedral can be presented for the use of the diocese. If, as is already the case, 5,000*l.* have been contributed towards the restoration, it cannot be doubted that a like sum must be raised to secure completion, as the following details will evidence:—"Much, as will be seen, still remains to be done: the reredos (estimated cost, 2,300*l.*), with the sedilia, the fitting up of the Lady Chapel for an early service, screens east of the stall-work, pulpit, and due supply of seats, the restoration of the windows in the south transept aisle, the re-flooring of a large part of the area, the repair of the arading in the nave, the improvement of the debased west

window, the restoration of the chapter-house and library, the provision of vestries, and, by degrees, perhaps the introduction of additional stained windows,—these works will be proceeded with as means for their execution are provided."

THE LATE BRIDGE ACCIDENT AT YORK.

THE inquests in this unfortunate accident have been held.

The evidence led went mainly to show the more obvious circumstances connected with the fall of the girders. Amongst those whose evidence was taken was Mr. T. Pickersgill, the city surveyor, whose deposition was as follows:—

Messrs. Calvert & Locking were the contractors for the bridge, including the making and fixing of the girders. Mr. L. G. Moore was employed by the contractors to superintend the placing of the girders. He is an engineer. I was over the bridge ten minutes before it fell, and then observed the outer girder towards the railway bridge being lifted up. I saw a beam, 12 inches by 6 inches, used as a stay for the girder at the North-street end. I also observed other beams and iron rods used as stays to the girder. The girder was perpendicular, and raised a few inches from the abutment. Mr. Moore, and all who were engaged, appeared to be giving every attention in the removal of the girder. Mr. Moore superintended its removal. I only heard the first girder fall, but I saw the others go over. The cross-road stays were the cause of the third girder being knocked over; inasmuch as the second girder is only 15 feet high, whilst the width between the second and third girder is 19 feet 6 inches. The fixing of the two road girders was very successful, and was not attended with any accident. The entire length of the girders is 181 feet, the width of the road girders is 2 feet 6 inches at the bottom and top, and the foot girders are 1 foot 3 inches broad. There were some drifts in the girder, which I do not think as secure as the screw-bolts. I think there were about 200 rivets out, but I cannot say how many thousands there would be in the girders. The girder was stayed by half-beams at each end, and with planks in the centre, and all seemed to be going on well. I did not observe any props on the outside of the girder. During its construction, the outside girder was 4 inches higher than the other, and, when raised, it would have to be lowered again 19 inches, which would strain the bars of iron very much. There were two travelling cranes on the gantry over the bridge, but the girders were not secured to either of these. Such a course was altogether impracticable. The girder which first fell would have to deflect 7½ inches over the centre of gravity before it would have a tendency to fall from its place. In my opinion, Mr. Moore adopted the correct principle in removing and lowering the girder. He appeared to me to exercise the same precaution as he had observed in laying the other two girders.

The jury returned a verdict that the deceased came to their death by the accidental falling of the girders of the bridge; but they had not had sufficient evidence to satisfy them of the cause of the falling of the said girders.

There appears to be a strong feeling in York against the re-erection of the bridge on the same principle, as parish meetings have been held on the subject; but the *York Herald* states that some of these meetings have been got up mainly by those who objected to the erection of any bridge. The *Herald*'s remarks to such objectors that any change of design now would involve additional expense; but hopes that, if a change be resolved on, the suspension principle will be adopted.

CHURCH-BUILDING NEWS.

Middle Ruseh.—The High Church at Middle Raseh, says the *Lincoln Times*, after being closed for about fifteen years in a dilapidated and unsafe state, has at length been restored and added to, and was recently re-opened for divine service. The building works have been executed by Messrs. Binns & Smith, of Lincoln, under the direction of Messrs. Bellamy & Hardy, architects. The total cost of the works has been about 1,500*l.*, most of which has been raised by voluntary subscription, the Church Building Society granting 150*l.*

Weston-super-Mare.—Trinity Church here has been consecrated. The new edifice is the third district church in Weston. It comprises a lofty nave, with clerestory and two side aisles, in the Decorated style. The plan of the building is cruciform. The arches on each side of the nave are supported upon sanded Pennant stone pillars with stone bosses and caps. The roofs, which are of open timber-work, are stained oak colour. The east window, which is filled in with stained glass, has been presented by Mrs. Hayward, and comprises the history of the New Testament. The floor of the chancel is laid with encaustic tiles; and the pulpit and reading-desk are of carved oak. The seats are all open, and provision is made for about 600. The structure is circled with grey stone, with Bath stone dressings. At the south-west end is a tower, surmounted with a crocketed spire. The west window is filled in with stained glass, illustrating the history of the Old Testament from Noah to Solomon. The dimensions of the nave are 83 feet long by 21 feet wide and 47 feet high: the side aisles are 54 feet long by 13 feet

wide; transept, 25 feet long by 22 feet wide; and chancel, 21 feet long by 21 feet wide.

Shipton Gorge.—The foundation stone of a new church about to be erected here has been laid. The old edifice, except the tower, has been pulled down, and a larger building is to be erected. Mr. Hicks, of Dorchester, is the architect. The walls, according to the *Dorset Chronicle*, are to be constructed of a stone similar to granite, which is obtained from a quarry only a short distance from the village, and will be faced with Ham Hill stone, but the interior dressings will be of Bath stone. When completed it will be capable of accommodating a large number of persons.

Whitchurch.—The village church of Whitchurch, near Ross, has been re-opened, after having undergone restoration on an extensive scale, the greater portion of the cost borne by Mr. J. Tidd Pratt, the Registrar of Friendly Societies, and patron of the living. The edifice has been enlarged, a new aisle having been added to the north side. A bell turret, containing two bells, has replaced the tower or steeple: the roof has been re-tiled, and now shows the timber work: open seats, most of which are free, have been substituted for the old pews; and the pulpit, reading-desk, &c., are of varnished oak, with ornamental perforations. Mr. Terry, of London, was the architect; and Mr. David Roberts, of Monmouth, the builder. The work has cost between 800*l.* and 900*l.*, and has been about ten months in progress.

Bath.—The foundation-stone of the new Roman Catholic Church at the South Parade, Bath, has been laid by Bishop Clifford, of Clifton. The edifice is dedicated to St. John the Evangelist, and is partly erected. Mr. Hansom, of Clifton, is the architect, and Messrs. Bladwell & Ambrose, are the contractors. The design is of the Decorated style of Gothic architecture; the material, Bath stone. The length of the structure will be 106 feet, the width 66 feet, and the tower and spire 204 feet high. There will be no gallery, except an organ gallery, and it is intended to build the chancel at some future date. The foundation of a dwelling-house for the priests has been laid by the side of the church.

Tintern.—On Thursday, the 19th ultimo, the foundation-stone of a new Wesleyan chapel was laid at Tintern by Mr. Pethick, of Bristol. The chapel will be erected in the Gothic style of the Decorated period, plainly treated, and is intended to accommodate about 160 people. The walls are to be of the stone of the neighbourhood, with Bath stone dressings; the timber of deal, stained. The contractor is Mr. John King, of Bristol: the architect is Mr. Samuel Hancorn.

Chelwood (Somerset).—The parish church of Chelwood has been restored. Instead of eighty sittings, accommodation has now been provided for 130 persons. In order to effect this the chancel has been enlarged and re-seated. The works comprise a new roof to the nave, of high pitch, and a new south aisle, opening into the nave by three pointed arches, resting on circular shafts, and carved corbels. At the east end of the south aisle a vestry has been constructed, which opens by two arches into the aisle and chancel, which latter is enclosed by ornamental screens, and by which an organ chamber is likewise provided. A new chancel arch has also been constructed, and Gothic windows have replaced the old debased ones, both in the chancel and nave. The tower has been entirely rebuilt from the belfry stage, with new belfry windows and Gothic parapet, and a high pitched roof, surmounted by ornamental and scroll work. In the tower is a new Gothic window, in which have been inserted some fragments of painted glass (without any special design), which were found in the ancient windows of the church. The floor is paved with ornamental tiles, the roof being constructed of fir timber, stained and open. The ancient Norman font has been restored, and placed inside the north porch doorway. The seats are constructed of pine, and are open throughout. The chancel has been raised at the chancel arch, and again in the centre. The altar is erected upon a dais. The glass in the new east window has been painted by Mr. Wailes, of Newcastle. It is a memorial window to the late Colonel B. L. Tyler, of 62nd Foot, who died before Sebastopol. In the centre is a representation of the Crucifixion, whilst on either side is a scriptural scene, introducing the persons of Mary and John. This window is the gift of the surviving brothers of the colonel. The contractor for the work was Mr. E. Streeter, of Bath, and the architect, Mr. J. Norton, of London. The contract for the nave porch and new aisle was 420*l.*; for the works in the chancel, 115*l.*; and the partial rebuilding of the tower (irrespective of the painted glass), 85*l.* Amongst the principal

subscribers were the Earl of Warwick, 100*l.*; and Mr. Popbam, 100*l.*

Exeter.—The Chapel of St. Mary Magdalen, in the parish of St. Mary Major, was consecrated on the 24th ult. It consists of nave, 66 feet by 24 feet, lighted by four geometrical windows, and having a bell-turret over the west end; north aisle, 57 feet by 11 feet; chancel, 22 feet by 16 feet, having a recess for the organ; also a vestry on the north side. The building is of Early Decorated character, of Pocombe stone and Bath stone dressings. It contains accommodation for 413 worshippers. The architect is Mr. Ashworth, of Exeter; the contractor, Mr. Woodman. The gates, and metal and gas work, were provided by Messrs. Garton & Jarvis. The font is of Caen stone, supported on five shafts of serpentine marble. The outlay exceeds 1,700*l.*

NEW CATTLE MARKET, DERBY.

THE Derby new cattle-market has been opened at the first annual meeting of the recently-formed Derbyshire Agricultural Society.

Proceeding along the new road, over the old Mill-lead, from the Morledge (the site of the present Cattle Market), the first thing that meets the view is the new bridge over the Derby canal, at the aqueduct or bridge over the "cast metals," not yet complete. This bridge will be 42 feet wide between the parapets, and the thoroughfare from the Morledge to the New Cattle Market a continuous straight line. Passing over this bridge, directly in front are the temporary entrance-gates. Passing on to the market, the first object is the uncovered wrought-iron pens for pigs and sheep, and to the left an office is being built, and a long shed along the boundary wall, with 20 large wrought-iron pens for calves and small pigs. Turning down the market we come upon the first double row of pens, 28 in number, for the regular pig-market, and three double rows of 84 pens for sheep. The accommodation here provided is for 300 calves, 600 pigs, and 1,680 sheep, calculating at the rate of 15 and 20 respectively to each pen, the dimensions of which are 9 feet 6 inches by 9 feet 3 inches. Down the centre longitudinal avenue the means of access are by wide transverse avenues leading from the main road to the horizontal ground. Next are the open pens for beasts, nine in number. They are arranged double, and laid out transversely across the market, and divided into five 28 feet pens on each side, or ninety in all; which, at 3 feet 6 inches to each beast, or eight to a pen, will hold 720 head of cattle. There are also covered pens for beasts under the sheds, and a long row of open pens on the southern side of the main road, which will hold 144 head of cattle, making in all standing space for 864. The market is surrounded on three sides—the north, east, and west—with sheds, enclosed on the outside and on the south by an iron post and oak-rail fence, closely boarded.

The whole of the works are being carried out from the designs and under the direction and superintendence of Mr. T. C. Thorburn, civil engineer, the borough surveyor, by the following contractors, viz.,—Mr. W. Hyslop, for the new bridges and works of the southern approach; Messrs. J. & J. Cliff, of Bradford, Yorkshire, the iron castings and wrought-iron work of the pens and sheds; Mr. J. Tomlinson for the sewerage, road-making, penning, and the other works generally for the erection of the new market and the new road for the northern approach from Exeter-street, and the New Cattle Docks of the Midland Railway Company in the Derwent Meadows; and Mr. H. Bingham, for the market-superintendent's house and office; the whole to be completed for about the sum of 5,000*l.* voted by the Town Council for the market.

THE LONDON MAIN DRAINAGE WORKS.

A GENERAL examination of the works in progress has been made by the Metropolitan Board of Works and members of the various vestries invited for the occasion. Mr. Bazalgette, the engineer, reports that—

"The Northern High Level Sewer, which extends for a length of nine miles, from Hampstead to the river Lee, at Bow, varying from 4 feet in diameter to 9½ feet by 12 feet, forms a substitute for the open Hackney-brook and Fleet sewers. This section of the work is now completed, and the penstock-chamber, tide flaps, and overflow channel at the junction of the High Level, the Middle Level, and the Outfall Sewers are works of magnitude and interest.

At the river Lee the abutment of the aqueduct on the west side is completed, and the brickwork of the eastern abutment and towing-path wall is rapidly progressing within the coffer-dams, and will soon be ready to receive the iron superstructure. The Middle Level Sewer contract, under Messrs. Brassey, extends from Kensal-green

to the penstock-chamber at Old Ford, Bow. The main line and branches are 12½ miles in length, varying in size from 4 feet by 2 feet 6 inches to 12 feet by 9 feet in diameter. This work is now in full operation at Old Ford and in the Haywater-road, and is now being tunnelled under Oxford-street. Arrangements are being made with the contractors to prevent, as far as possible, inconvenience to the important thoroughfares through which it passes, and particularly during the season of the Exhibition of next year. The total value of the work executed under this contract is 63,000*l.*, and the work is of good quality. The Ranelagh Storm Overflow, across Hyde-park and Kensington-gardens, is drawing near to completion, although much delay has occurred in the tunnelling, from bad ground and other difficulties, and the value of the work executed is 22,000*l.* Another section of the main drainage has been satisfactorily completed at Acton, to the value of about 9,820*l.* This work forms a portion of the drainage not included in the main scheme, but is provided for by a separate arrangement, and this comparatively small portion has been designated the Western Division.

The Southern High Level Sewer embraces two lines, the one falling from Clapham to New-cross, and the other from Dulwich to New-cross, whence they have been constructed side by side in one trench, but at different levels, under the Brighton, North Kent, and North Woolwich railways, and along the New Cross-road to the Broadway, Deptford. At Deptford-creek they discharge their storm-waters through two sewers, each 11 feet in diameter, and the sewage will be conveyed by four lines of iron pipes, under the creek, into the Outfall Sewer by gravitation. These two sewers will occupy the whole width of Church-street from house to house, and it is necessary, therefore, to underpin and deepen the foundations of all the houses in that street, which operation is now in a forward state. Between six and seven miles of sewers are completed under this contract, at an expenditure of 118,000*l.* A short section of the Southern Low Level Sewer, under the Surrey Consumers' Gasworks at Deptford, has been constructed under great difficulties, the subsoil having turned out to be a running sand, and with an unprecedented volume of water; but the experience gained in surmounting these difficulties has been of the utmost importance in preparing drawings and contract for the foundations of the Deptford pumping station, the Southern Outfall Sewer will convey the sewage to a pumping station at Erith marshes. Of this work about five miles have been completed, at an expenditure of about 260,000*l.* Messrs. Aird have made good progress at the Deptford pumping station, and the works are proceeding in a businesslike manner. The coffer-dam for the Low Level Sewer is completed for the first half of the work across the creek; a considerable length of iron pipes for conveying the High Level sewage are laid; the foundations of the engine-houses have been excavated, and concrete got in. Messrs. Slaughter & Gruning have prepared a large portion of the engines and pumping machinery, which are ready for delivery, and only await the advancement of the building to receive them. Up to the present time nearly one million has been expended upon the works, purchase of land, and incidentals; and there are now about 6,000 workmen actively engaged upon the works, in addition to those employed in brickmaking, quarries, iron-foundries, and other trades in various parts of England, which would probably swell the number about 16,000. It may fairly be expected that the main intercepting scheme will be completed in about two years from the present time."

ORIGIN OF TRAMWAYS.

SIR.—Will you allow one who has left school thirty years and more to trouble you and Mr. Charnock with the inquiry, in what author the word "douron" can be found? *δοῦρα* for *δοῖρα* I have met with, but I never saw the Greek word *δοῖρα*.

Also may I ask where Mr. Charnock found the word "organize"? "Organize" and "tram" for "warp" and "weft" are terms familiar to silk-weavers. "Organize" is, like "douron," new to me.

Does Mr. Charnock think the etymology of "tram," in silk-weaving, to be the same as that of "tram" for shafts of a cart; or that, in fact, there is any connection between the two words beyond that of their being now spelt the same? An answer to these questions would interest and oblige,

A CITIZEN.

Having submitted this to our previous correspondent, we append his reply:—

Your correspondent, "A Citizen," asks in what author the word *δοῖρα* can be found? By referring to my article, he will see that I quote from Wachter (of course his Glossary), and, moreover, that it does not affect the derivation from the German. Certainly the word *δοῖρα* is not found in Greek dictionaries, but we have *δοῖρος*, a spear, beam, timber; *δοῖρος* (Scap. Lex.) igneus; and, amongst many other compounds found in Stephanus and others, are *δοῖροπαῖς*, "a lignis compactus," "contiguatone compactus" *δοῖροπαῖς*, "lignum secans, a findens" (Conf. Oppian, Hal. 358; Nonn. Dion. 45, 192; Perses, An. 11, 5; Hom. Od. A. 128.) Your correspondent wishes to know whether the etymology of tram in silk-weaving is the same as that of tram for "shafts of a cart." Possibly not. The latter is from the German tram, a "beam," but the former may be from the Latin *trama*, which Littleton renders "the woof in weaving," and which some think etymologically connected with *trames* "via transversa vel angusta," viz., from *trameo* (for *transmeo*), to pass over or through. Indeed, from *trames* we might possi-

bly have tram-way. It is rather a question whether this sort of way had its name from the material of which it was originally constructed. My impression was that it was named on that account. Conf. Littleton, Lat. Diet.; Martinus, Lex. Phil. (Gravus), Utrecht, 1693; and Dufresne under "Tramoserica." The word *organize*, casually referred to by me, is a slip of the pen for *organzine*. R. S. CHARNOCK.

THE VENTILATION OF COAL VAULTS.

WILL you kindly impress upon house occupiers the advantage of permitting the foul musty air of coal-cellars to escape into the street, instead of as now too often into the basement rooms and passages? A few holes drilled through the iron coal plate would not only admit light, but also pure air; and, by causing a draught, speedily render sweet and wholesome vaults previously damp and stinking. The expense (very trifling), would very likely dispense with the doctor's visit and medicine. I should not have troubled you had I ever read of the advantage of perforated coal-plates to help to render lower parts of our dwellings healthy. FRESH BREEZES.

MASTERS AND WORKMEN.

SIR.—As a constant subscriber, I beg to draw your attention to a case headed "Masters and Workmen," which appeared in your impression of the 8th inst.

In Mr. Roberts's reply, as counsel for Roper and others, he states that the judge's decision in the case "was of great importance to the trade, involving, as it did, the right of masters and workmen, and was looked forward to with great anxiety by both parties."

Had it not been for these words, I should have passed over the affair as being nothing more than an ordinary one; for, if, as stated, the men did really assent to such a decision, as to go about 250 miles, with the vague understanding that, if found incompetent, and in consequence discharged before the end of the job, they were not to be entitled to their return railway fare and travelling time, all the conclusion that any one can come to is, that Roper and others acted liberally in giving them their fare; and the case thus explained is so simple, that it admits of no doubt.

But there is a matter touched upon in the case to which great prominence is given, and which, if I am not mistaken, if not properly explained, might lead to very wrong conclusions. I refer to the question of competence in workmen.

Are we to understand by the case, that when an engagement has been concluded in the ordinary way (Slight's engagement being anything but a fair example), that in the event of the master discharging his men for incompetency to perform his work, it would break any part of the agreement; such, for instance, as the generally understood arrangement to pay travelling expenses to and from?

I have always thought that, when a man consents to be hired by a master, he takes him for better or worse; and so also the master the man; and that the law in these cases is construed exactly as between tenant and landlord.

If customary agreements between master and men are to be contingent upon competency on either side, the law would be rendered very indefinite, and lead to no end of confusion.

The object of my letter is to guard against such an inference; and, if considered by you of sufficient importance, its insertion will oblige,

FAIRPLAY.

Miscellanea.

THE RIGHT HON. WILLIAM CUBITT.—Our readers will have heard, with great satisfaction, of the re-election of Mr. Cubitt to the office of Lord Mayor, after a specific appeal to the liverr on the part of the alderman next in rotation. Mr. Cubitt may be justly proud of the high opinion of him thus manifested by his fellow-citizens.

MEDALLION OF MR. HAWTHORNE, THE AMERICAN NOVELIST.—The friends and admirers of Nathaniel Hawthorne propose sending him a testimonial of their admiration and respect. They have chosen for that purpose a medallion portrait of the novelist in marble, executed by Mr. Kuntze, of 23, Newman-street, Oxford-street. Messrs. Smith & Elder, of Cornhill, have undertaken to receive subscriptions, and it is arranged that each subscriber of one guinea will be entitled to a cast of the portrait. We should anticipate the list would be filled in a very few days.

TIMBER-SAWING MACHINERY.—A sawing machine has been invented by Mr. John Robinson, of Rochdale, which may be transported from place to place, and may be used without the support of walls or other permanent erections. To this end the operating parts and the framing are constructed so that they constitute a machine complete in itself, provided with wheels for the purpose of enabling it to be moved in its complete form. This machine is provided with a foundation beam or plate which is capable of being lowered so as to afford a solid bearing upon the ground, and which may be done by sinking the wheels. The main shaft is provided on each side with a fly-wheel, either of which is used for driving the machines instead of a pulley.

THE POLYTECHNIC INSTITUTION.—Mr. Pepper, in his clever way of hitting things as they pass, and so obtaining the attention of the public, has added to the attractions of the Polytechnic a lecture on balancing, with special reference to Blondin and Léotard; explaining the mysteries of the art, and the science of gravitation.

FIRE-PROOF DOORS.—Mr. W. S. Hogg, of Rotherhithe, has taken out a patent for a new fire door, and has tested it in the presence of Captain Shaw, the chief superintendent of the Fire Brigade in London, and a very large body of wharfingers. The door is constructed partly of iron and partly of fire bricks.

CHERTSEY ABBEY.—As our readers know, some fresh excavations have been made on the site of the abbey; and, on the 5th, a visit on the part of archaeologists was invited, when the results of the diggings were seen to be portions of sculptured stone (coloured and gilt), quantities of stained and painted glass, most of the time of Edward I., an ancient châteline and keys of early date, various coins, and tiles of various patterns. A plan, by Mr. Samuel Angell, architect, of the plan of the church and buildings as at present discovered was exhibited. The church, according to the present excavations, was about 172 feet long by 63 feet wide. There were three apsidal eaves to the east, the centre forming either a Lady-chapel or chancel; in the south aisle are two recesses northwards, with much-worn steps, apparently the positions of shrines. Without the wall of the church, on the south side, are the remains of an extensive building, possibly either the cloisters or the chapter-house.

A PROSPEROUS SCOTTISH SAWYER IN AUSTRALIA, AND HIS CROOKED SINECURE.—Dr. Lang, in his new book "Queensland, Australia," gives a long account of a cannie and thriving Scot, one Mr. Souter, who had been induced to emigrate from hearing two lectures on Australia, delivered by Dr. Lang, in the Trades' Hall, Glasgow, in 1849. Souter was a sawyer, and was slack of employment, when he resolved to emigrate. He found it no easy task to get together the three pounds necessary before he could obtain a Government passage for himself, wife, and family, to Australia. He persevered, however; and on reaching Sydney the Government there offered him a free passage to Moreton Bay. When he landed there all the money he had in the world was one crooked sixpence, which he still retained, and would leave, as he told me, as an interesting memorial of his colonial history to his children. The first employment he obtained at Brisbane was at a quarry, where he got only 4s. a-day. But after working a short time in this way he found a mate with whom he went to work thereafter on his own account, and at his own business as a sawyer; and he assured me that for a whole twelvemonth they had wrought together in one spot he had never lost a single hour from any cause whatever. Their earnings during that period averaged 7l. 5s. each per week. In the meantime his wife worked as a landress in the house of which she was now landlady, and received 3s. a-day for her services. He had now 150 head of cattle, and property in South Brisbane worth several hundred pounds, and the furniture of the respectable hotel he now keeps is his also.—*John O'Grant's Journal.*

SCIENCE AND INDUSTRY.—That all the parties concerned in London drainage works were not so well acquainted with the circumstances under which they were to be undertaken, is proved by the fact of the prostration of several contracting firms, respecting which there are dim allusions in the report of the board. The failure of a contractor may make but a brief entry on the proceedings of an administrative body; but in such an affair as this, the indications are plain enough, that neither contractor nor employer knew sufficiently for the purpose the magnitude of the difficulties to be overcome; the depth and direction of the shifting sands, the force of subterranean currents, the position of faults in chalk, and the extent of drift-fields in which it was impossible to establish foundations for any solid structure. Here is the supposed abstract form of scientific inquiry converted into the practical at once; but the conversion is at the cost of thousands of pounds, and the registration as bankrupts of men who would probably have scorned the proposal for detailed investigations of the strata of the London basin. Except for the advanced sciences, which furnish us with appliances unknown before, such an undertaking as the main drainage would have been impossible; but a little more science was needed on the part of contractors to save their credit, and ensure their profit instead of the fulfilment of their engagements.—*City Press.*

FALL OF HOUSES.—On Saturday evening last, a number of newly-built houses, near the Old Kent-road, suddenly fell. On examining the debris it was found that no life had been lost.

ANOTHER CHANNEL RAILWAY PROJECT.—English engineers appear to be getting as anxious to annex France as the French have been to annex England by a Channel railway. The last new project is that of Mr. James Chalmers, who proposes to throw a strong iron tube across from South Foreland to Cape Blanc, the tube to lie at the bottom of the Channel, and to be ventilated by three shafts, and to be kept down by iron boxes weighted with rough stones, and placed at intervals of 80 feet apart; both tube and boxes being also covered by an embankment of similar materials. Mr. Chalmers estimates the cost at 12,000,000l.; the annual expenses at 85,000l.; the gross revenue at 1,300,000l., and the net return at 1,215,000l., yielding a dividend of rather more than 10 per cent. A small volume published by Messrs. Spott, Bucklebury, gives a full account of the project, and reviews the various previous projects for a Channel line of railway.

RATING LONDON TELEGRAPH COMPANIES.—At the monthly meeting of the Representative Vestry of the parish of St. George, Hanoversquare, the vestry clerk (Mr. T. B. Chappell) stated, in answer to a notice of motion given by Mr. Watts, inquiring what rates the London Telegraph Companies paid, that those in that parish paid none. The house and premises of the Telegraph Company in Victoria-street were only rated as a private house. He had made inquiries concerning this question in other metropolitan parishes, and found that they were not rated there, except in Marylebone, where a mere nominal rate of 1l. per annum was levied. A discussion then ensued, in which it was endeavoured to be shown that it was important to the metropolis, and particularly to this parish, that telegraph establishments and pipes of wires under the ground should be rated the same as gas and water pipes. The meeting unanimously resolved that the parish assessor should be recommended to rate this property in the parish when all the new rateable properties were brought before him next January, in accordance with the annual custom.

THE STRIKE IN LIVERPOOL.—The associated master builders, finding that three of their body had seceded, and that the men employed by the latter contributed to the men on strike, withdrew from the contest, and abandoned the payment of wages by the hour. The men, however, asserting their belief that the masters will reintroduce the system in the winter, when the men will not be in a position to resist it, refuse to go to work without a guarantee on both sides that six months' notice shall be given before introducing any change in the present existing rules and usages. This the employers decline to give. The masters say in their first advertisement,—"They are conscious that this strike is only a part of an extended combination, which has for its object, by continual agitation, to interfere with and perplex the true interests of trade, and that the solution of the difficulty is yet to come. A wide-spread and irresponsible power may cause temporary loss and inconvenience to individuals, but the struggle is virtually with the public, upon whom the evil consequences must eventually fall."

THE PUBLIC HEALTH OF THE HOLBORN DISTRICT.—From the report of the medical officer of health for the district, Dr. Gibbon, to the Local Board of Works, it appears that the health of the Holborn district is satisfactory. The reporter calls attention to the state of Union-place, Glasshouse-yard, which, though regarded as cleanly and salubrious, appears to be gradually losing its healthfulness from increasing defect of ventilation and light. The Charterhouse garden wall adjoining especially is being increased in height from time to time; and lately six feet have been added to it. Lofty warehouses are also about to be built close to the court. In consequence, as the medical officer of health fully believes, of the increasing defect in ventilation and light, rickets and scrofula are on the increase amongst the children even of healthy parents. It is well known that even the darker side of an open street is not so healthy as the sunny side; and when to increasing want of sun light defective ventilation is added, there is no wonder health, among tender children especially, should give way in a locality regarded as cleanly and salubrious. The charterhouse authorities, it appears, consider themselves beyond reach of the district authorities, as being extra-parochial; but the district surveyor demurs to this view of the case, and it is to be hoped something will be done in a matter affecting health and life as this does.

"THE PICTS' HOUSE," AT MAESHOW, OREKNEY. Workmen have been employed in building an arched roof over this ancient structure, which will resume its subterranean character when the upper portion of the tumulus shall have been restored. The loose stones that encumbered the floor have all been removed, except the three blocks which, no doubt, were intended to close up the entrances of the wall chambers. A door will close the passage on the side of the mound.

THE EARL OF CAITHNESS'S STEAM CARRIAGE. A correspondent of the *Northern Esquis* says—"The Earl of Caithness, accompanied by the countess, paid a visit to Thurso, on the 11th September, in their steam carriage. His lordship drove through the town, followed by an immense concourse of spectators. We are glad to say that the jaunt was most successful, a part of the journey having been accomplished at the rate of *seventeen miles an hour*."

THE ARTESIAN WELL AT PASSY.—The boring of the Artesian well at Passy seeming now, to the delight, it appears, of the Parisians, to have reached the sheet of water so long expected, arrangements are in progress for raising the column through which the water flows to the height requisite for conveying it to the city reservoirs. At first the water contained one thousandth part of sand and clay in suspension, but it has now become much clearer. The flow of water at the well of Grenelle, which had diminished by one-seventh on the 26th ult., has further decreased, and is now only 720 cubic metres in twenty-four hours. The well at Passy yields 22,000 metres in the same time, according to *Galigani*; being 18,000 metres more than was expected.

THE NEW INDUSTRIAL SCHOOLS ACT.—This Act has now come into use; and must, if properly enforced, lead to great good. It will prevent the continuance of the street-begging system, which has caused so many children to be brought up as vagrants, and led to all kinds of crime. From time to time we have had opportunities of remarking the evils of street-begging. It is pernicious to the older hands, and cruel to the children. The extent to which the system of "lending out," and rearing, young of both sexes, in begging, is carried on, would be scarcely credited by those who have not inquired carefully into the matter. The enforcement of the Act will prevent this, for those really destitute will be cared for; and when parents are careless, they will be forced to contribute towards the support of their children in the industrial schools.

STATUE OF SIR JOHN FRANKLIN.—The colossal statue of Sir John Franklin, which is to be erected on a granite pedestal in front of the Townhall at Spilby, in Lincolnshire (his birthplace), and is the result of a public subscription set on foot by the inhabitants of that place, who wished to do honour to their illustrious townsman, was cast on Wednesday last. The statue has been executed by Mr. C. Bacon (the sculptor of the Mendelssohn statue, which was inaugurated at the Crystal Palace last year), from a sketch made by him entirely under the direction of Lady Franklin and personal friends, and is considered a likeness. It was cast in bronze by Mr. Rogers, who was many years foreman at the foundry of Messrs. Robinson & Cottan, and, as we are told, the person who first introduced there the casting of large statues in one piece. Mr. Rogers, on this occasion, used a new description of frame, thereby dispensing with much of the weight of the mould occasioned by the square boxes hitherto in use.

PHOTOGRAPHIC MAGNIFIERS.—Some time since we suggested the possibility of repeatedly expanding photographs of the moon, based on some true or glassy surface of a different description from collodion; the object being to enable astronomers to make out the minutia of the moon's surface, by help of the microscope applied to the magnified photographs, to an extent not hitherto attained. We have not heard of anything worth speaking of as having yet been done in this direction; but the following paragraph, which is going the rounds of the press, appears to indicate some advance in the principle as regards microscopic objects in our own world:—"Mr. M. J. Gerlach, Professor of Anatomy and Physiology, at Erlangen, has lately employed photography as a means of facilitating microscopic investigations with great success. He has first obtained a negative, by means of an adaptation of Oberhauser's microscope; and of this, by means of another apparatus, he procures an enlarged positive; and if this is not large enough, the same operation is repeated on the positive last obtained. By these means he has obtained photographs of objects magnified 1,000 diameters."

EXCAVATIONS IN BELGIUM.—In some excavations just made at Acoz, near Charleroi, in Belgium, a number of old Roman tombs, containing coins, arms, amorphous, &c., were found. The tombs appear to be those of military chiefs, and in the midst of them are a quantity of bones.

A SCHOOL OF SCIENCE FOR LIVERPOOL.—A "School of Science" was to be inaugurated at Liverpool to-day (Thursday). Lord Granville, Mr. Gladstone, Dr. Fairbairn, and others, were to be present to assist the local celebrities. The school will be on the same basis, and for much the same objects, as the establishment at Kensington.

A NEW INFIRMARY FOR LEEDS.—At a meeting of the friends of the Leeds General Infirmary, it has been resolved to take steps to acquire the entire area, containing about 30,000 square yards, referred to in the sub-committee's report as the Great George-street site, for the erection of a new Infirmary; and, if necessary, to make application for Parliamentary powers to purchase it.

ROYAL GALLERY OF ILLUSTRATION.—We are glad to learn that Mr. and Mrs. German Reed, assisted by Mr. John Parry, will commence another season of their agreeable entertainments on Wednesday next, the 16th inst. The great success of "Our Card Basket," and "The Two Rival Composers," warrants their retention in the programme. Several novelties, however, will be produced to revive an interest in the performances.

THE CORK SCHOOL OF ART.—The report of this school for the last two years has been issued, and it appears from this report, including that of the master, Mr. James Brennan, that the school has been successful and efficient in its operations. Eighty drawings have been exhibited, twenty medals awarded, and eleven forwarded for national competition; and the various classes have continued in full operation since the reopening after the summer vacation.

RESTORATIONS IN PARIS.—The Pavillon de Flore of the Palace of the Tuilleries is being demolished, and the floors of some rooms on the fifth story have fallen in, the weight forcing the fourth on to the third. In that one a number of men were engaged in pulling down some wood-work, but none of them were injured. By the removal of paper-hangings in different rooms of the pavilion, caps of liberty, and other emblems of the Republic of 1793, have been discovered on the walls, and emblems of the Monarchy on others.

EXHIBITION OF ART AT THE LIVERPOOL INSTITUTE.—The exhibition of art at the Liverpool Institute has been inaugurated, in the presence of a numerous assembly. The ceremony of inauguration was performed by the mayor, who briefly declared the exhibition opened. The collection seemed to afford satisfaction. The public meeting was held in the large lecture-hall, in furtherance of the object of the exhibition, which is promoted by Government, and for the presentation of prizes to students of the Institute. The mayor presided, and there was a crowded and enthusiastic audience.

THE CONSERVATIVE LAND SOCIETY.—At the thirty-sixth quarterly meeting of this Society, held on the 8th, the report of the executive committee was read, showing that the receipts for the financial year ending September 30 were 80,588*l.*, and the grand totals 561,588*l.* 10*s.* 9*d.* The sale of land for the year was 43,657*l.* 13*s.* 1*d.*, and the totals 298,748*l.* 4*s.* Nearly eighteen thousand 50*l.* shares had been issued, the subscribed capital being little short of 900,000*l.*, since the Society was established in 1852, of which 244,581*l.* had been withdrawn under the rules at ten days' notice. The Society has acquired estates in seventeen counties.

MONUMENTAL.—Means are being taken to provide funds for the erection of a tenants' monument to the late Lord Aberdeen. The present earl, it is said, on being consulted, had expressed his wish that the memorial by the tenantry should take the form of a square tower, to be erected on the Hill of Ythan. The sum already collected is 500*l.*, and this includes only the tenantry on the estates round Haddo House, whose subscriptions are not yet all given in.—The monument recently erected by the Chamber of Commerce of Lyons, in the cemetery of Oullins, near that city, over the grave of Jacquard, the inventor of the loom for weaving figured silk, has been inaugurated in presence of an immense concourse of people. The monument consists of a white marble tomb, raised several steps above the level of the ground, and sculptured with a bas-relief representing the city of Lyons crowning Jacquard's bust. Over this, in golden letters, "A. Jacquard" is inscribed. The tomb is surrounded by an iron railing.

BARRACKS, MAIDSTONE.—The Government is about to make considerable alterations and additions at the cavalry barracks, Maidstone, to provide increased accommodation for the officers and troops attached to the cavalry depot. The chief of the alterations will include the erection of a new and commodious riding-school, about 160 feet in length, and upwards of 50 feet in width, at an estimated cost of 3,000*l.*, the contract for which has been taken by Mr. Naylor, of Rochester. Additional quarters are also to be erected.

TENDERS.

For house at Ramsgate. Mr. W. M. Brown, Waltham Abbey, N., architect:—
Hopper 2,662 0 0
Gardner 633 0 0
Norman 628 0 0
Pegler 593 0 0
Smith & Son 587 0 0
Wiggs 585 0 0

For new stable-buildings at Newstead Abbey, Notts, for Mr. W. F. Webb. Mr. M. E. Hadfield, Sheffield, architect. Quantities supplied:—
Vallance 2,450 0 0
Clipham 4,390 0 0
Ward, Ansell, & Co. 4,390 0 0
Holloway 4,195 0 0
Ruddle & Thompson 3,948 0 0
Wade 3,919 0 0
Dennett 3,763 10 0
Robinson 3,750 0 0
Carlington 3,662 0 0
Humphreys 3,650 0 0
Wright 3,569 1 7
Garland 3,350 0 0
Hall 3,299 0 0
Simpson & Lynam 3,150 0 0

For building a public-house at Forest Hill, Peckham Rye, for Mr. P. McLean. Mr. William Bertram, architect. Quantities supplied by the architect:—
Westrop 2,156 0 0
Piper 1,438 0 0
Cravley 1,379 0 0
Dennis 1,350 0 0
Collis & Co. 1,297 0 0
Tarrant 1,270 0 0

For excavators', bricklayers', slaters', carpenters', joiners', masons', and plasterers' work, in the erection of house, Havelock-road, for Mr. Forrest. Mr. H. Carpenter, architect, Hastings:—
Kenwood 2,937 0 0
Hoswell 916 0 0
Parks 905 7 0
Grisbrook 879 10 0
Jones 863 0 0
Harman 844 0 0
Picknell 811 14 0
Longhurst (accepted) 995 10 0

For iron fencing and gates to Battle Cemetery, Sussex. Mr. H. Carpenter, architect, Hastings:—
Taylor 216 0 0
Geirish 199 15 0
Longworthy 191 17 0
Alderton 173 0 0
Ball & Garrett 170 0 0
Hallen & Hallen 169 10 0
Horton 150 0 0
Hill & Smith (accepted) 137 0 0

For buildings at Edmonton, for Messrs. Eley. Messrs. Judge & Winstanley, architects. Quantities supplied:—
Walker 2,250 0 0
Mansfield & Son 2,263 0 0
Patman & Fotheringham 2,245 0 0
Roberts 2,179 0 0

For alterations and additions at Camberwell Work-house. Messrs. Wadmore & Baker, architects. Quantities supplied by Mr. W. F. Meakin:—
Brass & Son 2,478 0 0
Soper 4,720 0 0
Collis & Co. 4,597 0 0
Todd 4,344 0 0
Dover 4,385 0 0
Ramsay & Co. 4,302 0 0
Smith 4,225 0 0
Jackson & Shaw 4,198 0 0
Sawyer 4,175 0 0
Walker 4,123 0 0
Greenfield 4,130 0 0
Wilkins & Bottom 4,072 0 0
Rudkin 4,055 0 0
Adamson & Sons 3,969 0 0
Thompson 3,889 0 0
Rowe 3,870 0 0
Stone (accepted) 3,698 0 0
Manley & Rogers (withdrawn) 3,250 0 0

For rebuilding No. 10, Old Broad-street, City. Mr. R. L. Roumieu, architect. Quantities supplied by Welch & Atkinson:—

Trellips & Co. 2,426 0 0
Mansfield & Son 2,429 0 0
Brass 2,393 0 0
Myers 2,388 0 0
P'Anson 2,344 0 0
Fritchard & Son 2,194 0 0
Browne & Robinson (accepted) 2,080 0 0

For erecting intended public-house, cottage, and out-buildings, for Mr. Jas. Hadland, at Stratford. Mr. John M. Dean, architect. The Grove, Stratford. Quantities supplied by Messrs. Hovenden & Heath:—
Pilkington 2,119 0 0
Reeds 975 0 0
Perry 965 0 0
Conderoy 963 0 0
Cheffins 950 0 0
Rivett 943 0 0
Hedges (accepted) 855 0 0
Jay 650 0 0

For twelve cottages at Plumstead. Messrs. Church & Rickwood, surveyors:—
Pugh & Wallis 2,970 0 0
Lovergan 2,640 0 0
Lubster 2,450 0 0
Messrs. Todd 2,376 0 0
Probert 2,230 0 0
Brager 2,169 0 0
Woodford 2,082 0 0

For alterations and additions to "Crown and Anchor," George street, Euston-square, for Mr. Jannaway. Messrs. Finch Hill & Paraire, architects:—
Day 2,132 10 0
Parick 1,079 0 0
Shaw 1,078 0 0
Matthews 1,073 0 0
Piper 1,007 0 0
Symons & Hart 999 0 0
Jeffs 973 0 0

For two houses, George-court, for Mr. Bachelor. Messrs. Finch Hill & Paraire, architects. Quantities supplied:—

Mansfield 2,839 0 0
Higgs 2,750 0 0
Matthews 3,715 0 0
Holland 3,530 0 0
Myers 3,440 0 0
Patrick 3,268 0 0

For cottage residence, Hampstead. Mr. Francis Cross, architect:—

James & Ashton 2,337 0 0
Minty 479 0 0
Piuder & Hawkins 468 0 0
Rowland 440 0 0
Richards 437 0 0
Watts 425 0 0
Greenwood 420 0 0
Fawcett 375 0 0
Pugh & Wallis 375 0 0
Duncan 354 0 0
Tinkham 351 0 0
Macfarlane 300 0 0

For erecting premises, No. 305, High Holborn, for Mr. S. Izant. Mr. C. Fowler, jun., architect. Quantities by Mr. C. J. Shoppee:—
Lawrence & Sons 2,840 0 0
P'Anson 2,648 0 0
Mansfield & Son 2,598 0 0
Patrick & Son 2,587 0 0
Holland & Hannen (accepted) 2,547 0 0

For enlarging and altering the Middlesex Music Hall, Drury-lane, for Mr. Winder. Mr. C. Fowler, jun., architect:—

Structural Work only.
Sheffield (accepted) 2,730 0 0

For a pair of villas, at Bushey. Mr. J. W. Reed, architect:—

Miskin 2,485 0 0
Woodbridge 489 0 0
McLennan 458 0 0
Manley & Rogers 445 0 0
Hoare 425 10 0
Pugh & Wallis 419 0 0
Treliarne 390 0 0
Sale 310 0 0
Duncan (accepted) 298 0 0

For proposed new cemetery chapels at Hitchin, Herts. Mr. Joseph Clarke, F.S.A. architect:—

	Stone.	Brick.
Chinmook, Bros.	2,185 0 0	2,955 0 0
King 937 0 0	850 0 0	
French 923 0 0	851 0 0	
Jackson & Shaw 916 0 0	898 0 0	
Reynolds & Son 845 0 0	792 0 0	
Butcherfield 792 0 0	792 0 0	
Jeeves (accepted) 705 0 0		
Glasscock 800 0 0	650 0 0	
Warren 739 15 0		

For St. Cuthbert's Church, Durham. Messrs. Walton & Robson, architects:—

	Joiner, Painter, Plumber, and Glazier.	Slater, Mason, and Pasturer.	The whole.
Punshon	2,190 0 0		
Thornton for Winter	2,400 0 0		
Lowes 2,249 0 0	2,250 0 0		
Nicholson 739 0 0			
Redshaw 977 0 0			
Sanderson 1,030 0 0			
Graden 799 0 0			
Robson* 799 0 0			

* Accepted.

TO CORRESPONDENTS.

Colouring Walls of Churches.—"Inquirer" writes,—"I would ask any of your numerous readers to tell me of any churches they have seen where a single shade of colour has been used with good effect on the interior of the walls, and the work that of an artist, or workman. J. G. (cancelled); having appeared elsewhere)—T. P. H. (thanks; quite sufficient.)—S. T. C. (we cannot advise in private quest and Constant Reader)—R. A. F. R. W. & A. W. P. G. F. R. W. B. D. R. W. H. L. T. J. M. H. F. G. M. W. F. H. & R. York—V. W. J. B. J. H. G. W.

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Post-office Orders and Remittances should be made payable to Mr. Morris R. Coleman.

Advertisements cannot be received for the current week's issue, later than FIVE o'clock, p.m., on Thursday.

The Builder.

VOL. XIX.—No. 976.

Art Education and Schools of Art.

SOME time ago in reviewing the rise and progress of Schools of Design in England, and endeavouring to account for their natural development into Schools of Art as at present existing, we gave a promise to our readers of making a further examination, and thus laying before them the present condition and operation of the latter. That we have not already fulfilled this promise has resulted from a conviction, then expressed and since borne out by experience, that, in reality, Schools of Art in the United Kingdom are undergoing great and fundamental changes; and, even at this present time, are in a very embryotic state of existence. What has hitherto been done in them, with reference to their constitution and management, has been necessarily experimental: what is now being accomplished is the result of experiments fairly tried in what is to us an untrodden path; and, though we think Schools of Art, and the means adopted by the State for the advancement of art-education generally, a subject of sufficient importance to interest our readers; yet we can only now refer to the subject as a problem in process of solution,—an experiment which has arrived at a certain stage of its existence,—and which, though by no means a perfectly-developed scheme, is so far matured as to offer itself as a fair subject of criticism. It will be impossible, in the narrow limits of our review, to trace the whole history of Schools of Art since their first assumption of that name, or to detail the many and various changes which have occurred in them. It must suffice if we record some of the results achieved in the ten years of their existence.

The Schools of Design were established in order to give an art education to the designer as a means of influencing those branches of manufacture which required skilled workmen to carry them on successfully. The partial success which resulted from this effort on the part of the Government seemed to indicate that a more comprehensive scheme was necessary to achieve such an end. Accordingly, in the year 1851, overtures were made by the School of Design authorities in London, to the Committee of Privy Council for Education, having as an object the introduction of elementary drawing into the national or parochial schools which were under the Committee of Council on Education. These overtures were favourably received, and it was resolved to initiate the formation of drawing-classes in national schools by the gratuitous distribution of books and drawing-copies among those schoolmasters who were apparently able to use them, and manifested a willingness to do so. The head-masters of the Schools of Design were charged with the task of distributing these examples.

This, as might have been expected, was as unsuccessful as that which had already been done by the Schools of Design. The school-masters were also to be allowed to study in the Schools of Design gratuitously. The Privy Council for Trade seemed persistently to shut its eyes to the fact that ordinary people value things at precisely the cost of such things, and that to present books

and copies, and give the privileges of study to persons who themselves made no sacrifices or exertion to obtain such advantages, was precisely the method best adapted to cause these persons to undervalue the advantages offered. The same mistake which we noticed as having been made in the appointment of masters to Schools of Design on fixed salaries was again re-enacted in this minor matter.

In 1853, on the formation of the Department of Practical Art, the system of grants to Schools of Art was entirely re-organized; the errors of the previous directors of the schools were carefully avoided; a masculine and comprehensive scheme of art education was inaugurated; and the foundation was laid of a sound, business-like management, whereby the benefits of art education should be extended to all alike. We must in candour confess that, though possessing many deficiencies in detail, and though the Department has blundered in some cases, as Government offices will; yet the result of the Department's operations is convincing proof of the soundness of its system. Setting minor matters aside, the Department's career has been one long course of unexampled prosperity, which is in a great measure due to the masterly manner in which it is conducted.

The first subject which received the serious attention of the new Department was the cost of maintaining the nineteen Schools of Design already in existence. It was found that it would be impossible to establish new Schools of Art on the principle of subsidizing each school by a direct grant. The nineteen Schools of Design existing in 1851 cost the country 7,750*l.*, and, as one of the schemes of the Department was to establish a School of Art in every considerable town in the United Kingdom, the somewhat novel and startling principle was enunciated, that all new schools would have to be founded on the self-supporting system, as far as this was practicable. Other alterations are so well described in the second Report of the Department of 1855, that a quotation from its pages will give the clearest idea of the new system. Speaking of the Schools of Art (late Schools of Design) receiving direct grants from the Department, the Report states that,—

"It was judged expedient that, while the local expenses should be entirely regulated by the committees, which were best able to control them, Parliamentary grants should be devoted to the proportion of instruction, either in fixed salaries paid direct to the masters, in an increase of masters, especially where necessary for public school teaching, in affording aid by means of examples, and in lectures and scholarships. It was also proposed as an equitable arrangement, and as an inducement to exertion on the part of the masters, that a proportion of the students' fees should be in future paid to them as part of their income, their fixed salaries being at the same time reduced. Accordingly, throughout the year 1853, the grant schools were conducted under the new arrangement; and the result, as described in last year's Report, showed a marked improvement in the attendance of students, as well as in the amount of fees.

Although the progress in the improvement of the schools was thus considerable, the establishment of the elementary local Schools of Art, which to the number of sixteen were opened in different towns in the course of the year, indicated the possibility of extending to the public increased advantages from the subsidized schools. Being in operation together, the new schools were found, upon comparison, to possess many advantages over the old; as they were not only conducted at less cost to the State, but also enabled a larger amount of local interest in their success, and extended the facilities for instruction to all classes of the community, while they were founded on a system which stimulates the exertion of the masters by lifting their interest with the extension of the instruction afforded by their schools. A further re-adjustment of the grants to the Schools of Design thus became absolutely necessary. It was felt that the expenditure of 7,750*l.* in maintaining nineteen schools would not be justified to Parliament, when sixteen schools were established and carried on, the greater part in a very satisfactory manner, at an aggregate fixed cost of only 164*l.* per annum, and a further liability of 660*l.* in the shape of guarantees of salaries to masters, whose liability a year's experience has shown to be rarely called into operation. It was determined, therefore, no longer to ask Parliament to vote specific sums for each locality, but rather to extend the advantages afforded by Parliamentary aid wherever it might be found to be most required and appreciated."

A circular, dated March, 1854, was issued, in which the old schools were invited to extend elementary instruction to parish schools, and to assist in the promotion of art-knowledge among the operative classes. It was pointed out to the committees that a better guarantee of efficiency, as respects the teachers, could not be afforded than by the certificates of the Department, obtained under the new system after long study and severe training; and that it was desirable to stimulate the teachers to energy and perseverance, when appointed, by the hope of augmenting their income by a commensurate increase of

fees. It was also observed that instead of the appointment of the masters remaining with the Government, and their control partly with the Government and partly with the committees, as must necessarily be the case on the plan hitherto pursued; the appointment and control of the masters ought rather to be entirely in the hands of the local committees, so as to avoid a divided authority; and it was at the same time explained that, although it was not intended to supersede the master of any subsidized school receiving a salary from the Department, the new system would be extended to all, either on the application of committees, or as favourable opportunities arising out of the retirement of the old masters might occur."

It should have been before remarked, that the Department had wholly discontinued the practice of appointing masters to Schools of Art on the mere exhibition of testimonials, and works executed by themselves. A training class for masters had been established previously to the location of the central school at Marlborough House; and the most promising of the students in it, as well as others who joined for the specific object of becoming art-masters, were now required to go through a severe course of study, and present themselves for examination at stated times, for certificates of competency to give art instruction. It was determined to appoint no masters who could not take these certificates; and though the Department avowed itself averse to sudden or violent changes in the masterships of schools, fair warning was given to all committees that, upon new appointments, certificated masters would alone be recognized, and the new system of self-support from fees and subscriptions immediately be substituted for direct subsidy. This caused a commotion among the subsidized schools. From Manchester, Macclesfield, Sheffield, Dublin, Belfast, Cork, and Limerick, urgent protests and remonstrances were received by the Department. The Cork school and Belfast school were closed; at Stourbridge and York, the masters resigned, and consternation reigned supreme amongst the masters, whilst utter dismay seized upon the committees. These manifestations, however, seem to have had very little effect on the Departmental directors. Birmingham, which came under the same regulations, instead of venting its wrath in pithily worded protests and remonstrances, founded on bad arguments and supported by infamous logic, set itself resolutely to work to try the new system; and the result was seen from the report of the head-master, who informed the Department that "the influence of the school has been largely extended, and nearly three times more persons are under a systematic course of instruction in drawing at the present time than in 1851; the cost to the public fund is less, whilst the masters are better paid."

Encouraged by this example, no notice was taken of old schools in the agonies of dissolution; but where it was found practicable, as at Leeds, York, Stourbridge, and Coventry, the new system was introduced, with the acquiescence of the committees, and the teaching reorganized and most successfully carried on by the newly-appointed trained masters. Manchester consented to try the experiment for a year, and has never had cause to regret its sensible resolution.

The Department resolved also no longer to pay a new master according to the size of his school, or the importance of the town in which it was placed. Instead of this, allowances were to be made according to a scale, regulated by the number of examinations the masters had passed through in London. The whole curriculum of art-education and study was divided into six groups, having a certain number of branches of art in each. For the successful passing, in both theory and practice, of each group, a master would receive an annual allowance of 10*l.*; the maximum aid to be given to each teacher was not to exceed 50*l.* Thus a desire to excel in all branches of art-study was generated amongst the masters, when it was seen that direct pecuniary advantages accrued to them from their superior qualifications. Very business-like arguments were used by the Department in explanation of this arrangement. The advantages of it were stated as being,—“That, whereas the

vote of 7,550, now promotes the instruction of operatives in only twenty places, by means of less than forty masters, non-certificated, the said sum would provide at least 200 masters certificated; and that by the rules and conditions of the appointment the influence of each master would be more extensively distributed." As before remarked, the Department did not interfere with masters already in receipt of direct grants, or make them subservient to this rule, which only applied to new masters.

The most characteristic feature of the new system was the unconditional demand of the Department, that a certain number of National or poor schools should be instructed by the masters of each School of Art. The minimum number upon which a School of Art would be recognised, and the art-masters' certificates be paid, was three, which was afterwards increased to five. It was sought by this means to extend art instruction among the mass of the people, instead of confining it as heretofore to a small class of adult artisans. It was suggested that all towns possessing a School of Art should have a minimum of one per cent. of the population under instruction in drawing.

To provide for the teaching of elementary drawing in poor schools, the art-masters were allowed to nominate advanced students of the School of Art to assistantships in it; the Department recognising them as art-pupil teachers, and paying them 10*l.* per annum, besides giving them the advantage of free instruction in the Schools of Art. The sum allowed to assistants was afterwards increased to 20*l.* per annum, and thus remains. Under the direction of the head-master these assistants gave to poor schools one lesson per week of one hour's duration for the sum of 5*l.* per annum; though in many cases, as at present, the art-master himself gave the lesson, and his assistant a second lesson, in the same week, or in alternate weeks. It was a well-considered question whether the time usually devoted to drawing in these National Schools, viz., one hour per week, would be sufficient to give the pupils any practical power in drawing. The Department was at some trouble to obtain opinions from a large number of art-masters on this point. These opinions were as various as the temperaments of the authors of them. Some flatly asserted that one hour per week, or forty hours per year (reckoning vacations), was totally insufficient to give even a smattering knowledge to adults, of any subject, and ridiculously so to impart art-instruction to young children. Others, more sanguine, maintained a directly opposite opinion. The examination of children who had received a year's instruction of one hour per week speedily set at rest the vexed question. By means of exercises in the subjects of freehand drawing, geometry, perspective, and model drawing, worked in the space of forty minutes for each subject, it was found that a very valuable power of drawing had been acquired. The accurate imitation of a form in outline cleanly executed from a copy; the power of remembering, solving, and working out as many as six geometrical problems selected from a text-book containing sixty or seventy problems; the representation in outline of a geometric model drawn freehand from the model itself; and the working out of simple perspective exercises,—all these were found to be executed with facility by children of from ten to fourteen years of age, who had received a year's instruction of forty hours. A method of teaching drawing in these subjects, by means of copies drawn by the teacher on the black board, enabled large classes to be taught simultaneously,—accurate proportions, carefully pointed out to the children,—simple constructional lines used in drawing symmetrical objects, familiar subjects being chosen as examples, thorough explanation of the terms used in geometrical figures, with tests of the accuracy of the problems given, these being attended to by the teachers,—were found to give great interest to the drawing lesson. More than one case has come to our knowledge where

a school which has been irregularly attended during the week has been crowded on the occasion of the drawing lesson,—a gratifying testimony to the interest awakened by the new lesson.

Among other reforms introduced by the Department, the re-adjustment of the conditions on which grants of copies for teaching drawing in parochial schools and Schools of Art are given deserves to be mentioned. Instead of presenting such copies gratuitously to poor schools, all schools were required to pay a proportion towards the cost of such examples. Thus Schools of Art and parochial and national schools obtained books, examples, and casts, through the appointed agents, paying the usual price for them, upon which the Department and the agent together allowed a discount of nearly fifty per cent., whilst private middle-class schools received a discount of fifteen per cent.; and this arrangement is still in operation with admirable effect. The only drawback to the arrangement is the existence of only one agency in London for the supply of examples, and the consequent prevention of requisitions being made for small supplies of examples, on account of the great delay arising in complying with the demands, and the proportionate important cost of carriage for small parcels. We have no hesitation in predicting the doubling or trebling of the demand for these copies if the Department would make arrangements for the supply of them through local agents in all large towns where a School of Art exists. This would dispense with the cost of carriage and the terrible delay of passing the copies through the London agent alone. No difficulties seem to have been experienced in inducing Messrs. Chapman & Hall to undertake the agency for casts and examples in London; and we see no reason why respectable publishing or book-selling firms in provincial towns should not be appointed as local agents. Whether appointed by the Department, or by Messrs. Chapman & Hall, is a matter of no moment; for in either case the increased facilities of obtaining the examples would materially extend the demand for them. This is a point we earnestly recommend to the serious attention of the Department's officers, and feel assured it will repay any amount of trouble taken in bringing the suggestion into operation.

The completion of our review, and touching one or two points in the management with which we may be less contented, must form another article.

THE EXHIBITION AT FLORENCE IN AN ART POINT OF VIEW.

THE present exhibition of Italian arts and manufactures must be considered rather in the light of a general stock-taking of old goods than as a proof of what the country can and will produce under a better system of government than it has enjoyed up to these last two years. Hitherto the policy of the different rulers has been to keep the people as much as possible at one dead level, and above all to prevent their travelling. Thus the late lamented King of Naples absolutely refused permission to his subjects to visit the London Exhibition of 1851; and, true to precedent, the same line of conduct has been followed by the Papal and Austrian Governments in the present instance; who, like the two giants in "Pilgrim's Progress," have endeavoured to prevent both works and men from arriving at the glorious city. This latter fact must be specially remembered in reviewing the works of art sent from Venetia and Rome; for it was hardly to be expected that the more distinguished artists (who of course have the most to lose) would endanger their positions for the sake of an opportunity which may possibly re-occur very shortly, when all Italy shall be united. As it is, a considerable number of objects have been smuggled across the frontiers; and every endeavour is now being made to sell them by lottery and otherwise, so as to avoid the expense and risk of their return. I only mention these facts to show how it happens that the great schools of Venice and Rome are so scantily represented. Now for the building. It is nothing more nor less than an ex-railway station. The Tuscans having plenty of time on their hands, and an in-

tense horror of railway accidents, run very few trains, and those very slowly; so much so, indeed, that it takes nearly four hours to get to Sienna, a distance of some fifty-four miles. Under these circumstances, as it may easily be conceived that one station is amply sufficient for all the traffic, and the city boasting of no less than two, one of them was very wisely delivered over to the Exhibition Committee, who were thereby enabled to carry the heavy goods into the building itself by rail. The station may best be described as resembling a church, composed of a double nave and aisles; a gallery supported upon bold brackets has been added to the former, and indeed runs all round it; while the latter are surmounted by an additional story, which serves as a picture-gallery. The ground-floor of the nave is filled with specimens of upholstery, textile manufactures, and embroidery; and the gallery is reserved for comestibles, such as the various preparations of maccaroni, cheeses, hams, &c. The lower part of the aisles contains the sculpture and various rooms for the officers, juries, corps de garde, &c.*

In addition to all this there are very extensive erections in wood. Thus, on the side of one of the aisles we have more picture and sculpture saloons, while at the end of the nave opposite the entrance is a very large octagonal court, inclosing a garden, in the middle of which is a good-sized green-house containing some excellent specimens of tropical plants, many from the garden of Prince Demidoff. There is also a smaller house more especially devoted to the Victoria Regia and other aquatic plants. In the buildings inclosing the octagon court there is a very fair collection of marbles and other mineral products of Italy, but more especially of Tuscany. This space is also partly devoted to china, majolica, and glass; and at the extreme end of all we find the throne-room, now given up to concerts and other assemblies. Again, opening from the side of the octagon, are other extensive ranges of buildings, not yet finished by the way, and partially filled with machinery and cattle; for it ought to be told that the scheme comprehends a cattle and poultry show, as well as arts and manufactures. As might naturally be expected, things are a little in arrear. *It is said* that everything will be ready by the end of the month; but, inasmuch as we have not yet the least approach to an official catalogue, one is apt to doubt whether all will be completely finished before the close of the exhibition. Of course, any attempt to give an account of the various works of art is made considerably more difficult by this want; for the catalogue, got up by private enterprise, and sold about the building, is principally occupied with apologies for the gaps, which are certainly by no means few or far between, upon an average about three works being mentioned to each room. I should also state that all the buildings, with the exception of the railway station, are executed in wood,—a mode of construction which, if it do not give quite so much light as iron or glass, at all events is more pleasing to the eye than our so-called Crystal Palaces, which are apt to suggest ideas of ghosts of engine-boilers condemned to haunt the scenes of terrific explosions.

Architecture.

Architecture is generally, and with a great deal of truth, said to be the mother of all the other arts; but in this Exhibition I regret to say it makes a very sorry figure indeed. The fact is, as an Italian architect once told the writer, that there is really very little for an architect to do in Italy; all the houses and all the churches having been provided by the industry of former ages. When, however, an opportunity does occur, as in the case of St. Paolo Fuori le Mura at Rome, and the new church (a good-sized one, by the way,) at Monza, the style chosen is the very tannest phase of the seventeenth century. I wish I could call it Classic or Pagan; but, unfortunately, it in no way resembles anything that the Greeks or Romans ever thought of; and it is in this nondescript style that most of the exhibitors at Florence have been contented to work. The show, as regards numbers, is not a very bad one; three entire rooms being occupied by the architectural section; but, upon reading the often very lengthy manuscript notices with which the designs are accompanied, we find that nearly all of them are prize designs of the various academies; in fact, nearly the same sort of thing that our own respected Institute rewards with books and silver medals. Only one or two exhibitors give the slightest evidence of having studied the Medæval monuments in which their own country is so rich. Not but that there

* We shall give illustrations.

have been here and there professors who have left the beaten track, and taught their pupils that there was actually such an art as architecture, in the thirteenth and fourteenth centuries, in Italy. Professor Cavallari was one of these. He illustrated the cathedral and Capella Reale at Palermo, besides the church at Monreale; and, when removed to Milan, turned out the pagan casts from his lecture-room, and supplied their place with photographs of the best Medieval buildings of Europe, but more especially of Italy.

At Florence, Signore Matas appears to be the Medieval architect, and has nearly completed the west front of Sta. Croce—a work which was begun long ago, but only went as far as one or two courses from the ground; the building committee having refused the donor the permission to place his arms on the work. One of the first acts of the city of Florence on recovering its liberty has been to finish this façade; the expense being, as far as I could learn, defrayed by private subscription. The journals have just announced the intention of a committee to put up the west end of the Duomo for competition; but, with all due respect, I very much doubt whether they will obtain a more satisfactory design than one made, several years ago, by Signore Matas. I must remark that, as far as my observation extended, this gentleman would not exhibit anything beyond a few specimens of inlaid marbles as used at Sta. Croce. I enclose the notice respecting the competition for the west end of the cathedral, as it may interest some of your readers. You will observe, however, that it is left an open question as to whether the competition is to be universal, or restricted to the Italians.*

Of the exhibitors, Calderini, of Perugia, shows the greatest amount of Mediævalism in his design for a basilica; having evidently studied at Palermo and Monreale. The drawings are beautifully tinted, with the exception of the one showing the ceiling, which is rather too crude. There is also a very careful outline study in pencil of the bronze doors at the west end of the church at Monreale, by Patricolo, of Palermo; but the scale is very much too small. However, the character is well preserved; but, after all, the spectator is apt to ask himself whether it is not so much labour thrown away, and whether the draughtsman would not have done himself more good by making studies of two or three of the panels, full size. I have to notice but two more names, and my Mediæval experience of the Italian Exhibition are at an end. The first is Benincasa, who has sent in three alternative designs for a new tower to Messina Cathedral, and concerning which the least said is the soonest mended; and Bracci, of Florence, contributes a design for a mausoleum, in the style of the fourteenth century. It is true that parts of the composition would not be much admired in England; still great praise is due to this gentleman for having bestowed a good deal of study upon the architecture of the period in question. His employment of coloured marbles is also very well managed; and some even of his defects, such as bringing the windows nearly to the ground, are rather due to his model (the Or San Michele) than to himself.

Of the Renaissance work, three designs by Professor Santini, for a small church in the style of Bramante, are decidedly the best. He also exhibits his application of iron ties to the church of Sta. Maria degli Angeli, near Assisi, which had been damaged by an earthquake;—another proof, if any were needed, how necessary tie-rods are in climates where buildings are liable to these misfortunes. A very prominent drawing is a project for a London necropolis, by Falconieri, which I think I have seen in London. Another set of sepulchral buildings, by Cavaliere Rosaro, is actually being carried out at Genoa. There are also two sets of drawings for the Foreign and War Offices at London, one of which had no name attached; while the other, by Professor Monti, now of Bologna, has affixed to it a very long MS. statement, in which, after blaming the instructions, which he compares to Procrustes' bed, he goes on to say that the drawings were sent off in time; but, owing to a delay in the transport they arrived

after the day appointed, and the *inesorabilità Britannica* refused to admit them. Of these two designs, that for the War Office is decidedly the best; being conceived in the style of the Palazzo Ricardi, at Florence.

Two gentlemen, not of Verona, but of Naples, send in academic competition designs for a theatre, utterly regardless of expense and of site. Signore Breglia has carried off the first prize; while the second has fallen to Signore Rosati. Both theatres appear to be well arranged; but as the plans are necessarily complicated, and all the references are on the side, and not written on the apartments, it would be impossible to do justice to their merits, without a very much longer study than could be given during a cursory examination. While upon the subject of theatres, I ought not to forget the large model of the Scala, at Milan, exhibited downstairs, in the octagonal part of the building. The object is to show the application of all the improvements necessary for all large theatres. Unfortunately, Signor Ronchi, who is the author of the model, forgot to tell us in his explanation whether the said improvements have or have not been applied to the Scala; and, as there is no official catalogue, the inquiring stranger is of course left in the dark. The improvements consist principally in causing the stalls and pit-seats to go down by means of machinery, so that their backs form part of the floor, and thus the whole area can be used as a ball-room. The pit also rises. But, to return to the architecture. Signore Breglia exhibits two other competition drawings, viz., a restoration of the Forum at Pompeii (the Temple end); and a collection of Pompeian fragments. In this case his competitor is Signore Fiocca, who, I think, we look only at the drawings, has rather the better of it, inasmuch as he has better seized the local polychromy, while his rival has taken refuge in very black and ugly shadows. The rest of the architectural designs may be dismissed with a simple mention, inasmuch as they are mere studies, made without any regard to expense or site. Thus Calderini gives us a temple for great men, and an academy for fine arts (why did he not letter the latter as being especially designed as a proposed substitution for the present affair in Tratalgar-square?); Laurenci, a military college; Gardi, a palace to justice; Fischera, another Pantheon for great men (by the way, can any one tell us what great men are supposed to do in a Pantheon?); Grassetti, an asylum for 100 children; Santini, a sepulchral monument for a royal personage,—name not stated,—and a university for 1,800 students; while Maganini, of Leghorn, has a whole album of designs for all sorts of buildings, some of which have been executed. One of the best things in the architectural department is a design for a monument in honour of France, by Rossi and Ravezzi, of Sienna. It is in the form of a truncated obelisk, upon the top of which is an equestrian statue of the chosen of I do not know how many millions,—viz., his Majesty Napoleon III.; and immediately below him, at the four angles, are four angels, holding palm branches. The whole effect is particularly good. The bareness of the obelisk is obviated by means of bronze wreaths, while the pedestal contains a chapel! because, as the authors say, "the whole interior is to be sacred to the *religioso culto di Dio*." For my own part, I am inclined to think that, having perhaps read some of the Ecclesiological Society's publications, they were seized with a desire to do a little symbolism, and therefore put the chapel under Louis Napoleon to signify the present state of the papacy. My task is finished as regards the architecture of the exhibition when I have noticed the design for the Casa Majorana, by Basile, of Palermo, which is described by the author as being in the Arabo-Sicilian style, with the addition of modern improvements. It is, I think, unnecessary to describe it. As to the drawings themselves (I mean the whole collection), they are nearly all elevations, and coloured up in the manner our fathers so much delighted in, as they are either shaded up with Indian ink until they look as if they had been put up the chimney, or else tinted over with yellow ochre or burnt umber until they appear to have undergone a lengthened process of baking; either of which styles has the advantage of making good architecture look bad, and bad architecture look passable, so that the designer never knows what he is about. I ought also to say that in the majority of cases the windows are boldly put in with the very darkest Indian ink. The Italian architects appear also to have a great disinclination to put scales to their drawings, or to write on the plans; the rooms being simply numbered, and the explanation appended at the side—a practice which very con-

siderably increases the difficulty of an examination. It is much to be hoped that, when the next exhibition of Italian art takes place, the countrymen of Dante will give some proof of having studied the noble domestic architecture of his time. Already a beginning has been made by the restoration of the Bargello or Palazzo del Podestà—a restoration which, I am happy to say, has been exceedingly well carried out, although it is still to be hoped that the architect will replace the picturesque abattour which covered the staircase, and which, I am sorry to say, has been removed. W. BURGESS.

PORTLAND STONE.

THE following observations are by Mr. William Gray, of the Royal Engineer Department, and form part of a more extended memoir of the Geology of the Isle of Portland.

In position, Portland is situated in the county of Dorset, nearly opposite Weymouth, and is connected with the main land by a remarkable bank of shingle, which extends for some miles, as far as Abbotsbury.

In configuration it is wedge-shaped, with the axis, or centre line of the wedge running north-east, and is composed of a series of strata, marine and fresh water, slightly inclined. The series of strata, though not everywhere exhibited together, yet when grouped as a whole afford a vertical section of about 525 feet; hard rocks of a light colour giving about 145 feet; dark brown sandy deposits about 45 feet; and the Kimmeridge clay formation the remaining 335. The sides, which to the east and west present bold fronts to the sea, have been much affected by landslips.

The several beds, as developed in this island, may be enumerated as follows:—

Portland Stone.	Belonging to the Purbeck series.	Sand and gravel of the Rased Beach.
		1. Alcareous slate; 8 to 30 feet thick.
		2. Clay band.
		3. Bacon tier; 1 to 1½ ft.
		4. Clay band; 8 ft.
		5. Aish; 3 ft.
		6. Soft burr; 1 ft. to 14 in.
		7. Dirt-bed; 1 ft. to 16 in.
		8. Top-rising; 2 ft.
		9. Cap; 4 to 7 ft.
		10. Seam of black earth.
		11. Skull-cap; 20 in. to 3 ft.
		12. Roach; 3 ft.
		13. White-bed; 9 ft. (The really best bed of stone.)
		14. Chert and waste, with chert-beds; 6 ft.
		15. Roach; 1½ to 2 ft.
		16. Bave-bed or lower tier; 5 ft. (Called also the "Best-bed.")
		17. Limestone and chert; 75 ft.
		18. Blue clay; 8 to 16 ft.
		19. Portland sand; 45 ft.
		20. Kimmeridge clay, with septaria; 335 ft. seen.

Above the Portland sand, and between it and the Portland stone, there is a stratum of blue clay, about 8 or 10 feet thick. This receives the surface drainage, after percolating through the several layers of the Portland stone; and therefore it becomes the source from which the fresh-water supply for the island is procured.

Leaving this stratum of clay, we next, in an ascending order, meet with a series of solid beds of stone interstratified by layers of chert, making up a total thickness of 75 feet. The thickness of the several layers varies considerably, yet the general characteristics of each are very similar: they are all fossiliferous, they are all broken and shattered, and there is not a bed in the series of any marketable value.

It is through this series that the Vern Ditch (in connection with Portland defences) is cut, where a most favourable opportunity is afforded for its examination and study. This cutting, when finished, will, in the aggregate, make up a length of 1,100 yards, by in width 100 feet, and in depth from 30 to 75 feet. From this the enormous quantity of 1,073,000 tons must be removed. The excavated material is used in constructing the breakwater now in progress, under the Admiralty, in Portland roads.

The first thing that strikes the visitor in this excavation is the extraordinary regularity of the strata; a narrow bed of stone between layers of chert can be traced for a long distance, and many of the beds as developed here can be recognized again on the cliffs on the eastern and western sides of the island. Some beds are sub-divided and again united within a short distance, one bed in particular, showing a thickness of 14 feet at the entrance to the ditch, is sub-divided within a short distance on that face into several beds.

The general thickness of the beds of stone is from two to five feet, and the cherty beds vary from six inches to three feet. Sometimes the chert runs from one layer into another, and very often the rents in the bed of stone between two layers of chert are filled up with chert also, so that it

* This announcement says,—The commission for the construction of the facade for the Duomo of Florence, under the presidency of H.R.H. the Prince of Carignano, have approved the programme of the competition, which will be published as early as possible, and fixes the delivery of designs up to the 30th September, 1861. The commission appointed the Cav. Baccani to see that a number of copies of the elevation of the building be made, so as to forward them to the different Italian academies as a guide to the architects who may wish to compete. The commission is taking prompt measures to obtain subscriptions for the work. We hope that the endeavours of the commission will prove successful. We venture to advise that the contributions may be received at the Exhibition Palace. The temple of Sta. Maria del Fiore is the glory of monumental Italy.

looks on some sections like vertical, or almost vertical markings, made with a tar-brush. The horizontal beds of chert, where a fresh section is opened, appear almost black, and contrast strongly with the light colour of the intermediate beds of stone. This difference of colour is soon mellowed down by the growth of lichens and other vegetation. Some of the cherty layers are made up of shells, and in the upper beds of this series cherty nodules are not uncommon, which, when broken, show a shell in the centre. These nodules vary from the size of an egg to the size of a heavy cannon-shot. In the lowest beds the chert is in irregular patches, as if collected round a branch nucleus, and a section shows a number of parallel lines from the centre to the surface of the mass, disposed in concentric rings.

The beds, so remarkably regular, and almost horizontal in the cross section, suddenly dip at a considerable angle (30 degrees) on the east and west faces. This seems to have been caused by slips parting in the direction of fissures, and becoming thus tilted over in the direction of the slopes already described. The Ditch in one direction, on the west face, is cut through a slip of this kind; and on the east face the tilted nature of the strata causes a difficulty in forming the contemplated perpendicular escarpment.

Leaving the cherty beds, we next come upon the "lower tier" of the Portland stone proper, or "base-bed," commonly called the "best-bed." It is the oldest bed reached by the quarrying operations of the island for trade purposes.

On the Vern Hill, which is a comparatively level space of about 50 acres at the northern end of the island, bounded by the slope described in the beginning of this paper, the base-bed has been quarried to a limited extent; but, as might be expected from its geological position, the quantity was scanty, and of inferior quality; for in Portland the beds, whether they merely crop out by running with a quicker dip than the fall of the surface, or run parallel with the surface, in either case, are very much broken and shattered for about 8 or 12 feet from the surface. The base-bed, in this shattered condition, extends over the greater part of the Vern Hill. It runs out to the south as it approaches the Ditch, and from about 200 feet at the other side of the Ditch, where it again crops out. It continues all over the island.

The local term "best-bed," as applied to the stratum now under consideration, has caused no little confusion and disappointment; for, though it possesses the finest texture and the most uniform colour of any bed on the island, it is not really the best for many of the purposes to which it is at present applied. It is liable to rapid decay when exposed to the weather; but, being soft, it is easily and economically sawn into any size, and, therefore, meets with demand in the market. There can be no objection to its use for *inside* work, where it answers admirably, and the wonder is, that it is not oftener so employed; but, for *outside* work it is ruinous. The misapplication of the term "best-bed," and the injudicious employment of it for works exposed to atmospheric influences, had created a considerable prejudice against it, and many thousand tons that should have been quarried in Portland are left behind, and covered up in the *débris* quarried from the other beds. The term "best-bed" may be a corruption of the term "base-bed," the latter being most correct when applied to what is commonly called the best-bed; for it is the *base*, or lowest bed quarried in the Isle of Portland. It is very uniform in its texture and colour, free from fossils, and may be had in any reasonable sized blocks, not more than 5 feet in one direction, this being the average thickness of the bed.

Between the roach of the base-bed and the whit-bed, or really *best* bed, there intervenes a bed, or beds, called by the quarrymen "curf" and "waste." This is divided from the underlying, as well as from the overlying beds, by layers of chert, and is often subdivided by similar layers; the quality of the stone, too, varies considerably, and is never fit for particular work. In some of the quarries, as on the eastern side, the curf is very much like the base-bed, and contains very little flint or chert. Towards the centre of the island it is more like the roach of the base-bed, and contains similar fossils; but in the western quarries the curf is worthless, and is all thrown aside with the waste. Its general thickness is about 6 feet, it is sometimes much more, and often considerably less; indeed, it is absent in one or two places, or only represented by a layer of oyster-shells. The curf contains similar fossils to the roach of the base-bed, but in less quantity.

Next above the curf is the whit-bed, or the true best-bed of Portland stone. The local term whit-

bed is a misnomer, and like the term best-bed, as applied to the lowest bed, leads to confusion, for whit-bed, in contradistinction to best-bed, implies that the former is whiter, and second in quality to the latter, whereas, in reality, the whit-bed is the *darkest* and *best*, and (what is called) the best-bed is the *lightest* and *worst*.

Architects should carefully note those distinctions. The texture of the base-bed differs from that of the whit-bed, in that the former is comparatively free from fossils, whereas the latter contains a great quantity of comminuted shells, the fragments being just small enough to impart a light brown tint to the stone, without giving it a speckled appearance.

The durability of this stone, as compared with the base-bed, may be occasioned by the quantity of crystallized carbonate of lime by which it is impregnated, derived from the contained shells. The centre of the whit-bed proves the best for exposure to weather, inasmuch as the top, and more particularly the bottom, of the bed is much softer. A knowledge of this fact is necessary to the proper disposal of this stone in architectural works, and to counteract the injurious effect of the workmen's practice in dressing the top or bottom of the bed for the fine or exposed surface. The whit-bed is generally about 9 feet high, and is necessarily split up into smaller blocks before it leaves the quarry. When a block the full height of the bed is parted in the centre, two stones are produced, each of which has a hard and soft face, the hardest being that part nearest the parting joint, and the softer, the parts next the top and bottom of the bed respectively.

When a mason is given one of these stones to work, he selects the softest part for the face, taking the least amount of labour to produce the more particular surface required; the result must therefore be to the disadvantage of the stone. Whereas, had the centre portion of the original block been selected for the face-work, the result would be more durability, as well as uniformity of colour. The foregoing observations apply more particularly when the stone is laid *square* with the direction of its bed, and not "*on its natural* or quarry bed" as is generally specified, and, indeed, most necessarily so, when the stone is of a laminated or fissile structure; but with Portland stone, for the reasons stated, it is questionable whether any advantage would be derived from insisting on laying the blocks on the quarry-bed; it would require constant, untiring supervision to secure the fulfilment of such a condition, and very few, except the practical workman, can detect in some blocks of Portland stone which way the bed runs, unless by the difference in quality between the centre of the layer and its top and bottom; and when this difference is apparent, it would be, indeed, unwise to enforce the above rule, viz.,—"that every stone should be laid on its natural or quarry-bed."

The quality of the Whit-bed—like all the other beds in Portland—varies considerably; for example, in one part of the Admiralty quarries it is exceedingly rough and frothy, containing numerous shells and white spots of a calcareous substance; the latter crystallized in concentric rings; whereas, in the same quarry, nay, even at the other side of a joint or parting, the stone assumes its usual fine and uniform texture. It would be useless attempting to account for this phenomenon, but such is the fact.

Generally speaking, the beds produce the best quality of stone northwards. At the north-west, both whit-bed and base-bed are of excellent quality; farther south, the whit-bed reaches its highest degree of perfection, but the base-bed fails in quality; at the south-west both are inferior. On the east side of the island the base-bed is very good, and the Whit-bed is coarse and shelly; both beds are again deteriorated in quality southwards. The same difference in quality may be noticed in the Curf and Roach. The former may sometimes be found almost equal to the latter, but, as a rule, the distinction between curf and roach should always be observed, and the former never put where roach is intended, particularly in exposed situations, as sea-walls or docks. What has been said relative to the curf equally applies to the roach of the base-bed, already noticed.

Overlying and closely associated with the Whit-bed is the celebrated Roach, a local term applied to a layer of about 3 feet thick, made up almost entirely by casts of various shells, such as a *Cerithium Portlandicum*, *Trigonia incurva*, *Trigonia gibbosa*, *Neritoma sinuosa*, *Pleuronomaria rugata*, *Lucina Portlandica*, &c.

For durability the Roach cannot be surpassed, yet, notwithstanding this latter quality, it has not heretofore met with much favour in the market:

hence thousands of tons quarried and squared up, have for many years been left lying about in all directions in the quarry-heaps, and hundreds of tons more have been covered up in the quarry *débris* or "tipped" over the western cliffs; latterly, however, it has received more attention, and it is now beginning to be extensively employed on large works of all kinds where its roughness is not an objection; for docks, sea-walls, heavy abutments, or bridges, it answers admirably.

In selecting even this bed for building purposes, care must be taken that no portion of the Curf-bed, or even the Roach of the Base-bed is substituted; for, unlike the Roach proper, neither of the latter will stand the weather, nor are they by any means as strong as the best Roach. Though very much alike in appearance, the good Roach is easily distinguished from the others by its darker colour; it is more silicious; and the cast of the *Cerithium Portlandicum* is peculiar to it.

The Roach-bed is, on the average, about 3 feet thick, and blocks of almost any lateral dimensions can be procured from the quarries; blocks are sometimes raised, containing so many as twenty tons. The bed is made up of three layers; the lowest is rather compact and close-grained, resembling the underlying Whit-bed. In the west quarries this lowest division of the Roach contains the peculiar white, cylindrical crystallizations noticed in the rough Whit-bed of the Admiralty quarries. The centre division is that which gives the Roach its peculiarity, being made up (as described above) of numberless casts of shells. The upper and smallest division of the Roach is rather laminated, and resembles, in a faint degree, the calcareous state of the overlying beds. These three divisions are not easily divided, they are all closely combined in one mass. It is remarkable, that the Roach-stone will not cleave readily in the direction of a plane parallel with the bed, or line of deposition. The quarrymen invariably cleave it in a direction square with the bed, and the fracture thus produced is uniform and regular; whereas, if the stone were split, *with* the bed, the fracture would be irregular and wasteful.

The Roach is the most recent formation of the Portland series; immediately above it comes the first bed of the Parbeck; but between those beds, and more particularly attached to the Roach, there are irregular patches of flints, full of shells; in the upper surface of the flints the shells are especially well preserved. The variety of shells here discovered is very great, from the large oyster and pecten to the smallest cyrena, but it is difficult to detach perfect specimens, owing to the refractory character of the flint; polished specimens, and pebbles from the beach composed of it, give very good sections of the shells which it contains.

The next bed above the Roach is the "Skull-cap," so called from its position with regard to the Roach: though thus closely associated, they are essentially different, the Roach being of marine origin, and belonging to the Portland series, and the cap of fresh-water origin, and belonging to the Parbeck series.

We now come upon the most peculiar of all the beds in the island of Portland, that of the "Great Dirt-bed." This is a layer of black mould from 12 to 16 inches thick, containing silicified stumps of trees and remains of cycadeæ, with rounded stones about the size of an egg. If it is difficult to account for the *solidity* of the Portland beds superimposed upon *clay*, it is a matter of no less surprise and difficulty that the fossil remains of plants should be converted into a hard silicious stone, while the soil upon which they grew preserves its character unaltered.

Immediately above it there is a bed about 12 or 14 inches thick, called the "soft burr." It is used in the island for building dwelling-houses, which its soft porous nature causes to be exceedingly damp.

Having passed through the several beds, as they are developed in Portland, it is only necessary to notice the ancient raised sea-beach of the "Bill," to complete our survey of the geology of the isle.

To the south of the island, on the west side, and close to the Bill (or the most southern point of the island), there is an extensive deposit of gravel and sand resting on the cap, being the accumulation of an ancient sea-beach. It is now raised about 25 feet above the water, and is deposited in alternate layers of coarse and fine gravel and sand. Here and there rents or fissures occur, which are filled up with clay, a circumstance worthy of observation; for, if it can be discovered that those rents are but continuations of the fissures in the underlying stone, it will go a great way to prove that the latter were produced

subsequent to the deposit and elevation of the beach. Some of the gravel has been consolidated into a concretionary mass, by the infiltration of a calcareous matter, so as to form a conglomerate or pudding-stone.

It is from this that the sand used for building purposes on the island is obtained, thousands of tons being used on the extensive works in progress on the Vern Hill. There are no remains of shells or other organic body, found in those sand and gravel pits, but on the east side, and north of both light-houses, to the edge of the cliff, there is another deposit of a finer description, which is full of shells and roots of plants; one layer, of about 7 inches thick, is composed entirely of shells in a perfect condition, and where they are exposed in section they are conglomerated together like the pebbles of the pudding-stone. Thousands of these shells can be gathered in a few minutes. The deposit is about 40 feet above the level of the sea.

From the above remarks it will be seen that a visit to the Isle of Portland will well repay the inquiring geologist, who will find a full week's enjoyment rambling over its cliffs, numerous quarries, and rocky seaboard, and who cannot fail securing, by the exercise of his eyes, hands, and hammer, very many specimens. The immediate neighbourhood, also, is no less interesting and instructive, and possesses an excellent guide in Mr. Damon's two small and inexpensive volumes.*

SHEFFIELD ROUSED.

To find fault is always an odious task; yet it is often a duty that it is necessary to fulfil. In every vocation of life there must be adepts and there must be novices; and the performances of the latter cannot attain the perfection exhibited in those of the former without fault having been found, without the blemishes in the "prentice-work" having been pointed out, and the required improvements distinctly explained. It would be easy, in our survey of large towns, to gloss over all imperfections and dwell only upon the principal public buildings, any remains of antiquity there might be, and the beautiful landscape around. But to what end? We feel it to be our duty to extend as far as possible a knowledge of those conditions of existence that are favourable to the maintenance of health; and to do our utmost towards bringing about the accomplishment of them. Should we suffer ourselves to be diverted from the advancement of these objects by vulgar abuse and misrepresentation, we should be guilty of cowardice, for which we might be justly blamed. It may sometimes happen that we disturb a nest of hornets; but what of that if, on the other hand, we aid in the mitigation of disease and premature death in a hive of industry?

To the honour of the press, it must be recorded that these are the views echoed by staff and ranks alike, with but rare exception. In the case of Sheffield, the local *Daily Telegraph* has—in its own words—long advocated the necessity of sweeping sanitary arrangements; but it must protest against the *Builder* finding any especial fault with Sheffield. The energy of the town, the *Telegraph* states, has been expended in its growth; the consequence has been that since the great cholera year sanitary improvement has not kept pace with the development of the population. But, —the *Builder* must not say so.

"The fact is, that Sheffield is not an unhealthy town. For its size, and the nature of its trades, it is the contrary; and this may be ascribed, no doubt, to the fact that while the town has been increasing in the manner mentioned, great numbers of the population have betaken themselves to the outskirts, and on the breezy hill sides have built, thanks to the many building societies who started them, whole villages of houses, with gardens, that keep the people healthy, and occupied with healthy pursuits and amusements after business hours. Nevertheless, we do not deny that there is some truth in the description given of the localities he has visited, and that a great improvement ought to be made in them. Energetic measures ought to be taken to do away with the reproach cast upon us by the writer in the *Builder*; but if we were to say what these measures should be, we should be under the dread of having the knot applied very vigorously by our friend Mr. Hutchinson. A local Jemmy Hume, he cries out against the expenditure of public money on all occasions, and, unfortunately for the best interests of the town, he and others who think like him are strong enough to destroy the chance of the town council accomplishing any great or comprehensive measure of local improvement." We hope, however, that the strong view taken by a stranger, and published to all the

world by so respectable a journal as the *Builder*, will show to all the members of that body that they are standing in the way and obstructing the progress of the town, in many other respects so satisfactory, by opposing the march of improvement in that direction."

Mighty Mr. Hutchinson! Unfortunate Sheffield! At a recent meeting of the police commissioners a Mr. Ironside read part of our article on the sanitary condition of the town, and after a few desultory remarks, embracing a range from St. Paul the Apostle to Quin the actor, summed up with a statement that all he had to say about it was that it was untrue; upon which Alderman Unwin bore testimony to the fidelity of our portraiture:—"There is too much truth in it, sir; there is no mistake about that."

Thus far our case is confirmed. We next find a self-elected champion of the exculpations of Sheffield, one Mr. Saunders, taking up the cudgels. In two long letters, in the course of which the case of Guinness Hill, Laurent's Casino, an episode in which the French Prince Imperial is "discovered" making mud pies with two dirty gamins, seven tables of statistics, and a good deal of personal and coarse abuse, are mixed up as in a *pot pourri*,—this person endeavours to write down any steps towards creating better health for the Sheffield operatives and their families. "There are, doubtless, delusions," he says, "in everything; but the greatest of all, at the present day, is the over-stretched sanitary delusion." His rhodomontades are only noticeable on the score that the writer is one of the aldermen and the author of a pamphlet dedicated to William Fawcett, esq., at the date of its publication (1856) mayor of Sheffield, entitled, "Sheffield as it is, and as it ought to be."

In this statistics are used to prove the reverse of what the seven tables are now made to show, and such a picture is painted of the town as should call the attention of the most pre-occupied person to the horrors of its condition, and by the side of which our own more unvarnished tale pales. In this he boldly asserts that "the accumulations of stinking filth in Sheffield exceed those of Liverpool, Manchester, Leeds, Hull, Bristol, Edinburgh, and Glasgow." He goes on to say,—"In no town of its size in the United Kingdom are there so few water-closets; in no town so many middens. These plague spots are made large, and capable of containing from three to ten cart-loads of dirt. Once a year they are, or ought to be, according to the opinion of tenants, cleaned out, so that during the major portion of the year they are filled with heaps of festering filth, causing sickness and death to float up every breath of air. (!) Go up the courts in Pea Croft and Holles Croft,—even in Scotland-street,—and see the accumulated filth overflowing the tops of the middens, and falling on the stones of the yards. So sickening often are the smells, that I have been compelled to leave the courts to avoid illness. This is no exaggerated picture; my very inspectors enter such places with camphor-bags to their nostrils. (!) The effect of all this is, that the inhabitants of such courts are sickly creatures, and are soon driven by disease to the workhouse." Then, with even a prodigality of adjectives, he calls the three rivers filthy, green, stinking, poisonous pools. The waters are perfectly stagnant, green as grass, and covered with poisonous gases, arising from the accumulation of the filth of years. The blood and refuse of the killing shambles renders the position of the Don, from the Lady's Bridge, perfectly dangerous to the health of the town, especially when we remember that the main sewer of Sheffield enters at this spot." Now, although these statements are neither grammatically nor clearly made, and it must be obvious that it is the polluted condition of the Don, not its position, that affects the health of the inhabitants of the town,—although the statements are not made with the perspicuity so desirable in charges of the kind, still, the general tenor of his declamatory "Views of Sheffield" more than contravenes all we have said in our description of the evils that require removal.

But in the two long vulgar letters he has been so unwise as to insert in the *Sheffield Daily Telegraph* he gives himself the lie direct,—cuts his own words, proclaims with a brazenness we thought belonged only to a "cheap Jack" the salubrity of Sheffield and the ignorance of those who say otherwise. He presumes to impugn our motives for urging improvements all but fanatics must acknowledge needful. What can be his for this extraordinary reiteration and stultification? He says,—"I could draw a piquant picture of No. 1, York-street, Covent-garden, and the streets adjacent the office of the *Builder*." Supposing he has this ability, have these columns never borne witness to the direful need of prompt and efficient cures for evils near home than Sheffield? Have the early and continued labours of writers in this

journal been of no avail in lessening London Shadows and bridging Town Swamps? Has London done nothing? Is there no Metropolitan Board of Works? Do not the estimates for the Main Drainage amount to three millions sterling? And do not these works embrace fifty miles of main intercepting sewers, in some places crossing alternately under and over navigable rivers, railways, canals and roads? Are there no new churches, no new streets, no old close courts opened out, no rookeries razed to the ground?

Utterly scornful of consistency, Alderman Saunders, who, in 1856, said that "under the influence of bad drainage, smoke, and filth, death is truly rampant," now declares "that the present system is not very injurious to the health of those who live on the borders of our streams." Having in 1856 said, "I now pass on to those abominable slaughter-houses where about 230 oxen, 500 sheep, 150 calves, and 200 lambs are killed every week. From these animals all the blood and refuse is allowed to run into the river close to the Blonk Wheel, where in times of drought it is unable to pass away, and remains putrefying amidst the mud, sending up over the town a deadly miasma."—having in 1856 made this declaration; in 1861, with an aggravated condition of the same locality existing, he sees no fault in it but being "too much in the town." The great quantities of metal dust which we described as being thrown out of the windows of the factories (locally called wheels), and lying in great heaps on the banks of the rivers, the redoubtable alderman says are simply "wheelswarf, pulverised stone, iron, or steel, and might remain in heaps to the end of time without creating an offence." Here we have the Newcastle argument again. Dirt, and dust, and smells had never hurt a certain alderman, and for his part he thought "they were rather healthful than otherwise." Yet Newcastle has listened and believed. A Town Improvement Committee has been delegated to organize a thorough sanitary reform that is to include every hole and corner as well as the handsome streets in the town. Every diggy chare has been lime-washed, the scavenging has been carried on with redoubled assiduity. The water has been analyzed, and found to contain nations of microscopic monsters, known as water-pigs, besides myriads of animalcules not dignified with distinctive names, and other impurities.

In his second letter this person grows more audacious; assumes that we mentally revel in filth; "that we are vain and conceited," misquotes us, and perverts the meaning of various passages in our papers on Sheffield, by suppressing parts of sentences necessary to their sense. Thus he says,— "The *Builder* condemned a privy attached to the White Hart Inn, in Waingate, which he said was most offensive, and ought to be replaced by a water-closet, when it is, and has been for years, a water-closet, and in perfect order; so that if any offence is created, it is by the very apparatus he so strongly recommends." What we really did say about this was, "Still in Waingate, near the Townhall, there are more ash-pits, and one close to the bar window of the Old White Hart." He contradicts himself right and left; not only what he published five years ago is set aside, but what he now says at the beginning of a sentence is contradicted before he gets to the end of it. "With respect to the muddy banks [he says], where the dams are not dug out of the rocks, the banks are covered with loose stones. As to their shallowness they are, all over, 10 feet deep; and the only shallowness could have been in the critic's mind." There is no scum on the water, no slime. Yet, in 1856, this same individual writes,— "I feel no hesitation in saying that one-third of the deaths that take place in Sheffield, from preventable causes, arises from the poisonous waters of our dams and pestilential water-courses." (!) What vested interest can Alderman Saunders have newly acquired in the putrescence of Sheffield?

On the same sheet with his second letter are two insertions, bearing on the questions under discussion. The one is a report of a cab accident, beginning, "Oning to the greasy nature of the streets;" the other, an advertisement of a book, by Dr. Hall, containing twelve microscopic illustrations of consumption, and the *Sheffield Grinder's Disease!*

Other letters have appeared, taking different views of the question. One of these, signed "Emanuel Styles," contains the following happy satire:—

"We dirty! This is a gross libel. A lady may walk in winter, in satin shoes, through any of our streets, and no one would feel disposed, not seeing the necessity, to carry her in his arms. This speaks volumes in our favour. Then again, where can we find the air purer than here? In our back streets and alleys the very pos-

* "Handbook of the Geology of Weymouth and the Isle of Purbeck," and "Supplement," by R. Damon. (London: Stanford 1859.) In these works, the chief fossils of Portland, and the neighboring districts, are carefully figured, and a great deal of detailed information about the strata is given; and also a list of the many geological books, papers, and maps, relating to the locality.—*EDIT.* (of the Memoir.)

nearly stifle us with their fragrance, and how beautifully green are their leaves, and how exquisitely pencilled their flowers! The geraniums, a tremendous family, are here in all perfection; and so are the myrtle, the hyacinth, and the sensitive plant; and a short time ago we discovered in a lane, in the heart of the town, in all its luxuriance, that sweet little flower, "forget-me-not," nor shall we forget it. Then again, look at our domestic fowls; see the cock and his wives strutting in our streets, where you see colours such as they display: Mark the fine red, the jet black, and the pure white. In looking upon them you might imagine yourselves in the back woods of America, where animate and inanimate nature is in a kind of virgin state. With such objects as these before our eyes, it is disgraceful to talk of our dirty streets. Look on the very dogs—and we have a few in the town—how fine, and glossy, and clean are their coats; they could not dirty themselves if they wished!"

The *Sheffield Independent* begins a leader on our labours in terms that cannot be called complimentary. The *Builder* winds up, he says, "by describing Sheffield as devoid of the decencies of civilization as it was in the Dark Ages! If this flippant censor had known Sheffield thirty or forty years ago, he would have had to make a different comparison." Where did our esteemed contemporary get his logic? (we will say nothing about his English this time). Certainly not from Oxford. If Sheffield were worse 40 years ago than it is now, that is no evidence that it was not better 400 years before! Further, however, the *Independent* actually says in the same article, "There are few towns that have accomplished so little in the way of street improvement during the last 60 years" as Sheffield! The badness of the case had flustered the usually clear head of the *Independent*. However, he soon recovers himself; throws overboard the dirt-advocates; admits readily that there are some salient points upon which we have put our hands, and that it is desirable to consider the hints we have given. "The necessity for improvement in many respects [the writer continues], is great and urgent, and we are glad of the *Builder's* aid to press them upon our townsmen." And having righted himself, he wisely urges the town to action, and promises a good result—"Let the state of Sheffield be well considered, and its improvement be undertaken at once prudently and boldly, and not many years would pass over our heads without affording proofs that we had conferred on ourselves and our posterity a great and growing benefit."

Of private letters confirming the general truthfulness of our statements we have half a dozen. "In every word of your stricture [writes a leading inhabitant], I most cordially agree: we are in a disgraceful state. I tried for an Improvement Bill when in the town council, but, together with all its supporters, I was rejected at the first re-election! and the project was stopped by *King Mob*."

In fine, there is but one opinion amongst the honest and sensible in Sheffield on the subject of the sanitary reforms we urge. They are of the most vital need. But how false and impertinent of the *Builder* to say so! He came to Sheffield, and saw nothing better than an infant gnawing a decayed lock on a scavenger heap; saw the water, the dams, the ducks, the seven, twenty, and the few fruit-trees, and the barrowful of rushes, and yet had the hardihood to say that the supply was not so pure as it should be. Thought our dust and smoke injurious to health, when they are both to be found in London. Did not like our middens, when, of the two, well-kept middens are preferable to water-closets. Objected to the character of the entertainment provided for the working classes at the music-hall as not elevating, when there is a female Blondin in London who walked upon a rope stretched over the Thames, and nearly fell into the river. What sad mistakes! what libellous statements!! Said the Smoke Act had been "partially applied" to Sheffield, when smoke was only "consumed under a bye-law passed by the town council and sanctioned by the Secretary of State for the Home Department"—what an egregious error! And what could have moved Messrs. Round and Webster, on October 9th, at a town council meeting, to appear and complain in the following terms respecting the smoke nuisance?

"Mr. Round drew the attention of the chairman of the smoke committee to the great increase of smoke in the neighbourhood of Sheffield-moor. He had recently been in the habit of seeing that locality completely enveloped. Mr. Webster also said that the nuisance was great in the neighbourhood of Pye-bank. That locality possessed some of the finest trees in Sheffield, and he had seen them quite destitute of foliage, and their trunks completely bare. He attributed it to nothing else than the influence of the smoke, which might, he was convinced, be abated. Mr. Hutchinson quite agreed with what had fallen from Mr. Round, and the thought of the smoke committee should be drawn to it."

The *Sheffield Daily Telegraph*, in a second leading article, says that the *Builder* has—

"Awakened a spirit of inquiry which must in the end produce some good, if even it do no more than convince

the inhabitants of the town that there is a spirit of emulation abroad among communities as well as among individuals. That there is such a feeling actively at work is a fact not sufficiently appreciated in Sheffield; and the consequence is, that in all matters of local improvement we are behind the age. . . . Of course the town council will be looked to to take the matter up. It is the legitimate business of the members of that body to entertain all such questions, and see that the private enterprise of their constituents has all the public assistance which they in their corporate capacity have the power to afford. Up to the present time it is a question whether the members of the council, as a body, have ever appreciated their proper functions; or, rather, those who have, have been overpowered by those who have not, and, under such circumstances, it is more than probable that the town has suffered by the existence of its town council, simply for the reason that the proper sphere of its labour has been ignored."

Of course the town council will be looked to to take up the matter; but we call upon the inhabitants also to take the matter up themselves. If the member of the council who, as we have shown, can say one thing to-day and another thing to-morrow, be a fair specimen of the "authorities," there is very little hope for Sheffield unless they do so.

PIPE-DRAINAGE AND CLOSE CARTS.

To you, sir, who have done so much to point out the material evils that beset the poor,—to you, who have so highly furthered the great cause of their improvement,—no apology, I am sure, will be necessary if I trespass a little on your time and space in respect of the subject of the drainage of towns. You and I, among other things, have this in common, that we have no pet project or scheme to carry out. Our single, simple object is, whether as originating in our own minds, or as culled from the suggestions of others, to subserve the course of sanitary progress and reform. You do not, of course, sir, consider yourself infallible; nor would you suffer yourself, any more than I should do so, to be precluded from amending your convictions, and giving to them the free utterance to which I should hope every one living in this great community, who observes the ordinary courtesies of life,—the rules of common sense,—is entitled. In fact, there is no finality in sanitary reform, more than there is in other matters. The convictions of yesterday must be modified by those of to-day. Our less perfect conceptions must give way to others more perfect, as suggested by increased experience and the contributions of fellow-workers in the great field of human progress.

In my treatise, entitled "Sanitary Economy" (London: Longmans, 1853), I advocated, p. 107, a close tubular drainage, discharging into tanks, the contents of which should "at once be shifted to the soil;" and p. 112, I protested then, as I protest now, in the strongest terms, against the "practice, inconceivably revolting, of converting streams, flowing through great cities, into mere sewage conduits, instead of leaving them, as Nature intended, a continual source and endless source of health and purity."—Id. p. 108. Subsequently, indeed, I published a paper, in which I dwelt more fully on this matter, and pointed out how sewage should only lead into suitable tanks, whence the disinfected contents could, at proper intervals, be pumped into tumbrils for conveyance to, and distribution over, the soil.

The consideration of the difficulties and excessive onlay attendant on effective sewerage—in many cases, indeed, impracticable, or next door to it—have led me to the conviction that sewerage, as carried out, and perhaps as often only practicable, has practically, in many cases, become as great a nuisance as the old and, unhappily, in various localities, still subsistent practice of leaving the filth of cities to cumber the ground. In every place we go to, the streets are periodically torn up to construct new sewers or reconstruct the old. The contents, of course, at such times, have fullest access to the atmosphere. When closed, the untrapped or ill-trapped gratings, in-door and out of door, yield issue to emanations offensive to every sense, and very subversive of health and comfort and physical purity. The existent practice of allowing the contents of sewers to empty themselves into rivers, or to be distributed on the next sea-beach, is an outrage on common sense no less than on common humanity.

The Water of Leith, nigh Edinburgh, I remember myself to have seen flowing with limpid purity over its rocky bed. It is now, it seems, a muddy sewer. Every one knows what the river Fleet, a once limpid tributary of the Thames, has become. As for the Thames itself, let any one stand, at low water of an August afternoon, near the mouth of one of the great sewers, and he will see, from evidence furnished to every sense, what it has become. In fact, it is a disgrace to the great city

and the people who tolerate so immense a nuisance. Yet, when a boy, I remember to have bathed often with my schoolfellows in the great river. And I have drunk its waters—crystal-clear were they—on the remote shores of Africa. Who, I should like to know, would willingly bathe in the Thames now, or drink from its turbid polluted current? The very houses in some places along its banks are uninhabitable. It is a penance to fare up or down by the river steamers. Yet might this great stream be rendered crystal-clear, a joy to the swarming multitude on its borders, while the salmon and the trout might again, as in days of yore, haunt its glad waters.

The same tale may be told, *mutatis mutandis*, of the Clyde in Glasgow, the Liffey in Dublin. Suffice to say, these rivers have become a source of unspeakable pollution to the inhabitants of the cities which they severally water. Belfast, a hive of industry, has turned a river, the Blackstaff, which flows through it, into a most filthy and abominable sewer. The emanations from the otherwise untrapped town sewers, the town itself being on a dead level with the reek of the Stygian river, and the further stench emitted by the deposits on the adjoining sea-beaches, at ebb tides, are unfavourable to the health of the people as they are at variance with decorum and propriety.

The evil results of the indefensible practice of casting sewer refuse into running streams, or on the sea-wash, extend more or less to every town through which a river runs, or which is contiguous to the sea. It will be most disgraceful if the sewage of London be much longer suffered to flow into the Thames, or diverted, a mighty volume of impurity, into the sea. At Rome, the exhalations from the great cloaca, in the summer season, add much to the insalubrity of the city. It is to be hoped, when the city comes into the possession of the Italian people, that they, the cloaca, may be filled up. At Gibraltar the garrison sewers, with abominable impurity, discharge on the sea-beach. On one occasion one of these sewers burst, with I know not what misery to the inhabitants of the place.

The foregoing considerations, I conceive, should not only lead to the utter interdiction of the discharge of sewage waste into rivers, or into the sea, but also lead to, as I earnestly conceive, the re-consideration of the propriety of having sewers at all. London sewers and cesspools, it is said, would form a collective channel of ten miles long, 50 feet wide, and 6 feet deep, or a lake 6 inches deep, and 700 acres in extent, whence some 7,000 cart-loads or so of poison-filth are weekly sent into the Thames.—*Sanitary Economy*, p. 111. This frightful condition of things which, in my opinion, here is even understated, can only be productive of great suffering. Yet every ounce of this now hurtful and repulsive waste should be distributed over the soil, and made the indirect vehicle of health and strength, as it is now the very direct vehicle of misery and disease.

Now let us suppose, first, either a series of closed iron sewer-pipes leading to closed tanks, sufficiently numerous and sufficiently often cleared out; or, secondly, let us imagine the construction of a series, one or more, of chambers separated from the rest by double doors, ventilated by direct communication with the atmosphere, attached to every dwelling. In the latter case, the seats of what, to commit a bull, we may term dry "water-closets," might, by means of double lips or edges, be made to close hermetically. The refuse could be received into metal vessels lined with porcelain. An apparatus similar, with a difference, to what is applied in the ordinary water-closet, to what the closet was made use of, could be adjusted to sprinkle, over the waste, either in solution or dry, a little of the permanganate of soda.* The disinfecting and deodorizing properties of this substance are such as to render absolutely inoffensive the matters with which it comes in contact; so that they may be removed with the same facility and absence of discomfort as any ordinary house sweepings. Closed tumbrils, with trapped openings, calling once a fortnight, or even once a month, at each house, would suffice to convey this now hurtful and pestilential refuse, either to a safe central repository for redistribution, or else take it to the country at once.

Either of these methods, but, I conceive, especially the latter, is deserving of our most serious consideration; and, if efficiently and vigorously carried into execution, would put an end at once and for ever and everywhere to the sewage ques-

* "Dry Water-closets," so termed, are manufactured in Glasgow.—Ed.

tion, as well as to all the evils, moral and physical, with which hitherto it has been inseparably and necessarily associated.

HENRY MCCORMAC, M.D.

* * We have willingly given Dr. M'Cormac the opportunity to state the reasons for his change of opinion in respect of tubular drainage pointed out by our correspondent "J. N." (p. 653), but we must repeat what we have often said, that our first requirement as to drainage is that the refuse be at once led away from the habitation. With the close-cart calling once a fortnight (perhaps) to take it away to "a safe repository" we keep no terms. That the sewage of towns should be profitably used and not wasted, as now, with injurious results besides, we continue to assert: even for this desirable result, however, we cannot consent to boxing it up in our houses for chemical process and close-cart removal. The right mode of efficiently and profitably returning the sewage to the earth, it may be hoped, will presently be made clear.

INCREASED SPEED IN BUILDING OPERATIONS.

NOR many years ago, in provincial districts, which were even of importance then, the erection of houses or other buildings was a rare event, and a work of time. In the northern counties of England, when the foundation of a building was commenced, there was a feast given to the workmen; and when the walls had been raised to the full height, and the first rafter of the roof laid, flags were hung out, and another feast was made, called the "raising supper." The time occupied in building a house or other structure was, in comparison with the present operations, extraordinary; but then the work was generally well and substantially done. Now the wayfarer, particularly in the metropolis, may walk along a neighbourhood which is open and unbuilt upon, and, in less than two months after, passing the same way, will find it occupied by houses. The raising supper and other observances are not thought of. In the City, the removal and re-erection of some of the places of business have, so far as the shortness of time is concerned, been magical. But all that has hitherto been done in the way of rapidity seems to be eclipsed by the progress of the works of the new Palace of Art and Industry at Brompton. The amount of brickwork which has already been finished would scarcely be credited by those who have not made a personal inspection; and soon the shell of the mighty structure will be complete in all its parts. This is necessary; particularly in the portions which are to be devoted to the exhibition of one of the most valuable collections of pictures, and other works of art, which the world has yet seen in one place. The airing here must be thorough, and ventilation perfect, long before the 1st of May—a day which has for centuries past been a noted English festival—a time of flowers, garlands, Maypoles, bonfires, music, dancing, and rejoicing. In Queen Elizabeth's reign, May-day was observed—was almost as much attended to as Christmas. And now, in our Queen's time, we have a revival—at any rate, each ten years—of gladness on May-day. In all parts of Great Britain; in most parts of the world; in the building itself; tens of thousands of persons are labouring to do credit to this day.

The Metropolitan Main Drainage is another work which shows the increase of rapidity in engineering appliances. This great work was only commenced in February, 1859; but little more than two years and a half ago; and already, out of the estimated cost of three millions, works to the amount of nearly two millions have been contracted for; and most of which are either in a forward state or else rapidly progressing. These contracts embraced upwards of fifty miles of main intercepting sewers, passing through all manner of difficult situations, including pumping stations, siphonets, &c. &c. &c. The Northern High Level Sewer, nine miles in length from Hampstead to the river Lea, at Bow, forming a substitution for the open and polluted Hackney Brook and Fleet sewers, is completely finished. The other works at and from Bow, the Ranelagh storm overflow, the Southern High Level Sewer, from Clapham to New Cross, and from Dulwich to New Cross and to Deptford Creek, between six and seven miles of main sewers, have now been completed under that contract. The Southern Outfall Sewer will convey the sewage pumped into it from the Low Level Sewer and from other sewers through Greenwich by a tunnel one mile long, under Woolwich and on to Erith Marshes, to a pumping station at its outlet into the river. This sewer is 11½ feet in diameter.

Adding the cost of land, about a million and a half has been expended; and it is expected that in two years, at the latest, from the present time, this work will be an accomplished fact.

EAST GRINSTEAD DISPENSARY.

THE third annual meeting of the East Grinstead General Dispensary was held last week, and a report was read, which showed great increase in the amount of subscriptions, and in the list of patients. During the past year, 871 new cases have been received; and the "attendances of patients," for the three years since the foundation of the dispensary, number 5,860.

It was incidentally mentioned, that a sub-committee had been formed for the purpose of securing a plot of ground on which to erect a permanent building—an infirmary—to contain ten or twelve beds for patients; but the present institution will, meanwhile, be conducted as heretofore, under the able guidance of its principal honorary medical officer, Dr. Henry Rogers.

At the meeting, several good speeches were delivered, amongst which that of the Rev. Mr. Fry, of Lingfield, was peculiarly admirable.

A well-conducted dispensary is one of the best forms charitable kindness can take.

THE CHOLERA IN INDIA.

THE Bombay (overland) mail, which brings advices to the 12th September, confirms our fears respecting this scourge in the north-west, following quickly after war and famine. The pestilence is raging with terrible fierceness. We have yet no account of the probable per-centage of deaths amongst the miserable and half-starved native population; but some idea may be formed of its extent when we learn that the 51st King's Own Light Infantry, forming part of the Meer Meer brigade, had, up to the 28th August, lost by cholera one man out of every five of its original strength (so reports the *Bombay Gazette*), and the wing of the 94th regiment one out of every four. The following shows the casualties from cholera amongst the European troops of this brigade up to daylight of August 28th:—Royal artillery, 12 men, 1 woman, 1 child—14; Bengal artillery, 13 men, 4 children—17; 51st foot, 161 men, 8 women, and 9 children—178; wing, 94th, 107 men and 3 children; 5th cavalry, 22 men: in all 341 deaths. The last accounts state that the commander-in-chief had telegraphed to the general commanding the division, to keep the men amused, and to cause the band to play to them; but unfortunately 11 of the bandsmen of the 51st had died, and 10 of the 94th, and many others were in the hospital. All the assistants in the medical department of the Meer Meer have been despatched to Lahore, as fast as possible, but much depends on the choice of situation, and the most careful attention to sanitary arrangements. This outbreak of pestilence will, no doubt, cause a more careful inquiry to be made into the condition of the barracks and other buildings provided for the British army in India. It will, we fear, be found that great changes and improvements are necessary. We have before recommended the introduction of a permanent medical and sanitary inspection of the soldiers in India, similar to that now made with such excellent effect in this country. The European officers and men of the brigade are described as being thoroughly disheartened and prostrated.

BOILER EXPLOSION.

OR late the number of boiler explosions has been great, and they have been attended with very fatal consequences. This unfortunate result is to be attributed to various causes, such as the application of too high a pressure; the too long use of old boilers; at times neglect of sufficient water supply; but chiefly, we believe, the extra number of accidents is to be attributed to the very large increase, which has been made in the metropolis, and in the chief towns, of the application of steam machinery to work which was previously executed by hand, and to the want of some plan of general inspection of steam-engines, particularly those which are placed in crowded situations. Even during the last ten years the changes in the methods of working have been remarkable.

At the present time, along Fleet-street, part of the Strand, and the streets, courts, and squares adjoining, the extent of steam power used for driving different kinds of machinery is immense. In this neighbourhood a large part of the steam newspaper printing is done. Some of those engines,

with the boilers, are placed below the roadway, in what has formerly been the cellars and kitchens of ordinary dwelling-houses. Above are crowds of compositors, and others engaged in this way of business. Besides the printers, there are some who use steam engines on a smaller scale. Many have been surprised to find in what strange places some of these are situated. Above may be wood-engravers, and others, at work, and families consisting of men, women, and children. The atmosphere of these places is generally both unpleasant and unwholesome, not to take into account the risk in such situations from explosions and fire. Considering this, and also the continually-increasing introduction of steam into situations such as has been alluded to, it seems necessary that before boilers and engines are permitted to be used they should be inspected; and, if approved of by an engineer of practical skill and experience, a certificate should be given; and after inspection should also be made from time to time.

STONE ALTAR SLABS.

IN Guisborough Church, Yorkshire, is a fine old altar, still in use, and in its original position. It is a slab of sandstone, 9 feet long and 6 feet wide, and about 7 inches thick, chamfered on under side, standing, I think, about 4 feet from east wall. This church, by the way, is a nondescript. The tower (at west end of nave) has a tall archway on the outside wall, and a doorway and window towards the church. Another reversion of ordinary rule is seen in the chancel, the windows of which have their tracery set on the inside of the walls, a broad splay showing outwards.

P. E. M.

WITH reference to the suggestion of the Rev. Mr. Humbert, that a list of churches in which undestroyed altar-slabs still remain should be furnished to your columns, I beg to inform you that a large one is to be met with in the parish church of Sandwich, Kent.

It was pointed out to me by the vergier when I was there a few years ago, who, on my inquiring what authority he had for his statement, called my attention to the four Maltese crosses, one at each side, as well as one in the centre, all of which were distinctly visible. He added, that it was not very long since Mr. Pugin had paid a visit to the church, who, having explained to him the former use of the slab, knelt down, and passing on his knees from cross to cross, reverently kissed each cross.

The slab is in a south-east chapel; and, if I remember rightly, covers a vault.

JOHN ESCRETT, M.A.

SIR,—In answer to your correspondent, Mr. A. H. Brown, I beg to remind him of a work extant, called "Dowsing's Journal," in which he states the taking down of crosses, superstitious pictures, twelve apostles, high altars, and levelling altars, and the breaking down organ-cases.

Dowsing gives the dates when these destructions were accomplished, and for which he charged the parish 6s. 8d.

It is my opinion the front and ends of high altars were invariably highly ornamented, but the slab was always left with an even surface, to serve the purpose of a table.

HENRY RINGHAM.

I BEG to add another to the list of altar slabs in your last number: it is at Great Budworth, Cheshire. The slab, which is in good preservation, lies in the churchyard, at the west end of the north aisle of the church. It is of large size and considerable thickness (when I saw it, unfortunately, I had no means of measuring it); the edges are boldly chamfered, and it has the five Greek crosses very plainly incised.

As the law respecting altars, according to the decisions in recent cases, seems to recognise only "movable" tables; and therefore excludes the restoration of these slabs to their former holy use; the most sacred purpose to which they can now be applied appears to be as a pavement for the altar to stand upon.

One would think, however, that the least the clergy and churchwardens of any church possessing such an interesting relic can do would be to place it where it might be secure from the deterioration of being trampled upon, or worse than that; and handed down to future generations in its integrity.

WM. BAILLY.

RIPON CATHEDRAL AND RESTORATION.

The cathedral having been reported by Mr. Scott as in a dangerous state of dilapidation, an influential meeting has been held at Ripon, under the presidency of Earl de Grey, to take steps to place the structure in an efficient state of repair. The estimated cost of the necessary repairs is 17,000*l.*; of the improvements and alterations necessary to restore the building to its original beauty, 10,000*l.*; and of warming, refitting, and lighting, 5,000*l.*; making a total of 32,000*l.* This it is proposed to raise by subscriptions, extending over four years; and upwards of 7,000*l.* have been already promised. The improvements, according to the architect's statement, include a new roof to the nave, improvement in the ceilings of the transepts and choir, and the spires on the western towers: these are what he estimates will cost 10,000*l.*; but, if the same roof be improved without renewal, the whole cost of the improvements will only be 8,000*l.*

OBSERVING that a meeting has been held, and a subscription set on foot, with the view of restoring this interesting building; will you allow me to suggest that *no* restoration can be effectual which does not include in its scheme the entire emancipation of this noble fabric from the thralldom in which it is now held by surrounding and most unsightly erections.

As the would-be spectator stands facing the west front, a heavy building projects from the south corner; entirely obscuring the entrances, excepting from one small central point of view; and a portion only of the north side is visible; the entire remainder of the edifice being concealed behind high walls and houses, which form a continuous rampart, that stretches to the ugly building before mentioned. While service is being performed in the cathedral, a narrow passage between very ordinary houses, and a small footpath, lead to the south door, affording a limited view of that side of the structure.

For myself I will not again contribute to any cathedral restoration unless provision be made for isolating the edifice, so that it may be advantageously seen from all points. C. H.

THE LABOUR MARKET.

London.—A public meeting of the metropolitan trades was held on Wednesday in the present week at St. James's Hall, Piccadilly, to consider the position of the masons who are resisting the hour system. Mr. Roger Gray, a mason, was called to the chair, and addressed the meeting; as did Mr. Connolly, the secretary to the strike; who gave a report of the proceedings of the committee since the commencement of the strike, and of their future prospects. Mr. G. Potter then addressed the meeting at some length in moving a resolution,—"That it is the opinion of this meeting that the system of engagement and payment by the hour, as introduced by the Master Builders' Society, is destructive of the best interests of the working classes, and that the masons of London are perfectly justified in resisting it. The shortening of the hours of labour being a recognised necessity, their demand for a half-holiday on Saturday at twelve o'clock is just and equitable." This resolution was carried unanimously, as was also the following:—"That this meeting views with regret the obstinacy of the master builders of London, in trying to enforce a system so obnoxious to their workmen; and the determination with which the masons have opposed the same for the last seven months entitles them to the sympathy and support of the whole of the trades of the metropolis; and we hereby pledge ourselves to support them until they bring their present struggle to a successful termination."

Norwich.—The journeymen bricklayers of this city have recently petitioned the masters for an advance of 6*d.* per day on their wages. The delegates appointed to wait upon the various master bricklayers, says the *Norfolk Chronicle*, met with a most encouraging reception, and the following tradesmen have agreed to give the required advance, which will commence on the 1st March, 1862:—Messrs. Curtis & Balls, George Ling, Henry Underwood, J. W. Lacey, Samuel Spiukis, Greengrass, Robert Wiseman, W. P. Berwick, James Youngs, William Newman, John Blyth, Robert Russell, John H. Flood, Robert Stangroom, Thomas Howard, and Edward Pigney. There is no doubt, adds our authority, that the success which has attended this petition is mainly due to the moderate and respectful manner in which the advance was asked.

Dundee.—A meeting of the master builders and quairies of Dundee and neighbourhood, was held

on the 7th instant; Mr. William Robertson, builder, in the chair, when the meeting unanimously agreed to form an Association similar to that formed by the master builders in Edinburgh; and a committee was appointed to draw up the rules for conducting the same. The meeting was one of the largest and most harmonious that the trade has ever held in Dundee.

Inverness.—Some six months ago a strike occurred among the Inverness carpenters for an advance of wages; but, after a short time they resumed work with the understanding that if at the end of six months an advance of wages were not made, they would discontinue their services. The appointed time having expired without an increase of pay, the men "struck" on the 23rd ult. The masters, however, have now agreed to give 2*s.* increase per week. The men, at first, declined the offer; but the proposal of an augmentation of 2*s.* per week, per man, has been accepted, on the understanding that 1*s.* more will be given in spring next. The men, therefore, have resumed work.

MONASTIC REMAINS AT LUDLOW.

In the excavations now making for the New Cattle Market at Ludlow, the remains of a monastery have been discovered.

Digdale gives an account of one Peter Underwood having founded the Hospital of St. John the Baptist, and endowed it with a large tract of land, called the Ludford Estate, and with a fulling-mill, about the year 1221.

No local tradition existed of the exact site of this monastery. The foundations are being excavated at present by local subscription, under the superintendence of Mr. Curley, the engineer for the works.

The whole of the foundations of the kitchen, refectory, dormitories, halls, &c., have been laid bare: the plinth all round, and the door jambs, with hooks let into the stone, remain *in situ*. These buildings form the boundary of three sides of a quadrangle.

The chapel, which constituted the fourth side, is now being excavated: an octagonal apse has been found at the junction of the transept, with the nave. The tower and spire were at the end of the chancel, the walls there being six feet thick. The octagonal shafts of the columns have been found with a base highly ornamented. Mulsions and tracery have been dug out in large quantities, the ball flower ornament being in excellent preservation. A font, quern, hinges, rings, keys, coins, &c., have also been turned up.

Human skeletons were found on the east side of the north transept: the foundations already exposed cover more than two acres. The Mayor of Ludlow, G. Cocking, esq., will receive subscriptions from archaeologists and others for defraying the expenses of these excavations.

It is proposed to make a ground plan of these buildings, if sufficient money can be raised to lay the whole open. Mr. B. Botfield, M.P., has given every encouragement to prosecute the excavations.

The building was demolished in 1538: it is supposed to have been one of the finest of the sort in that part of the country.

BUILDING ACCIDENTS.

At Brounsgrove several men in the employ of Mr. Richard Cooke, builder, were making alterations and repairs at Woodcote-green, when the wall of a building suddenly fell, burying a sawyer, named Thomas Rea, beneath the ruins. Life was extinct when the man was extricated. There were ten others at work with him, one of whom was severely but not dangerously injured: the others escaped unhurt.—At Badsworth Hall, near Pontefract, a dreadful and fatal accident, by which a man was killed, and three others frightfully wounded, has occurred. For some time past, under the contract of Mr. Athron and Messrs. Anelys, builders, of Doncaster, a new wing has been in course of erection at the Hall. About sixteen men were at work on scaffolding erected in part of this new wing, and they had just placed the last of three window heads in position, when, without the least warning, a portion of the scaffolding gave way, and precipitated nearly the whole of the men to the ground—a depth of 26 feet. Two escaped by clinging, one to the window-sill, the other to one of the upright poles. The reason of the scaffold giving way has not been ascertained, and it is remarkable that it had stood firm while the head stones were placed in position, and then almost immediately fell.—At Edinburgh, by the fall of a scaffolding at the

New Club, three men have been injured. They were in the employment of Messrs. Purdie, Bouvar, & Carfrae, painters, and were engaged in painting the walls and ceiling of the main entrance of the Club, in Princes-street. The needle or bearer of the scaffolding on which they were standing gave way, and the whole of the men were precipitated on to the staircase, a distance of 26 feet. The planking on which the men were standing was 2½ inches thick and 7 inches broad, and the snapping of the cross batten is attributed to their having crowded to one corner of it for the purpose of pulling up another plank.

FIRE CLAY DOORS.

A PATENT has been taken out by Mr. Glover, architect, of Lowestoft, for these fire-proof doors, which have been tested to a white heat. The invention also applies to window shutters, for warehouses, &c.; and, by a peculiar contrivance, will open or close all the shutters and doors of a warehouse (or at least those on the same floor) simultaneously. They differ from some recently mentioned by us in having no iron frame.

METROPOLITAN BOARD OF WORKS.

THE THAMES EMBANKMENT.

At the ordinary meeting of the Board, last week, Mr. Doulton, pursuant to notice, moved,—

"That the chairman be requested to represent to the First Commissioner, in his conference on the Thames Embankment Bill, that this Board is strongly of opinion that no plan will be complete or satisfactory which does not make provision for a roadway and embankment on the south side, and to use every effort to procure insertion in the Bill of the necessary powers for enabling the Board to construct such a work."

In doing so, he said, the question of the embankment and the necessity for it may be briefly stated in three reasons:—first, the purification of the river; second, to give facilities for getting rid of the mud banks; and, third, the formation of the low-level sewer. These are the reasons which have been urged to show the necessity for the embankment; and I shall be prepared to show that the urgency of the case for an embankment is greater on the south than it is on the north side of the river; but I cannot help thinking that the Board will have no hesitation in coming to the resolution which I propose, in communicating with the First Commissioner at the present time, as no harm whatever can be done by taking that course. All the Commissions which have inquired into that subject have admitted the necessity of there being an embankment on the south as well as the north side of the river. Another reason is, that the establishments on the south side of the river contribute very largely towards the formation of the embankment on the north side. Therefore I say, in common justice, those on the south side of the river ought to reap some advantage from that coal-tax to which they so largely contribute.

Mr. Carpmael, in seconding the resolution, said,—I conceive that it is most unfair and highly unjustifiable that the property on the south side of the Thames should not be dealt with, as a large portion on the south side contributes very materially to the coal-tax, besides having to take measures for preventing the flooding of the land on the southern side of the river, so as to stop out the tidal water, and retain it at a proper height above London Bridge. I will admit the necessity of the north side being first attended to; but, when those alterations are completed, and certain outlets on that side of the river are stopped, there will be a greater pressure thrown on the south. The Commissioners, too, have arrived at the conclusion, with the sanction of the Government, that the whole of the traffic in coal and merchandise shall cease and determine between Westminster Bridge and the Temple Gardens, which will throw on the south side of the river a much larger amount of traffic than it has at present.

Mr. D'Almeida regarded the motion as inappropriate, as he believed the Government would assist them in carrying out the low-level sewer, and that they would afterwards have an embankment on the south side.

After considerable further discussion, Mr. Doulton said he was willing to omit from the motion the words as to "insertion in the Bill," so as to meet the views of some of the members. The motion as amended was then put, and agreed to with but one dissentient.

THE LATE SIR WILLIAM CURTIS, ENGINEER.—The death of this eminent engineer took place at his house, Clapham Common, on the 13th inst. He was in his 77th year.

LIVERPOOL ARCHITECTURAL SOCIETY.

THE STRIKE.

The first meeting of the new session was held on the 22nd instant, the president, Mr. Jas. M. Hay, in the chair.

Mr. W. H. Pictou, hon. sec., announced the receipt of various donations.

Mr. J. Justen exhibited two engravings, illustrative of a building now known in Aix la Chapelle as "Das Grass," and which is the oldest architectural feature but one in that town. He observed that it appeared, from the inscription, "*Urbs aquensis, urbs regalis, regni sedes principis, prima regum curia. [Hoc opus] fecit magister hel'veticus*," [*regna'te rege [Ric'ardo]*," on the building; that it was erected during the reign of Richard of Cornwall, whilst Emperor of Germany (1257-1272). The details bear the stamp of that period, as do also the statues of the seven German princes. The drapery on these statues is worked very much the same as the drapery on the statues of the same epoch in the cathedrals of York and Salisbury; thus he concluded that the building was executed in its main portions by English artists brought over by the emperor. Originally, the building was used as a court-house, but had since been adapted to various purposes.

The President then delivered the opening address, as customary; and, in the course of it, said:—

"The subject of strikes has again become the question of the day. The building trade is at present involved in one of these disputes, and the consequent loss entailed on those engaged in building speculations from suspension of the works is very serious. What is to be done with this ever-recurring strife? Where so much has been said and written on both sides, I do not for a moment pretend to solve it; but a few observations may not be altogether out of place. The first fact that meets our view is the existence of a strong and wide spread combination or union amongst the building operatives of a most complete and perfect kind. This union has been established for the double purpose of a benefit society and for the purpose of raising wages. As a benefit society it is a wise and prudent institution, and worthy the commendation of every good and philanthropic mind; but it is chiefly in its latter aspect, it is chiefly in its operations as a society for raising wages, that it has become possessed of uncontrolled power. The building operatives, especially the masons and bricklayers, are nearly in this position. Their union is strong and well kept up. By persistent action they have obtained from the masters a concession after concession. They closed last year, after a severe and protracted contest, in obtaining a reduction of the length of the day; but, nothing daunted, they are preparing to renew the attack; and it is my impression that, in case of success, they must succeed, for the resist-ance offered by the masters is feeble in comparison with theirs. No permanent association exists among the operatives, but in its place a mushroom combination, speedily got up to suit the occasion, which as speedily dies away the moment the contest is over. This is inefficient and offers no decisive check to the unreasonable demands and encroachments of the men. Every strike for higher wages is a direct demand on the masters to supply and demand. Raise wages higher than their usual rate, and the operatives themselves are the first to suffer the penalty of their disregard of this law. The building trade is not an exception to this rule, but the present contest is not one for higher wages, but one against the introduction of the hour system, a system holding out so many advantages to the operatives, that a stranger, unacquainted with the ill-effects these strikes have engendered would be inclined to have concluded the proposal had emanated from the men instead of the masters. The men are struggling not for right against wrong, their resistance is not one against oppression: they are not for victory. The only effectual remedy—and one which must be adopted sooner or later—is in the organization of a counter union or association of the masters throughout the kingdom; permanent in character, with branch establishments and a local secretary in every large town, and a central office or headquarters in London. The opinion of the trade could then be readily and instantly obtained, and prompt action instantly taken. In the present state of such an association strikes would be unknown: the first that occurred would only last a few days. All that would be needed would be simply to suspend building operations at every work in the kingdom. The amiable and the accumulated savings of the men would then rapidly follow, and the losing game would never again be attempted. This appears a harsh and desperate measure, but the disease it has to encounter is a chronic and stubborn one, and I believe there is more kindness than harshness in the remedy proposed, and that the more enlightened and intelligent of the operatives would take this view of it. How stands the case at present here in Liverpool? A strike has continued for eight weeks past, and were it to last eight or ten more weeks, the men are able to stand it out, for the opposition made by the masters is only a local association, only partly supported by the masters, and a clause in their contracts permitting them to suspend operations during the continuance of any strike. I am satisfied that these two means are quite inadequate for the purpose, for the case at present here is in 'Divide and conquer.' They select a master with a large contract on hand, or pick out a town against which they concentrate their united force. They are quite aware of the petty jealousies amongst the masters, and the minute jealousy which the masters' union on a national scale: they are not in the uttermost, felt by proprietors at seeing their buildings stopped on the way to completion: they are fully alive to all the reasons which calculate their chances most dangerously. The men feel their own power, and they make

use of it. The natural order of things is reversed: they are the real masters, and dictate the law to the masters. I have long been convinced that the only fair chance is in the union proposed, and that all merely local associations should be dissolved or merged into it."

SCOTTISH NEWS.

Edinburgh.—The tenders received by Her Majesty's Board of Works for the proposed new General Post-office, to be erected on the site of the late Theatre Royal, have been overhauled, and that of Mr. George Roberts, builder, accepted. The amount is said to be nearly 50,000. Mr. Roberts's offer was the lowest. A number of workmen, according to the local *News*, have commenced preparations for the building. — Rather extensive alterations and improvements, involving a considerable enlargement, have been made at the Philosophical Institution building in Queen-street, from designs by Mr. David Bryce, R.S.A. A large new reading-room has been added, with other apartments. The new room is 60 feet long, by about 30 feet wide, and is lighted by day from the slopes of the roof, and by night by a sun-light. There is a gallery dividing the room into two stories. The roof is in open timber-work, stained and varnished. By the extension, space has been obtained for 40,000 volumes. Mr. J. R. Swann was the contractor.

Glasgow.—The Government report on the buildings of Glasgow University has been published. The report shows the incompetency and discomfort of the present buildings to accommodate 1,200 students and twenty-three professors. It gives the value of the present College buildings and gardens at 48,000; of house in College-street, at 2,000; and railway money, 15,000; while 20,000, may be realized for the Hunterian collection of coins. A new college on the north side of Glasgow would cost 108,000, leaving a debt of 22,800; while on the south side a college could be erected so as to leave but 4,800 of debt; land, &c., being cheaper there. All attempts to repair the old buildings are reckoned absurd, and the report recommends new buildings.

Neilsen.—A new (R.C.) church has been opened in the small town of Neilsen, about ten miles south of Glasgow, in the county of Renfrew. The style of the present new edifice, says the *Glasgow Free Press*, is unpretending to a degree; yet, without being perhaps in exact conformity with the established rules of any recognised school of architecture, it seems planned to suit the requirements of the place. Seen from a distance it presents the appearance rather of a Gothic structure; but on a closer examination the sharp features of that style expand into the round lines of the old Lombard churches. The windows are, however, perhaps a little too lengthy, to judge from the best existing models we have visited in Pavia, Bamberg, Hildesheim, and elsewhere. The interior is quite open, and can be taken in at a glance. It consists of one large nave without aisles, and a round apse, forming at the eastern extremity a recess for the altar, reminding one in a humble way of the high altar in St. Paul's, *fuor le mura*. The entire length of the building is 74 feet; width, 34 feet; and it affords sitting accommodation for about 500 persons. The lower portion will be temporarily used as a school until a more suitable building can be erected for the purpose.

Dundee.—An accident of a serious kind has occurred at the Camperdown Dock. For some days past the east wall of the dock, which was built upwards of twenty years ago, and has no connection with the work of the present contractors, was observed to be bulging out, and fears for its safety were entertained. Nearly 200 feet of the wall, extending northward from the steam-pump, has fallen forward into the dock, carrying with it the northern gable of the engine-house. The wall formed the east side of what is now Camperdown Dock, but was not built with that intention, as an open tide harbour was the original design. In a tide harbour the walls are not subjected to unilateral pressure from the sea, but it is very different with a dock wall. Instead of the tide harbour, for which the walls in question were built, under Mr. Leslie's superintendence, some twenty-five years ago, it is intended, under the plan of the engineer to the harbour trustees, Mr. Ower, which is now being realized, to form a dock. Whether the walls are sufficient for the altered requirements or not, is a question; but the *Northern Warder* states that many eminent engineers consider that the walls were quite sufficient, and certain precautions been taken with them. The main sewer for the drainage of Dundee, along the back of the dock walls, it is thought, by disturbing in the first place the consolidated bank

behind the wall, and in the second place by the enormous hydraulic pressure which this huge sewer exerts when its contents are dammed back by the rising tide, contributed mainly, if not wholly, to produce the failure. It has been alleged that the mortar of which this particular wall was constructed was bad; it was the same mortar as the rest of the harbour was built with. Mr. Ower attributes the failure to a high tide on Thursday last, exerting a pressure which the wall could not resist. The length of wall actually breached is 136 feet; but a portion at the south end, recently built by Messrs Carstairs, Mitchell, & Co., though still standing, has been so swayed by the fallen mass, that it will doubtless have to be taken down and rebuilt, as well as a portion of the other end, making the whole length nearly 400 feet. The wall at the south end is strengthened against the enormous pressure from behind by a portion of unexcavated mud in front of it, and also by some piling which the contractors had put in for the erection of their pumps. The cost of restoring the fallen and injured walls has been stated by the engineering authority we have already quoted at 600l.

Banff.—The hospital buildings, says the local *Journal*, are being carried on with energy; the external walls are now up as far as the second story. A commencement has also been made by Mr. Coutts in erecting his new bank and offices, between his dwelling-house and the county buildings. The wall at the end of the plainstones has been taken down by Mr. Coutts, with permission of the magistrates, and the old relics which it contained are to be built into his house, the gable of which will occupy much the same ground as the wall did formerly. — A site has been selected for a county lunatic asylum, close to Lady's Bridge Station, two miles from Banff, and comprehending twenty acres of ground. It is the property of Lord Seafield, but is to be acquired by the Board at the rate of 110l. per acre. The Local Board have resolved that the buildings shall be sufficient to accommodate ninety patients. The architects invited to send in plans, are Messrs. Reid, Elgin; Matthews, Aberdeen; and Ramage, Aberdeen. Arrangements will be made for commencing building early in the spring of 1862. It has been arranged that the building material shall be got from the Earl of Seafield's quarries, and that the asylum, although intended for the present to accommodate ninety patients, shall be so constructed as to admit of any amount of extension that may afterwards be required. More ground may, if needed, be obtained at the same spot, — the extension in this respect to be to the eastward.

Cullen House.—This principal seat of the Earl of Seafield has been completely renovated, and now forms a very different object in the landscape, with its towers and turrets, than it did. The cost of the entire works will amount, it appears, to about 15,000l., including 5,000l. for additional furnishing. The *Banffshire Journal* gives a lengthened account of what has been done; and from this paper it appears that the mean height of the east or right front measures 57 feet, the centre section being 33 feet, and to the top of the roof 53 feet. The height from the ground to the top of the turret vein is 86 feet. The entire length of the east frontage is over 100 feet. The entire length of the range of building facing the south is about 170 feet. Here there is an angle of about 120 feet by about 170 feet, the total extent of the east and south front amounting to close on 300 feet. The height on the south side, from the ground to the top of the two turrets, is respectively 60 and 70 feet; while the height, from the top of the left of the two turrets, to the bottom of the wooded ravine below, would measure, perpendicularly, about 130 feet; although, standing at the bottom of this ravine, and looking upwards to the highest pinnacle, you realize a height of about 200 feet. The mean width of the building from wall to wall, where there are no abutments on either side, is about 30 feet; the abutments, however, extending the width in some cases to 50 and 60 feet. There is a subterranean passage of about 80 feet in extent, forming a sort of circle, and communicating with both wings of the castle, leading from about the centre of the north wing to about the centre of the west wing. The architect of the building is Mr. Bryce, of Edinburgh; and the works are under the immediate superintendence of Mr. Millar.

STREET TRAMWAYS.—A company on the principle of limited liability has been formed for the purpose of constructing tram-railways in all parts of Britain, and on the Continent, for the conveyance of passengers and goods, by horse power only.

BUILDING FOR THE INTERNATIONAL EXHIBITION, 1862.—CAPTAIN FOWKE, ARCHITECT.



Front of the Picture Galleries in Cromwell Road.



Front of the Building for Works of Industry in Prince Albert's Road.

THE INTERNATIONAL EXHIBITION.

THE accompanying sketches, from the official account of the buildings now in rapid course of erection for the proposed International Exhibition, of which we spoke in our last, serve to show the present intentions of Captain Fowke and the commissioners better than the views previously published. Considerable improvements appear to have been made as the works progressed. We need not add any descriptive particulars to those already given. The buildings are being proceeded with very rapidly. Part of the nave is roofed in. A right judgment on the matter can scarcely be formed yet; but we are disposed to believe that there will be no excess of light there to complain of. The "traveller," arranged by Mr. Ashton, has been found very efficient in fixing the roof.

COSTUME IS BECOMING MORE SCULPTURESCUE.

It must be a pleasure to all artists to observe the daily improvement in our costume. It becomes gradually simpler, more natural, and hence more sculpture-like; for all that it requires to be plastic is to be natural. And in this short notice we would wish to point out certain parts of dress, and their improvement, which affect the artist world. The chimney-pot hat and bonnet are certainly stiff and inelegant, but they are so general and so rooted that to try to abolish them single-handed would be futile; but the hat may be as small as possible—6½ inches high, brim 1½ inch broad, quite large enough and yet not too small to be conspicuous: the bonnet should be simple in outline, and not spoilt by lumps of flowers on the top. One great step in advance has taken place of late years;—the turn-down collar. To have the neck bare is a *sine qua non* in sculpture costume; but it is not low enough yet. The coat collar is most unsightly: much better would be no shirt-collar at all, but merely a narrow band; and then coat and waistcoat fitting neatly up to the neck, with very small or no collars at all. One cannot by any possible means

connect shirt and coat collars with beauty of form in costume and drapery of a statue. The small wide-awake hat is by no means ugly: it is excessively picturesque; and, worn by a lady, turned up at the side, with small feather, is very elegant. The common loose shooting-coat, with straight-cut sleeves, is natural, and quite good in form: it is not unlike the Medieval garment. Trowsers, as now cut straight, are a great improvement on the old bell-shaped over the foot, and look well. But before leaving men's costume, let us say a word on colour, as this is the painter's question. Perhaps since the Middle Ages there has never been a time when such rich colours existed in dress,—subdued, but rich. Regard the excellent mixtures for trowsers. What effect of colour can be better than a blue coat and waistcoat, with black and red mixture trowsers? Take, again, black coat and vest, with a dark rich mixture trowsers, and it is equally good. We would only say, that to get a good effect and contrast, *coat and vest* should be of the same material. Touching colour in women's dress, the French aristocracy of the old school always wear black or grey, with black or white bonnet, and just light up the whole by a little colour in the bonnet-cap. Nature is full of bright primary colours; hence dress should not vie with nature, but rather be subdued, to enhance thereby the colours of nature. Harmony of colour in dress is most necessary. Nothing can be worse than a red shawl and purple bonnet-strings, or brown dress and red shawl, or purple gloves and blue dress, and such like atrocities. High-heeled boots are vile, since the weight of the body is thrown on to the fore part of the foot, badly balanced, and the walking must be bad. Moreover, the foot is pressed forward into the narrow toe, and ends with having corns. Or late the introduction of natural-lengthed waists is an advance; but the front part of the body should be made loose; better still, in one piece from neck to foot, and simply drawn in by a belt: you then get the full effect of the vertical folds: of course flounces or any horizontal lines or trimmings are vile, since they entirely spoil the effect of the

vertical folds: they are "shame,"—lies. One-coloured rich and subdued dresses look better than patterns. Crinoline, it is needless to say, is not picturesque, and in Paris has ceased to be the fashion. Cloaks with hoods are very artistic; but the great point in colour is to get bonnet, cloak, dress, and gloves to harmonise well, and to be elegant in contrast of colour; and herein a woman shows her artistic taste and knowledge of colour.

ST. PETER'S, WINDMILL STREET, NEAR THE HAYMARKET, LONDON.

A FEW weeks ago we gave an elaborate description of the new church which has been erected in Windmill-street, under the direction of Mr. R. Brandon, architect, and is now completed.* The engraving in our present number represents the interior of the structure, looking east. Mr. Myers was the builder; and the carving, some of which is exceedingly good, was executed by Mr. Ruddock. The total cost was 11,500*l.*; namely, 5,500*l.* for the building and furniture, and 6,000*l.* for the land, which is at the rate of more than 50,000*l.* per acre.

The church owes its origin mainly, as previously stated, to the Rev. J. E. Kempe, the rector of the parish, the money for the work having been chiefly obtained through his influence on the wealthy congregation of the parish church in Piccadilly; a deficiency, however, of 500*l.* still remains to be made up, which sum Mr. Kempe, in order to the church being consecrated and started free from debt, has made himself personally liable for. This deficiency is occasioned mainly by having had to meet an award of 460*l.* in compensation for an alleged damage to the light of two rooms of a contiguous house; a claim, which subsequent events show to have been groundless; a circumstance extremely vexatious to those who, having thought their work accomplished, have now to return to the collection, and see in an exhausted field for dribblets to make up the amount.

* See p. 260, ante.



ST. PETER'S, WINDMILL STREET: PARISH OF ST. JAMES, WESTMINSTER.—MR. RAPHAEL BRANDON, ARCHITECT.

TELEGRAPHIC PROGRESS.

An invention has been provisionally specified by Mr. Stephen Moulton, of Bradford, Wilts, which has for its object improvements in the construction of submarine and other telegraphic cables, by which any undue strain on the insulated wires is prevented. His improvements consist in embedding a spiral metal wire (for the purpose of insulating the same) in a strand or cord of India-rubber, and then curing or vulcanizing the India-rubber with the wire therein by means of sulphur or its compounds, according to the ordinary process. Spiral wires for telegraphic purposes thus protected will readily accommodate themselves to any ordinary strain to which submarine or other telegraphic cables are subject, without injury to the wire, whilst the India-rubber remains intact; and the cable may be coated over covered with hemp wire, or other protecting materials, provided such do not injuriously affect its elasticity. We thus find telegraphic cable inventors at last approaching to the principles of construction long since indicated in the *Builder*. Are we about to enter upon a new era in the history of submarine telegraphs? The report of the committee, who lately went fully into the subject, was by no means unfavourable. They trace all the great failures to controllable causes; and more recent experience leads to the hope that great difficulties have been overcome. At all events, the new cable from the French coast to Algiers is said to be in successful operation; and now we hear that the whole line from Malta to Alexandria has been safely laid down; and are promised that it will be opened towards the end of this month. If so, we shall be brought thirteen days nearer to India; and, within a few hours of the steamer from Bombay reaching Suez, we shall have a summary of its news.—Sir Macdonald Stephenson proposes to make a fresh start with the telegraph from Suez to Kurrachee. He and those acting with him are prepared at once to resume the work where it was dropped, and carry it out to completion without any fresh guarantee. They will provide their own money and meet their own risks. It only requires, and with obvious reason, that a new company thus to be constituted shall succeed to the position of the old one in all respects, guarantee excepted. He asks that the original concessions, cables, instruments, and, in fact, apparatus and privileges of all sorts, should be transferred to the new company, and that they should then be left to complete the undertaking. Sir Macdonald proposes that, after the new shareholders shall have received 25 per cent. on such amount of capital as they may actually expend, the surplus profits shall go to Government in liquidation of their advances.

CHURCH-BUILDING NEWS.

Whitlesey.—St. Mary's Church is undergoing extensive restoration. Mr. Scott is the architect, and Messrs. Bennett & Son are the builders employed. Below the floor of one of the aisles a pre-Roman monument of the fourteenth century has been found; and in removing the panning in the walls of the chancel a piscina was discovered near the east wall; there being in the same wall two cinquefoiled sedilia under an ogee hood, and another cinquefoiled piscina under a slightly projecting canopy. The third-pointed tower and nave and the west door of the same date are to remain in their present state; there not being sufficient funds to extend the restoration to these parts.

Cardiff.—St. Peter's Roman Catholic Chapel has been opened. The church is erected on John Tredegarville, in the parish of St. John Baptist, and may be approached either from Tredegar-road or Plucca-lane, now called "Castle-street." The style of the church is Gothic. Its length was made by Mr. C. Hansom, of Clifton. The church is 133 feet long by 60 feet wide; it consists of a nave, a sanctuary, and two aisles; it has three altars—namely, the high altar, dedicated to St. Peter, the patron saint of the church; the altar of the Virgin, and that of St. Patrick. It was built by Mr. Webb, for the sum of 3,850*l.*, of which 1,000*l.* was given by the parish. It consists of organ-gallery, benches, drainage, &c.

Breconshire.—The English Wesleyan Chapel, Breconshire, has lately been reopened for divine service, after being closed for more than three years, for the purpose of making alterations and enlargements, which have been executed by contractor, Mr. Philip Watkins, of Brynmawr, and the superintendence of Mr. Samuel Hantwell, architect, of Newport, Monmouthshire.

Witch.—The chancel of Nautwich church has been restored, and the edifice re-opened. The

work has been executed under the direction of Mr. Scott, at the expense of the patron, Lord Crew.

Leamington.—The Roman Catholic Chapel, in George-street, is about to be replaced by a more commodious structure, from designs by Mr. H. Clutton, of London, the execution of which has been entrusted to Mr. Gascoyne, whose tender of 3,102*l.* has been accepted by the referees. The new edifice, which will occupy the site of the present building, although the west front will project further into George-street, will be in the Lombardic style of architecture. Its extreme length will be 100 ft., and its greatest width 54 ft.

Liverpool.—The chief stone of a Wesleyan Methodist chapel, to be erected in Belvidere-road, Prince's Park, and to be dedicated to St. John, has been laid. The site is on a slope, and the north-east or main facade faces the Belvidere-road, and the communion end of the edifice, with schools, extends to Rodney-street. The style is Decorated, and the materials used for the external walls of both chapel and schools are Yorkshire stone, pitched or par-painted, the quoins stones and dressings being of cut Stourton-hill stones. The chapel itself consists of a nave in one span, 39 feet wide and 90 feet long, with transepts on each side measuring internally 24 feet by 15 feet, and separated from the nave by moulded pointed arches, inclosing side galleries, having traceried fronts, in a line with the side walls of the nave. In the nave itself there will be only a small gallery over the front entrance, for the use of the organist and choir; and at the opposite extremity (towards Rodney-street) an arched recess for the communion, having at its rear a large five-light traceried window. In front of this recess will stand the pulpit. All the roofs throughout will be open timbered, wrought and varnished on their exposed surface, the height of the nave roof being upwards of 50 feet. The length of the chapel will be divided into seven bays, or *severies*, each bay being lighted by a large three-light traceried window on each side of the nave, and having its roof divided from the bays adjoining by principal trusses, with curved braces, hammer beams, &c., springing from moulded stone corbels, placed nearly half-way down the side walls. The whole of the seats in the chapel will be constructed of pitch pine varnished, and will afford accommodation for about 950 persons, the ends of the seats being enriched with Gothic tracery. Externally the building will present, on its principal front to Belvidere-road, a lofty gable, flanked on each side by octangular turrets, giving access to the nave and organ gallery, and rising a height of 85 feet, exclusive of their metal vanes. Between these turrets, in the centre of the facade, will be the principal entrance, through a double-shafted doorway crowned with a traceried canopy; above it a large four-light double-shafted window with traceried head. The side windows of the edifice, already described, will be separated by stone buttresses with gabled canopies disposed in couples at the angle of each transept; these transepts themselves having gabled roofs, somewhat lower than those of the nave, and being lighted by two stories of traceried windows (the upper ones being shafted) of four lights, and containing within the arched heads a large Catharine wheel. The roofs will be slated, and finished with ornamental ridge tiles, and the windows, we understand, are to be glazed with cathedral glass. The school buildings at the rear are designed so as to harmonize with the external architecture of the chapel. They comprise internally, on the ground floor, a large infants' school, with four class-rooms and minister's vestry; and on the upper floor a school-room, measuring 54 feet in length by 30 feet in width. At the rear of these schools will be an open playground and suitable buildings. The architects are Messrs. Hayley & Son, of Manchester; and the contract has been undertaken by Mr. William Bateman, of Liverpool, builder, for about 6,500*l.*

Mulberry-street Welsh Presbyterian Chapel having become too small to accommodate the congregation assembling there, about eighteen months ago they decided upon having a new one. Chatham-street it is in the Italian style of architecture, built of red brick and light coloured stone, and has sittings for 1,200 persons. In the basement floor there are two school-rooms, measuring together 77 feet long by 64 feet wide, and behind these are the erecting the building is above 5,000*l.*, of which 3,000*l.* have already been collected (including proceeds of sale of the old chapel in Mulberry-street). The principal contractors were Messrs. Wilson & Jones, and Mr. Joseph Hughes, all of Liverpool. The architects were Messrs. Oliver & Lamb, of Newcastle-upon-Tyne.

Manchester.—A new church, erected by the Greek community of Manchester in the township of Higher Broughton, Salford, has been consecrated in the presence of a large congregation of Greeks and others. The cost of the edifice is about 6,000*l.*; and, externally, its style of architecture is Corinthian, whilst its internal style is Ionic. The architects were Messrs. Clegg & Knowles, of Manchester.

Orrell (Lancashire).—The foundation-stone of a new church has been laid at Orrell, for the district of Litherland, Seaford, and Orrell, by the Earl of Sefton. The church will be erected upon a plot of land which has been given for the purpose by his lordship, who has also given the stone necessary for the building. The site is about a mile from the Seaford station. Mr. Gee is the architect. The church, which is dedicated to St. Philip, will be cruciform in plan, consisting of nave, 74 feet 6 inches long and 31 feet wide; north and south transepts, 12 feet long each and also 31 feet wide; chancel, 22 feet by 14 feet; with vestry, recess for organ, entrance-porch, on south side, and tower and spire at north-west corner of nave. The height to ridge of roof is 40 feet, with seat-room for 420 persons; but the plan is arranged with a view to an extension of the accommodation by lengthening the transepts. The nave is lighted by six windows of two lights each, filled in with geometrical tracery. The chancel, each transept, and west end of nave have five-light windows, filled in with tracery of Flamboyant character. The tower and spire rise to a height of 100 feet, with an octagonal stair turret, 53 feet high, to afford access to the belfry. The roofs will be open timbered, supported by eight hammer-beam principals, springing from corbels built into the walls for the purpose, and will be stop-chamfered, stained, and varnished. The walls will be built of hammer-dressed coursed stone, with tooled dressing, from the adjoining quarry. The style selected by the architect is that of the Flowing Middle Pointed.

Ripon.—A new Wesleyan Methodist chapel, on Colgate Hill, Ripon, built from the designs of Mr. James Simpson, architect, Leeds, has been opened. The building is in the Italian style of architecture, and is estimated to cost between 2,000*l.* and 2,200*l.*

STAINED GLASS.

Southport.—A memorial window has been recently put up in Christchurch by Mr. E. Rennie, to his son, aged six years. The principal subject represents Hannah bringing her child Samuel, after weaning him, to Eli, to be lent to the Lord: "As long as he liveth he shall be lent to the Lord" (1 Samuel i. 28). In the centre opening of the tracery young Samuel is represented at prayer: on each side are angels, bearing scrolls. The subjects are covered by foliated canopy work. A memorial window has also been put up in the nave of St. Mary's Catholic Chapel, of the same place, by Captain W. Nicholson to his infant son. In this window there are four subjects; viz., a representation of Mass for the Dead, the Presentation in the Temple, Christ blessing little children, and the Magdalen washing the feet of Jesus with her Tears. The tracery openings are filled with the crucifixion, angels, &c. Both windows were executed by Messrs. R. B. Edmundson & Son, of Manchester.

SCHOOL-BUILDING NEWS.

Croydon.—The foundation-stone of a new infant school for the parish of West Wickham was recently laid by Miss Ellen Cator, daughter of Col. Cator. The estimate for the building is 360*l.* The piece of ground upon which it is to be erected has been presented by Mr. L. Loyd, of Monk's Orchard. The site is opposite the Wheat Sheaf Inn. Mr. Bowden, builder, of West Wickham, has undertaken the work, and the building will be completed in three or four months' time. Besides the accommodation which a school of this character requires, a residence will be provided for the teacher. The school will be constructed so as to afford sufficient room for about sixty pupils.

Hardingham.—A parish school-room has been provided for the children of this parish. The building is in the Tudor style; the walls being of rubble flint with white brick dressings. The school-room, which will accommodate between 80 and 100 boys and girls, is 45 feet long by 18 feet wide. There are play-grounds walled in, and a dwelling-house for the master or mistress. The cost of the structure will be about 1,000*l.*, the whole of which is defrayed by Miss Edwards. The builder is Mr. Robert Smith, of Bunwell. On

the occasion of the "roof-raising" the workmen, to the number of about thirty, were entertained by Miss Edwards to a supper at the White Hart, Hingham.

Dorset.—A new lecture-room has been added to the Diocesan Institution for Training School-mistresses. The new room measures 50 feet by 30 feet, and is 16 feet high. It has two of Watson's patent ventilators, is lighted with gas, and warmed with hot water.

Sutton (Isle of Ely).—The inauguration of the new National Schools, at Sutton, has just taken place. These schools are built of white bricks, with red brick dressings. The roof is covered with ornamental red and blue tiles, surmounted by an octagonal bell-turret. The establishment includes boys' school, girls' school, class-rooms, and residence for master and mistress. The design, which is of the Gothic order, was by Mr. Hutchinson, architect, Huntingdon; and the contractors for same, were Messrs. Bunting & Son, Fen Stanton, at a total cost of 1,000*l*.

South Brent.—A new parochial school-house has been erected and opened here. The new building is cruciform, with north porch of Gothic design, and Gothic bell-turret in the east end. The roof is of red stained deal, and open. The edifice has been built of Bledon limestone, with freestone quoins, buttresses, window-frames, and mullions. The roof is alternately laid with red and dark tiles. The school is designed to accommodate at least 150 scholars. The builder is Mr. W. Eames, of South Brent; and the architect, Mr. Manners, of Bath.

COMPETITIONS.

New Mechanics' Institution and County Museum, Lincoln.—We understand that 52 sets of designs were forwarded to the committee in consequence of the competition they invited for the erection of the above building. In deciding upon the merits of these designs, the committee obtained the aid of a London architect, who awarded the premium to those which bore the motto of Messrs. Hooker & Wheeler, of Brencley, Kent. The next in merit, it is stated, were those of Mr. Hill, of Leeds; Mr. Elze, Leicester; Mr. Wilson, of Bath; Mr. Garling, of London; Mr. Armfield, of Leeds; Mr. Drury, of Lincoln; Messrs. Bellamy & Hardy, of Lincoln; Messrs. Hope & Stott, Bradford; Mr. Matthews, London; and Mr. Stranham, London.

Chester Market.—The first premium has been awarded to the designs of the Messrs. Hay, architects, Liverpool, selected out of thirty-five sets submitted in competition. These gentlemen have been appointed to carry the work into execution.

Hull Town Hall.—"One in the Dark" inquires what is now doing in this matter. "It appears a decision was come to," he says, "about six weeks ago, but was so glaringly partial that the more honourably-minded members of the committee subsequently upset it. What has been done since? A friend of mine has written twice to the town clerk for information, but got no reply."

PROVINCIAL NEWS.

Northampton.—Arrangements have been made for laying the foundation-stone of the new Town Hall, on which occasion the mayor has been requested by the council to officiate. The architect, Mr. E. Godwin, was to be prepared by the 11th inst. for the laying of the stone.

Oxford.—The erection of a new corn exchange, from the design of Mr. S. L. Seckham, architect and surveyor to the corporation of Oxford, has been commenced in this city. The building, which will be of an ornamental character, and suitable for concerts, entertainments, and public dinners, will be 100 feet long by 50 feet wide. The tender of Mr. Dover, of Oxford, builder, to erect it for 2,179*l*, has been accepted; but the fittings, which are not included in the contract, will, it is anticipated, increase the cost to about 2,400*l*.

Lexford.—The corn-market chimney and partition have been removed, and the room is now upwards of 100 feet long and 26 feet wide in length it is equal to the building in the course of erection; but it is not so wide. The committee met Mr. Balmer, the surveyor, and resolved not to put up a temporary partition, but to provide moveable screws; it was also decided that four additional windows should be constructed.

Reigate.—The new public hall is approaching completion. The room is several feet larger than that at the Redhill Corn Exchange; there is also a museum for the Natural History Club, a Free-masons' Hall and ante-room, and a room for vestries, sales by auction, and other public business. There is also a kitchen, with the requisite offices,

and two shops, one on each side of the entrance to the hall.

Haselbury Bryan.—A new rectory house has just been completed at Haselbury Bryan, from the design and under the superintendence of Mr. Henry Hall, of London, architect. It is of Italian character, and is built of stone from Lord Rivers's quarry, and dressings of Bath stone. It is entered by a porch, in the pediment of which is carved by Percy arms (the living being the Duke of Northumberland's), surrounded by flowing foliage. The caps on the porch and upper windows, as well as the carving on the ground-floor window-heads, were executed by Mr. Henry Earp, of London. There are an entrance-hall and staircase-hall, in which is a staircase with carved and twisted oak which is a staircase with carved and twisted oak newels, and stairs of pitch pine. The ceilings are all enriched. All the ground-floor windows are fitted with Clark's patent revolving shutters, with the exception of the offices; and hot water is conveyed to the upper part of the house by means of a steam apparatus. Mr. James Short was clerk of works, and Mr. Charles Down, of Sherborne, the builder.

Wolverhampton.—The Corn Exchange building has been for some time closed for extensive alterations. The dome, which sadly interfered with the acoustic properties of the building, has been entirely removed; and the roof, which is supported by iron girders, is a segment of a circle, containing skylights. The pillars are swept away, and light galleries are placed on three sides of the building, with a large platform and a gallery rising at one end. The entrance will be enclosed more effectually than before, avoiding the draughts which were formerly experienced.

Liverpool.—The Mersey Dock Board have just voted 130,900*l*. for the erection of corn warehouses, at the Waterloo Dock and Prince's Basin, and alterations at the entrance to Waterloo Basin. The engineer produced plans to the board at their last meeting, showing that the area of the two stacks would be 9,700 square yards. The one nearest the Waterloo Dock would have five floors above the ground-floor; that near the Prince's Basin six floors above the ground-floor, or seven stories, available for the storage of grain. The cost of the buildings, machinery, rails, &c., would be 118,400*l*, and the cost of altering the entrance to the Waterloo Basin would be 12,500*l*, in addition.

The northern portion of the Great Landing—The northern portion of the Great Landing, which was recently stage for the Woodside Ferry, &c., was recently launched from Messrs. Vernon & Son's yard, at Tranmere, and taken to the Woodside Basin, where it has been secured to temporary moorings until the northern bridge is ready to be connected with it. The northern part of the stage is 500 feet in length, and of a higher elevation than the southern portion, the length of which is 300 feet. The former is adapted for the use of the stage-going steam-ships of the port, and the latter exclusively for the Woodside Ferry traffic. The entire stage, when completed, will measure 800 feet by 80, and the approach to it will be by three bridges, each having a double roadway for carts and carriages, and another for passengers. It is built after the same manner as the Prince's Pier stage, being a large platform of wood upon wrought-iron keelsons supported on pontoons. The number of pontoons is fifty, and there are about 2,500 tons of ironwork, and about 80,000 cubic feet of woodwork in the whole structure. The cost of the stage being about 80,000*l*. The stage at the George's Pierhead is 500 feet by 80, floating on thirty-five iron pontoons, and the Prince's stage is 1,000 feet in length by 80 in breadth. The foundation-stone of the new savings bank has been laid. The site is that recently occupied by the old bank trustees, and has two of the adjoining shops added thereto, and has a frontage to Bold-street of 21 yards, and to Colquitt-street 24 yards, and covers an area of about 500 square yards. The building has been designed with a view to accommodate the greatly increasing number of depositors; and the bank will be placed on the ground-floor, and form one room 68 feet by 46 feet. The remainder of the space will be occupied by staircases, an entrance to the board-room, and strong-room, and will be 19 feet in height, lighted from the two fronts and partly from the top. The exterior will be built of stone from quarries near Wrexham, in the Italian style of architecture, according to designs by Mr. Culshaw, architect, which have been subjected to certain modifications made by Government, under whose direction the bank is to be built, and who have the disposal of the funds for the erection of the building. They have met the trustees of the bank in a liberal spirit, allowing an expenditure of about 9,000*l*. The works are contracted for by Mr. George Rome, whose sub-contractors are Mr.

Hook, bricklayer; Mr. Hargraves, stonemason; Mr. Arrowsmith, slater and plasterer; and Mr. Harrison, ironfounder; and are under the superintendence of Mr. Thomas Newton, clerk of the works.

Doncaster.—The Town Council intend to extend the Corn Exchange, and make other improvements, so as to render it, says the local *Gazette*, one of the most complete and convenient in this part of the country. It is proposed to enclose it with glass on the south, east, and west sides, with glass on the south, east, and west sides, with proper ventilation in the upper parts of the windows. The design has been prepared by Mr. Butterfield. At the east end the roof will be coiled; so that at any time, if required for public meetings or rejoicings on a large scale, it will be adapted for the transmission of sound. This will form one of the principal features of the work. The Exchange will be extended nearer to the entrance of the Parsonage-yard, and three sides of it filled with glass. The length will be 128 feet; width, 64 feet; and there will be a raised platform 11 feet wide for the use of factors, millers, &c. The centre will be appropriated as a pitched market, as at present. The plan has been submitted to the Market Committee, and recommended for adoption. It has likewise received the sanction of the council in committee.

IRISH NEWS.

The Dean of Down and his Chapter are bestirring themselves to restore Down Cathedral. In an appeal to the public, made by the rev. corporation, they say:—"Since the appeal made by them in 1855, considerable progress has been made in the restoration of this ancient cathedral. Substantial repairs have been effected, and a fine organ and bell have been supplied. Further repairs are still necessary; and the woodwork in the choir requires re-arrangement for the accommodation of the increased congregation. Having no funds at their disposal, the dean and chapter are compelled to solicit subscriptions to defray the required expense." Mr. Guinness, who is restoring St. Patrick's Cathedral, Dublin, at a vast cost to himself, has contributed 5*l*. towards the Down Cathedral restoration.

The Roman Catholic Church of Collooney has been consecrated. The church is in the Early English style, and consists of nave, aisles, and chapels, transepts, and tower. The length of the nave, from the eastern to the western window, is 120 feet; the width of nave and aisles, 49 feet; and the central height, from floor to roof-tree, something more than 55 feet. The roof finishes in a groined plaster ceiling, the ribs of which are covered with mouldings, and terminate in pendants. The arches of the nave repose on ten columns. The entire edifice has been constructed and completed by Frishman. The architect was a Collooney man (Sir John Benson), and so was the builder (Mr. C. Higgins), and the plasterer.

THE FALL OF HOUSES IN THE OLD KENT-ROAD.

SOME of our correspondents are calling out for an examination into the cause of this accident, and we should be glad indeed to find an inquiry instituted. The buildings were situated in Minna-road, Old Kent-road, and were surrounded with scaffolding, which fell also, blocking up the roadway. The corner house, being intended for shop, had a bressummer carried on an iron column; the latter was broken in half like a reed. The escape of several persons who were near at the time is extraordinary.

MUSIC AND THE STAGE.

Theatre Royal, Covent Garden.—Mr. Alfred Mellon concluded his second series of vocal and instrumental promenade concerts on Saturday evening last. He has given fifty-four consecutive evenings, which have been attended by more than 100,000 persons, and has so completely satisfied his public, that he may look forward with confidence for support next year. Such a combination of talent was certainly never before effected in a similar series of cheap concerts.—On Monday next, Miss Pyne and Mr. Harrison will re-commence the English opera season with a strengthened company, and a remarkable list of operas in the course of preparation. If the promises be carried out, and there be no reason to doubt, it will be a season of brilliancy.

The New Royalty Theatre, Soho.—We have commented upon the arrangement of theatre

general, and more especially upon the stage machinery of Victoria Theatre, at Berlin; thereby showing how very much foreigners were in advance of us in point of mechanical arrangement; and it may interest our readers to hear that the Soho Theatre has been entirely re-arranged. The direction sought for a scientific machinist, and chose Monsieur Guede, of Paris; known as the machinist of the new Opera House at Tiflis, and that at Strasbourg. This gentleman is understood to be well acquainted with Mr. Mülkendorfer, of Mannheim; Mr. Brandt, of Darmstadt; and other eminent members of his profession in Germany; and has consequently a German as well as French experience. In arranging an old ill-constructed house like the Soho, peculiar difficulties had to be encountered, and one almost beyond the power of a theatrical mechanic,—we allude to the iron framing upon which the stage rests. This, of course, could not be cut away, though all else has been. Again, the height above was very small indeed; but Monsieur Guede, we believe, has done all that was possible; and it is asserted that, in point of mechanism, the stage of the new house will surpass (in a small way) anything in London, in completeness and simplicity. There is one peculiarity:—everything is jointed, and very few nails are used. It must be understood, that, in Paris, the great improvements that have taken place in the picturesque effect given in scenery require quite a different mechanism to that common in Germany, whose greater primitiveness is still retained; in fact, the melo-dramatic "effects" are not yet known there. The public will now, too, be able to compare Parisian scenery with ours, since all the Soho scenes are painted in Paris; and this winter will show which are the best, English or French. The decorations of the *salle* are by Monsieur Bullot, who has done the *Théâtre Lyrique*. The dominant colours are sky-blue and gold; the style, Louis XV. (Pompadour).

THE PROPOSED BRIDGE AT LAMBETH.

SIR,—Have you seen the proposed design for the new bridge across the Thames at Lambeth? If not, look at the published view of it. Do, pray, print these few words, to call the attention of all men of decent taste to this abortion in bridge building. We have been informed of late, through the medium of pamphlets and a gun shot off from Great George-street, that the worthy author of this creation took a special journey to the Falls of Niagara, to view the bridge there, before he brought out this very droll conception in engineering. If so, the lesson was not an improving one, in an artistic point of view; and the present performance can hardly claim affinity to Niagara Bridge. I have often looked at the latter structure, and, although entertaining but a poor opinion of its strength, doubling upon its moving load like an undulating box contrivance, as it does; yet it was always much impressed with its lightness, elegance, and exceedingly chaste details; and, notably so, the piers; but when we come to the *Ala podrida* blacksmith effort at Lambeth, what a falling off is there!

But, not to rave without a cause, just bear with me a moment or two. The piers are each formed of two cast-iron cylinders, 12 feet in diameter, looking like huge gas-mains from the streets, and tapered up on end ready to blow up the bridge. When high-water arrives they are just one and a half diameter high. Only fancy how snubbed and truncated they must look then. On the top of these gas-mains there are to be raised aloft, and most conspicuous to the eye, two gravestone obelisks, bald in the extreme, evidently copied from the green cemetery. From these depend the suspension of cables, braces, and stints, forming a *not ensemble* such as was never witnessed before. There is, too, about the thing a lop-sided look; as the cables intersecting out of the centre, and the equally end piers. The Bridge Company say that their prospectus they mean to ornament their child in the future, but that at present it must be content in its nude state. I do not know how they can set about embellishing such a crudity as this when once its ugly outlines are in enduring material. The bridge is *very cheap*, but then it is the other part of the proverb sticking to it at the same time.

I am fearful, also, that the method of construction, by the introduction of stiffening longitudinal members, &c. will hardly avert the warning confidence in suspension bridges for heavy road traffic. I witness the vibration of Chelsea suspension bridge (which has the stiffening girders) from the onset of a single heavy wagon; and also the diminished speed of three miles per hour and that trains, so much insisted upon at Niagara

bridge, and the very cautious-looking notices and closed gates to arrest trains at each end of the latter bridge. All visitors to this structure know what I mean.

Who is Conservator of Taste to the Thames? Or must we apply to King Thwaites to aid us in upsetting this apple-cart to our prejudices? ONE WHO RIDES ON PENNY BOATS.

MANUFACTURERS AND ARCHITECTS.

SIR,—I send you a letter and reply, in case you should think fit to publish them, without names. Can the Institute of Architects do nothing to stop these corrupt practices? F. I. B. A.

"London, 1861."

SIR,—Herewith we have pleasure to hand you credit note for *£1.*, together with our draft on London Joint Stock Bank, to balance the same.

We would beg you to understand that in charging our goods we do so quite irrespective of the architect's or agent's commission, which we reserve; and, were the same not allowed, our prices to the customer would be in no way affected.—We are, &c.

"16th October, 1861."

GENTLEMEN,—I do not so much blame you for the insulting offer you have made me, as those degraded members of my profession who, by having a commission charged for them in the accounts certified by them as proper to be paid by their employers, clearly rob them to that extent (say 10 per cent.), whilst they are falsely telling them that they work for a 5 per cent. commission, or even less, to the injury of honourable men, who are, as they profess, wholly paid by their employers.

I put the amount to the credit of my employers.

I am, &c.

DRINKING-FOUNTAINS STILL WANTED.

SINCE you inserted my last (October, 1860), respecting improvements in drinking-fountains, you have given considerable information at different times to those interested therein. You have truly spoken of their advantages, and candidly pointed out the unfitly designs of the most expensive ones. It is now evident to most persons that (although there are a great number fixed and much used) they do not prove sufficient or satisfactory entirely, for there are hundreds of thirsty travellers in London daily that do not, or will not, for several reasons, partake of water therefrom.

To meet the requirements of the more respectable class in future, and perhaps many thousands of extra visitors next year, I would humbly suggest that we try filters instead, which may, through improvements shown, prove a greater boon to the class referred to than our present style of fountains in all probability ever will prove.

I believe that if it were possible to obtain more readily water pure and cold, in more convenient places, near to leading thoroughfares, or inside respectable taverns, pastry cooks', refreshment-rooms, museums, arcades, institutions, waiting-rooms, &c., &c., that thousands (independently of teetotallers) would gladly, not only partake, but frequently purchase, at a trifling charge, sufficient to cool the mouth or quench thirst in summer months.

I feel inclined to write this, because I find, from daily experience, there is a decided want of other fountains or filters for drinking purposes, and more especially as I hope, through these or other means, to hear or see that, before the opening day of the Great Exhibition, articles are invented, and fixed inside and outside, having all or other improvements therein, as suggested by the *Builder*, or referred to when I wrote upon this subject previously.

Visitors to such places as the Polytechnic, Colosseum, &c., where lectures are given on ventilation and filtration, are frequently seen, exceedingly warm and thirsty, vainly looking for ventilators or water filters.

I believe that ninety in every hundred of the cumbersome old stone-filters are not in use, on account of the space required, the trouble of refilling, or other disadvantages found therein.

A simple vessel may be constructed as filter, water-cooler, and drinking-fountain combined, to occupy little space, and working when required or for certain hours; or, if desirable, always on, and fixed in places as before mentioned, being as much needed there as against workhouse walls, churchyards, or in the lowest localities.

W. F.

IRON COLUMNS.

SIR,—In your remarks, p. 689, you make no distinction between a dead and a moving load. The engineers you refer to surely make such a distinction.

In p. 341 (edition of 1859) of Eaton Hodgkinson's work, he says:—"I shall therefore assume here as I did there that one-fourth the crushing weight is as great a pressure as these cast-iron pillars could be loaded with without their ultimate strength being decreased by incipient crushing." The conclusion that one-fourth the crushing weight is a safe ultimate weight is further confirmed (remembering

that the pillars there spoken of have rounded ends) in p. 352 of the same work, where the results of loading columns with various weights, some of them for upwards of three years, are given. All these weights are doubtless "dead loads."

If the difference between moving and dead loads do not explain the practice of the engineers you mention, of not loading columns with more than one-seventh, one-eighth, or less, of the crushing-weight, are we to suppose that Eaton Hodgkinson's observations apply only to experimental columns cast with every care and precaution, and not to the columns in every-day use; or how are we to explain these discrepancies? H. T.

THE EXHIBITION OF WOOD-ENGRAVINGS IN THE GREAT EXHIBITION.

MAY I be permitted through your pages to suggest a matter which would be both useful and interesting in connection with the approaching Great Exhibition? I particularly refer to the department of engraving on wood, which may with justice be considered especially an English art, and will no doubt, so far as medals are concerned, be well represented; it would, however, besides, be most interesting to show the growth and progress of this art in England: we should then be able to see some of the best works of Bewick, Johnson, Nesbit, Thurston, Harvey, &c.; but in addition to the proof, it would be well worth while to exhibit some of the old blocks, for the purpose of showing the peculiarity of the methods used by the engravers, to meet the perfect style of printing, when rapidity was required. If Harvey's large block of "The Assassination of Dantons" is still in existence, even in its most rent shape, it would be a great curiosity, contrasted with one of the largest boxwood blocks prepared in the present fashion.

Besides engravings, the drawings provided for the engravers by some of our best draughtsmen in this way would be instructive to many; the more so if the progress of a drawing could be shown,—first, the sketch, then the tracing, next the transfer to the block prepared for use (there should be an unprepared block close by), then the outline, and afterwards tinting with Indian ink. It may now be too late to arrange this in connection with the Great Exhibition; but in several ways circumstances will arise which may cause the will of the commissioners to be less definite than the law of the Medes and Persians. At any rate some provision might be made for such a little collection as has been hinted at in connection with the permanent museum.

AN ARTIST.

THE "BUILDER'S" LAW NOTES.

Accommodation Bills.—Although persons desirous of causing accommodation bills to be discounted are not bound to communicate spontaneously the character of these bills; they are as traders not justified in concealing their character if inquiry be made. Such concealment would amount to obtaining money under false pretences.

—*Re Lawrence and Mortimore.*

Rating.—It is not incumbent on churchwardens, in making a church-rate, to follow a poor-rate. A poor-rate may be void, and yet the church-rate may be good. The two rates are based upon different principles. The acquiescence of a parish in the poor-rate is, however, presumptive evidence that the church-rate made on the same basis is just and equal. A church-rate differs from a poor-rate in three particulars. 1. If it be just and equal, it needs not to be on the net annual value. 2. It cannot be compounded for. 3. The Rating of Small Tenements Act does not extend to it.—*Attenborough v. Kemp.*

Ready Money.—A person bequeathed to his wife "all sum and sums of money that might be in his house and at his banker's." After his death, fifty shares in an Assurance Company were found in a chest in an envelope, on which was written:—

"To be considered as ready money, and given to Mrs. K. (the widow) for her use." It was held that evidence was admissible to show that these shares were intended by the testator to be treated as ready money, and that they accordingly passed to the widow under the will.—*Knight v. Knight.*

Double Rent: Overholding.—In order to render the statute operative against an overholding tenant, so as to subject him to double rent, it must be a contumacious overholding. And, therefore, it has been held that overholding, under a *bond fide*, though mistaken, belief, that a third person who claims adversely to the landlord is entitled, will not subject the tenant to the penalty of double rent.—*Seinfen v. Bacon.*

Miscellaneous.

BRISTOL EXHIBITION OF ORNAMENTAL ART.

A very interesting collection of works of industrial and ornamental art has been open for some time in the Fine Arts Academy, Queen's-road, Bristol. It has had the advantage of a "Hand-Book" of superior character, which was drawn up by Mr. J. Beavington Atkinson.

SPIITALFIELDS SCHOOL OF ART.—A student complais very much that prizes and medals awarded at the annual examination last March of the Spitalfields Branch have been kept back by the committee, without any reasons being assigned, thereby causing great dissatisfaction throughout the school, and injury to the students.

CRYSTAL PALACE SCHOOL OF ART, SCIENCE, AND LITERATURE.—The regular course of lectures by the professors of this school was commenced on the 17th instant. Two lectures will be given every Thursday; the first, at half-past one o'clock, by Dr. Lunkester, whose course is "On the Physiology of the Nervous System in relation to Health and Education;" the second, at half-past three o'clock, by Dr. Dresser, who gives a course "On the Art of Decorative Design;" the lectures being especially addressed to manufacturers, skilled workmen, and intending exhibitors in the International Exhibition of 1862. Special arrangements will be made with employers.

men will be made with care. "Steeple Jack" STEEPLE JACK AT LINCOLN.—"Steeple Jack" appears to be not an individual, but a genus, or at least a species. Mr. J. Woodman, a native of Lancashire, who has gained the cognomen "Steeple Jack," has been fixing a lightning conductor to a lofty shaft attached to Messrs. Hartley's steam flour-mill at Lincoln. In attaining the top of an erection, however great its height, Woodman, like his confrères, uses neither ladders nor scaffolding, but commences his work by flying a kite, to which is attached a guy-rope, directly over the building he intends to mount. As soon as the kite has attained a sufficient altitude, and the line is brought immediately over the building, the guy-rope is pulled, the kite lowered, and a communication is thus formed with the operator below.

THE "STRANGE STATEMENT."—Our correspondent's strange statement, as to the disturbance of coffins in a family vault from some unknown cause, has been already extensively quoted by our contemporaries. The *Maclesfield Courier*, in doing so, remarks that "a momentary unequal pressure inside the coffins, arising from the more rapid generation of gas in one part than another, or an escape of gas from one part of the coffin, would account for the change of position." Our esteemed contemporary, however, does not appear to take into account the whole circumstances of the case in his attempted explanation. That a gaseous force of some kind was at work within the coffins was palpable enough, we think, from the bulging of the coffin lids; but we must not overlook the circumstance that one of the coffins, which was of lead, and contained the whole mass of a full-grown human body, was not only shifted on or along the floor, but was actually lifted on to the top of another coffin, after having been turned completely round; and that three others had "shifted a considerable distance across the capacious vault,"—all the coffins being of lead. A lifting force, such as manifests itself in the first of these cases, might be supposed by others again to indicate something analogous to the lifting of a balloon car by the levitive force (if we may so call it) of the carburetted hydrogen in the balloon; but not even pure hydrogen, the lightest of all known gases, though confined and accumulated, to whatever extent, within a heavy leaden coffin, containing a full-grown human body, can for a moment be supposed to be capable of lifting such a mass, even a single inch, far less to the height of another coffin, and laying the heavy mass across it after turning it completely round. But may it not be possible that there is a gas of a still more ethereal nature than hydrogen, which, like the odorous emanations from flowers, &c., and even from metals, has hitherto escaped all chemical and pneumatic detection as a gas; but which, like hydrogen, may be capable of imprisonment within a leaden coffin, hermetically sealed; till it accumulate to a sufficient extent, during decomposition, to be capable of bodily lifting the coffin, and moving it about? Such a gas, it may be said, would be more like a spirit than a material substance; but the very word gas, etymologically, signifies spirit; and that there probably is a far more spiritual or ethereal gas than hydrogen in existence, we have the great Newton's authority, as well as that of many other astronomers, for believing; all planetary and cometary movements appearing to denote the existence of a resisting medium, though of extreme tenuity,—and which, by common consent, has been termed the ethereal medium,—or gas, in fact,—which pervades all space. But whatever may have been the cause of the strange phenomena, we are not quite prepared to adopt the spirit-rappers' well-known mode of explaining such phenomena. After all, perhaps the ablest exponent of the mysterious cause of the phenomenon may be—the sexton. Failing his ability to shed a scientific light upon the subject, perhaps (again) the most feasible suggestion is that the slittings about resemble those pranks which lightning sometimes plays in the dwellings of the living, and which, in truth, it is quite as capable of displaying in the domiciles of the dead.

NEW TUNNELLING MACHINE.—A machine for the purpose of tunnelling in rock, &c., is now making at the extensive works of Hawks, Crawshaw, & Co. It is a most ponderous machine, weighing about 50 tons, to be driven by steam-power, and intended to form a tunnel from 11 feet to 30 feet diameter. It is, we understand, the patent of a Mr. Roberts: it is nearly completed, and will shortly be practically tried and tested in the Claxton's Quarry, Gateshead.

OPENING OF THE LIVERPOOL SCHOOL OF SCIENCE.—The Liverpool School of Science, in connection with the Free Library and Museum, was inaugurated on Thursday in last week, Earl Granville (Lord President of the Council), the Chancellor of the Exchequer, and a number of other distinguished persons taking part in the proceedings. During the earlier part of the day the visitors, accompanied by the mayor, Mr. W. Brown, and other local gentlemen of eminence, made a tour of the town, and inspected the principal buildings, including the Free Library and Museum, the Gallery of Inventions (for the use of the School of Science), the Queen's College, and the Roman Catholic Training School, addresses being presented to Earl Granville at the two last-named places. Afterwards the party made a river excursion. On their return they dined with the mayor at the Town-hall in the evening. A public meeting was held in the Great Hall, St. George's Hall, which was crowded in every part. Mr. J. Samuelson, secretary to the committee, read a report, stating that the object of the Institution was to aid the industrial classes and others of both sexes in procuring instruction in natural history, geology, chemistry, mathematics, geography, and mechanical and experimental physics; the schools being supported by voluntary contributions from students' fees, and Government grants. Earl Granville, the Chancellor of the Exchequer, and other gentlemen addressed the meeting.

other gentleman, Mr. HAWTHICK. The *Standard* publishes from "A Seeker of Pure Air" a most doleful account of the bad smells and bad drainage of this port. Here is his description:—"The drainage of Harwich is odious. In all the back streets there is surface drainage or none at all; and in all the hollows, and ruts, and holes, caused by the wear and tear of the old dilapidated cherry-stone pavement, stagnant pools of dark liquid manure, garbage of all kinds, animal and vegetable, lie festering and emitting stenches and odours surprising to any one unacquainted with old-out-of-the-way continental towns. Where the place has been improved the drainage is carried by some contrivance into the harbour; and as the two rivers bring their odiferous contributions also, it is not to be wondered at that the mud exposed at low tide is most offensive. On the banks of the Orwell especially there is a vast extent of this mud, which is composed of decaying vegetable and animal matter, and the drainage from Ipswich; and I leave you to guess that an excursion up the Orwell and back at low tide is to be avoided by those who have delicate stomachs, or who are nervous at the thoughts of diarrhoea, fever, or any other zymotic. The whole of the lower harbour at low tide is equally offensive. The church and churchyard are situate near the centre of the town, and the churchyard is nearly always offensive, but at times so bad as to cause a sudden nausea and shivering in those coming in contact with it, and I have turned back, or covered up my mouth and nostrils in order to pass through it. Then, as a climax, there is close to the town this terrible cement factory; and when the fumes from it are blown that way, the whole place is impregnated with a close, stifling, sulphurous kind of air, irritating to the eyes and chest, and I need not at this time allude to its poisonous qualities. The buildings of Harwich are old, dilapidated, and pre-eminentlly ill-constructed; and, as far as my experience goes, they are terribly dirty, stuffy to a degree, and literally swarming with fleas. I never saw anything at all approaching them, excepting at a small old hotel at Heidelberg, ten years ago. In one part of the town there is a sort of pit or hole in the ground, into which a few wretched cottages are stuffed. What becomes of their drainage I do not know. Whoever is tempted to explore Dovercourt and the country beyond will soon be checked by the appearance of the large ditches full of black stagnant mud, with a horrible glazed surface, and the smell from which makes one feel very sick. Towards the cement works you cannot safely go because of the disagreeable fumes; and the appearance of the place and the miserable-looking dwellings are not inviting. The supply of water is neither good nor plentiful: that for drinking purposes is brought into the town in barrels from a neighbouring spring."

DISCOVERY AT COLOGNE.—The high-altar of the Benedictine monastery at Cologne was lately removed, to be replaced by a new one, and in taking down the pedestals of the chandeliers, they were found to be filled with bones, partly enveloped in white linen. Among the bones were found fragments of paper, in a state of decomposition, but on one of them were the words "Ossa Lotharii." From this circumstance it is assumed that the bones were those of the Emperor Lothaire, grandson of Charlemagne, who was known to have been interred in that church.

THE LATE MR. HENRY AUSTIN, ENGINEER.—On the 9th instant, Mr. Henry Austin, Civil Engineer, died in the prime of life, sincerely regretted. Mr. Austin was a pupil of the late Mr. Robert Stephenson; and assisted with the drawings for the (then) London and Blackwall Railway, and the London and Blackwall Railway. He afterwards accompanied the late Lieutenant Waghorn through Italy, at the time the latter was arranging the Overland Route. Mr. Austin acted as honorary secretary of the Society for the Improvement of Towns, that was founded by Mr. Hickson and others; and, on the establishment of the first Board of Health (in 1848), was appointed secretary. He also acted for a time as joint secretary of the Sewers' Commission. When the duties of the Board of Health were undertaken by the Privy Council, he was appointed Inspector under the new Act, and continued to hold that office till he died. Mr. Austin married a sister of Mr. Charles Dickens. Inflammation of the throat, the result of a severe cold, was the proximate cause of his death.

RE-BUILDING THE WAREHOUSES AT LONDON BRICK.—Since the great fire at the wharfs has been extinguished, active steps have been taken to clear away the ruins; and within the past few days a large number of workmen have been engaged in rebuilding the extensive range of warehouses known as Hay's Wharf, for Mr. Alderman Humphreys. The joists have already been raised and placed in position for the first story. The building, when completed, will consist of five warehouses, and every precaution will be taken to prevent the progress of fire. The whole of the joists, girders, &c., are of a massive description. The height of the building will be nearly 70 feet, and of the front is being built with white Suffolk bricks. The floor above the basement will be supported by a series of cast-iron stanchions, but the girders and joists will be of wood, as will also be those of the third and fifth floors: on the second and fourth floors, however, the girders will be of iron; and brick arches will be turned, upon which will be a covering of concrete, and on that will be laid a surface of Armani's patent metallic lava, which process will be adopted upon all the floors. The contractors are Messrs. Oxford & Co. The works for the rebuilding of Chamberlain's and Cotton's wharfs will, it is anticipated, commence very shortly.

FALL OF ROOF AT THE BRIGHTON RAILWAY STATION.—A serious accident occurred at the London Bridge Station, on Wednesday morning last. The directors have been enlarging their station to a considerable extent on the left hand, or London arrival side. The works have been carried on with vigour, and they began to approach completion. Iron girders had been laid for the foundation of the new lines, and the roof had been partially raised. This was constructed of iron, fastened into new brickwork on one side, and joined to the existing top of the station on the other; and it was this that fell on the road beneath. The force with which the roof descended must have been very great; inasmuch as some of the iron bars were broken, twisted, and bent into a variety of shapes; while a railing formed of ordinary scaffold poles, erected to protect the workmen, was in many places shattered into splinters. Had the accident occurred a short time later the results might have been of the most disastrous character. Immediately on the spot where the roof fell, large numbers of vehicles wait for the arrival of the different trains throughout the day; and if the iron had come down while they were there, some of the carriages must have been smashed, and their attendants. Had the accident taken place after the arrival of the workmen, the loss of life in all probability would have been great. The roof had been so far completed as to admit of a gang of carpenters being engaged fixing the timber into the various compartments assigned for the woodwork; and they had commenced their day's avocations there, while of the men would have been buried down with the roof. The loss, it is stated, will fall upon the contractors.

THE ALTERATIONS ON BRISTOL BRIDGE.—The Local Improvement Committee have accepted tenders for the iron and stone work for the widening of Bristol Bridge. The contractors for the former are the firm from Chepstow who erected the new iron Bath Bridge, and the contractor for the latter is Mr. Brown, of Bristol. The work will consist of an addition to the width of the bridge of 12 feet on the east side, to be laid on iron cantilevers, that will project over the river. It was at first intended to place this increased accommodation as a footway outside the existing eastern battlement, so that the structure should preserve its present appearance; but this plan, according to the local *Times*, has been changed. The additional 12 feet will be "thrown into" the bridge, the stone balustrades removed on both sides, and replaced by iron railings.

APPOINTMENT OF BOROUGH SURVEYOR FOR WAKEFIELD.—The resignation of Mr. Dale rendered the office of borough surveyor vacant. The appointment of his successor came on at the meeting of the Town Council and Local Board of Health, on Wednesday, at the Sessions-house. Four candidates were selected by a committee, viz, Mr. Evans, of London; Mr. Crutchley, of Macclesfield; Mr. Carr, of York; and Mr. Abby, of Rutherford. The salary at Hastings was stated to be £7. per annum, whilst at Wakefield only 150*l.* was offered. It appeared that two of the holders of the office had left Wakefield for other towns, with a view to better themselves. Mr. Crutchley was selected, and his principal recommendation was in connection with the Wakefield and Burnley Canal. On the motion of Alderman Shaw, the unsuccessful candidates were allowed second class railway fare, and two guineas in addition, for expenses.

SUFFOLK AND NORFOLK ARCHEOLOGICAL ASSOCIATIONS: EXCURSION.—On Wednesday in last week the members of the Norfolk and Norwich Archeological Society met their friends of the Suffolk Society at Bungay, when a very pleasant day was spent in visiting the objects of antiquity in the town and neighbourhood. Although some fell in the morning, the clouds cleared away, and the day was an enjoyable one. The members of the two associations assembled at the King's Hotel, at half-past ten, when Mr. Woodward read a paper on the castle and town of Bungay; then proceeded to visit the castle, the priory, the churches, &c.; Mr. Woodward acting as secretary, and the Rev. J. J. Raven, head-master of the grammar-school, contributing descriptive papers on the two churches. At half-past one a party started for Mettingham Castle, where they were hospitably entertained by the Rev. J. Ward, and the Rev. C. R. Manning amused themselves with a paper on the antiquities of the locale; then on to Earsham church, where Mr. Woodward to describe; and then to the King's Head; where the proceedings of the day were wound up by a dinner, to which 40 to 50 sat down, under the presidency of Mr. Arthur Hervey, in the unavoidable absence of Mr. John Boleau.

THE WORK OF ART.—At the Exhibition of 1861, a cemetery memorial was sent from Southampton by a young man, and the memorial was recently engraved in the *Illustrated News*. Since, happened to have her attention attracted by the engraving in question; and, instead of employing Spanish talent to carry out the work on a large scale, she at once communicated with the artist, ordering him to execute a memorial 20 feet in height. The work is in course of execution. The plan of the base is triangular; the plinth is moulded; and the step immediately above it has in the centre the monogram "B.L.," on either side of which, in circles, is an arrangement of the ivy leaf. At each corner will stand figures of Faith, Hope, and Charity, nearly life-size. Between the niches, and above the groups of statuary, are niches for inscriptions; and running round the base is a decorative moulding of ball flower and ornament. Springing from six angles, are carrying shields, ribbons, &c., starts an arched, scalloped-shaped dome, crocketed and tiled, resting at the apex with a Calvary cross, and from the arms of which depend a crown. The gentleman to whom the execution of this monument is entrusted is Mr. Baker, of Ipswell. He has placed the masonry work in the hands of Messrs. Pictor & Sons, of Box, who are the superintendents. Mr. Gardner, has carried out the details. The stone has been selected from a quarry that Messrs. Pictor's quarries can

THE SOUTHAMPTON SCHOOL OF ART.—The examination for prizes at the School of Art here has taken place. The students of the ladies' class, the pupil teachers of the National and British Schools, the Wesleyan School, Salisbury, the boys of Nowe's Charity, and the British Schools, Roman Catholic, presented themselves for examination. The examination at Southampton, open to all, when the candidates for the Department prizes presented themselves, consisted of students of the morning, afternoon, and evening classes, the pupil teachers' class, and of the following schools, namely:—Mr. Du Soir's, Mr. Wallis's, King Edward VI.'s Grammar School, two ladies' schools, the Peninsular and Oriental Steam Navigation Company's School, the Royal British, St. Mary's, St. Luke's, and Free-mantle Church School. Several candidates unconnected with the School of Art also availed themselves of the examination being open to all. The following is a summary of papers taken:—Southampton, first grade, 86; second grade, 127; total, 213. Romey, first grade, 40; second grade, 16; total, 56. Ringwood, first grade, 43; second grade, 42; total, 85. Last year there were 311 papers taken. On the present occasion there is a slight increase, the number being 354. All these papers have been forwarded to London.

GAS-METERS.—The new Act, or Acts, of which we have before spoken,—namely, the Sale of Gas Act, 22 & 23 Vict., cap. 66, as amended by 23 & 24 Vict., cap. 116; and the Metropolis Gas Act, 24 & 25 Vict., cap. 79,—came into operation on the 14th inst. By the new Act it is enacted that in the metropolis, and in all counties and boroughs which have adopted the Act, no meters shall be fixed after the 13th October inst., unless first tested and stamped as correct by an inspector appointed under the Act, in a similar way as any person fixing or using an unstamped meter, to a penalty of 5*l.* in each case; and, according to the wording of the Act, "any contract, bargain, or sale made by such meter shall be void, and every such meter so used shall, on being discovered by any inspector so appointed as aforesaid, be seized; and, on conviction of the person knowingly using or possessing the same, shall be forfeited and destroyed." The necessity for such an Act of Parliament has long been felt, in consequence of such a large proportion of the meters in use having been discovered, as we have often pointed out, to be registering inaccurately to an enormous extent,—viz, in many cases as much as 25, 35, and even in some cases more than 50 per cent., and almost always against the consumers.

NEW PAINT FROM ANTIMONY.—About six months ago a patent was taken out by Messrs. Hallett & Stenhouse for the manufacture of a paint from native oxide of antimony—a mineral which is found in considerable quantities in Spain, Borneo, and other localities, where it is usually associated with the grey sulphide of antimony, from which it has been produced by the process of oxidation, which, as might be expected, is found to be more or less complete. According to the *Journal of the Society of Arts*, "The oxide is first reduced to coarse powder, and is then roasted for three or four hours, at a low red heat, with free access of air, in muffle or other suitable furnaces. During the process of roasting, the sulphur and other volatile matters are expelled, the colour of the substance becomes much paler, and the residuary metal is converted, for the most part, into antimonious acid. The calcined product is then reduced to an impalpable powder by being ground in flint mills; and, when dried and mixed with oil, constitutes the paint. The paint has a delicate stone colour, and is quite equal in body or capacity to the best white lead; while it possesses the great advantage of maintaining its colour in vitiated atmosphere,—being not acted upon either by acids or sulphuretted hydrogen. This property renders it peculiarly adapted to interiors of ships, gas works, and hospitals. It is devoid of anything hurtful to workmen, either in its manufacture or use, and as (weight for weight) it will go fully 25 per cent. further, as a pigment, than the best white lead, and its price being considerably lower, the new antimony paint promises, ere long, to be very generally employed." Many years since (probably ten), a Liverpool gentleman was said to have discovered a white paint, neither of lead nor of zinc, but the composition of which was kept secret. We suggested that it must be antimony; and the truth of our suggestion was then admitted. We have heard nothing more of it, however, till now. It must be recollected that antimony is a poisonous metal, whatever may be said to the contrary.

BORING ROCK.—In perforating rock or other hard substance, instead of striking the boring instrument or drill with a hammer, Messrs. Poole, Wright, Hemming, & Searby, of Moorgate-street, propose to effect the same by using a cylindrical or other shaped tube, adjustable at pleasure, in which is fitted a traversing piston or plunger, with necessary valve gearing, and actuated by alternate jets of atmospheric air, compressed by steam-power. The drill is attached to the piston, and the whole is mounted on a suitable frame.

DISCOVERIES AT SYZ.—The excavations for the canal, it is said, have led to the discovery at Gizeh of a religious edifice as vast as the Louvre, and which must have been constructed more than 5,000 years ago. At Karnack, also, a temple, the circuit of which is stated to be four kilometres (2½ miles), has been discovered, and another at Edfou, containing twenty saloons. The walls of these latter edifices are decorated with sculptures, hieroglyphics, and paintings, still fresh. These must be exceedingly interesting and important; but nothing is said as to their nature.

MACHINE FOR MAKING CONCRETE.—A simple machine for this purpose is used in Germany. It is composed of a cylinder 18 feet long and 4 feet diameter, open at its ends, and turning upon an axis inclined to the horizon. The stone and the mortar are thrown from a barrow into a hopper, which delivers them into the cylinder at its upper end. The mixture is effected by the rotation of the cylinder, whose lower end delivers the beton either into barrows or cars. The interior of the cylinder is smooth and lined with sheet-iron; the proportion of the materials is made by regulating the number of barrows of mortar and those of stone cast into the hopper. At one place the cylinder was inclined to the horizon one-thirtieth; it made from fifteen to twenty turns per minute, and the mixture was perfect. The cylinder was driven by a belt passing directly over its outer surface. Motion was given by an engine which worked at the same time a strong mortar-mill. This machine easily made from 104 to 131 cubic yards in ten hours.

PARIS ZONED WITH FLOWERS.—A curious project has just been submitted to the Municipality of Paris. The plan is to gird Paris with a zone of flowers. The gentleman who proposes this plan of a "Jardin de Ceinture" is said to be a celebrated botanist and agriculturist. He proposes to the State to transform the fortifications and the earthworks facing the city, both of which are now so much unproductive waste ground, into a great *pépinière d'acclimation*, or a nursery for exotics of every possible kind, whether from cold or hot countries, according to the aspects of the ditch, wall, and earthworks. The administrators of this garden, which he guarantees to form with a given capital for the commencement of operations, would pay to the State a certain rent per hectare; undertake to cultivate no species of parasitical fruit or flower that would be injurious to the wall or difficult to remove in case an enemy was expected; to sell at a low market price the produce of the fortifications; and, in the space of two years and a half, to clear all the expenses that the society may incur in carrying out the project. Nothing can be more brilliant than the results which are promised.

AMERICAN RAILWAYS.—An "American," who describes the trains used in America, says:—"In the United States no train is allowed to leave a station until the preceding train has left the station beyond. The engineer and stoker have a kind of roof over their heads, which protects them from the weather, and enables them more conveniently to look out ahead. A cord connected with the engine-bell runs through every carriage. The breaking of the axles on sharp curves is provided against by the use of Bissel's patent truck. Every passenger carriage will hold sixty people, and is furnished with velvet or plush spring seats, while the floors are covered with oil-cloth. The backs of the seats have circular pivots, by which they can be so adjusted that passengers can ride with their faces or their backs to the engine. The carriages have each a filter containing ice water, to enable passengers to quench their thirst; and if filters are not provided, waiters attend to the passengers and furnish water gratis. Boys are allowed to travel by trains to sell lemonade. Almost every train has one or two dressing-rooms attached to it. In winter a lighted stove is in every carriage. On many railways there are sleeping carriages, which contain comfortable couches. A smoking carriage is attached to every train. A special carriage for passengers' luggage is provided, and nothing is given out without a counter-check." We are a long way behind in such railway comforts as these.

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COLOURING CHURCH WALLS.—A correspondent with chromatic eye, in reply to "Inquirer," who asked last week to be told of any churches where a single shade of colour had been used with good effect on the interior of the walls,—says Ardingly Church, Sussex, has its walls inside washed with very much the tint of the Sussex stone when first quarried. "The church was restored by the present incumbent a few years ago, and the tinting was, doubtless, done by ordinary workmen." This contrasts greenly, the writer continues with the glaring whitewash which is being applied to an ancient little church not far from the one named, without omitting even "the stone mullions of the windows!"

FIRE AT WOOLWICH.—An outbreak of fire of a most alarming description was discovered at Woolwich, at a late hour on Monday night, in a solitary stable-building, erected in the rear of the Royal Military Academy, for the temporary accommodation of draught-horses in the employ of Messrs. George Myers & Son, contractors for the erection of the new wings recently added to the Academy, and also for the construction of the new Herbert Hospital. The building was composed of most inflammable materials. The destruction of the building was found to be inevitable, and the fire-engines brought to the spot were of no avail, inasmuch as the flames had gained a complete mastery over the building and its contents. A number of horses were unfortunately burnt.

A NEW CHIMNEY SHAFT AT LONGTON.—A very tall chimney has just been erected at the flint-mill of Messrs. C. Harvey & Son, near Stafford-street, Longton. The new chimney has been built by two workmen, from the designs of Mr. Stephen Mear, builder, Longton. The shaft is circular in form, and rises to an altitude of more than 211 feet, or upwards of 70 yards. The column stands on a square of masonry upwards of 32 feet high. At the base of the column, above the square, the chimney is 14 feet 6 inches in diameter, and gradually tapers to 6 feet at the top, the whole being surmounted with a cast-iron coping, weighing 2 tons 5 cwt. The flue from top to bottom is of the uniform width of 4 feet 6 inches; and the chimney has air flues throughout, to protect it from cracking by the effects of heat. The lightning-conductor was put up somewhat in the Steeple Jack style, by a man ascending outside, by means of an endless rope, and weights attached.

PROPOSED NEW PIERS OF THE TYNE COMMISSION.—At a recent meeting of this Commission, the Piers Committee reported that a plan prepared by Mr. Walker, showing the suggested lines of finished piers, had been laid before them. The first, or shortest line, terminated the piers in 21 feet at low water; the second, in 30 feet at low water; and the third, or outer line, in 36 feet at low water. The cost of executing each of these was stated by Mr. Walker, being for the first line, 550,000*l.*; for the second, 660,000*l.*; and for the third, 800,000*l.* After discussing the subject with Mr. Walker, it was resolved to recommend the Commissioners to adopt the middle line as the line on which the piers are to be carried out and completed, thus terminating the piers at a depth of 30 feet at low water. The Commissioners resolved, that Mr. Walker be requested to report to them on the three lines, setting forth fully the reasons in favour of each separate line, and generally the course recommended to be adopted.

Gas.—The fast-improving town of Kinver has been lighted with gas, according to the *Birmingham Post*. The works are situated on the bank of the canal, near the Lock Inn. The apparatus was supplied by Messrs. Wm. Richardson & Co., of Dudley. The main pipes are from Messrs. Cochran & Co., of Woodside. The Neath Gas Company are building two large gasometers at the Latt, which, when completed, will, it is expected, adequately supply the town for many years to come, whilst the quality will be superior to that now made. One of the gasometers is being built near the canal, and when the men were digging for the foundation, the water suddenly broke in upon them, completely inundating the whole of the works. The contract has been taken by Mr. Hickory, of Bridgwater. At the new gas-works at Hendon, Sunderland, the tank is 125 feet in diameter and 25 feet deep; and was excavated and built by Mr. J. Hurst, contractor. The gas-holder was erected by the workmen of Messrs. T. Pigot & Sons, of Birmingham, under the superintendence of Mr. William Ashmore. The diameter is 120 feet, the depth 50 feet, and it will hold 600,000 cubic feet of gas. The price of gas supplied by the gas companies in Dundee is to be reduced from 5s. 6d. to 5s. per thousand feet.

BARRACKS AT COLCHESTER.—It appears that fourteen building firms contemplate delivering tenders for the new cavalry barracks about to be erected at Colchester. Messrs. Harding & Bond have been chosen surveyors on the part of the builders, and Mr. Meeking has been selected to act on the part of the Government: these gentlemen will take out the quantities. The buildings, it is stated, will be of brick.

A NEW SUBSTITUTE FOR IVORY, HORN, &c.—The collodion film when formed on glass is tough, and can be made of any desired thickness; and by the addition of gutta-percha, India-rubber, &c., a great range of elasticity, pliability, and hardness, it is said, may be produced. It has recently been proposed to apply these sheets of dried collodion (which, if made of good pyroxyline, will be colourless and transparent), to several useful purposes. Out of a mass of it, with proper tools, it is easy to work any desired form. The dried collodion is said to possess the physical properties of many of the most valuable materials used in the arts: it may be substituted for ivory, horn, wood, glass, &c., for the manufacture of statuary, billiard balls, buttons, &c.

MANURE.—Allow me to point out to builders, agriculturists, as well as your general readers, that the most fertilizing manure for every kind of land is to be found "in the foundations and rubbish of old houses, which is now, annually, shot away." The same materials will furnish *saltpetre*; and, as guano and *saltpetre* now command high prices, it is to be hoped that the proprietors of these shoots will turn them to good account. While on the subject of manures, I will here mention that common salt and lime mixed together gradually decompose each other: the result of the decomposition is soda, and a peculiar deliquescent salt, muriate of lime. The fertility of the Egyptian soil is due to this salt. It has a great attraction for the moisture of the atmosphere, and is an admirable fertilizer for sandy hot soils.—J. B.

CUPBOARDS.—May I, through the medium of your valuable journal, make a suggestion with respect to cupboards? I certainly think they ought to be ventilated as one of your correspondents said; but, further, as there are thousands of small houses for the middle classes, I think some regard must be had to convenience and space; and to aid that some alteration should be made in cupboard doors. They are usually hung on hinges, and open outwards into the room; consequently, no person can sit within a yard or so of them, without moving every time a person goes to the cupboard (and if the room be small, there is not much space to move about). To avoid that inconvenience, I suggest that the doors should be made to slide up and down in two separate parts, in the manner that windows do with weights.—G. W.

CHINESE BUILDINGS IN AUSTRALIA.—We are told that the Chinese have lately made a handsome contribution to the number of the public buildings of Melbourne. According to the *Australian Gazette*, in Little Bourke-street and the alleys leading from it, that peculiar people have made a city for themselves and their British-born spouses, whose numbers (according to the *Argus*) are gradually increasing; and few tradesmen seem to flourish but those who hang over their doors the mysterious characters which only Chinamen understand. In a central position in that street Kong Meng & Co. have lately erected a court-house, where disputes among Chinamen will be disposed of after their own manner and according to their own laws. It is of brick, with a front of white stone, the columns of the one story Ionic, and of the other composite. There are no fireplaces, the Chinese having some superstition on that point; and, to obviate another prejudice, the windows are not placed one above another.

FIREPLACES.—The bricks should be covered always with a thin coating of plaster, which, when dry, should be whitewashed. Every part of the fireplace which is not exposed to being soiled and made black by the smoke, should be kept as white and clear as possible. As white reflects more heat, as well as more light, than any other colour, it ought always to be preferred for the inside of a chimney fireplace; and black, which reflects neither light nor heat, should be most avoided. The stoves which have long been in use through Sweden warm the room uniformly with a quarter of the fuel required in others, and are free from disagreeable steams, and elegant in appearance. They are constructed with "an iron grate-work, and panes of a fine clay fitted therein, which are varnished according to taste and ability."—J. B.

HARROGATE.—The building committee of the New Wesleyan Chapel at Harrogate have let the contracts for the erection of the edifice, and the works will be commenced forthwith. There were upwards of 100 tenders, according to the *Leeds Intelligencer*; and those of the following were accepted.—Mr. Simpson, Harrogate, mason; Mr. Ginn, Bradford, joiner; Mr. Scholefield, Bradford, plumber; Mr. Riley Fortune, Harrogate, plasterer; Mr. Brown, Barnsley, ironmonger; Mr. Baynes, Ripon, slater; and Mr. Harland, painter. The total contracts amount to upwards of 4,000*l.*

TENDERS.

For two Villas, at New Cross, for Mr. Rathven. Mr. T. C. Clarke, architect. Quantities furnished:—
Hawke £1,151 0 0
Harding 1,144 0 0
West 1,129 0 0
Turner & Sons 1,087 0 0
Lugg 1,078 0 0
Walsh 1,030 0 0
Lewin 770 0 0

For works at the Paul's Head, Paul's street, Finsbury, for Mr. Goff Mr. H. W. Broadbridge, architect. Quantities furnished:—
Piper & Wheeler £177 0 0
Shelton 448 0 0
Turner & Sons 425 0 0
Brown & Son 416 0 0
Green 373 0 0
Perry 354 0 0

For ten Almshouses in Lincoln street, Mile-end-road, for Mr. J. H. Moses. Mr. Hopkins, architect. Quantities supplied:—
Foster £1,150 0 0
Ashby 1,134 0 0
Shelton & Son 1,142 0 0
Lowry 1,295 0 0

For new Shop Front, at No. 237, Upper-street, Islington. Mr. William Smith, architect, Islington.—
Taylor £212 0 0
Fawcett 168 0 0
Haverty 100 0 0
King 97 0 0
James & Ashton 83 10 0

For pulling down and rebuilding House and Premises, No. 26, White Horse street, Commercial-road, E.C. Charles Dunch, architect.—
Herc £395 0 0
Curtis 475 0 0
Brown (accepted) 449 0 0

For the erection of the Carcase of a Brewery, in the city of Peterborough. Mr. R. W. Johnson, architect. Melton Mowbray:—
Bennett & Son £98 10 0
Bath & Sons 95 0 0
Duxberry 870 0 0
Clifton 854 0 0
Ellis & Co. 855 10 0

For alteration to Queen's Hotel, St. Martin's-l-Grand.—
Holland £3,95 0 0
Patman & Co. 2,97 0 0
Macey 2,974 0 0
Pritchard & Shelton 2,902 0 0
Conder 2,918 0 0
L'Anson 2,914 0 0
Lawrence 2,889 0 0

For building new Offices, for Messrs. Knowles & Foster, Moorgate-street. Mr. J. Ladds, architect.—
Mansfield & Son £4,435 0 0
Henshaw 3,895 0 0
Axford 3,865 0 0
L'Anson 3,694 0 0
Heath 3,628 0 0

For sundry alterations to the Windsor Castle, Pimlico, for Mr. Wilcocks. Mr. W. Williams, architect.—
Hurst £1,925 0 0
Scott 1,76 0 0
Fish 1,650 0 0
Chapman 1,495 0 0
Jackson & Shaw 1,490 0 0

For erecting Cottages, at Enfield Highway, for Mr. Mitchell. Mr. Francis George Widdows, architect.—
Green & Son £3,132 0 0
Heath 2,766 0 0
Norman 2,684 0 0
Wheen 2,341 0 0
Weggs 2,536 0 0
Goffe 2,375 0 0
Greenwood 2,343 0 0

For constructing new Sewers, laying new stone Invert, and underpinning to old Sewers, in Sussex-street and adjacent streets, Faldington.—
Leckes £2,347 0 0
Hill 2,315 0 0
Dethick 2,300 0 0
Yeoman 2,277 0 0
Wells 2,243 0 0
Batterbury 2,125 0 0
Pearson 2,059 0 0
Thurst 1,930 0 0
Hardy & Blomfield 1,793 0 0
Crockett (accepted) 1,750 0 0
Cole 1,723 0 0

and is complete, and is published the first of March, in the
and is complete, it will be kept. Good reference, and
if required.—Address, F. P. 50, York street, Buckingham-
London, S.W.

1910

The Builder.

VOL. XIX.—No. 977.

Residences and Domestic Arrangements in
Paris and in London.

FEW years ago there was no villa architecture, according to the English idea of it, in or about Paris, and to this hour you may leave the city, with little exception, choosing any road, and see nothing but the same straight line, unenlivened by the appearance of domestic life, the charm of well-cultivated gardens, and the occasional taste in architecture, that characterize the environs of London. However, at many of the towns and villages from which Paris is now easily accessible by railway, excellent specimens of architecture have sprung up; and

woods and parks are rapidly undergoing the process of transformation analogous to that of the eligible building-sites, but with greater taste than, in the environs of London.

In the immediate vicinity of the fortified *enceinte* of Paris, the recently laid out property at Neuilly, north-west, and the neighbourhood of the Bois de Vincennes east, have been much resorted to. The "*jardin à l'Anglais*" is now common; but garden and grounds attached to private houses are not attended to assiduously as in England: thus a source of effect is lost. The same is hardly to be said of the public gardens: and as to arboriculture, there is much to be learned in the boulevards. There is a curious arrangement of gardens sometimes seen, which consists in the formation of canals and rustic bridges on the smallest scale. On the other hand, by clever management, as in the levels, the resources of a very confined bit of ground are often turned to the largest account. We know indeed, at a *café* in one of the narrowest and most crowded streets of Paris, a capital illustration of what may be done in the way of taste by French hands. There the best effect is produced by the skilful disposition of a few evergreens in tubs on the footway,—the house-front being a few feet set back,—and by the bank of flowers in the windows of the well-lighted and glittering interior. Bare wall is an eyesore to French taste. Thus, much use is made of ivy: or very frequently, the end of a house is covered with lattice-work to the top of the wall, and that remains as the decoration. Occasionally, false windows and the painted representation of a roof are chosen for the like object, even in connection with buildings of a superior character. In many of the small country-houses, the garden-walls are stuccoed in the form of panels, the margin being smooth-faced, and the panel itself rough-cast and coloured brick-red, or orange. Or, the panel is scored with thin lines in the form of lattice-work; and the incisions are filled with a slate-coloured cement. The coping is of Italian tiles, in one or two courses, with a ridge, like a miniature roof. The piers are made pleasing

features by vases, which seem to be never without flowers; or, stone piers present sculptured ornament of a high class. Iron-work generally displays a considerable amount of gilding. One soon begins to prefer the effect of the garden inclosure walls, at least, to that of a plain brick, flat-stone coped, wall. We have spoken of the use of brick in Paris, in a preceding article. It is more used in the environs; but always, red brick, with distinct view to chosen effect. Circular towers at angles are rather common. Enghien-les-Bains, a place of summer resort beyond St. Denis, is remarkable for the number of its houses directly imitated from the Swiss cottages: but these are perhaps the work of one local builder.

The migration westward, or to the country any side of Paris, however, has done as yet little to affect sensibly the rents of tenements "*en ville*:" speculation, and health-destruction to some extent attendant, therefore, continue to work in quarters which we have spoken of. The buildings composed of a ground story and one with dormers in the mansard roof, attached to private hotels, that is, separating court from street, and containing as in the Faubourg St. Germain, often an elegant gateway, are disappearing, to be replaced by many storied structures, remunerative for outlay, and elegant in their architectural details, but prejudicial in one respect, and which are too lofty for their features to be comfortably seen or appreciated. In some cases, the original character of court and garden as adjuncts, is further altered by the addition of a third block in the rear. There you may find a staircase serving the *étages* from *premier* to *sixième*, packed in something like the space on plan of cabin-stairs in a Thames steam-boat. Be careful how you come down from any artist friend that you are unfortunate enough to have in any of the more elevated regions; you will have plenty of opportunities for risking your life in other cases. The descent from the top of the column in the Place Vendôme is less dangerous than even that of a more spacious staircase in some of the otherwise best-planned buildings. There is an appearance of ingenuity in the French staircases which attracts the eye in a drawing; and there is great skill in masonry; but the omission of "quarter-space" landings, and the oblique, in place of the rectangular disposition of what with us would be the lines of "flyers," that is to say, the use of what are really winders, even throughout the length of the straight wall bounding an oblong space on plan (forgetting that the tendency after the first step or two, is for the eye to guide the body in a line parallel with that of the wall), is certainly carried to too great an extent.*

There are two general arrangements in Paris, of the block of a building of the larger kind, divided into *appartements*, irrespective of the case of the *hôtels*, as in the Faubourg St. Germain. The original plan either has a central court or two or more courts similarly enclosed, and which may be laid out as gardens in the best buildings; or one side, next to the street, is left open to the latter. This plan is the best in every respect, but of course only so long as the portion next to the street is not filled in. It is not the most common of the two plans. In the majority of the *appartements* there is, however, deficient ventilation from the court; that is, there are all the evils of rooms in houses which are "back to back." The evil attendant on building over ground originally required to be left unoccupied, is in process of consummation in many parts of London; and the tendency towards the disposal of ground at the backs of houses,—sometimes for erection of the very class of building which should have wide accesses,—and towards the destruction of the pleasant gardens in front of houses, and substitution of erections of most unsightly character, demands constant watching. Original

* The lever-handles of the doors of the French shops, are a source of danger in shutting the doors, to those not accustomed to them. The doors of apartments in hotels, and the drawers of *commodes*, however, have no handles at all; so that plenty of time is lost in substituting the key when not wanted for its proper purpose.

breathing-space is clogged up; and, whilst new streets are necessary in each capital, towards the development and utilization of fresh quarters, central or at the outskirts, they are only too much become needed as a trifling counteractive of the manner of building which we have spoken of.

There are some well-remembered episodes in one of the volumes of Sir E. Bulwer Lytton's "*Night and Morning*," where the contrasts which may exist under the same roof in Paris have been brought together with telling effect. The whole novel has been translated in the *feuilleton* of *La Patrie*. We will quote the author's words concluding one of the scenes, and in the French dress:—

"Ainsi, au premier, la fortune, la danse, la joie, les plaisirs, et les festins !
Plus haut, dans la mansarde, la misère, la souffrance, le froid, la faim, et la mort !"

Telle est une grande ville, surtout Paris, où le même toit couvre les variétés les plus opposées de l'ordre social. Il n'y a rien d'étrange dans ce rapprochement des deux extrêmes, mais ce qu'il y a d'étrange, de triste même, c'est qu'il est excessivement rare que les uns les autres se connaissent.

Ainsi, M^{me} de Merville, qui habitait le somptueux appartement du premier étage, cette femme au cœur si compatissant et si charitable, ignorait complètement quelle détresse existait autour d'elle. La musique, si joyeuse aux oreilles de ses hôtes, était parvenue jusqu'aux oreilles malades de l'agonie et du besoin."

The general assertion comprised in this, is correct. The facts as to the buildings in which might be the *appartement* of Madame de Merville, are now slightly different.

We are amongst those who believe that it would be well for all classes of people, could rich and poor live as near together, and with the mere chance of mutual influence and services, as in the same street or house. Few are there who know anything of the domestic condition of the poorer classes; yet many good men are there who assent to statements showing the need of improvement. But, is not a more friendly feeling than exists generally between classes, necessary to each class? There is much more of this intercourse in Paris than in London; and we believe we rightly draw attention to the effects,—however unflattering it may be to hint a comparison with what exists in England. It seems impossible for two Englishmen of different ranks in life, or in the relations of master and servant, to be real friends. There is always an aping to get up to the conventional position of some class, which begets the looking-down. One who wants attention must make a show of expecting it. He then gets it, in his own country, say from those only whom he employs, or with whom he deals. He carries the same bearing to the Continent; and, accordingly, Englishmen are everywhere disliked. Now, to our mind, the tendency of large towns,—here treating their increase of population, along with a certain development of distinct quarters, as unchecked,—may be a serious evil. First, what are the facts of the increase? Mr. A. Legoyt, whose name will be remembered by those who attended the meetings last year of the International Statistical Congress, is just now analyzing our national census returns in the *Moniteur*, in commencing a series of "*Études sur les Populations Européennes*." He not only finds, what we knew, that the increase of population in England and Wales was made up by an increase in that of the towns, and shows that the *agglomération* of people had been greatest in the provincial towns of the first rank, considerable in London, and decreasing inversely to the importance of the towns of second and third rank; but he remarks that the same tendency to *agglomération* had been discovered in France. Now, it is premature to say that the "*agglomération*" is a good or an evil for a country at large; though the fact that the female sex, in England, has increased more than the male,—whilst it is in towns that there is the greatest retardation in the provision of places of habitation; that is to say, in providing the true sphere of woman's occupation,—should be taken into serious consideration. But it is clear that the manner of the *agglomération* requires constant

watching, and much greater activity in the provision of the sanitary, social, and moral appliances than has been exhibited in London. It is unwise and unjustifiable, on moral and social considerations, to adhere to the practice whereby arises a Whitechapel with no admixture of one class except in the person of the resident clergyman, and a Tyburnia with none of another class except a few shopkeepers. The theory of the country-gentlemen is better. Each class in England can be the means of improving each other; but, the first step is acquaintance with one another. Unfortunately, even in the west-end of London, owing to the manner in which streets are planned and connected, and the system on which houses are designed and built, there are many quarters little known to those who live in close vicinity to them. There must necessarily be second and third class streets in each quarter; but if so, the residences in them should be first-class in everything that relates to domestic comfort and health, wherefrom come the good conduct which will deserve the respect of neighbours. If the cost of ground be too great to permit of a distinct building for each family; if the means of communication to suburbs be too difficult; or, if a certain number of persons must reside in central situations with the disadvantages thereof; it follows that it would be better to provide the places of residence in buildings of the scale of those in Paris, divided into "*appartements*" as economical of space, but without the disadvantages for health which may be found. It has been already shown how this might be done. The saving in mere staircase-space is a great gain. The external-gallery system of the Streatham-street buildings,—which we have always said should be extended to street fronts for a certain proportion of buildings to be erected,—and the arrangement of a staircase entirely open on one side, are well deserving the attention of the French architects. Such arrangements get rid of the bulk of the difficulty as regards ventilation. We are surprised to find that some Frenchmen speak of the general London system as better than their own. Mr. Legoyt even seems to be under that impression; and a writer in *L'Illustration* goes to the length of recommending what would be at present impossible, in Paris,—provision of a distinct building for each family. Such writers mistake the condition of residences and families in London. This is not surprising. People from the provinces, in England, make the same mistake. But, so far as the heart of London is concerned, for the second and third rate streets, if not the first, the principle upon which houses are built, and the manner of occupancy, are not consistent with one another. Mr. Legoyt says:—

"It is, besides, of moment to remark that in England, the habit, as regards each family, of having even in the towns a distinct house, however humble it may be, is one of the characteristic *traits* of the national manners. Nowhere in Europe has the love of 'home,' that is to say of the domestic hearth, calm, quiet, discreet, sheltered from the curious eye of the neighbour or servants, or from the obligations of the life in common, thrust more profound roots than in England."

How sad that with all this yearning which the writer recognizes, the condition of the actual "home" should drive parents to—the national vice,—children, of each sex, to the school of—the streets,—and all of a too large section of our population to guilt and crime. In real truth there is more of home comfort possible in a Paris *appartement* than a London "lodging," or than in many a London house; though not more than might be had in buildings erected after some of our present models. There are great defects in the Paris residences; but there is much to be learned on the one side as on the other. Indeed, the French "*appartements*" offer the sort of accommodation which has been lately so much spoken of as wanting, and on that account, doubtless, have been alluded to in some of the letters which have appeared in our pages. They have always an enclosing door; there is a hopper-shoot ("*plomb*,") for the refuse, and other conveniences, close adjoining; the apparatus of the *cuisine*, from the French manner of living, and skill in getting much out of little in the way of meat, and at small cost, can be put in a corner, where it will serve to cook "un potage," and "trois plats" occupying less space than one of our emigrant's or portable stoves; there is a regular branch of industry in Paris for the carriage every morning, of the water of the Seine, or that from the "fontaine" in the court, to the "*appartement*," in which last there is often a cistern and filtering-apparatus; and there is also in Paris what we have frequently contended for as necessary in London to allow the advantages of public wash-houses to reach the class and individuals whom they were intended

to benefit, namely, a "lavoir," within a moderate distance of each habitation. There are according to one statement * 174 such wash-houses, encouraged by a reduction of the water-rates. From inquiry, we find that the mother of a family may take linen to one of these establishments in the evening, and for a few sous have it again the next morning clean for ironing in her own room without further trouble. There are further, in Paris, 200 bathing-establishments, furnishing an average of 2,500,000 baths per annum, each with an unlimited and copious supply of water; besides which there are the "bains ambulants," or portable baths, much used; also cheap hygienic baths under the direction of a society; and the "Ecoles de Natation," or swimming schools, for both sexes, on the Seine, in summer. There are *crèches*, or public nurseries, where a mother who has to work during the day, can leave her child by payment of twenty centimes; and there are societies and institutions for educational and medical relief more numerous and on a larger scale than it is possible for us to give the idea of in this article. Whether these latter charitable institutions lessen the feeling of responsibility in the parent, we cannot now decide; and would therefore leave that important question untouched.

In what we have described as the resources of a Paris "*appartement*" we do not say there is everything that conduces to health or the idea of "home;" we would say rather, differently, and our remarks have shown as much: nevertheless if the arrangements and conveniences are not equal to those of our model dwellings for families and to the Victoria-street Chambers, we are not sure that the mass of the inhabitants of London are better off in their habitations than the inhabitants of Paris. A great deal more than is consistent with truth, is said by Englishmen, of that love of home as distinctively English. Were the passion so deeply seated as asserted, there would be less difficulty than there is, in forming associations for the construction of blocks of residences with the prospect of return; and every respect to comfort and decency in the habitation of a family, would not be sacrificed, as it is by a large portion of our artisan population, to the show of ownership in the street-door. It is the man's wife who is more in fault than the head of the family himself; and she reaps a sad reward. French writers may draw a nice distinction between the *comfortable* and the "*bien-être*," and say that the love of the former is the characteristic of a people "*égoïste*;" but they mistake the value of the thing, and they are unjust to their own nation. The French "*confort*" indeed means *aïd*, rather than domestic comfort; but is not the English idea conveyed by the constantly-used expression "*chez soi*?" What is meant is provided for better by the "*appartements*" of Paris with all their defects, than by the London lodgings. If it be granted that the insufficiency of the "*appartement*" drives the husband out of doors; be it remarked that he can take his wife with him to theatre or *café*, with less difficulty than in England. We judge of all classes in France by a standard which may be erroneous applied to a certain section, which is as large as the home-loving class in England. Somehow, between the *café* and the French home, amongst the *bourgeoisie* at least, the domestic virtues exist, all the caricatures of Gavarni to the contrary notwithstanding. And who that has seen the children out-of-doors, will say that these are not happy?

The chief improvements required in the Paris "*appartements*," relate to certain conveniences. These, however, cannot be perfected until the "municipality" have completed those arrangements for sewerage and water-supply on which they are actively engaged. The deficiency has probably been the chief cause of some habits which are offensive to English tastes. The "*plomb*" or refuse-water receptacle, in premises of inferior class, is often placed externally below a window-sill, with communication to the rain-water-pipe: the refuse finds its way too sluggishly to the street-gutters; and that despite the admirable system of street-washing, a disagreeable stench results in the hot weather in many parts of Paris, probably because the same attention cannot be paid by the "*locataires*" in-doors, as by the public authorities. We have already referred to the appropriation of rooms in the roof of a house. A building, in which would be the "*appartement*" of a Madame de Merville, in a fashionable quarter, would hardly now afford a nest for the poor family, as described by the novelist, in the *mansard*, or anywhere else. Yet such space, left void in a London house, is too

valuable to be lost in Paris. How it is appropriated, and the results, shall be told in the words of one whose contribution to the unravelling of a serious subject, has been already made use of in these pages. After speaking of the imperfect observation of the regulations regarding the cubical capacity of each sleeping-room in a Paris house, Mr. Jules Simon says:—

"But that which the authorities could not do, or at least that which has not been done, is the compelling the proprietors [of buildings let in *appartements*] to place the sleeping-rooms of the domestics in the *appartements* of the masters. All the servants of a house (building), *filles de chambre*, nursemaids, female cooks, *volets de chambre*, and concubines, inhabit, under the roofs, cells scarcely enclosed, into which you can enter only by stooping, lighted by a fixed pane of glass or a lucarne-window, icy and sometimes inundated in winter, burning and stifling in summer. These cells are cruelly and necessarily uninhabitable: for, if people could stand upright in them, breathe in them, live in them, they would appropriate them for letting, and they would find a little higher up, or, if there were not a garret, in the cellars, in some nook of the staircase, the place of a mattress for the servants. In truth, this seventh story is inhuman, one might say murderous; it is suggestive of the famous leads of Venice, which probably were better than our *mansards*. But is it only inhuman? Who overlooks these *imbos*, inaccessible by their elevation, their temperature, their dirtiness? It is thence, that the plague descends into the houses; and in order that morals be less injured than hygiene, it is there that is established in permanence the school of theft and lust. God preserve every young girl from serving in a virtuous house which can lodge her only there."

There are houses in the west of London where the servants are not much better lodged. Can it be wondered at if good servants are difficult to be got, and that a young woman who has "lived in the best of families" makes an indifferent wife.

The "portiers" or "concierges" of Paris, are not better off. Always obliged to be within reach of the *cordon*, in a well-regulated house, and within eye-shot of him who enters, they are domiciled in a "*loge*" with a most confined sleeping-room. What with their vigilance, and that of the police, property is safe; but they often exercise a disagreeable power over *locataires* who may have displeased them, as by not allowing some of the claims they have contrived to establish defying the law. They can be conveniently blind for a consideration. It must be allowed that the necessity of such an officer, is one of the difficulties in the adoption of the Paris system: but it is not a conclusive or insurmountable one.

Any difficulty of internal planning seems just now courted in Paris. By reason of the excessive fondness for circuses where streets intersect, the architects have peculiar chances of showing skill, which they seem quite ready to accept. The canted corners in other cases, may be the best mode of meeting an evil of narrow streets which cannot be altered. Our view of the merits and defects of the street-planning, has been in part stated. The sites of public buildings are well chosen; statues and fountains, squares and their accessories, are treated with judgment as well as prodigality of art; trees line the boulevards, and flowers bloom in public gardens; "ornament" is everywhere, and sculpture prevalent to an extent that English architects dare not dream of yet; every hand engaged seems to be an able one: but the work is being done too quickly. Thus, there is the monotony in the vistas, which we have referred to, and in the circuses and canted corners; and there are many defects in the separate buildings; but the *porte-cochères* alone would be worth a visit to Paris. The decorative characteristics of Paris architecture, however, we may have another opportunity of examining.

Were there any truth in the assertion which has been made, that the authorities have the direct aim of making Paris a fit residence for persons only of large incomes, the result would be to be deplored. We learn, indeed, that many kinds of manufacture are discouraged, in quarters where they lately existed; but this is induced not merely by the desire of getting rid of, or providing elsewhere for the workmen. We ourselves should be glad to be rid of the City Gas Works; and the incendiary candle-making establishment by St. Paul's.

FLORENCE EXHIBITION. PAINTING AND SCULPTURE.

In the modern architecture of Italy do not shine very brightly at Florence, the noble art of painting has the advantage over it of possessing at least the germs of excellence; and, indeed, there are several pictures which would do credit to any country; although fair criticism compels us to deny that the general run of pictures comes up to the standard of London or Paris. For this latter result the education of the artist is to be blamed;

* Gallnau's New Paris Guide for 1861, page 41.

* "L'Ouvrière," par Jules Simon.

for, though an Italian artist is generally taught to draw and copy beautifully; yet, when the time comes for him to produce something original, he has got into such a habit of copying, that he is fit for very little else. The antique and the great masters have destroyed all his original powers; and I seriously believe that the very best thing for future Italian artists of all kinds would be to lock up all the treasures of art bequeathed to them by their ancestors, until such time as they should have learned to do without them. At the same time it must be confessed that the generality of subjects are better chosen than with us; and we find but few of those puerilities which cause so many mirthful faces in the rooms of our own Academy. In the present collection (which, it should be stated, contains several works executed many years ago, and of which the authors are deceased), historical subjects, ancient and modern, are decidedly in the majority, and the portraits few and far between. Religious pictures are also very scarce, and certainly the worst of all.

Of the various schools, those of Milan and Naples shine conspicuously in the works of Pagliano, Celentano, and Morelli, the first of whom has a delightfully-coloured picture of the Assassination of Buondelmonte, and another of the rather stock subject of Tintoret and his Daughter. In the former painting the colouring is most brilliant and harmonious, although the execution is a little coarse. Celentano, on the contrary, has produced a most pleasing effect with simply black, white, and a few purples and reds; the picture representing the Venetian council of ten proceeding to their place of assembly. Their attention is evidently taken up with some weighty matter, for the various groups are earnestly discoursing with one another. Morelli, the compatriot of Celentano (for both are from Naples), contributes four very excellent subjects. The first is a party of ladies in a boat, going to a masquerade; and one of them is frightening a little child by putting on her mask: the second picture gives us a serenade; the third, the interior of a Pompeian bath,—a nude subject; and the fourth, the madness of *Haydee*, from "Don Juan."

We have especially mentioned these three gentlemen because they appear to have produced the best pictures in the exhibition, although they are placed in the galleries, and not in the saloons, on the ground-floor, which latter would appear to be the place of honour. At the same time it should be remembered that there are many distinguished artists at Venice and Rome who have been prevented from sending their works by the Governments under which they have the misfortune to live; and it is only fair therefore to suspend our verdict as to the superiority of one school over another until political events shall have permitted a more general exhibition than the present one. But to return to the pictures. The Religious school is represented by Spano (Naples), "Jacob and Rachel;" Ruo, "St. Sebastian;" Rapa Zirdi, "St. Benedict blessing St. Placidio;" De Giovanni, "St. Eloi in his Workshop,"—two chubby angels (such as we all so much admire in our own St. Paul's) present him with a mitre and a crozier; Treacurt, "St. Nicolo di Bari;" and Fattori, "Eather and Alasuerus," "St. John the Baptist before Herod," &c.; and of course there is the usual collection of Madonnas. None of these pictures are very striking: perhaps they may be best described as belonging to the blanket school, which gives them all a strong family likeness. However, one artist has produced an imitation of Correggio; and Fattori's works will, doubtless, remind English visitors of their countryman, Mr. Solomon Hart, R.A. Many of the historical pictures labour under the same defect of substituting blanket drapery to costume that we have just noticed in the sacred subjects. Others, again, sin in a much more glaring manner: thus the late Bezzuoli's "Entry of Charles VII. into Florence" is redolent of Elizabethan costume and armour; and the very same fault is committed in the "Defeat of Ezzelinono of Padua," the work of Malatesta; and again the same suit of armour does service in Smargi Asisi's "Dispute of the Angel and Devil for the Soul of Buonacento di Montrefelco." On the other hand, the costume is exceedingly well carried out in Usisi's "Banishment of the Duke of Athens," one of the best pictures in the building; and pretty fairly in Pucinello's "Platonic Evenings of Lorenzo di Medici." Many writers, and those high in authority,—Sir J. Reynolds, for instance,—tell us that costume is a thing which may be put aside, if a picture possesses other qualities, such as colour, composition, &c.; but, after all, does it not stand to common sense that when an artist wishes to paint a historical

picture, it is his duty to represent the scene as it really might have taken place, and not as it never possibly could have happened? The Iconoclasts, by Morelli (mentioned above) is a picture deserving of great praise; but the same can hardly be said of its neighbour (by Petarlini), a semi-religious subject said to represent the triumph of truth, but in reality a scene from the Apocalypse, with variations and improvements by the author: one of these improvements is the introduction of Italy. It would appear from the ticket that his Majesty, Victor Emmanuel, has made the acquisition of this work of art; and one is certainly curious to know what he thinks of it. His gracious Majesty (according to the journals, which are just now teeming with anecdotes regarding the royal family) manifested great emotion on beholding the work of Conti, representing the execution of the Cignola family, by the order of the Austrian general, Urban, during the late war. This is evidently the sensation picture of the collection; but, beyond the choice of the subject, there is nothing very particular about it. Bezzuoli contributes the "Finding the Body of Manfred after the Battle of Benevento," which, it is to be hoped, will not become a fine stock subject, like our own "Finding the Body of Harold." As might be expected, the incidents of the late war are reproduced in a great number of pictures, some of which are ticketed as the property of the Government, and are probably commissions. Of course, in every case, the Austrians are getting the worst of it; and at last the spectator begins to regard them as the natural enemies of the human race; instead of the quiet, good-natured people they are, when left alone by their rulers. Of all these pictures, perhaps those by Induno, of Milan, are the best.

The landscape painters appear to have studied in the French school, and are consequently apt to get their effects too dark and indistinct. Cabianca, Borran, Vertumni, and Signorini, however, exhibit works of great merit, and have evidently gone to nature. Querena's "Interior of St. Mark's, Venice," is very much in the style of D. Roberts, R.A.; while Ferrari's "Piazza Navona at Rome" strongly reminds us of the best works of G. Jones, R.A. Although not in any great number, the collection of portraits is sufficiently extensive to give a very good idea of the state of this branch of the art; and, strange to say, it is only among them that we detect any traces of pre-Raphaelism. Among these latter are a child (no name), a lady by Cassiole of Sienna, and a male head by Bezzuoli. There are three excellent portraits by Gordigiani, and a very indifferent one of the King by Massimi. A half-length of a lady, by Castellini, is principally noticeable on account of its elaborately carved cinque-cento frame: the material is boxwood.

The exhibition by no means shines in water-colour drawings, but there are several leaves of a book of hours, illuminated by Rudolphi, which are executed with great delicacy: the burnished gold is also very good, but the figures do not quite come up to the other parts. Napoleon Verga, on the other hand, has several copies from ancient illuminations, which leave nothing to be desired as regards finish and lightness of touch. While on the subject of water-colours, the numerous works (landscapes) of C. Bossoli must not be forgotten: they occupy two whole rooms, and represent all the events of the late war. These drawings are executed in *gouache* with a great deal of skill, but to an English eye have the disadvantage of being a little too opaque. They are known in London.

From the paintings we pass on to the sculpture; and here the Italians quite equal if they do not surpass our own school. But after an attentive survey of the whole of this branch of the arts as exhibited at Florence, the stranger would be apt to award the palm of excellence to the three busts exhibited by Mr. Hiram Powers: however, the full-length figures by the same artist are by no means above the common run; and, indeed, are surpassed by several others. In the religious school one of the best things is the little bas-relief of "The Flight into Egypt," by Buzzi, where the sharp square cutting and good drawing make up for the very small projection of the figures. Both this and another work by the same author (Paolo and Francesca da Rimini) are not unworthy of Donatello. Ninetti has an acrobatic Massacre of the Innocents in the John of Bologna style; and many Englishmen will recognise the Ishmael of Strazzi as well as a certain marble wash-hand-stand as old friends of 1851. 8000. are demanded for the latter article. Of the other religious works, Magni has a very good statue of "The Dead Christ," and Cartei a Cain and Abel as well as an Eve; the

latter not at all bad; but as much can hardly be said for the "Christ Blessing little Children," by Bossi. But the majority of the religious sculptures, like the majority of the religious pictures, must be put down to the blanket school; it being so much easier to put a rough piece of drapery round a model than to hunt up authorities for the proper costume, and when found to have it made up in the proper manner with proper materials. Altogether, religious art would hardly appear to be in a very flourishing state; and almost the only work at the exhibition which would create any sensation is the very beautiful cinque-cento effigy and tomb of the late Mrs. Spence, by Loccatelli. The Florentines, indeed, are very skillful in this sort of work; and there is an effigy (*inter alia*) of one of the Sabatelli, in the church of Sta. Croce, which will bear comparison with any effigy ever executed. Of the secular figures, the "Socrates" of Magni decidedly takes the pre-eminence, and leaves but little to be desired; and a good deal of interest is excited by a swinging figure (also due to the same artist) on account of its having been executed for Ristori, who is loved as much for her patriotism as for her artistic talent. Do successful actors or singers ever order statues in our own country? As a general rule, perhaps the Milanese school of sculpture is the best, although it has the fault of applying a bronze treatment to marble. Thus, the group of "The Sister of Mercy and the Wounded Zouave," by Rivalta, is an example of the fault, although otherwise it is an excellent work. There are very few actual works of bronze in the exhibition. Of what there are, the most striking is a life-sized figure of a shipwrecked seaman, by our countryman, Mr. C. Fuller, which, together with a copy of the head of Michelangelo's "David," was cast in the Royal Foundry by Lapi. Throughout the room, nothing strikes the stranger so much as the frequent repetition of the bust of the king, of Cavour, and Garibaldi. This, of course, was to be expected; but how can we account for the numerous statues of the God of Love, Cupid, in all sorts of positions, and engaged in all sorts of occupations,—so much so that one is half inclined to believe in the existence of some secret *cultus* at Florence of the God of Love. Thus we have "Cupid chaining the World" (Casoni), "Cupid at the Forge" (Torelli), as "Conqueror" (Fedi), as a beggar, as a blacksmith, as having pricked himself, and with a fish in his hand (all by Cambi). In the last he has laid aside his wings, but there can be no doubt of his identity. The list closes with a reverend Cupid, who figures as Sacred Music (Consani).

Among the ivory sculpture is a very beautiful reduction of the great fountain at Siena, a work which is being executed for Lord Northesk. It is, however, somewhat difficult to conceive the use of such a model; and one is much more inclined to think with Lord Northampton, who has employed the same artist (Giusti, of Siena) upon a picture-frame, which is not only useful, but presents the advantage of being an original work. A large wooden door, containing many groups of figures, and executed by Barbeti for Prince Demidoff, is only remarkable for the excessive use of sand-paper. Of course, there are very many specimens of the carved and gilt picture-frames for which Florence is so famous; and there is also a remarkably good show of marquetry works, many of the latter having figure subjects. These are well executed; for the engraving has evidently been entrusted to competent persons, instead of the ordinary mechanic, who puts in the veins of the leaves and the Elizabethan scrolls. In England, I am sorry to say that figure subjects are but too often entrusted to the latter gentlemen.

Among the numerous works in Florentine mosaic is a little figure about 1 foot 6 inches high, executed in Roman mosaic; the tessera being a good size. It is, in fact, such a work as might be used on an altar or tomb, and not one of those misapplied specimens of human ingenuity which are only remarkable for their enormous price.

The Jewellery-room is rather disappointing, the manufacturers having, like nearly all their countrymen, run after French taste and French fashion; perhaps, at this time, and in this Department, the worst in the world. Thus, the Vercelli goldsmiths display a quantity of bad jewellery in conspicuous situations, while the beautiful flagee worn in that part of the country is only to be seen on a hairdresser's dummy stuck upon a shelf. Again, there is very little Genoese flagee; and Castellani, of Rome, has sent no Etruscan work; probably having the fear of his spiritual pastors and masters before his eyes. His only work is a

sword, presented by the Romans to Victor Emmanuel; and, although carefully worked, it is nothing out of the way.

However, Luppi of Cagliari has some beautiful jewellery,—almost rivaling antique Greek,—while the cinque cento is most worthily worked out by Bazzanti and Vichi, of Florence; the ornaments being made in separate pieces, and afterwards soldered together, exactly like the early fourteenth century ornaments so often seen on shrines and reliquaries.

Nothing can have better taste than two necklaces by Tverembold, of Turin: they are made entirely of jewellery and gold chains. Girometti and Pistrucchi, of Rome, have some beautiful cameos in pietra dura; one head executed by the former gentleman measuring 5 inches by 3 inches. Berini, of Milan, has also two large heads, in jasper.

We have not space to notice the stained glass of Francini of Florence, and Botti of Pisa (it is not first-rate), or the imitation Raffaele and Lucca della Robbia ware from the manufactories of the Marchese Ginori Lisci; or the excellent collection of native marbles, alabasters, and woods. As a stock-taking the Exhibition has been, and is, eminently successful; and the exceedingly crowded state of the city bears clear witness of the interest taken in the affair by all classes of Italians.*

SANITARY APPLIANCES FOR THE INTERNATIONAL EXHIBITION.

In a paper read by Mr. Wilson, in the north, printed in our present number, the writer looks forward with great expectation to the proceedings of the Sanitary Committee appointed by the Exhibition Commissioners. We are not certain that this expectation will be fulfilled, the powers of the committee are so small and circumscribed: however, we shall see. One of the committee, Mr. Edwin Chadwick, drew up a programme with the view of suggesting to foreign as well as British manufacturers, the rank and importance of classes of articles of their production as means for improving the health and comfort of populations.

It is so suggestive that we print it, in the hope it may not be too late even now to direct attention to right channels.

1. Since the last Exposition, the use of tubular house drains and sewers has been developed. It is known that upwards of eleven thousand miles of such drain-pipes have been manufactured. There are great varieties of material—vitreous pipes, red ware pipes, socket-jointed pipes, rabbit-jointed. They are now exported to America and Australia. Accuracy of form and jointing are qualities of special importance of this description of articles. On the trial of some to which increased accuracy was produced by mechanical pressure, after the clay had been partially dried, about one-fourth more rapid discharge and power of sweep for self-cleaning was found to be given to pipes of the same diameters and inclinations, and the same quantities of water.

Since the last Exposition new forms of apparatus, valves, and traps, to prevent the ingress of foul air in houses, have been introduced in great variety. The manufacture of soil-pans and water-closet apparatus is largely increasing with the abolition of cesspools in towns; and the manufacture of this species of apparatus was lately known to be proceeding at the rate of upwards of a thousand a day. A great improvement in the health of the population, almost house to house as they have been introduced, and communication from sewers of deposit prevented. The qualities sought for in the construction of this apparatus are:—1st. A complete sewer for the removal of the soil. 2nd. The best trap against the ingress or regurgitation of effluvia from the general system of town drainage and sewerage with which each soil-pan and house-sink must communicate. 3rd. The consumption of the least quantity of water for a complete sewer and perfect trap. 4th. Durability, i.e. freedom from liability of breakage in consequence of frost, from derangement of the machinery, from breakage by careless usage, from stoppages. 5th. Easy repair. 6th. Cheapness when manufactured on a large scale. In some of these apparatus, complete removal is effected by half a gallon of water, in others two gallons of water or more is used. Attention has not hitherto been paid to the importance of effecting the cleansing purposes with the least quantity of water, with a view to the avoidance of the unnecessary bulk of sewage, and to excessive

unnecessary dilution, for the application of the sewage to agricultural production. This description of apparatus would form an important subject of interest to officers of public works, foreign as well as British, and to colonists and foreign architects who are beginning to follow the example of England in sanitary matters.

2. The manufacture of pipes and apparatus for the collection and distribution of water into towns and houses may display considerable advances. For the spring collection of water, the permeable agricultural pipe drains have been of late much used in England. For water leading, earthenware pipes have come into use very beneficially, but of small diameters, and very low pressures, seldom exceeding 30 or 40 feet, but not at all for the interior of towns and houses, although from Roman and Greek remains, and the instructions of Vitruvius, they were anciently used successfully for house as well as town supplies, under 100 feet of pressure and more, by contrivances for the avoidance of fracture by hydraulic jerks. In France, water has been distributed under pressures of upwards of 160 feet. In several parts of the Continent, vitreous earthenware, as well as glass, has been used for the distribution of gas as well as water. Besides the greater economy of the material, it has for the distribution of water the advantages of greater purity than metal, which oxidises. The complete collection of these appliances would be very interesting. It is now found that lead piping has on some waters a more extensive and injurious effect than has hitherto been apprehended. To obviate this in pipes for house distribution, an interior lining of non-metallic enamel has been applied. Enamels composed chiefly of coal tar, as well as of vitreous materials, have been applied extensively to wrought as well as to the largest cast-iron trunk mains. With the increasing demands for the introduction of water into cities and houses, and manufactories, new demands have arisen for improved water-meters. Of the whole quantity of water pumped into London, nearly three-fifths was found to be pumped in waste. In other towns the waste of water is often in as great proportion. Since it is proved to be necessary, on sanitary grounds, to discountenance the storage of water in houses in crowded districts, where it absorbs foul gases, and to deliver water direct, the prevention of waste has become a matter of great importance, and hence a great variety of taps and self-closing apparatus and contrivances for the purpose.

Up to the year 1854 the General Board of Health had sanctioned, or prepared sanctions to, an expenditure of about six millions of money by Local Boards of Health for the sanitary improvement of towns. One part of the expenditure was for earthwork: the remainder was chiefly for new apparatus of a description which would come under the two above-recited heads. Since that time probably an equal amount of expenditure has been incurred on the like appliances in the British towns alone.

3. About the time of the last Exposition the estimated washing bill for the metropolis was five millions sterling per annum, and it was probably under-estimated at that amount. By a general smoke consumption, if only to the extent to which smoke consumption has been effected in particular instances, the fouling of clothes and the expense of washing might be reduced one-half. Five-sixths of the heat from the combustion of coal, or some such proportion, escapes unapplied in the common chimneys. Since the last Exposition more attention has been directed to the subject; and there have been new grates and kitchen ranges invented with the pretension of consuming smoke or economising heat. A portion of the English fire-grates have been examined by a commission on warming and ventilation, which made a report about two years ago. Since then other inventions have been brought forward in England. A portion of the English kitchen ranges have been examined by a commission on barracks and hospitals. These partial trials have had, however, by no means the public or professional attention which is due to them. Some of the grates pretend to save two-thirds of the fuel, and there is little doubt several save half. But on the Continent, particularly in France, where fuel is very dear, the exertions to economize it appear to have been far greater. In America, also, considerable advances in this species of appliance have been made. It is reported that the French cooking ranges are worked with half the fuel of the most approved, and with a quarter the quantity of fuel consumed by the common kitchen ranges in England; and that cottagers' grates in France are made to suffice with one-third the fuel used here. In Paris the warming

of some large public edifices appeared to be less expensive than in Manchester, where coal is little more than a quarter the price. It is stated that in Austria, in Vienna in particular, open fire-places are in use, lined with a cleanly and very ornamental earthenware, which are of very great warming power. It is also stated that very superior and very ornamental apparatus of this description is in use in Sweden. Tuscany has terra-cotta, or red ware clay fire-places, which are works of art.

It would be one of the greatest practical achievements of the Exhibition, if the opportunity were taken to obtain a complete collection of all the best apparatus of this species, foreign as well as British, and to have their warming or cooking powers tried, and the results reported. With this view, it is proposed that a room or rooms should be prepared for the purpose, and inventors be invited to send their apparatus for trial, and competent persons should be appointed to conduct the trials. They should be conducted as competitive examinations, and the results made public. The proceeding might be expected to be one of great interest, and it might be commenced long before the opening of the Exposition, when the apparatus tested might be exhibited.

The Commissioners of those countries where fuel is the most scarce and which have the greatest interest in the subject should have their attention specially directed to it, and they may be expected to give aid upon it. The French Commissioners, as also the Austrian, may be requested to have preliminary trials made, and to bring over their best, with an account, to be re-tested, of their power of warming, with a given quantity of fuel, a given space; or, in cookery, of cooking rations with given quantities of fuel. The variations of the English ranges exhibited in the report of the Commission for the sanitary improvement of barracks and hospitals was from 64 ounces to 2½ ounces daily of coal per head of men cooked for.

At Paris an apparatus in the form of a worm, kept filled with water, and placed in a chimney, was reported to catch two-thirds of the heat commonly wasted, and in the hot water, to convey it to parts of buildings distant from the chimney, for the purpose of heating them. In other ways, the chimney heat, so extensively wasted in England, has been utilised of late by French architects.

By directing attention to points of selection, giving place to none without fair specified pretension to distinction, either in improved construction or quality, or reduced price, space may be saved and the objects of the Exposition promoted.

4. The preceding observations are applicable to apparatus for ventilation, in which there has been at all events an increase of attention since the last Exposition. At Paris there have been some important trials; and reports on competitions between methods of hospital ventilation, applicable to other buildings, if not to private houses, have been made. A hot-water tank at the top of a building, through which pass the ends of flues for the removal of vitiated air, is reported to be a very cheap and easy working power for the constant change of air.

5. Two great evils in house construction are (1) damp in walls, which, by evaporation, lowers temperature, and produces one class of diseases; and (2) absorbence of the mephitic gases. A common English brick absorbs almost a pint of water. A newly-constructed house requires several months to dry. A row of new houses when first inhabited, are sure to be productive of a crop of illnesses. Those who visit the lower class of houses, in which dead bodies have been retained, are aware how long the dead man's smell remains in walls. Miss Nightingale makes it a great point to obtain non-absorbent walls and wall-surfaces, as well as floors for hospitals. It would be of great importance to ascertain what progress has been made in this matter since the last Exposition by improved hollow bricks. The degrees of absorbence of various materials, or of combinations of materials, might be advantageously tested, and the results noted on the materials.

For all the earthenware materials, whether drain-tiles, house and town drains, hollow pot-drains and tiles, plans and models of kilns of an improved construction, which consume the least amount of coal, and which are of easy construction for rural districts and for the colonies, are of great interest and importance for sanitary works; also improved tile, pot, and brick-making machines.

The objects of this portion of the Exhibition may then be thus classified for the attention of Foreign as well as of British exhibitors:—

* A plan and view of the Exhibition building will be found on another page.

1.—*The Appliances for which the Drainage of Houses and the Sites of Habitations and Towns, and the Removal of Refuse Matters are effected, as, —*

House-drains and the machinery for their construction. Water-closets, and the machinery connected with them. Earthenware pipes, sewers, and gully-shoots. Traps for preventing the escape of effluvia from sewers and house-drains. Urinals of earthenware and iron.

2.—*The Appliances for the Distribution of Water into Towns and Houses.*

Iron mains, with the new glazes and means for the protection of the metal from the action of water, or of water from the action of water.

Earthenware pipes for collecting and leading water into towns, and distributing it.

Pipes of iron, tin, or lead, or other metal, for the distribution of water into houses, with the means of protecting the water from the action of the metals.

Earthenware pipes which have been used for the same purpose in Switzerland, France, and Germany.

Taps or cocks, and valves used for the distribution of constant supplies of water into houses of high-pressure; self-closing taps for the prevention of the waste of water.

Water-meters, for regulating the sale of water.

Apparatus for the purification of water; filters of earthenware or of glass, sand and charcoal filters.

Bath apparatus; public and private shower-bath.

3.—*Apparatus for Warming Houses; and for Cooking and Clothes Washing.*

Fire-grates for cottages and for houses of various grades, with their warming power with given quantities of coal noted.

Smoke-consuming kitchen-ranges of various species.

Kitchen boilers and their heating apparatus.

Apparatus for warming houses by the distribution of hot water.

Stoves for warming houses, by descending flues conducting hot air through a hollow door and walls.

Chimney flues, earthenware-pipe flues, as well as of iron, ornamental as well as plain.

Appliances for cooling houses and dwelling-rooms in very hot weather.

Refrigeratory apparatus.

4.—*Apparatus for Ventilating Houses and Buildings.*

Siphon ventilators.

Chimney-valves.

Window-valves.

Air-pumps, on a large and a small scale.

Blowers or pumps for driving in pure air. Pumps for extracting vitiated air.

Anemometers for regulating the removal of air.

5.—*Apparatus or Materials for the Prevention of Damp and Cold in Houses.*

Walls, floors, and roofs—hollow and non-absorbent pots, bricks, and tiles, for their construction.

Glazed pottery and non-absorbent surfaces for walls.

Apparatus for the prevention of the escape of heat, or for protection from cold, through windows.

Double windows.

Thick window-glass for cottages.

6.—*Apparatus for the Service of the Sick in Houses; and Hospitals for the Removal of the Sick.*

An exhibition of special cottage furniture and appliances.

Huts, tents, and model cottages of various material, with furniture for emigrants or new settlers, or navvies.

"THE MOMENTOUS SANITARY QUESTION."

NORTHERN ARCHITECTURAL ASSOCIATION.

UNDER the above title, Mr. F. R. Wilson, of Alnwick, read the following paper at a meeting of the Northern Architectural Association, on the 18th inst. :—

The Great Exhibition of 1862 is a source to which we all look for much that will be new to us and useful for us to know. Our own profession will, however, be most interested in class X. (civil engineering, architectural machines, and building contrivances), in connection with which a committee has been appointed especially to preside over sanitary appliances. This recognition of the importance of sanitary science is the growth of the last ten years. In the Exhibition of 1851 there was no committee especially appointed for sanitary appliances. It is gratifying to find, on the list of names of the gentlemen invited by her Majesty's Commissioners to superintend this branch of class X, those pioneers who have done so much towards making sanitary science a part of popular knowledge, and who have set an example in the application of its laws to localities that had hitherto been considered beyond help. Architecture contributes two representatives, Mr. G. Godwin, F.R.S., and Mr. Owen Jones: civil engineering is personated by Mr. R. Rawlinson; the Royal Engineers by Captain D. Galton; medical science by Dr. Letheby, Dr. Sutherland, Mr. P. Holland, and Mr. J. Simon; philanthropy by the Earl of Shaftesbury, Viscount Ebrington, and the Bishop of Bath and Wells; building contrivances by the Lord Mayor and Sir Morton Peto, M.P.; and Mr. E. Chadwick, Mr. W. Fairbairn, LL.D., Mr. A. Strutt, Mr. T. Twining, jun., and Mr. T. Campbell make up the list.

By the means of this committee we shall probably be enlightened upon the best modes of securing health in our homes, and upon the momentous question as to what we shall do with our sewage. When we consider the immense wealth that has been lost to the country by the waste of this material, and the frightful loss of life to the nation by the mismanagement of it; we must, indeed, allow that it is wonderful the subject of sanitary appliances, inclusive of this department, has not been taken up a century or two centuries ago. As it is, we can trace the course by which it has finally within remembrance at last come so prominently before the world. The starting point of the great sanitary question was in the office of the registrar-general, the barometer of the public health. The returns of this officer indicating so exactly the number of deaths, their causes, and the localities in which they occurred, formed data upon which to pursue a train of investigations. It became easy to see at a glance the neighbourhoods in which deaths were most frequent; and subsequent inquiries instituted by the medical officer of the Privy Council, Mr. Simon, go to prove that the districts thus exposed as fatal to human life are those in which sanitary appliances are most disregarded. Thus, diarrhoea was found over the varied districts of Coventry, Birmingham, Nottingham, Merthyr Tydfil, Wolverhampton, Leeds, Dudley, and Manchester (with Chorlton and Salford), to be the result of two definite local circumstances—"The tainting of the atmosphere with the products of organic decomposition, especially of human excrement, or the habitual drinking of impure water." The more modern disease, diphtheria, has hitherto baffled inquiry as to whether unsanitary conditions of residence form an exciting cause, although seventy different places, in seventeen different counties, have been visited for the purpose of ascertaining information connected with predisposing causes. Some of the medical gentlemen, giving testimony respecting the localities in which the cases under their superintendence occurred, stated they were unable to detect any connection between unsanitary conditions and the ravages of diphtheria; whilst others thought that local causes did operate. Probably something more definite on this score may appear in the next report presented to Parliament. Be that as it may, the cause of diarrhoeal disease is made clear: it is an affection of appalling severity; having been fatal to 237,498 persons in the nine years ending 1856: it has a tendency to gain ground; and it is preventable. The presence of the first of the destructive agents productive of diarrhoea—a putrefactive pollution of the system, occasioned by the inhaling of air tainted with the products of organic decomposition—is either the result of a defective system of sewerage, or the non-existence of sewerage. And so we come round to the important questions—which is the most efficient

mode of effecting sewerage? And what shall we do with the sewage? It is the elucidation of these complicated questions that we may confidently look forward to as some part of the labours of the committee on sanitary appliances; and I think we ought all to do all we can to assist in forwarding any information with which we are acquainted that is likely to be of use in furthering the formation of correct conclusions.

In face of all our talk and experiments upon deodorization of sewage, and its application to agricultural purposes at Carlisle, Croydon, Exeter, Saltby, and elsewhere; and notwithstanding the projected example of turning to a marketable commodity the two million pounds worth of London sewage annually thrown away; many of the streets of Paris are now cut up by immense ditches for a main drainage, which is to discharge its matter into the Seine at Asnières, below the city. So our French neighbours will not have any light to throw upon the economical adaptation question. The Parisians have also been making some stir about their water supply, part of which is pumped up from the Seine for common use, at Chaillot, below Paris, and has been found to contain twenty-eight times more ammonia than that taken from the Pont d'Ivry, above the city; and several schemes have been adopted to secure a pure beverage among them, one which will bring the pure springs of the Somme and the Seine to Paris, by pipes and aqueducts from the province of Champagne, a distance of 140 miles. Thus, it would appear, the French have abandoned the Seine to sewerage purposes, and have provided water from a new source. Evidences respecting appliances that will ensure the purity of water in our reservoirs will be a most acceptable gain.

The architect has much in his hands for good or evil in the more miscellaneous sanitary appliances: thus it depends upon the site of a house, the drainage, the construction, so that damp shall not be engendered by snow or rain lying on the roofs, or in the gutters behind parapets, or by suction from foundations saturated with rain; the position of water-pipes, so that they be not frozen in winter, and the supply consequently cut off; the perfection of the fittings of gas-pipes, so that an escape, however unperceptible, shall not poison the air; the general arrangements relating to ventilation; the prevention of that thorough nuisance, smoky chimneys, often the only cause of discontent between client and architect, and which puts everybody out of temper at home; the disposition of the stables, and the construction and position of the ashpit and the W. C., whether the inmates shall enjoy health or suffer from disease. Again, in the planning of public establishments, such as hospitals, infirmaries, barracks, gaols, reformatories, asylums for the blind, for idiots, for lunatics, colleges, almshouses, sailors' homes, workhouses, hotels,—monster and otherwise,—town halls, concert halls, theatres, free libraries, mechanics' institutes, club-houses, government offices, assize courts, banks; life, fire, and other offices; schools, national, grammar, infant, and ragged; baths and wash-houses, railway stations, warehouses and shops, cathedrals, churches, chapels, and tabernacles,—how very certainly the health of the occupants of them is dependent upon the skill of the architect: in sanitary construction. If competent persons were always employed to superintend the erection of dwelling-houses, and more especially of cottages for the poor,—too frequently run up by builders in careless defiance of the laws of health,—a marked difference would result in the return tables of preventable deaths.

There are other general measures besides sewerage and water-supply that require consideration. One of these is the provision of clean, wide, airy streets; and on this score I must congratulate our president,—Mr. Dobson,—and such of our members who are residents of Newcastle, and our hon. secretary,—Councillor Oliver,—especially, as being a member of the Public Health Committee, upon the probable acquisition of a new wide street leading to the Walker estate.

Good paving is another valuable item in sanitary resources. Indeed, too much cannot be said about the good effects resulting from it. If the material is non-absorbent it is easily swept, and is highly conducive to cleanliness, and hence to health. Private yards—as well as those that are public, stable-yards, slaughter-yards, cow-yards, alleys, and entries should be all well paved; and the various kinds of pavements best suited to these different purposes require some little discussion. And scavenging is another arrow in the hand of the giant. Improved utensils for the more perfect accomplishment of this operation—carts

CONDITION OF BROMPTON BARRACKS, CHATHAM.

THE buildings occupied by the distinguished corps of Royal Engineers are generally reputed (we do not know with what justice) to rank amongst the most healthy of our public establishments; but, as it is sometimes said that every house has its skeleton-closet, so has even this favoured spot its one dark corner. In a secluded angle lies an old building, which was formerly the canteen, but which has for several years been appropriated for officers' quarters. The chimney-pots are on a level with the barrack-yard or parade-ground: the access is down several flights of wooden steps; and the entrance at last is gained, but not without some whiffs from an open W.C., most conveniently placed in full view of, and close to, the door. *Facilis descensus*, &c.: enter the lower rooms, and more dismal unwholesome holes can scarcely be conceived. The building is environed on three sides by high embankments and buildings, which effectually exclude the cheery sun; but it is open on the fourth side to the full effect of the miasma of the Medway and its low shores, which accumulates in the dark spot as in a cul-de-sac. A palpable smell of damp and decay salutes the senses, and good fires are in great favour: the drainage is execrable; and, owing to moist nights succeeding unusually hot days, the effect just now may be imagined.

We call attention to the subject, not only because it has long been our vocation to address ourselves to these "Shadows," with a view to sanitary reform; but because a promising young officer has recently been nearly sacrificed to a fever, engendered solely by the foul nature of his dwelling,—not the first casualty, as we hear, of the same kind within that building;—and above all, because the canteen still contains five or six resident officers, at present young and strong, who should be removed forthwith to quarters where their lives would not be endangered.

that do not drop by the way part of their contents, and perhaps a development of the London self-acting street-sweeping carts, that scraped up the mud, and deposited it in the body of the cart as the wheels revolved,—this and other contrivances may well find a place among objects pertaining to the preservation of health in communities; and new lights upon the vexed subject of smoke-consuming apparatus, capable of general application, would be of great value.

I trust that the manufacturers of Newcastle and Gateshead will not be behind-hand in contributions towards the store of experience we may garner up from this new source; and that the members of this association will prove, in their appropriations of space, that the architects of the North are fully alive to the importance of sanitary science in its bearings upon civil architecture.

OBSTRUCTION IN THE EUSTON ROAD, CORNER OF HAMPSTEAD ROAD.

WE have received more than one letter desiring to draw public attention to the position in which the public house at the corner of Euston-road and Hampstead-road is being re-erected; and we are not surprised at the alarm manifested. This house, taken down on account of the Underground Railway, is made to project 7 or 8 feet before the line of houses on either side of it, and forms a most serious obstruction. It was, it is true, very nearly if not quite as forward as it is now before it was taken down; but it is none the less a mistake and public injury to allow its re-erection on the present site. Such an opportunity of widening and improving this corner ought not to have been allowed to pass away. It is certain that it must presently come down; and it would be cheaper even now to arrange for it at once, than to allow the house to be first finished. It is a violent eyesore; and we solicit the parish authorities and the Metropolitan Board to view it again forthwith.

Inquiring since of parties interested, we learn that the house in question, "The Old King's Head," was pulled down in consequence of the works of the Metropolitan Railway Company. It is well known that King John had a favourite hunting-seat in this locality, the adjoining houses being erected on the spot, and still called Palace-row; whilst those opposite were christened after the name of the seat itself, or Tottenham Court. It is believed that the hostelry referred to has been in existence for several hundred years, and certainly for a period long antecedent to the formation of the New or Euston-road, being the identical house shown in Hogarth's picture, "The March to Finchley," in 1745.

Much stir has been made about the necessity of setting it back, as it is admitted on all sides that the public thoroughfare would be wonderfully improved by so doing; but public improvements cannot be claimed at the hands of private individuals, and this question, like Middle-row and many other obstructions, resolves itself entirely into one of money. The ground required to be relinquished is stated to be exceedingly valuable, not less than 3,000*l.*, we believe, being asked. The parish of St. Pancras, in which it is situate, will "do nothing," and the Metropolitan Board have refused to "help" the parish; so the obstruction is likely to be continued. Mr. Henry Baker is the architect employed by the railway company; and Mr. Charles Fowler, jun., has been specially appointed by the Board to act as district surveyor.

HINTS IN CONNECTION WITH THE COMING GREAT EXHIBITION.

AT the present time it is likely that several millions of the inhabitants of these realms, and many thousands of persons from the nations abroad, are looking anxiously forward in anticipation of the forthcoming summer, in the hope of seeing the great Exhibition and the other wonders of the metropolis. On the last occasion there were several difficulties which needed not to have existed; and great loss was incurred by persons entering into speculations which were unsuccessful, because the matters prepared were not wanted, nor at all suitable. It was thought that the immense flow of visitors to the metropolis would render it impossible for persons to find accommodation at the ordinary prices at hotels and other similar establishments. Persons rented and furnished many houses for the purpose of letting them out in lodgings, in the hope of reaping a rare profit. Unused manufactories were fitted up as dormitories, and even vessels in the river were arranged for this purpose.

It was, however, found that great as was the multitude who thronged to the Exhibition, London was not inconveniently crowded; and the appearance of the chief thoroughfares was but little different from their usual summer appearance; the price of lodgings did not rise; and there was, without inconvenience, ample accommodation for all. Many thousands of the visitors had relations or friends in the metropolis, by whom they were either gladly welcomed when convenient, or else provided with lodgings in their neighbourhood. No doubt, the same facilities will be available on the approaching occasion; and, although probably the number of strangers may be greater next year than it was in 1851, it should be borne in mind that in London there is a population of nearly three millions and a proportionate number of houses, and that it requires a very considerable addition to make any visible difference. Although we do not apprehend inconvenience in the matter of finding lodgings for persons of all means, there might be several matters introduced with advantage. In the neighbourhood of the Exhibition buildings and in some central situations, such as Charing-cross, the British Museum, &c., it would be useful to have on painted boards the names of the different exhibitions which are open to the public; the manner in which visitors can be admitted; and the distance of each from the spot on which the notice is fixed. There might also in the leading thoroughfares be placed, at a very small cost, guide-boards to the Exhibition, a hand indicating the way, and a note of the distance. These would be valuable to a considerable number of people, both those residing in different parts of London and also those from the country.

To all strangers in London it is useful to know that the watermen of the cab ranks have been in nearly all cases police officers, and are still bound to give useful directions, and prevent extortion of cabmen.

It is, however, in connection with places of very great interest which were not in 1851 accessible to which we propose to direct timely attention. There will be young artists from the provinces who, notwithstanding the display which may be expected of pictures and other matters at South Kensington, would be glad of the opportunity of viewing those galleries of oil and water-colour drawings which have been collected by various persons of rank or other note. A letter from the master of the District School of Art or some well-known person might be sufficient for an introduction. In the absence of the court, there are, with all faults, many peculiarities of decorative art in Buckingham Palace, which might be viewed with advantage by those engaged in decoration. Northumberland House is also, in its way, famous: it is one of the last of the houses of old nobility which remain in London in almost their original state. In the rooms of the Royal Society there are objects of rare interest,—portraits of eminent men, relics of Sir Isaac Newton, Dr. Priestley's manuscripts, &c. These rooms, in a certain way, might be made accessible; and why should not the trustees of Sir John Soane's museum, in Lincoln's-inn-fields, strain a nerve and open the treasures of that place to more general view? As it is, in consequence of restrictions, the place is a desert. Notwithstanding that, there are,—besides fine works of Turner,—curiosities of ancient architectural decorations, and some of the finest pictures, by Hogarth, which may be classed amongst the best performances of the British school of painting.

In the Record Office, in Fetter-lane, there are the Doomsday and other manuscripts, of the very greatest beauty and importance: many would like to look at these: the arrangement of them, for public inspection, would not be very inconvenient in the new premises.

The crypt of Guildhall might also be opened; and in the various apartments of that building there are portraits and pictures worthy of note. In the library, we think that the librarian and his assistants will be attentive to those who will look in to see the curiosities which are stored there.

Go where you will in London, there are endless matters for wonder, and which are useful for the instruction of various classes. Some persons would derive much advantage from a visit to our great manufactories of machinery, glass, pottery, and other products. Our immense steam-printing establishments would be marvels to many; and there are hundreds of other matters which it would take pages even to mention, which might be made most valuable on the approaching occasion. Our object, however, just now, is to direct attention, in time, to the uses

which may be made of the many means of instruction and amusement which are in the metropolis, independently of the contents of the Exhibition building.

NEW MODE OF TRACING DRAWINGS.

A new method of tracing drawings and maps directly on white paper has been lately made public in France. The process possesses this advantage, viz., that on any paper, such as letter, drawing, or any other, however opaque, it can be rendered capable of the transfer of a drawing in common ink, Indian ink, pencil, or water-colours.

Fix the paper on which the copy is to be made on the original, and moisten it with a cotton tuft, dipped in the purest benzine. Buckle's brush, used for photographic purposes, would answer well. The portions of the paper which have imbibed the liquid are at once rendered as transparent as prepared tracing-paper, and the original can be copied off to its minutest details without the slightest injurious effects of this process on the drawing. Inks run freely without in the least spreading, and the lines are more difficult to remove from the paper thus prepared than from common paper: lead-pencil marks are almost indelible by the Indian-rubber. As the benzine evaporates the paper becomes opaque, assuming its primitive form if the liquid be pure and fresh distilled; and a little exposure to a current of air will remove all smell. If the drawing to be copied is of great size, the benzine can be used as the work proceeds. If from its extreme volatility any portions become opaque before the tracing is finished, it is only necessary to apply a little more benzine on that part.

LECTURES ON THE ART OF DECORATIVE DESIGN.

AT the Crystal Palace, on 17th inst., Dr. Chr. Dresser gave the first of a course of six lectures on this subject, "specially addressed to manufacturers, skilled workmen, and intending exhibitors at the International Exhibition of 1862." He commenced by remarking that a repetition of the brilliant spectacle which had afforded so much delight to all classes in 1851 must be hailed with universal joy; and feeling that next year the skill and industry of British manufacturers and artists ought to be asserted to the utmost extent, the directors of the Crystal Palace had called upon him to express his opinions on the nature and character of ornamental art. Ornament was that which, superadded to utility, rendered an object more acceptable to the eye; and in applying ornament to works of human skill they were only following the example of Nature, which superadded to flowers and fruits those charms of colour, perfume, and flavour, which were not absolutely essential in themselves. Beauty delighted the mind through the agency of the eye; and was, on that account, naturally desired by mankind. Painting, sculpture, and architecture, were alike ornamental arts, and were so united with the art of decoration, that their respective limits could not be defined. Some persons contended that the ornament of the Gothic period was alone meritorious; others that it had died out with the Greeks; and others, again, that it was only to be found in perfection in the revival of Classic art. Few styles, however, had not produced beautiful features. The early Egyptians yet spoke to us in the graceful forms of their art, and their welcome combinations of light and colour: the refinement of the Greeks displayed an elevation of feeling which words could scarcely express. Much beauty also marked the Gothic and Renaissance art; and in the works of the Chinese, the Hindoos, and the Moors, beauty was never absent. It was not, however, sufficient that ornament should be pleasing when first viewed. It must afford a lasting satisfaction; and the best test to apply to ornament was to ask whether it became more beautiful the longer it was viewed, and whether every part became more and more lovely in proportion as it was dwelt upon. Even in a threadbare garment, something would be left to give satisfaction, if the enrichment was originally just. Another test of ornament was its effect in soothing or otherwise affecting the spirits, in which its influence resembled that of music. Care, however, must be used in applying these tests. The verdict of a judge was only absolute according to the knowledge he possessed. Art critics were as abundant as flies in August; and every one thought himself able to give an opinion on ornament or decoration, though in fact less qualified to do so than he himself, being ignorant in music, should be to criticize a new oratorio. Few of the objects popularly regarded as decora-

tive were entitled to the term; indeed, the majority of our wall-decorations were so incapable of delighting the eye that we did not even seek gratification from them: "but," said the lecturer, "our old cathedrals awe by their solemn grandeur, and bind in silence the profane tongue, as they whisper of their consecration to the service of the Most High. Art is here! The Alhambra, which is so beautifully repeated in this palace, overpowers by lavish richness and almost superhuman glory. Art is here! The Greek Court, by its exalted refinement, lulls the spirit into a sweet reverie. Art is here!" He then pointed to St. James's Hall, and paid a tribute to the skill of Mr. Owen Jones. Justice was not done to the designer. Those he addressed when purchasing a dress for their wives never considered that the design was paid for by one, two, or three shillings, and then only selected from a score of others. Neither did ladies whose drawing-room papers were covered with scrolls and graceful convolutions think that the design which afforded them pleasure was the work of three days, and was only rewarded by a few shillings,—but one design out of every ten produced being sold. Again, our national commissions were given to inferior men, while men of real talent were left without patronage. He expressed some strong opinions in respect of the demerits of the Exhibition Building. Sir C. Eastlake had laid it down as a principle that "those arts are the most worthy in which mental pleasure is conveyed and in which manual labour is least apparent." As all the arts of antiquity possessed meritorious features, and as beauty cannot become old, it might be thought desirable to copy the antique; but the repetition of ancient forms was not appropriate; and ornament, like architecture, must express the sentiment of the age in which it was created. It was difficult, at this late period of the world's history, to originate a new system of ornament to express our sentiments; and the want of a general concurrence in religious faith made it difficult to determine what sentiment to express. To reproduce a volume of ancient literature as a new thing would be a folly; and altering a few sentences would not alter the wrong. Yet we had reproduced heathen temples and old Christian edifices, which it was impossible to worship in, and which became absurd when filled with pews. Some persons called the personification of beauty a revelation, and argued that our thoughts could not be controlled, and that we could not get new ideas. This was an error. Originality in ornament was not the result of unintelligent dreams; but, on the contrary, had its source in knowledge. It was obedient to rule and law; and all its varied forms were traceable to common principles. In many cases judgment had to decide, but knowledge was absolutely necessary to all good ornament; and it would be his duty in future lectures to show the rules to which beautiful forms of decoration were subject; and to point out, as far as he could, the direction in which new laws might be sought.

THE TEMPLE.

THE new form given to the Temple fountain, which some of the newspapers have described as "very beautiful," harmonising with the New Library, &c., is a miserably poor affair, altogether out of place. It consists of the usual "New-road" basins one above another, surmounted by three or four small figures of children, carrying a shell, from which the jet proceeds. The material appears to be terra-cotta: the lower basin is warped to a disagreeable extent. The thing is altogether atrociously bad and out of place.

The Temple is in a state of great bustle. The Middle Temple Library is to be opened by the Prince of Wales on the 31st; and as the hall will not accommodate more than half of those expected to be present at the banquet, a marquee, 132 feet by 36 feet, is being erected upon the area in front of the hall, with tables and seats for the accommodation of 500 persons; as also a temporary room 135 feet by 20 feet. Both of these will be floored, lined with scarlet and white drapery. In addition there is to be a linen-covered awning, 200 feet by 9 feet, leading to the library, and similar awnings from the carriage-entrance to the Temple Church. The whole will be lighted with gas. It may be expected that it will be a very interesting day.

Goldsmith's house has followed Dr. Johnson's, and the church has been opened on the north side, where a considerable area will be preserved, and where a set of residences, "Middle Temple Chambers," is being erected by Messrs. Lucas. Mr. St. Aubyn is the architect: and this gentleman, in conjunction with Mr. Smirke, who

acts for the Inner Temple, is now considering what is to be done with the church. The removal of the house over the porch has exposed a western wheel window in the Norman Round, the retention of which will render the proper covering of the porch a problem.

PROPOSED COMPLETION OF THE CATHEDRAL, FLORENCE.

WITH reference to the notification we recently gave of the desire of the authorities to receive designs for the completion of the façade of the Duomo of Florence (p. 711), some doubt was expressed as to whether or not the competition was confined to Italian architects. We now understand, however, from good authority, that the competition is open to all Europe. The chance of a world-wide fame may induce some of our adventurous countrymen to enter the lists.

STONE ALTARS.

Abbey Dore.—It may be of some interest to your readers to have their attention drawn to a very fine and very perfect stone altar now in existence in the beautiful old Early English chancel of Abbey Dore, in Herefordshire, from which county you have already given some sketches. The slab, which stands on three clustered columns (without capitals) is 11 feet 9 inches long, and 3 feet 11 inches wide. It is 3½ inches thick, and is chamfered at top and bottom. Besides this, which evidently stands in its old position on a raised platform or footpace, extending 9 feet 11 inches from the east wall, there are, in a very remarkable Lady Chapel, two other altars, which are ornamented in front with carved bosses; the one on the south side representing the "Adoration of the Magi," the one on the north the "Coronation of the Virgin." Whether these are original in all respects is rather difficult to make out, but I am inclined to think that the altars themselves are. Their dimensions are as follows:—South altar—length, 6 feet 5½ inches; height, 2 feet 8½ inches; depth, 2 feet 11 inches. North altar—length, 5 feet, 6½ inches; height, 2 feet 2½ inches; depth, 2 feet 4½ inches. The bosses are circular, about 2½ inches in diameter. All that remains of this church is so full of interest that it would repay any lover of architecture to spend a few hours there; and its distance from Pentlands station, on the Hereford and Abergavenny railroad, viz. about two miles, brings it within easy reach. I rather think that the curious church of Moccas, which is similar in plan to Peterchurch, as far as the eastern portion is concerned, also possesses a stone altar. I may add that at Peterchurch the stone altar is entirely disused; a not very respectable wooden table being placed in front of it; and the whole church is, or was within the last few years, pitifully disfigured.

W. H. L.

In restoring the chancel of Garsington church, Oxon, some years ago, for the late Dr. Ingram, president of Trinity College, the original stone altar was found laid down as a memorial slab. It is of unusual thickness, and was restored to its original place, showing the five crosses, emblematical of our Lord's wounds. I can, also, amongst others, refer to an altar stone laid down in the porch of Witham church, Essex. One also existed in a side chapel at Headcorn, Kent, where the original hooks remained fixed on the top of a third-pointed piscina, for suspending, probably, the censers or thuribles.

JOSEPH CLARKE.

THERE are but few architects who cannot add to the list of altar slabs in old churches. In Sandwich church are two, upon one of which the font has been placed: the crosses are plainly visible on both. The verger narrated to me the same story concerning Pugin which appears in the *Builder*; and it was after this one being pointed out that I found the second altar slab. In the chapel at Haddon Hall, Derbyshire, the altar slab is laid at no great distance south of its original position, with the crosses upwards; but the most interesting spot to any one in search of these I believe to be Sawley Abbey, Yorkshire, near Clitheroe.

The late Earl de Grey had the ruins of this building cleared, and the stone altars of the chapels in the south and north transepts were found *in situ*,—broken and mutilated, it is true, but still there, together with the paving of ornamental tiles, for the gratification of the curious.

I have been told one is still in use at Garton, near Great Driffield, Yorkshire.

WM. GEO. COLDWELL.

IN addition to the very interesting list of "Stone Altar Slabs" now remaining in our churches, furnished to your columns at the suggestion of the Rev. L. M. Humbert, I beg to inform you that in our ancient parish church of Linton-in-Craven, Yorkshire, now undergoing a thorough restoration, a slab was "turned up" at the east end of the south chancel aisle, near the piscina, which on examination proved to be the slab of the chantry altar. It is of red sandstone, and quite perfect with the five incised crosses on the top of it. It measures 5 feet 7 inches by 2 feet 7 inches, and 7 inches thick: the ends and front are chamfered. This slab differs from those hitherto noticed in your journal in having a portion cut out of the side next the wall, apparently for the purpose of fixing a crucifix, or perhaps some altar-piece, such, probably, as was found during the restoration of the adjoining parish church of Burnsall, which consists of an exquisite specimen of early alabaster sculpture in high relief, representing "The Adoration of the Magi," and is now fixed in the vestry wall of the said church: it measures about 16 inches by 12 inches. This sculpture is considered by antiquaries who have seen it to be of such interest, that at some future time I will endeavour to send you a drawing of it.

I may also mention that we have found a corner fragment of another massive "altar slab" (with the incised cross thereon), 9 inches in thickness, and boldly chamfered.

THOMAS MUSGROVE, Jun.,
Hon. Sec. to the Restoration Committee.

TELEGRAPHIC PROGRESS.

THE London District Telegraph Company propose to enter into contracts with business establishments, whereby the subscribers will be enabled to send or receive an unlimited number of messages, exclusively on their own business, at greatly reduced charges. Thus, for instance, a house of business would advise all their customers that they can send them messages, without prepayment, whenever any particular goods are required; and any general trade notice may be sent in a similar way. The subscription is proposed to be at the rate of 1*l.* for every 100 messages.

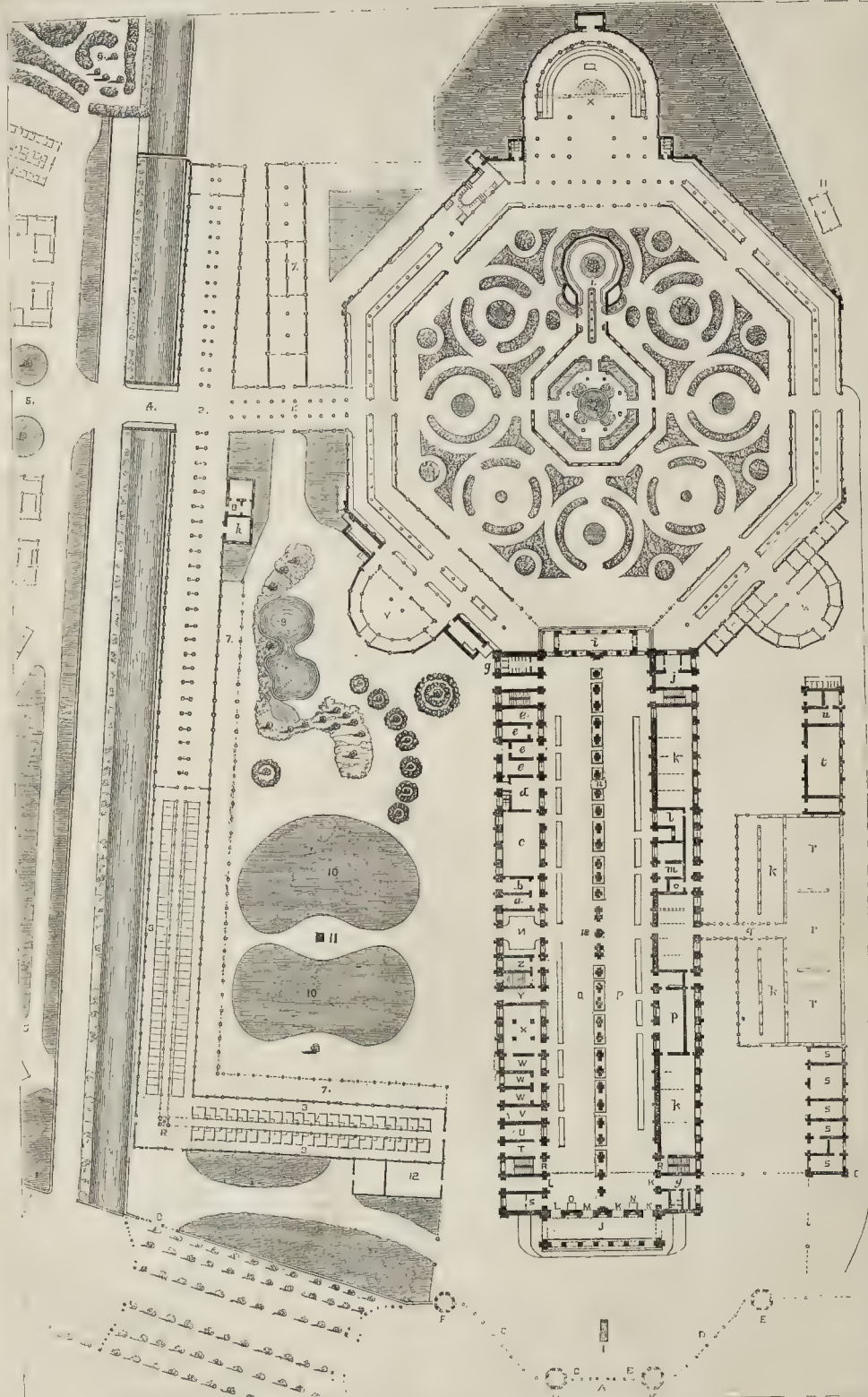
THE BUILDINGS FOR THE FLORENCE EXHIBITION.

IN our previous reviews of the promising and admirable Exposition of Art and Industry at this time open in Florence, the buildings, which were rapidly produced, with an existing railway station for the nucleus, were described.* We now place before our readers a view of the whole, and a complete plan of the ground-floor, with references. The length of the main building would seem to be about 430 feet; the width, 170 feet. The octagon is about 400 feet in diameter. The buildings for the cattle-show, on the left of the plan, are not all shown.

REFERENCES.

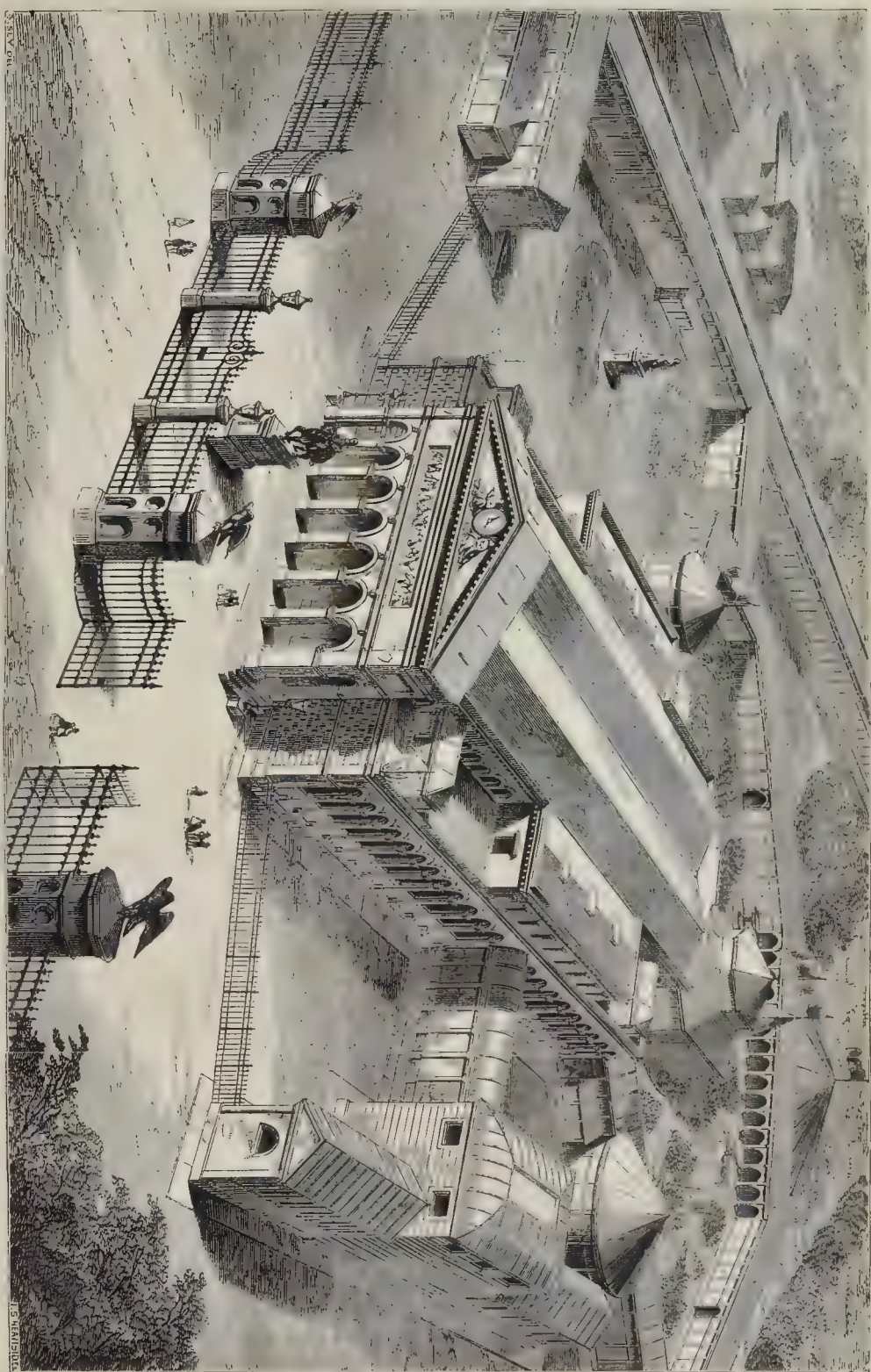
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|---------------------------------------------------------------------------------------|-----------------------------------------------------|
| A. The royal entrance. | e. General Secretary's office. |
| B. Carriage entrance. | g. W. C. &c. |
| C. Egress. | h. Machinery in motion. |
| D. Entrance for pedestrians. | i. Portico. |
| E. Change. | j. Steam-engines. |
| F. Municipal Inspector. | k. Sculpture gallery. |
| G. Tickets. | l. Post-office. |
| H. Guard-house. | m. Telegraph office. |
| I. Equestrian statue of the King. | n. <i>Pantheographie Cuselli</i> . |
| J. Portico for carriage. | o. Alabaster work. |
| K. Entrance with numbering turn-stiles. | p. Brewery. |
| L. Entrance for subscribers and free list. | q. Photography. |
| M. Entrance for persons from carriages. | r. Lower Gallery of paintings. |
| N. Vestibule. | s. Attendants and soldiers. |
| O. Waiting-room. | t. Storehouse. |
| P. Right-hand nave. | u. Photographic establishment. |
| Q. Left-hand nave. | v. Refreshments. |
| R. Stairs. | w. The Royal Commissioners, jurors, and inspectors. |
| S. Commissioner of Police. | x. Presence chamber. |
| T. Entrance for pedestrians. | y. Gardens. |
| U. Chief attendant. | z. Greenhouse. |
| V. Office for the lottery. | 1. Victoria Regia. |
| W. Committees for Florence, Venice, Rome, and the International Exhibition of London. | 1a. Economical gallery. |
| X. Commissioners for the Provinces. | 2. Machinery. |
| Y. Deputy of Inspection. | 3. Stables. |
| Z. Sanitary service. | 4. Bridge. |
| a. Reading-room. | 5. Pasture 'meadow for animals. |
| b. Editor of the <i>Exposition Journal</i> . | 6. Zoological exhibition. |
| c. Jewels. | 7. Agricultural implements. |
| d. Order-room. | 8. Office of class VIII. |
| | 9. Pond. |
| | 10. Meadow. |
| | 11. Colossal statue of Torricelli. |
| | 12. Porter. |
| | 13. Statue of Bandini. |

* Pp. 669 and 710, ante.



BUILDINGS FOR THE FLORENCE EXHIBITION.—Ground Plan.

THE BUILDINGS FOR THE FLORENCE EXHIBITION.



ARCHITECTURAL SOCIETIES.

London.—The Architectural Association will commence the session (this) Friday evening (the 26th), with a *conversatione*.

Northampton.—The ordinary committee meeting was held on Monday last. At the request of the rector, the Rev. P. H. Lee, jun., a sub-committee was appointed to visit the church of Pattishall, with a view to proposed improvements therein. The secretary read a report on "The Designs for Labourers' Cottages," exhibited at the late agricultural show at Northampton. After an examination and description of nearly fifty different designs, that which had been prepared by Mr. Pedley, under the instructions of the committee, was considered to be among the best. It follows in its main features the ground-plan of Mr. Strickland's cottage, with an elevation adopted for rural districts. The society propose to have this design published, for the benefit of members. The plans of Achurch Church, by Mr. Slater, were exhibited and generally approved, with certain recommendations. The Rev. C. Porter, jun., exhibited plans by Mr. W. E. Gillett, for a new pulpit and other alterations at the east end of the nave of Raunds Church.

Bucks.—The annual meeting was held at Amersham on Thursday, the 10th instant; the Bishop of Oxford, the president, in the chair. Several papers were read:—"On the Town of Amersham," by the Rev. B. Burges, for Mr. V. H. Kelke; "On Twenty-three of the most remarkable Sculptured Monuments of the County, all existing at Aylesbury, Hughendon, Ivinghoe, Hogestone, Clifton Keynes, Twyford, Norton, and other Churches," by the Rev. W. H. Kelke, hon. sec. The Rev. C. Lowndes, another of the hon. secretaries, read an interesting letter from Vice-Admiral Smyth, "On a Doubled-faced Brass in Stone Church, near Aylesbury." Excursions were made to see the Old Manor House: the party were welcomed by the present owner, Mr. F. Rickards. It originally consisted of a quadrangle, but only two wings now remain, the rest one being in ruins: traces of the other foundations are still to be seen. The excursionists afterwards visited Chenies Church, and were entertained at the residence of the Rev. Lord Writchesley Russell; his lordship being from home, his son supplied his place.

SANITARY AND SOCIAL REFORM IN THE PROVINCES.

Ipswich.—A meeting has been held in the Town-hall, Ipswich, with a view of introducing the question of sanitary and social reform "to the favourable notice of the upper and middle classes." Mrs. Fison, of Brighton, and Mr. S. Bowly, of Gloucester, attended; the former to read a paper "On Sanitary and Temperance Reform;" the latter to address the meeting on the same subject. The Council Chamber was about two-thirds full; the audience being of a somewhat superior class to that usually found at public meetings. The mayor (Mr. E. Grimwade) presided, and briefly introduced Mrs. Fison, who read a very elaborate and carefully-prepared paper on the subject in hand. She pointed out the great defects in the sanitary arrangements of the country; the overcrowding of dwellings; the absence of a proper system of drainage, &c.; and the consequences resulting therefrom; making especial reference to Ipswich, Portsmouth, and Brighton. Having expatiated with much force on the sanitary evils perpetrated which the working man had no control, she spoke of those which arose from his own personal habits; and with reference to this part of her subject, she said they should not effect much until sanitary reformers included in their plan a change in the licenses of gin-shops and beer-houses. The mayor, in course of his remarks, said:—"One great demoralizing evil was referred to by Mrs. Fison, the insufficient accommodation,—the crowding of large families in one, or, at the utmost, two rooms. I was sorry to find such cases existed in Ipswich. Only the other day, a case came before the bench, in which ten persons, five of one family, two of another, two of a third, and one of a fourth, that was, parts of four different families, were all sleeping and sleeping in one room, and those not of the same sex. He was afraid there were other cases of a similar character. Such a state of things must exercise its influence on the morals of the people. Mr. Bowly made a few remarks, pointing out the importance of sanitary and temperance reform, and the duty of each one to do what he or she could for the movement. The mayor, in reply, to elevate the people was to enable them to elevate themselves. What they wanted was to

get rid of the drinking customs, and to present counter attractions to public-houses; and, as an instance of what could be done by working men, he mentioned that the members of Mrs. Baillie's temperance society had built a club-house for themselves, which not only screened them from temptation, but enabled them to improve themselves by the lectures, &c., delivered at it. Mr. Robert Ransome also made a few remarks upon the general question of temperance; and others addressed the meeting; Mrs. Fison, in receiving a vote of thanks, remarking that she was desirous of forming auxiliaries to the Ladies' Sanitary Association, and should be happy to see one established in Ipswich.

CHURCH-BUILDING NEWS.

Eaton.—The re-opening of Eaton church is announced by the *Norfolk Chronicle*. It had been closed during a considerable portion of the summer, in order that some extensive and much-needed improvements might be carried out. The total cost has been about 400*l.*, and for this the church has had its old seats replaced by open benches of stained deal; the roof, externally and internally, has been almost entirely rebuilt; new communion-rails, reading-desk, &c., supplied. The walls of this church have been well known for the number of the so-called frescoes upon them, most of them in a state of such utter dilapidation as to be of interest only to the most pains-taking archaeologist. These are all now covered over by the whitening brush of the bricklayer. Even if it had been thought desirable to retain one or two of the most perfect of these paintings, it would now be impossible; as, during the progress of the restoration, the rain washed them nearly off. The work has been done under Mr. T. Jeckel, architect. The contractor for the whole was Mr. J. W. Lacy, of Norwich.

Plymouth.—The tender of Mr. Wilcocks, of Saltash, builder, has been accepted for the erection of a Presbyterian Church, adjoining the Roman Catholic Cathedral, Cecil-street, Plymouth. The work has been commenced; and the length of the edifice will be 185 feet, and the width 82 feet.

Orcop (Herefordshire).—The parish church, after having undergone a restoration and partial rebuilding, has been reopened for Divine service. In addition to the work of restoration, says the *Hereford Times*, the tower has been rebuilt, the north aisle lengthened, and a new porch and vestry added; and a vaulted chamber has been formed under the latter for the convenience of hereafter erecting an apparatus for warming the church. New aisles have been built, dividing the tower and chamber from the nave. The tower is rebuilt on the ancient model. It is a heavy oak timber structure, about 60 feet high, three stages in height, carried from within the church upon four oak legs; that once formed the trunks of stately forest trees; and the lower stage is encased with masonry. The roof over the nave, which, until now, has been concealed with plaster, has been restored. It is massive, moulded, and marked out at the intersections with carved bosses: a similar roof of oak has been placed over the chancel. The benches are of oak, after the manner suggested by remnants of the ancient sittings. A new carved stone pulpit and font have been erected, the former entered by an archway through the nave wall. The chancel is also stilled with oak, and contains an oak reading-desk and lectern. The aisles and chancel are laid with Godwin's encaustic tiles, disposed in ornamental patterns. The plaster and whitewash have been removed from the east and west walls. The works have been carried out by Mr. Deely, of Ross, from the designs, and under the superintendence, of Mr. T. Nicholson, the diocesan architect, Hereford.

Chester.—St. Mary's Church, Chester, has been reopened. All the high-backed square pews (painted green, to imitate green baize) have given way to low and open benches. The organ has been removed from the tower, and placed in the South Chapel, thus throwing open the arch which separated the tower from the nave, and exhibiting to view the west window, which has been entirely filled in with stained glass. The chancel has been laid with encaustic tiles, the plastering scraped off from the walls, and the oak roof of the south aisle opened out and varnished. Various other improvements have been effected. Mr. James Harrison was the architect employed. Mr. Bellis was the contractor for the interior portion of the work; the elevation of the tower, which is not yet finished, being undertaken by Mr. Hitchen.

Shipley.—St. Laurent church is now closed for the purpose of being decorated. The whole of the ceiling and walls are being executed in dead enamel,

relieved by ornament and gold in Italian style, to harmonize with the architecture of the building. The decoration is entrusted to Mr. Briggs, of the firm of Briggs & Mansforth.

Sowerby Bridge.—The new cemetery at Sowerby Bridge has been consecrated by the Bishop of Ripon. The extent of the cemetery is about seven acres. There are within it two chapels and a lodge, in the Gothic style. Messrs. Mallinson & Healey have been the architects, and Mr. Gay, of Bradford, was the surveyor. The cost of the cemetery has been about 5,000*l.*

Blue Pits.—The corner stone of a Wesleyan chapel at Blue Pits has been laid. The building will be Gothic, and is calculated to seat 460. Mr. Niell, of Bradford, is the contractor, and Messrs. Woodhouse & Potts, of Oldham, are the architects.

Darlington.—An Independent chapel, to accommodate 700 persons, is to be erected here. The plans of the proposed erection have been prepared by Mr. J. P. Pritchett, architect, and approved of. The estimated cost of the building, organ, lighting and warming, &c., is a little under 2,000*l.*, exclusive of additional ground, which is contracted to be purchased for 300*l.* An endeavour, we may here remark, is being made to raise the sum of 40,000*l.* to assist in the erection of 100 new Independent chapels throughout the kingdom, to celebrate in 1862 the bi-centenary of Nonconformity, and in commemoration of the events of 1662.

Newcastle-upon-Tyne.—St. Nicholas' Church has been re-opened. The three figures in stained glass, by the late Mr. John Gibson, which were removed for the erection of the new east window, have now, according to the local *Courant*, been placed in St. Mary's Porch, or south transept, and ornament the large window in that part of the edifice, which is in the same style of architecture as that in which they were originally placed. Tintoretto's picture, "Our Saviour Washing the Disciples' Feet," also in this transept, has been cleaned.

Blyth.—The United Presbyterians in Blyth are about to erect a new church, their present building being small and inconvenient. The style of the new building is Early English Gothic; and it is designed to seat 600 people, with large school-room and vestries in the basement. The architect is Mr. Robert Lamb, of South Shields.

Coventry.—The restoration of St. John's Church is completed. The eastern end, the tower, and the north and south transepts, have been restored to their original form and appearance. The whole of the east window has been opened, and filled with stained glass, the gift of Mr. and Mrs. R. K. Rotherham. The design and glass were furnished by Mr. Barwell, of Leith, and include figures of the four Evangelists in the upper compartment, and St. John the Baptist, St. Paul, St. Peter, and St. James in the lower. The effect of the window is aided by the glass which has been placed in the sixteen clerestory windows of the chancel, at the expense of sixteen of the parishioners of St. John's.

Shireoaks.—During the recent visit of the Prince of Wales to Clumber, he laid the foundation stone of a church at the extensive colliery at Shireoaks. The church, of which Mr. T. C. Hine, of Nottingham, is architect, will be in the Early English style of architecture, and will consist of nave, side aisles, chancel, with apsidal termination, and will have a tower and spire. The cost of the edifice will be 4,000*l.*, and it will afford accommodation for 400 persons.

Littlehampton (Sussex).—The new congregational chapel in this town was opened for divine worship on Tuesday last, and filled to overflowing. The site for this building was obtained from the late Duke of Norfolk. A sketch of the design has before appeared in our pages. The length of the chapel is 55 feet; the width of nave, 30 feet; the breadth of transepts, 33 feet. The style of the chapel is Decorated Gothic. There is a schoolroom at the back of the chapel 33 feet long by 19 feet wide. The fittings, pewing, and pulpit—the latter hexagonal—are all of pine. The total cost, including boundary fencing, furniture, gas-fittings, levelling, and planting round chapel, incidental and other expenses, architect's commission, and travelling expenses, was 1,098*l.* The English Congregational Chapel Building Society and Mr. Samuel Morley, of London, have been large contributors to the funds. The whole of the works have been executed by Mr. Bushby, builder, of Littlehampton, under the superintendence of the architect, Mr. J. G. Stapleton, jun., of London.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY. On Thursday, October 31st, a paper will be read "On Steam Fire-Engines," by Mr. Charles B. King.

SCHOOL-BUILDING NEWS.

Dorking.—The new National and Infant Schools have just been completed and opened. Mr. George Cubitt, M.P., presented the site. The new buildings are situated in West-street, and consist of school-rooms for boys, girls, and infants, besides various class-rooms and a teacher's residence, the whole formed of brick. The work was done by Mr. Foster (of London), under the direction of Mr. Hardwick, architect, London, at a cost of upwards of 1,600l.

Brixworth.—A new school-room has been opened here in connection with the Wesleyan Chapel. The school to which is attached a playground occupies a site immediately at the rear of the chapel, to which it is attached in such a manner that when an additional gallery is built in the chapel it will extend over the lobby into the school-room. The school has been built by Mr. Harris, of Guisborough, from his own design. It will accommodate about two hundred children, and will cost nearly 200l.; of which amount a considerable proportion has been guaranteed.

Ipswich.—The Tacket-street Chapel Sunday Schools have been opened. The schools are situated at the west end of the chapel, with an entrance from Cox-lane. The principal room is 60 feet by 30 feet, and 24 feet high, open to the roof, and lighted by windows on the two long sides and in each gable end. At the north side are four rooms for Bible classes, and at the south an Infant School-room, 25 feet by 15 feet, and 14 feet high, with gallery at one end, and another class-room, all in direct communication with the larger school. The building is faced with red brick, covered with plain tiles. The principal elevation consists of two entrance porches projecting 9 feet from the front, and a gable at each end forming the wings. The plans were prepared by Mr. F. Barnes, architect, and the contract taken at 730l. by Mr. John Fells, builder, of Ipswich; the gas-lighting being arranged and executed by Mr. Goddard, engineer to the Gas Works.

BUILDERS' BENEVOLENT INSTITUTION.

The annual dinner of the members and friends of this Institution was held yesterday (Thursday), at the London Tavern, Bishopsgate-street.

The chair was taken by the Right Hon. the Lord Mayor, and among the gentlemen present were the following: Mr. Lee, M.P.; Mr. Sheriff Cockerell, Mr. Sheriff Twentyman, Messrs. Lucas, Jay, Dunnage, Plucknett, Corderoy, Robinson, Rogers, Arntz, Brass, Bennett, Harwood, Edmunds, Higge, Myers, Peters, Smith (George), Smith (G. S.), Wright, Freeman, Dent, Cozens, Starling, Todd, Mann, Head, Nicholson (D.), Nicholson (R. T.), Stanley, Bird, E. Blatchley, Thorn, W. Hutchons, jun., Wright (W.) &c.

Upwards of two hundred gentlemen sat down to dinner.

On the removal of the cloth, the Lord Mayor proposed the health of her Majesty the Queen, and in doing so referred to the many claims which her Majesty had upon the loyalty and affection of her people, not only as a sovereign, but as an Englishwoman. He believed that her Majesty's example had done much to improve the morality of her people.

In proposing the toast of the Prince Consort and the rest of the Royal Family, the Lord Mayor referred to the exertions which the Prince had made to secure the success of the Great Exhibition of 1851. His Royal Highness, he said, also felt a great interest in the forthcoming Exhibition, which it was to be hoped would meet with a similar measure of success.

The next toast was "The Army and Navy," and in recommending it the chairman observed that, as the general feeling of apprehension with regard to war was now fortunately subsiding, he hoped that the year 1862 would see a general amity among the nations of Europe. It was to the army, the navy, and the Volunteers that we owed the proud and secure position which we now held; for it was they who had shown in a most unequivocal manner that any one who ventured to interfere with us would come off second best in the fight.

Captain Smith, of the Kent Volunteers, responded to the toast, and expressed his hope that the "volunteer movement" as it was called would soon become one of the permanent institutions of the country. Should the volunteers unfortunately ever be called into action, he was persuaded they would never belie their character as Englishmen.

The Chairman.—The next toast which I have now to propose is, I may say, the theme of the evening, the Builders' Benevolent Institution. It took its rise some twenty years ago, and has made considerable

progress; it has given us real pleasure to-day in glancing at the accounts of last year, to see that you are enabled to dispense between 600l. and 700l. on the object for which the Institution was established, and that while you have been so relieving destitution, you have invested a like sum to add to your capital stock. I rejoice in that result, and am glad to see that we have an earnest of prosperity for the future, and that the public have supported us. I also rejoice to witness the wisdom of those who manage the affairs of the Institution; and who, while relieving the distress of the day, are preparing to make the Institution permanent, so that we may hereafter be able to do a great deal more good. If we were to dispense double the sum that we are now doing, we would be expending our capital; while, if we go on as we are now, distributing half and investing the other half, we shall be able in years to come to relieve want, not from capital, but from interest. It is not necessary, I know, that I should dilate at any length upon the peculiar vicissitudes to which we, as visitors, are liable; because you know that the builders are perhaps more dependent on vicissitudes than the merchant or any other description of traders. It therefore behoves us all, while we are in any way successful, to do our utmost to relieve those upon whom misfortunes have descended; and to do so, not because it is desirable to fulfil the dictates of a charitable motive, but because sad experience tells us that those who may deem themselves most fortunate and most secure, cannot possibly see what will happen in the future. It is a glorious thing to see in what a short period this Institution has grown up; but, gentlemen, its success is nothing to that to which it ought to,—and, I hope, will,—arrive. I rejoice in seeing so large an assembly here this evening. I see before me upwards of two hundred gentlemen from all parts of this great metropolis: if each one to-morrow will exert the influence which he necessarily possesses in his own immediate circle, the aggregate must indeed be very great: if each of us will say,—"I was at the meeting of the Builders' Benevolent Institution last night, and I learnt that much good was done, but a great deal more remains to be done." If this were said in each circle, and if each person who hears it were impressed with the importance of the subject, the result would be that, instead of having an income of 1,400l. a year, and 7,000l. in the Funds, we should have an income of ten times as much, and a funded capital of 150,000l. These I know are large sums; but if you will get 10,000 contributors of a sovereign only (although I admit that with some persons a sovereign is a considerable amount), still what are 10,000 contributors of a sovereign each amongst an immense population of three millions? We each pay a good deal more than that in taxation. There is hardly any one who does not, I might say, squander as much. Now, if the very important object which this Society has in view were fully impressed on the minds of those who ought naturally to take an interest, the result could not fail to be highly satisfactory. I am not so sanguine or so foolish as to suppose that such a result as that to which I have glanced could be brought about in so brief an interval; but I certainly do look forward to the moral influence which so large an assembly as that I now address must have. I am proud to preside over a meeting of 200 gentlemen, coming here to do good. As one of the magistrates of the City of London, I know that many things are brought under their notice of a distressing nature, which call for their individual sympathy; but here I find more than 200 gentlemen attending unanimously to a great work of charity. Persons may say that charity begins at home; but we, the builders, have come here for charity among ourselves,—charity for the builders, charity at home. Let us by all means go beyond home, if we can; but first of all let us look at home, and let every gentleman who is here to-night allow his feelings to have full swing, so that he may give way to the promptings of his own heart, and subscribe liberally to the Builders' Benevolent Institution. I am sure that no gentleman who is here to-night will regret the contribution which he will make to it. I might say much more upon this subject, but why should I make an appeal at all, when I already know that every gentleman whom I address has come here to contribute liberally? I shall conclude, therefore, by giving you "Success to the Builders' Benevolent Institution." The toast having been drunk with warm acclamations,

Mr. W. Lee, M.P., rose and said that it afforded him great pleasure to be allowed to propose a toast, because it enabled him to bring under notice the name of a gentleman who had raised himself

by honesty of purpose, and the exercise of life-long integrity, to the proud position of being twice the chief magistrate of the greatest city in the world. It would ill become him to expatiate upon the many good qualities of the chairman, for the enthusiastic reception which had been accorded to him that evening was a sufficient proof that his health would be drunk with cordiality and esteem. The chairman was always anxious to promote the welfare of all his fellow subjects, but more especially those of his own class.

The Chairman, in acknowledging the compliment, said that he was highly gratified at the kind manner in which the company had responded to the toast, and at their appreciation of the humble efforts he had made to do his duty. He had not attempted to do more; and he had been fully rewarded by the encouragement which he had received from his fellow-citizens. Among the duties which devolved upon the Chief Magistrate of the City of London was that of listening to the claims of a great number of institutions established for the amelioration of the condition of the suffering classes, and he was repeatedly solicited to preside at their annual festivals, so as to give the authority of his office to the efforts which his fellow-citizens were constantly making for the mitigation of distress. It was impossible that the physical energies of any lord mayor would allow of his attending to all the claims put before him, but he could not forego the pleasure and duty of presiding at the annual festival of the Builders' Benevolent Institution.

The next toast was "The Sheriffs of London." Mr. Sheriff Twentyman responded.

In proposing the toast of "The Patrons of the Institution," the Lord Mayor dwelt upon the services which those gentlemen had done in years gone by, and coupled with the toast the name of Mr. George Spencer Smith.

Mr. G. S. Smith briefly returned thanks.

The Lord Mayor then gave "The Vice-Presidents and Trustees," which was responded to by Mr. Higgs.

On the health of Mr. Plucknett, the treasurer, being given,

Mr. Plucknett expressed his acknowledgements, and said that when he accepted the office of treasurer, he did so with a sincere desire to render the Institution the best service in his power. He knew that he followed in the footsteps of a gentleman who had displayed no ordinary zeal in promoting its prosperity, and he (Mr. Plucknett) hoped that he in his turn would be as ably seconded as his friend Mr. Bird had been.

The next toast was, "The Chairman, Directors, and Hon. Secretaries of the Brighton Branch."

Mr. A. G. Harris, the hon. secretary, then read a list of donations, amounting in the whole to 431l. 18s. 6d. Among the donors were the following:—The Lord Mayor, 10l. 10s.; Mr. Sheriff Cockerell, 5l. 5s.; Mr. Sheriff Twentyman, 5l. 5s.; Mr. G. Jennings, 12l. 12s.; Messrs. Peto & Betts, 10l. 10s.; Messrs. Lucas, Brothers, 10l. 10s.; Messrs. Gardiner & Bell, 5l. 5s.; Messrs. Cubitt & Co., 10l. 10s.; Mr. G. Myers, 5l. 5s.; Mr. W. Higgs, 5l. 5s.; Mr. G. Smith, 5l. 5s.; Mr. J. R. Freeman, 10l. 10s.; Mr. Peters, 7l. 7s.; Mr. Yeol, 10l. 10s.; Mr. H. W. Harding, 5l. 5s.; Messrs. Noble & Horne, 21l.; Mr. Dethick, 5l. 5s.; Messrs. Wright, 5l. 5s.; Messrs. Tillot & Chamberlain, 5l. 5s.; Mr. B. Dove (subscription card), 12l. 12s.; Mr. F. Dove (ditto), 12l. 12s.; Mr. Fergusson (ditto), 10l. 10s.; Messrs. White, Brothers, 10l. 10s.; Messrs. Hart & Son (Wych-street), 5l. 5s.; Messrs. Hayward, Brothers, 5l. 5s.; Mr. J. B. Gammon, 5l. 5s.; Mr. Robinson, 5l. 5s., &c.

The Lord Mayor then gave "The Architects and Surveyors," and dwelt in appropriate terms upon the obligations which the builders were under to them for the sympathy which they were ever ready to extend to that body, and for the assistance which they had rendered to the Institution.

Mr. W. Wright, in reply, observed that he was glad to see so many architects and surveyors present, as he argued the best results from the community of interest which existed between them and the builders. The builders might be considered as representing Science and the architects as representing Taste, and they might depend upon it that so long as they were associated together civilization would never die out. He congratulated the builders of the kingdom at seeing as their president that evening a gentleman formerly connected with their body and so eminently calculated to shed lustre upon it.

After some other complimentary toasts, the company separated.

THE BROMPTON ROAD AND THE GREAT EXHIBITION.

On several occasions we have pointed attention to the miserable condition of the Brompton-road and the remarkable facilities it offers for making splendid thoroughfare, a fit approach to the fine neighbourhood growing up to the west, and now containing the Horticultural Gardens and the International Exhibition Building. We are rejoiced to find that the parish authorities are about to take it in hand. Last week, at the usual meeting of the Kensington Vestry, Mr. Churchwarden Greenway in the chair,

Mr. Maydwell moved that a committee be formed for the purpose of improving the Brompton-road, between Sloane-street and the building now being erected for the International Exhibition of 1862. He referred to the fact that there was a considerable quantity of waste land in the Brompton-road, and said there would be very little difficulty in making a great improvement by throwing it all open to the traffic. He believed that, instead of there being any obstacle thrown in the way by the parties living there, they would give their assistance.

Mr. Stimpson said he was authorised to state that the owner of thirty-six houses in Brompton-road was willing to give up his ground.

Mr. Brown seconded the resolution, and it was carried.

Afterwards, on the motion of Mr. Roy, seconded by Capt. Shuttleworth, it was resolved,—“That it be referred to a committee to inquire, and report at an early date to the vestry, if any, and what arrangements can be made with the commissioners of the metropolis roads for the relief of the parish from the turnpikes and side bars now existing in the several roads in the parish, or any of them; and that it be referred to the same committee to consider and report whether any arrangements can be made for affording some adequate accommodation to the large traffic which will take place next year between the north and south portions of the parish.”

A committee was also appointed to take into consideration the best means of improving the thoroughfares generally in the parish.

With regard to the Brompton-road, especially, it is to be hoped that the committee will take steps to obtain the best possible plan; and endeavour, not simply to widen the road, but to render it what it might be made,—the most beautiful approach to the metropolis. Every owner, and every occupier of a house in the neighbourhood, is interested, even in a pecuniary point of view, in bringing this about; and the Royal Commissioners for the approaching Exhibition, the Government Department of Science and Art, the Board of Works, and the Horticultural Society, would all, doubtless, render substantial assistance towards carrying out a sufficient scheme.

DECAY OF STONE AT THE ROMAN CATHOLIC CATHEDRAL, ST. GEORGE'S FIELDS.

ACCORDING to evidence before the commission appointed to inquire into the condition of the stone at the Houses of Parliament, it appears that the amount of decay is very considerably increased; that the public who have complained are more frightened than hurt; and that there is more talk than real harm or mischief to the national edifice. The case is very different withugin's work on the other side of the river, where there is an immense amount of decay, and little said about it. The church is erected with brick-work, and apparently Bath and Caen stone mouldings and tracery; about half of the stone is in very fair condition; the tracery of the windows is as nearly perfect as any reasonable observer has a right to expect, in the smoky atmosphere of a populous neighbourhood. But a very large amount of the capping stones, finials, gurgoyles, and ornaments are so much effaced, as to leave nothing but a faint tracing of their original form, scarcely sufficient to indicate what shape had been worked; presenting abundant remains of the worst stone that could be used for external purposes. Respecting the cause of such bad stone having been used, the mildest supposition is, that the architect or builder was not aware that there was a difference in quality, or that so large a quantity of worthless material was being used in the building; if this were the case, the parties were culpable for engaging to provide materials, with the qualities of which they were grossly unacquainted. If they knew the difference between good and bad stone, they were still more to blame; the one for using it, the other for allowing such rubbishing

material to be placed in an edifice possessing so much architectural merit. In the external masonry all the various qualities of the same kind of stone may be seen appropriated without the slightest regard as to good, bad, or indifferent varieties: perishable and durable are mixed, apparently without the least discrimination; and the result is a very large amount of crumbling stone, within an unreasonably short time after the completion of the sacred structure.

Now comes the pecuniary question. Is any one liable for damages? Surely it would be unjust for those who were at the cost of erecting the new building a few years since, to have to renew the masonry ten years afterwards; for, although it has been erected nearly double that time, the exterior has been a long while in a disgraceful state. The decay of some of the stone at the Palace of Westminster, after twenty years, is merely on the surface; and may be considered as an error of judgment in using a new material in the metropolis; but the stone of the building in question is a thoroughly well known material; and the decay is so deeply seated, that in many instances the mouldings and ornaments are quite obliterated; in others the stone is actually gone, having gradually moulded away. I know nothing of the conditions or stipulations that were entered into between the employer and the employed; but if there was a clause in the specification or description of work to be performed, such as is usually introduced in contracts, to the effect that “all the materials are to be of the best quality of their respective kinds,” we have proof positive, in the stone of St. George's Cathedral, that a great breach of contract has been committed; and, for the future benefit or right understanding of all parties about to meddle with architecture, either as designer, builder, or paymaster, it would confer a lasting benefit on society if some of our legal friends would determine who is the party that the powerful hand of the law could compel to pay a second time for negligence in the first instance. This question requires immediate attention, as the subject is of more frequent occurrence now than at any former period of architectural performances.

C. H. SMITH.

THE STYLE OF DRAWING IN THE SCHOOLS OF ART.

As the question is now with you, permit me to make a few remarks. What I would ask is this,—Is the style of drawing now pursued in the Schools of Art of that firm, decided, vigorous character that we find in the works of the Byzantine and Gothic sculptors, in the works of the Mosaicists, of Giotto, Masaccio, Orgagna, Michelangelo? To my small mind it appears thin and wiry—what you expect in a lace design, careful, mechanical, “steel-pennish;” but I see none of that vigour I observe in the drawings of Messrs. E. B. Jones, D. G. Rossetti, Burgess, &c. Now, the question arises, are the students of these schools to be mere designers of conventional flower forms? or are they to be artists, drawing ideas, groups of the human figure,—those vigorous works, with a piece of chalk at the end of a stick—something that has life, power, expression? There will be no great design—that is, design of ideas, of the human figure—where there is no vigour. There will be no Giotto—designing with drawing as hard as the metallic stuff I see at Kensington. But, by the bye, I noticed the drawing from Newcastle to have more power: it seemed less rule and compass. I am quite certain that I have seen no drawing which at all gave me the idea of any one of the pupils ever designing a mosaic of the power and force of those I have seen in St. Mark's, at Venice. I simply make these casual remarks; and I think some information from Kensington would interest your readers.

A. WARINGTON.

OUR COSTUME.

At the International Meeting on Social Science to be held next year in London, the subject of costume is, I see, to be introduced.

I have long been endeavouring, in my limited sphere of action, and beyond it when I have had opportunity, to call attention to this subject. None more important to this country could be introduced; for in no country in Europe, perhaps in the world, except among the lowest savages, is the population generally, especially the female portion of it, so vilely clad.

Wages are higher here than in any other country; provisions and all the necessary conveniences of life more easily attainable; and yet, wherever the Anglo-Saxon race and habits are dominant in Great

Britain and in Ireland, especially in London and all our towns, the dress and general appearance of the population are sordid beyond expression; filthy, though pretentious; hideous and inconvenient, though sometimes elaborate.

The effect of our parks, our finest streets, our grandest interiors, and our public spectacles is destroyed by the foul and decayed appearance of the masses. The leprosy of filth is evident, even in the clothing of the richest of our labouring classes.

Honour labour: I reverence honest poverty: I should always prefer the society of a clean day-labourer to that of a dirty duke; but I will never associate with filth and pretentious squalor, if I can help it.

Mr. Editor, you conduct one of the cleverest and best of the organs of the press.

Do what you can to alter the horrible state of things which I speak of. There must be a *revolution* in the dress of the labouring classes. It must be *handsomer, healthier, and more convenient*. The world-famous Giotto, you know, invented the beautiful and convenient dress of the Florentine women. What would have been his feelings, had he seen in his loved Florence the hideous, sordid, yet pretentious bonnet of the women of London, stained with perspiration, heating the brain, concealing and ruining the hair, injuring the eyes, and even at its best, spoiling the outline of the female figure; but at its worst, such as we see it so generally worn, the vilest head-covering ever used in any age or country.

OXONIENSIS.

I OBSERVE that, in your excellent article on the improvement in dress which one may hope is gradually taking place, you do not mention the tendency (it is as yet hardly more) to some substitute for trousers, which shall show the shape of the leg, instead of concealing it. The gaiters of the Volunteers, the “Knickerbockers” of the sportsman—which indeed are now worn by the whole of the French line,—seem to give one some hope that, at last, this most unmanly part of our dress may give way to something more natural. Trousers are not only an abomination of most recent introduction (at least among civilized men, for they were unknown to our grandfathers), but they are essentially unsculpturesque; because, unless they are made as loose as those worn in Turkey, they can have no good folds, and are at the best only a modified form of tube. If any one needs proof of this, let him compare the best statue in trousers with one in knee-breeches, or the Elizabethan hose; for instance, in the Oxford Museum, the statue of Sir Humphrey Davy, the only man there in trousers, with any of the others, particularly that of Sir Isaac Newton. This last, too, will show, if it needs proof, how perfectly dignified such a dress may be, without the slightest tendency to “fastness.”

E. T. T.

INDIRECT ARCHITECTS.

SIR,—There is a practice besides that mentioned by your correspondent “F. I. B. A.,” which I imagine ought to be made public. I mean that of architects compelling contractors to pay for things which they apparently think are not, or ought not to be, included in their commission, and that it makes no difference whether they are paid directly or indirectly. That may be true; but there is a difference between paying, directly, 6s. for stamped agreement, and, indirectly, 11. 6s. for stamped agreement and printing. This is what one only of the half-dozen contractors for a little house paid, and it is only one of the sums that he paid.

When there is one man who does these things, it is probable that there are more; and as there are such, the public might possibly be obliged to any one who would invent a word which should be put on the plates and after the names of architects who are paid directly; or, if you prefer it, for the plates and signatures of those who are paid indirectly, or otherwise make known a way of distinguishing between architects direct and architects indirect. Or if the Institute of British Architects would do something in this way, they are not likely to have to repent it; for if these things increase,—and what will be hesitate at who can take indirectly 26s. instead of directly 6s.? and if these indirect architects also increase,—and if nothing be done will they diminish?—what will architecture, as a profession, be twenty years hence?

It has occurred to me that this may be one reason why architects are so ill paid. If so, it is not the employers only who are injured, but also every honest architect. That may be so, or it may

not: one thing, however, is certain, that something, in some way or other, ought to be and might be done.

ONE WHO LOVES ARCHITECTURE AND HONESTY.

THE DISPLACEMENT OF COFFINS.

In your number of September 28th, page 672, appears "A Strange Statement," which I felt sure would be easily explained in your next; but this not having been done, I venture to give you the true solution of this simple mystery; though I am sure numbers of your readers must be acquainted with it.

The coffins were all of lead; and their bulging during decomposition proves that they are or were air-tight. They were, therefore, water-tight; and, what is very common, the vaults in which they were placed had been occasionally flooded. The water-tight coffins floated; and one of them was deposited upon another, which, being heavier, or, perhaps, not quite water-tight, had not floated. I have calculated the weight of a middle-sized leaden coffin with a body in it at about 300 lb., and its displacement in water at about 520 lb., and, therefore, capable of flotation.

In corroboration of this I beg to inform you that, in a vault belonging to my family, in the churchyard of Leyton, Essex, I remember seeing several of the leaden coffins as much displaced as those described in the "Strange Statement;" and, in this case, the moving cause was evidently water. *The Vicarage, Romsey.* E. L. BERTHON.

* * A statement which has just reached us that, in a similar case of displacement, one of the coffins was found to be "full of fluid," seems to confirm Mr. Berthon's view.

LONDON STREETS.

"To make a good use of opportunity" seems to be a proverb little known in street improving in our city, and I have observed that where an opening is made by a fire, or taking down a house, which would considerably improve the line of the street, no advantage is taken of it, but the spot is covered with new buildings, and the chance is lost—almost for ever. They manage these things far better in Paris, where the Imperial Will decrees improvements on a large scale, regardless of expense.

There is now one more chance of a great improvement, but I fear I am too late. Any one walking from St. Paul's by Cannon-street to the Tower will have to turn from the direct line by a heavy promontory of houses at the junction of King William and Gracechurch streets; and, having weathered that, he will turn by a steep, dangerous corner across Fish-street-hill, to Eastcheap.

The National Provident Assurance Company have taken down their old premises, and are rebuilding them; but the very ground upon which they stand opens the street, Eastcheap, in a line with Cannon-street and St. Paul's, and would form a continuous opening in the line for the Tower, get rid of the dangerous corner, and create a very sensible improvement for the great traffic in that direction.

Is anything to be done before the new buildings are erected? Is your voice powerful enough to obtain this valuable concession? If so, pray cry aloud in time, and it may be the commencement of other improvements so imperatively called for in this crowded, much encumbered, and constantly blockaded part of the city.

A CONSTANT PASSER-BY.

HULL TOWN HALL COMPETITION.

Str.—Two of your correspondents, viz., "Competitor" (September 7th), and "One in the Dark" (October 10th), while making inquiries respecting this competition, agree in condemning the design selected by the committee as "glaringly partial or absurd," while the first attributes its rejection on these grounds to the council, and the latter to the "more honourable" of the committee themselves.

Now there is nothing in the report of the Town Council's proceedings furnished by "Competitor" himself, to warrant his conclusion, nor anything that "One in the Dark," who takes advantage of being there, can bring to light in support of his more ingenious assertion. It appears to me, from the report before mentioned that the reason for not confirming the choice of the committee was on account of the few votes given by them in the matter; and it is but fair to presume that had their selection been the design of one of your correspondents, it would have met a similar fate.

Considering also that the town council are divided as to whether they should have a new Town Hall or not, that those favourable are at variance as to the site, and again as to the extent of the site, leaving out the general fallibilities of corporate bodies, do you not think it easier

under these circumstances to oppose a decision than to confirm one? And that in any case it would have been more honourable conduct towards a fellow-competitor if your correspondents had abstained from assuming that the selection of the committee is "glaringly absurd, partial, &c.," because it has not been adopted?

KINGSTON-UPON-HULL.

CASES UNDER METROPOLITAN BUILDING ACT.

Opposes a Party with over adjoining Roof.—Ancient Lights.—Some work-shops in Chancery-street had been burnt down, and were rebuilt by defendants. There were windows in the party-walls on three sides of the building, over the roofs of the adjoining buildings; these walls were rebuilt above the roofs with the windows as before. District Surveyor submitted that as the building had been taken down to an extent exceeding one half of the cubical contents, it was a new building according to section 16; and that the windows in the party-walls must be blocked up. Defendants contended that they were ancient lights. The magistrate (Mr. Henry) ruled that the provision of section 16 could not be considered to deprive the building owner of his ancient rights or easements; that the windows were ancient lights, and could therefore be retained. Summons dismissed.

Projecting Shop Fronts.—An old shop front, at No. 345, High Holborn, projected about 2 feet 8 inches from the front wall, and that, according to section 9, more than 3 feet. The front wall of the house had been entirely rebuilt, and a new entablature for the shop front put up projecting more than 2 feet. The district surveyor required the projection to be reduced to 18 inches, according to section 36. He submitted that the work was an alteration and not a repair, as both the front wall and shop front had been reconstructed in a different form from the old work, and that, according to section 9, the rules of the Act must be complied with. The magistrate (Mr. Henry) said that he had considered the point submitted by the district surveyor in another case which had been brought before him; and he had come to the conclusion that the builder had the right to rebuild on his old foundation; and that, even if the building had been entirely rebuilt, the projection could be maintained as an ancient right. The summons must therefore be dismissed. Mr. Metcalfe appeared for the defendant.

Books Received.

Gleanings from Westminster Abbey. By GEORGE GILBERT SCOTT, R.A., with Appendices. Illustrated. Oxford and London. J. H. & James Parker. 1861.

This very interesting volume will form a valuable addition to every library, and to every architect's library in particular. It owes its origin to the meeting which, our readers may recollect, was held by the London and Middlesex Archaeological Society, on the 25th of October, 1860, in the precincts of Westminster Abbey, where the Society were cordially received by the Dean and Chapter. The paper there read by Mr. Scott we printed at the time it was (previously) delivered before the Institute of Architects. Of the other papers read at the Abbey on the occasion we have also given reports. The present volume contains all these in the appendix. The names of the authors of these we may as well repeat from the title-page; viz.,—Mr. W. Burges, Mr. Burt, Mr. G. R. Corner, Mr. W. H. Hart, Mr. J. J. Howard, Rev. T. Hugo, Mr. J. Hunter, Mr. H. Mogford, Mr. Parker, Rev. M. Walcott, Rev. T. W. Weare, and Professor Willis. The papers read by these gentlemen went a good way to supply the want which Mr. Scott had pointed out; and the few connecting links which were still needed were afterwards furnished by Mr. Weare and others interested in the subject. The Fabric Roll of 1253, discovered by Mr. Burt in the Public Record Office, with others, are also included in the appendix, together with Professor Willis's notes, explaining the technical terms. The authentic accounts of the building of the nave in the fifteenth century, and the circumstance that the widely-celebrated Lord Mayor Whittington was one of the Royal Commissioners, and the one who advanced the money for that purpose on the security of certain dues, as stated in the deed here reprinted, are not entirely new facts in the history of the Abbey, but are certainly not generally known. As observed by the editor of the present volume,—"If the tradition that the king being unable to repay the large sums advanced by the Lord Mayor, [the latter] generously burnt the bonds cannot be exactly authenticated; it may, at least, possibly be true; as the dates correspond, and the king was certainly hard pressed for money at that time." The particulars respecting the Abbot's house, supplied by Mr. Corner, and the division of it into the Deanery, the College Hall, and the Jerusalem Chamber, as explained by Mr. Hugo and Mr. Weare, have not previously been made out so clearly. The notice of the modern buildings within the Abbey precincts, supplied by the Rev. Mackenzie Walcott, brings down the history of the Abbey to the present time.

The volume is profusely illustrated, in the best style; and we can cordially recommend it to all who are interested in our noble minster.

Tables for Setting out Curves, on Railways and other Public Works. By J. S. Oliver, C.E. London: John Weale.

THESE tables, calculated in chains and links, by Mr. Oliver, are intended to facilitate the setting out of every kind of curve, for which a ready method is obviously of importance. They are also to be applied by the contractor, as well as by the architect and the surveyor, in their varying operations connected with the setting out of public works. In military works, too, where curved lines are used in setting out curved crests, curved revetments, &c.; also military roads and approaches, the tables will be found to be readily available. It will be seen, in the Notes of Explanation, that any intermediate angle may be calculated without logarithms. The tables appear to be very carefully calculated, and will be found useful by those for whom they are intended.

VARIORUM.

THE current *Quarterly Review* contains an interesting article, headed "Life, Enterprise, and Peril in Coal Mines," which sets forth the vast importance of our coal-mining trade, the condition of the miner, and the want of enforced regulations for the prevention of colliery calamities. This part of the subject might wisely have been treated of at even greater length. Few persons fully appreciate the importance of our coal trade. We annually extract about seventy millions of tons, representing more than twenty millions of money at the places of consumption. When we are told that if sixty-eight millions of tons of coal were excavated from a mining gallery 6 feet high and 12 feet wide, it would be more than 5,128 miles in length; and further, that, if heaped up as a pyramid, the base would cover 40 acres, and the height of it would be 3,356 feet (nearly nine times the height of St. Paul's Cathedral), the fear entertained by some as to the early exhaustion of our mines does not seem unreasonable. Careful calculations show that the great northern coal-field will afford supplies, even with the increased consumption probable, for 250 years; but when we recollect, as the writer of the article in the "Quarterly" points out, that, long before the actual period of exhaustion shall have arrived, the increased depth and breadth of mining, more costly machinery, and other followings, will greatly augment the cost of bringing the fuel to market, we should learn to prevent all waste of coal, and record carefully all past excavations. We never go into the coal country without grieving over the ever-burning heaps, lighted years ago, and consuming uselessly the constantly accruing refuse which would elsewhere be the means of giving comfort, even lengthening life.—The *London Review* has taken a good place: its political articles are well written; and, in respect of contemporaneous science, a large amount of sound information is given every week. It is, indeed, in all respects an excellent paper.—The *Queen*, a new illustrated journal, addresses itself especially to the ladies, and offers peculiar attractions in the shape of patterns for embroidery and crochet, fashion-plates (somewhat better than the ordinary run of such things), instruction in paper-flower making, and the like. The drawings of most marked character have the name of Miss Claxton to them.—The *Gazette of Bankruptcy* is a new paper, the first number of which is now before us. Its purpose is, of course, to give regularly (twice a week, at 2d. for each issue) a complete report of all proceedings in bankruptcy. Such a medium, long required, has now become indispensable, in consequence of that important change in commercial jurisprudence which renders all persons, whether traders or nontraders, subject to one uniform code of debtor and creditor law. The proceedings in bankruptcy in every court in England will be recorded, and such a periodical cannot but be of great utility and importance to business men.

WARMING RAILWAY CARRIAGES.—A correspondent, under the signature of "A Frequent Traveller," suggests that, now that the winter and cold nights are setting in, railway companies should avail themselves of the system of warming their carriages, introduced in France last winter, from the exhaust steam of the engines. This mode of using up the waste steam involves only a trifling expense, it appears; and the result is a great boon to the public; every carriage being made comfortable, without exception of class.

Miscellaneous.

THE SHARPE MEMORIAL WINDOW AT DONCASTER.—In consequence of an application from her Majesty's Commissioners to allow the east window for St. George's Church to be exhibited at the International Exhibition of 1862, it has been resolved that the window shall be so exhibited.

SEA-GRASS PAPER.—A specimen has been laid before us of paper made from common sea wrack, by Mr. Hartnell, of the Isle of Wight. The specimen is from a first trial made by Mr. Hartnell, who is no paper-maker; nevertheless, we have no hesitation in saying that, though resembling straw paper in colour and texture, it is far superior to the best straw paper which the writer of this notice has ever been able to obtain for writing purposes. Into the question of relative cost and ultimate price we are not prepared to enter; but we believe that *Zostera Marina*, or sea wrack, is a very abundant and hence probably a cheap material. It is said particularly to abound on the coasts of the Isle of Wight. The paper made from it is, as we have said, like straw paper, and hence not very white in colour, and more like India paper in that respect; but perhaps great improvements in the bleaching may yet be effected in the manufacture of such paper.

PANIC IN A CHAPEL.—Twelve months having passed away since the opening of Hanover Chapel, Sheffield, two sermons in connection with the first anniversary were preached on Sunday, by the Rev. James Caughey. In the evening, while the first verse was being sung, there was a noise as of the cracking of the ceiling, followed by a fall of plaster. This proceeded from the ceiling under the gallery, opposite the pulpit, and next Hanover-street, and at precisely the same spot as at the opening services of the chapel a year ago. A panic for a moment seized those in the locality of the accident. Many rushed towards the doors; but cries of "keep your seats," and friendly assurances that the mishap did not extend beyond the giving way of a portion of the plaster, at the point where it fell last year, at length allayed the fear, and the singing of the hymn proceeded. It had not, however, gone beyond other two verses, when larger portions of plaster, immediately over one of the lamps, and in bulk apparently sufficient to cover a surface of about 2 feet, fell. This was followed by a renewal of the panic. The great bulk of the congregation, however, kept their places; and the cry of "keep your seats," which was taken up on every side, was nobly acted upon, and in all probability saved the congregation from a terrible and fatal scene.

WORCESTER CATHEDRAL.—The Worcester Diocesan Architectural Society has just issued its annual report, in which the restorations now being carried on at Worcester Cathedral, as already alluded to in our columns, are spoken of as follows:—"The works are progressing rapidly, the parts now in hand being the north-east transept and the north side of the choir. The restoration of the south-east transept has been completed by the removal of the Italian arches erected in the last century to strengthen that portion of the building. The wall arcade, which extends round the eastern portion of the cathedral, has been thoroughly repaired, and the defective parts made good. This arcade has been continued along the blank wall-space beneath the east windows, but with Purbeck marble instead of stone shafts. The committee cannot but think that a richer treatment should have been adopted for this important position; and the central compartment formed by omitting one of the shafts, as at the end of the north-east transept, has a meaningless effect here; for, while it might be supposed to be intended for the reception of an altar table, its absurdly inadequate size for such a purpose at once negatives the supposition. The cumbersome seventeenth century monuments which stood beneath the easternmost arches of the Lady Chapel have been removed to the west end of the nave, where they are even more obtrusive and unsightly than they were in their former position. It is much to be regretted that the arcade in the eastern bays, which had been nearly destroyed by the erection of these monuments, has not been restored; for which purpose it was thought the monuments were removed: for, in the event of the Lady Chapel being ever used for occasional services, as in some of our cathedrals, it would have formed a convenient backing to the stall of the clergy and choir, and at the same time have preserved an original and beautiful structural feature of the building; the latter being an object of primary importance in considering the restoration of an ancient edifice."

SOUTH KENSINGTON MUSEUM.—The number of visitors has lately become very large. During the week ending the 19th October, 14,426 persons examined it.

PICTURES FOR SCOTLAND.—We understand that the late Lady Murray, widow of Lord Murray, has bequeathed to the Royal Institution for Promotion of the Fine Arts in Scotland twenty fine pictures from Lord Murray's collection. It includes three specimens of Greuze, and a fine example of Sir Joshua Reynolds. This bequest will form an important addition to the Scottish National Gallery.

TINNED LEAD PIPES.—The poisonous action of lead on water, in certain circumstances, has led to various modes of obviating the evil, one of which is by coating pipes of lead interiorly with tin, and with an alloy of tin and silver. The latter method has been patented by Messrs. A. Courge & Co., who have forwarded specimens to us; and the patentees state that the cost is only 30s. per ton above that of ordinary lead pipes. What the effect of use, in electro-thermal or other action, may be, with such an alloy, especially in a thin lacquering, experience alone can testify. Tin is a less powerful combiner with oxygen than iron, and a more powerful one than lead; but whether the alloy with silver may reduce this power still further it is hard to say; at all events, if the coating be a lasting one, the improvement must be unquestionable, so far as regards sanitary results; for tin is not so poisonous a metal as lead.

THE DUNDEE HARBOUR WORKS ACCIDENT.—The state of the works is beginning to assume an alarming aspect, according to the *Warder*. The whole area of Camperdown Dock was in the beginning of last week filled to the depth of 10 or 12 feet with sewage water. Some troughs had been erected to convey the water across the quay to the river; but the pumps necessary to raise the water were not yet in position. Besides the enormous quantity already there, the incessant discharge of sewage from the sewer must also be disposed of. The north wall of the dock is having "counterforts" built at intervals behind it, with the object of preventing it from going forward. The inundation has reached the back of the contractor's large cofferdam, constructed solely to resist pressure from without, and heavily banked up with clay behind. Messrs. Leslie & Stevenson, of Edinburgh, civil engineers, have been called in by the trustees to report upon the condition of the works.

THE LATE MR. J. M. DERRICK, ARCHITECT.—Mr. John Macduff Derrick has recently died in America. He was a native of Ireland; and at one time had a lucrative practice as an architect, chiefly in ecclesiastical works, in the North of England and in Ireland; having at one time establishments simultaneously in London, Oxford, and Dublin. Failing health and other causes induced him to retire from practice, but he was again compelled by losses to resume his profession; and at length he went to America, where he practised as an architect till his death. We regret to learn that his widow, who has come to this country for the recovery of her child's health, is now in entirely destitute circumstances. She is endeavouring to raise a small sum to enable her to return to America, where she anticipates a better opportunity of obtaining a livelihood than in this country. Mrs. Derrick, we are glad to learn, is meeting with much sympathy from the members of the Architects' Benevolent Society; and we trust she will speedily be able to realize the object she has in view.

BOILER INSPECTION.—A London Steam-Boiler Association was some time since formed for the prevention of steam-boiler explosions, and the promotion of economy in the use and application of steam. It is apparently on the model of the Manchester Association for similar purposes, of which we have before spoken, and which was established in 1855. The results of the Manchester Association have been highly successful; as, in 1855, there were inspected 269 mills, and 843 boilers; in 1856, 462 mills, and 1,301 boilers; in 1857, 511 mills, and 1,532 boilers; and in 1858, 578 mills, and 1,578 boilers. During the year 1857, twenty-seven boiler explosions took place in Great Britain, killing sixty-seven persons, and severely injuring fifty-eight others. In 1858, out of 1,578 boilers inspected, fifty-six were found working in a dangerous state, besides 292 defective in various ways. The London Association, it appears, has not, as yet, been well supported by those possessing steam-boilers. The consulting engineer of this Association is Mr. John Croome, C.E.; and the chief inspector, Mr. Edward B. Barnard, C.E. The offices are at 14, London-street, City.

PHOTOGRAPHIC ART IN PARIS.—It is said by the Paris correspondent of the *Morning Post* that the photographic art in Paris, including all classes of photographic workmen, employs no less than 10,000 persons. The portrait card is the most profitable branch, in which an ever-augmenting trade is carried on. The sporting view, too, of Paris, has now its photographic establishment in the Champs Elysée, it being the fashion amongst a certain class to have the portraits of their horses and dogs hung up in their apartments.

BRONZE IMPLEMENTS IN THE DRIFT AT WOLVETON.—A perfect celt, or weapon-head of bronze, weighing 1 lb. 6 oz., is said to have been found by a labourer engaged along with others in excavating gravel for Mr. Henning, of Wolveton, in a field called Westless, adjoining Wolveton House. "The implement," says the *Dorset Chronicle*, "was discovered in the gravel at a depth of 10 feet beneath the surface. The gravel-pit has been in process of excavation for some time; but a superincumbent deposit of drift, to the above extent, existed unmoved above the spot where the weapon was discovered; so that it seems next to an impossibility that it could have subsided through the detritus to any such depth from, at, or near the surface. The bronze is beautifully modelled, with a thick fish-tail blade of fully 3 inches in length, and varying from 1 to nearly 2 inches in breadth, on which the raised mid-rib is distinctly relieved. The point of the blade is flattened and sharpened, adze-like; and, on the upper part of the implement, there is a strong metal loop."

SERIOUS STRIKE IN AUSTRALIA.—A strike of labourers on the northern line of railway in Victoria has taken place. After the opening of the section to Woodend, the contractors announced a reduction of wages from 8s. and 7s. to 6s. and 5s. This reduction was resisted on the Northern or Murray River line, but was accepted by the workmen on the Ballarat line. A large number were disposed to resume work, and the repairs on the completed portion of the line did so at wages varying from 6s. to 8s.; but the "turn-outs" traversed the line, forcibly swept it of the willing hands, and compelled many to join the strike. They then proceeded to acts of violence. They overturned the travelling cranes, threw the wagons and trucks down the embankment, assaulted some of the sub-contractors, and almost took possession of the town of Kyneton, twelve miles from the Woodend station. A large body of police was sent from Melbourne, and took possession of the line. The "turn-outs," however, attempted to set fire to the stables of one of the sub-contractors, containing a large number of valuable horses. They also made several attempts to upset the passenger trains from Sunbury to Woodend. All these diabolical efforts were, however, frustrated.

SUFFOLK GENERAL HOSPITAL.—On Wednesday in last week a special board of the governors of this institution, convened in compliance with a requisition signed by eleven governors, was held in order "to take into consideration the propriety of rescinding or amending the resolutions of the general board, held on the 27th of June last, by which a special committee were empowered to expend a sum of 8,000l., in alterations of the hospital and the erection of outbuildings on a piece of land to be purchased in front of the hospital." There was a large attendance, the Marquis of Bristol in the chair. Mr. Salmon, in a long speech (which, with the discussion that followed, is reported at length in the *Suffolk Chronicle*), moved, "That it is the opinion of this meeting, that before the addition and alterations now in progress at the hospital be further proceeded with, the best available opinion should be obtained as to the propriety and safety, in a sanitary point of view, of expending so large a sum of money on the present site." After this resolution was moved, seconded, and spoken to, Colonel Bunbury moved, as an amendment, "That the resolutions passed at the General Board of Governors, on the 27th of June last, be adhered to." The Chairman suggested that the resolution of the 27th of June should be read. The terms of it were,—"That a building committee be appointed, three of whom be a quorum, consisting of the late committee, with the addition of the names of the Rev. Chas. Jones, Dr. Goodwin, and Mr. Image; and that such committee have power to enter into contracts and agreements, and to do all such acts as they may think necessary to carry out the recommendations contained in the report." After a good deal of further discussion, Colonel Bunbury's amendment was put, and carried.

FIREPROOF WAREHOUSES.—An "Engineer" says,—"I send you a suggestion for a fire-proof warehouse. Use hollow girders, either wrought or cast iron; hollow columns, connected by watertight joints to the girders; a flat roof of iron plates, forming a shallow tank; and the whole communicating with the main in the street. It is obvious that as long as the main supplied water the temperature of the beams, columns, and roof, could not rise beyond 212°; and, by adopting arched floors of firebrick, and rolling doors and shutters of fire tiles, with a tendency to close unless held open by gutta percha ropes, a large fire would be rendered impossible."—We printed a suggestion to nearly the same effect some time ago.

SOLDIERS' WORKSHOPS.—Official papers relating to the establishment of workshops in European regiments serving in the East have been reproduced in *Allen's Indian Mail*. The experiment has already been tried in the 1st battalion of the 6th Royal Regiment, and has fully answered the highest expectations. The men have shown great alacrity in taking advantage of the means of employing themselves in a useful manner; and though three or four rupees a week have been earned by those thus engaged, not a single case of drunkenness has been reported. The trades which are primarily to be practised are those of the painter, printer, blacksmith, bricklayer, carpenter, joiner, weaver, shoemaker, bookbinder, tentmaker, gardener, watchmaker, and decorator; while the first cost of tools for a regiment is estimated at less than 100 guineas, which are to be taken as far as possible from the canteen funds.

GAS.—The Lincoln Gaslight and Coke Company have declared a dividend of 10 per cent. with an addition of a bonus of 1l. per share upon the half year. The companies are erecting new works at a cost of 3,000l. A gas company has been formed at Lynn. All the shares are taken up; plans prepared by Mr. Coxon, civil engineer; and the contract let to Mr. Alfred Penny, of London. The two gas companies in Dundee have resolved to reduce the price of gas to 4s. 10d. per thousand feet, or a total reduction of 8d. per thousand feet, the present price being 5s. 6d. Two gas explosions have just occurred, from taking a light into the place where the gas escaped. One occurred at the Dean of Manchester's residence, at Salford, and the other in a Roman Catholic church at Crook. Damage to property was done in both instances. The gas movement, which originated in the *Builder*, and extended to the Continent, and even to America, some years since, seems to have only now reached Scotland; where, however, there is now some stir in various quarters, and a strong determination, on the part of consumers, to reduce and equalize the cost of gas, as well as to improve its quality. Scotland, nevertheless, was far a-head of England, years since, in the adoption of gas in private dwellings, the gas being then of a purer quality generally than that made in England.

UTILIZING THE TIDES.—Let us suppose, says the *London Review*, that by the action of the tides the difference of level of the surface of the ocean at a certain spot is 21 feet between high and low water: omitting for the present all consideration of the power of the subjunct liquid: what is the mechanical value of a space of 100 yards square of this water? 100 yards square by 21 feet deep equals 70,000 cubic yards of water, which is lifted to a height of 21 feet, or to 1,470,000 cubic yards lifted to a height of 1 foot. Now since one cubic yard of water weighs about 1,683 pounds, 1,470,000 cubic yards weigh 2,474,010,000 pounds, which is lifted in six hours. This is equivalent to lifting a weight of 412,335,000 pound pounds in one hour; and, since one horsepower is considered equivalent to raising 1,800,000 pound pounds per hour, we have, locked up in every 100 yards square of sea surface, a power equal to a 230 horse-power steam-engine; acting, be it remembered, day and night to the end of time; requiring no supervision, and costing nothing after the first outlay but the wear and tear of machinery. By means of appropriate machinery connected with this tidal movement any kind of work could be readily performed. Water could be hoisted or air compressed to any desired extent, so as to accumulate power for future use, or for transport to distant stations. Light of surpassing splendour could be generated by means of magneto-electric machines; and, with a very little exercise of ingenuity, every lighthouse on the coast could be illuminated with sun-like brilliancy and with absolutely no expenditure of fuel. An American many years ago (probably thirty), suggested various modes of utilizing the tides.

THE LATE MR. HENRY AUSTIN.—We are asked to mention, with reference to our brief notice of the late Mr. Henry Austin, that Mr. Austin served his articles in the office of Mr. R. Dixon, then in Furnival's Inn, before he was introduced to Mr. Stephenson. Mr. Austin married Miss Hogarth, a sister of Mrs. Charles Dickens.

DESIGNS FOR THE NEW SOUTH WALES HOUSES OF PARLIAMENT.—Some time since we noticed the twenty-one competitive designs for the proposed Houses of Parliament and Government offices which were then on view at the School of Arts. According to the *Sydney Morning Herald* of June 21st, after considerable deliberation the Commissioners selected six of the designs, as being, in their opinion, superior to the rest; and these they have referred to some professional persons in the Government service, for the purpose of reporting as to the adaptation and general practicability of the plans. When these opinions are given, it is probable that the Commissioners will, without much further delay, declare the successful competitors.

ALLEGED PHOTOGRAPHIC AND ELECTRIC DISCOVERIES.—From Berlin we learn that an artist there, Gunther, has succeeded, during a late storm, in photographing a flash of lightning; while, from Burgundy, news comes that a denizen of the Trappist monastery of Grèce-Dieu has succeeded, after considerable study, in producing a continuous electric flame, less costly than that of coal gas, and adapted for general purposes of street and household. He has invented a new pile, much stronger, and at the same time much cheaper, than the pile of Bunsen. While by means of his photo-electric apparatus he produces an electric light as cheap as gas; with his thermo-electric pile he supplies calorific on economic terms hitherto unknown. The *Times* says,—"Several of these apparatus have been constructed, and one is at full work in the Abbaye de La Grèce-Dieu. Manufactories for the public are shortly to be established in Paris and at Lyons. The apparatus for producing gas will not be given to the public until after the Exhibition at London next year, but that for heating buildings will be made public on the 16th of December next."

INDUSTRIAL SCHOOLS: A SIGN OF THE TIMES.—The Earl of Aberdeen has set a noble example at his town residence, Argyll House. The dining-room wing of the house, which overlooks the garden, is undergoing a rather strange metamorphosis; the earl having given orders for its conversion into an industrial school for about sixty boys. There will be a class-room in which the boys will be instructed; a dining or mess room; workrooms in which useful trades, such as shoe-making, tailoring, &c., will be taught; and a lecture-room, in which lectures will be given to the poor of the neighbourhood. The coach-house in Marlborough-mews is to be changed into baths and lavatories; and there will be also accommodation for some of the boys to sleep on the premises; the others leaving in the evening and returning in the morning. The whole affair will be carried out on a similar principle to the schools of Dr. Guthrie, in Edinburgh. The boys are also to be clothed and fed by the earl. The most destitute in the neighbourhood will be admitted; the only qualification being that of poverty; and there will be no distinction as to country, &c. The architect employed is Mr. Brooks, and the contractor is Mr. Marshall, both of London.

THE NEW DRINKING FOUNTAIN IN THE EAST OF LONDON.—A new drinking-fountain has been opened within the railing in front of the Roman Catholic Church in Commercial-road East. It has been erected by the Metropolitan Free Drinking Fountain Association in conjunction with Cardinal Wiseman, and is a mural fountain of polished serpentine marble, erected under the superintendence of Mr. J. Goldsmith Rolls, C.E., surveyor to the association. The ceremony was attended by several of the clergy and gentry of the neighbourhood, and the society was represented by Mr. Rolls, the surveyor, and the secretary, Mr. Hewitt. The secretary said he regretted that the public in general had not more liberally responded to this very deserving movement. The association wanted to open 400 free drinking-fountains in London. Up to the present time they had erected 82, and hoped before the end of the year to complete the first hundred. There had been up to the present time 6,000l. subscribed for this purpose, by about 70 contributors, of whom Mr. S. Gurney (the chairman of the association) had given 800l., and his brother 500l. There would soon be another fountain opened at Camberwell, and another has been commenced in Piccadilly, near the Burlington Arcade.

NORTHAMPTON NEW TOWN HALL.—The foundation-stone of the new town-hall at Northampton was laid October 22, by the mayor, Mr. Pickering Phipps, who delivered a speech on the occasion.

NATIONAL PORTRAIT GALLERY.—The National Portrait Gallery, 29, Great George-street, Westminster, will be closed from Saturday, November 2nd, to Wednesday, November 20th.

TO STOP LEAKAGE IN HOT-WATER PIPES.—Take some iron borings, or filings, and mix them with vinegar: with this fill up the cracks where the leakage is; and, if the pipe has been previously dried, and is kept dry until this has become quite hard, it will never fail to effectually stop the leakage, and will stand for a length of time. If an iron pipe should burst, or there should be a hole broken into it by accident, a piece of iron may be securely fastened over it by bedding it on to a paste made in iron borings and vinegar; but the pipe should not be used until it has become perfectly firm.—*American Gardener's Monthly*.

TENDERS.

For a House to be built for the Rev. J. S. Jenkinson, Vicar of Battersea. Mr. G. H. Page, architect:—

Nicholson & Son	£2,650 0 0
Westcott	2,630 0 0
Notley	2,654 0 0
Bass	2,490 0 0
Piper & Wheeler	2,474 0 0
J. & C. W. Todd	2,350 0 0

For the erection of a Dwelling-house and Stabling in Goldsmith-street, Nottingham, for Mr. B. Seagrave. Mr. Sanderson, architect. Quantities not supplied:—

Wright, Talbot-street	£1,825 0 0
Dawson	795 10 0
Smith	790 0 0
Adams	770 0 0
Haynes & Close	750 0 0
Wm. & Henry Fildes	725 0 0
Slim	724 0 0
Hollingsworth	723 0 0
Wright, Great Alfred-street	710 0 0
Clarnall (accepted)	707 6 0
May	706 0 0

For the erection of new Warehouse in Berrymondsey-street, for Mr. W. H. Cox. Mr. George Elkington, architect:—

LUIG	£1,958 0 0
Wood & Munn	1,818 0 0
Wills	1,793 0 0
Coleman	1,774 0 0
Wells (accepted)	1,440 0 0

For building Three Houses for Mr. W. Ray, at East Moulsey, Surrey. Mr. Henry McCalla, architect:—

	With Bay Windows.	
Minty	£2,200 0 0	£2,320 0 0
Steer & Co.	1,495 0 0	1,570 0 0
Fatman	1,490 0 0	1,520 0 0
Clegg	1,490 0 0	1,290 0 0
Donnelly	1,194 0 0	1,254 0 0

For Public House at Erith. Mr. Herbert Ford, architect:—

	Addenda.
Duncan	£1,670 0 0
McLennan	1,650 0 0
Roberts	1,459 0 0
Bloomfield	1,437 0 0
Santier	1,350 0 0
Ginger	1,300 0 0
Pugh & Wallis	1,144 0 0
Can	998 0 0

For building Three Cottages, and altering another, at Chelsea. Mr. Cripps, surveyor. Quantities supplied:—

Nash	£690 0 0
Duncan	560 0 0
Thompson	547 0 0
Marshall	510 0 0
Hallett	493 0 0
Munroe	469 0 0
Minty	460 0 0
Duncely	450 0 0
Titm	449 0 0
Pugh & Wallis	435 0 0
Howard	340 0 0

TO CORRESPONDENTS.

Indigo on Lime.—In reply to T. N. B., who asks what will prevent the lime absorbing the indigo in a church ceiling.—"A few months ago I phoned at Lake's Church, in Sheffield, with my metallic mirror. It was almost directly coloured indigo, and is now looking as well as any ceiling can possibly look. There was nothing used out of the ordinary way to prevent the plaster absorbing the indigo, but the quality of the metallic plaster mirror." Wm. HAYWOOD, Sheffield.

Colouring Church Walls.—Your correspondent "Inquirer" may see a specimen of the colouring on church walls that he speaks of, on the inner surface of the walls of Apostolic Chapel, Paddington-green.—A. R. P.

T. B. L. (the bill appears moderate; but we are forced to decline advising in private matters).—S. C. (was accidentally overlooked).—E. T. G. T. E. T. A. Working Man.—O. F.—H. M. R. & Son.—D. B.—J. F. A. (it would be useless to speculate as to the cause of dampness without examination).—Mr. O.—E. C. A. (it is beyond our province to advise as to disputed accounts. We have already expressed an opinion on an adverse statement of apparently the same transaction).—C. D.—E. C.—F. G.—Rev. C. C. D.—P. K. (letter has been forwarded).—"One of the Committees, Spilley."—T. G. J. D.—D. M.—Philip Firmin.—A Subscriber, Reading.—Mr. B.—J. L. (Mr. Walter, Great St. Helen's, London).—R. C.—M. & Co.—C. W.—J. R.—E. M. F.—J. B. M.—H. McC.—A. W.—D. B.

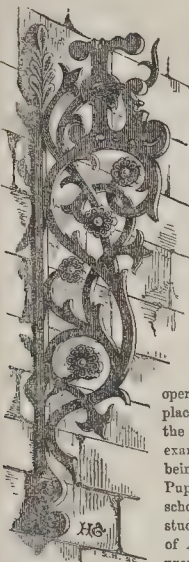
Post-office Orders and Remittances should be made payable to Mr. Morris R. Coleman.

Advertisements cannot be received for the current week's issue, later than FIVE o'clock, p.m., on Thursday.

The Builder.

VOL. XIX.—No. 978.

Art Education and the Government Schools of Art.



ET us now complete our notice of the schools in connection with the Science and Art Department.* After the changes in the management of the schools to which we have already alluded, a scheme of public examinations in the various subjects of freehand drawing, perspective, practical geometry, mechanical, model, and memory drawing, was immediately brought into

operation; the centres and places of examination being the local Art Schools; one examination in each year being held in every school. Pupils from all the public schools, as well as the students of the School of Art, are expected to present themselves for

examination; whilst all persons, whether instructed by art masters or others, are allowed to offer themselves for examination. Two grades of papers, called the first and second grade examination, are given,—the first to children in schools, the second to students in the School of Art and adults, the latter being the more advanced and difficult of the two. Two standards of success in these papers are also recognized,—viz. the simple pass, in which case the pupil's name is recorded as having succeeded; and the excellent pass, for which the pupil receives a prize, selecting it himself from a printed list of prizes on the back of his exercise. The choice of prizes is only allowed to second-grade candidates, the first grade having the same prize always awarded to success in a certain subject. Drawing materials and books are awarded as prizes; the value of a prize of the first grade varying from 3s. to 3s. 6d.; those of the second grade from 15s. to 20s.

The inspection of works executed by students in the local Schools of Art has undergone a re-arrangement. Instead of all competing works being forwarded to London, there to compete for medals, as in the first years of the Department's existence, they are now inspected, and the award of local medals made at the annual examination of the schools. A higher competition is reserved for the best works of every school, in advanced stages, which are forwarded to London; and then ensues the national competition for the highest prize given to the students, viz. the National medal. Thus, a drawing or model must first compete for a local medal, and receive the first medal in that subject awarded to the school in which the drawing or model is made, before it can be forwarded to London to compete for the National Medalion. The same subjects in the various stages of art study are produced by every school, except in advanced original design, and drawing from machinery or from nature; so that a comparison of the excellence of the several works is easily made when similar subjects are placed side by side.

* See p. 749, ante.

A public exhibition of the works in the national competitions takes place at the South Kensington Museum, in the month of June of each year, and continues as part of the South Kensington exhibition for some time. There is necessarily a terrible sameness in an exhibition of such a character, where the same outline or shading is seen repeated with minute and painful accuracy, perhaps fifty times, from as many different schools. In the advanced subjects, where a field is open to the originality of the student, there are frequently works which betray good powers, both of design and execution. Yet it is a depressing feature of the national competition, that so few works of original design should be present. Modelling, however, is in a still worse predicament; the models, as a general rule, being by far the inferior portion of the exhibition. We hope to see these defects remedied by the continued action of the Schools of Art, on the rising generation of artisans. It is by no means necessarily a testimony against the School of Art system, that few works in the highest stages should be present; for we know that when a certain degree of art-power has been acquired by a workman, he not unfrequently makes use of this power to change and better his position. The lamentable part of the matter is, that he should give up his attendance at the classes, instead of continuing his studies in the direction of still higher subjects, for the attainment of greater excellence.

The successful works in the competitions for national medallions circulate through the provinces; an exhibition of them, either separately, or in conjunction with other works of art, being held in the Schools of Art for a limited period in each year.

To schoolmasters certificated under the Committee of Council on Education, the Science and Art Department grants a certificate of the second grade, to teach drawing in national or parochial schools, which bears a value of 5*l.* per annum, and an additional value of 1*l.* for each of his pupil teachers who passes examination, having been instructed in drawing by the certificated schoolmaster. This capitation fee on pupil-teachers is only paid on three, and thus the schoolmaster's drawing certificate is limited to the value of 8*l.* per annum.*

In 1859, examinations in drawing were conducted by the Department in the various diocesan and other training colleges, previously to which date the teachers had been examined in drawing by her Majesty's Inspectors. If we regard each schoolmaster instructed as a means for the diffusion of a power of drawing, the influence of the Department of Art in this direction is becoming very widely extended. In 1860, 2,655 students in training colleges were examined, as well as 66 teachers; whilst 2,495 schoolmasters and pupil teachers were registered as being under art instructions in provincial Schools of Art, making a total of 5,216 individuals who either were, or in course of time would possibly become, schoolmasters, and would probably teach drawing in the schools to which they would become appointed.

The system of "payment on results" has been very fully adopted in the management of Schools of Art, both with reference to the masters as well as to the schools themselves. Thus, at the present time, for every national medallion taken by a student, a sum of 10*l.* worth of works of art is presented to the school at which he is a student, and for every local medal ten shillings' worth. The art master is paid for every child in a poor school who takes a prize in the first grade, 3*s.*, or who passes fair, 2*s.*† for every pupil teacher of a public school who passes examination in one

* Should the New Minute of Council on Education become the recognized system of Government aid to education, this certificate allowance will be swept away, and the general spread of drawing in national schools will be permanently checked. The Science and Art Department should, for its own sake, interfere in this matter, with respect to drawing, and, if necessary, pay the certificated money from its own funds.

† Such children having been instructed by him, or under his superintendence, at a low fee.

subject of drawing, 30*s.* for every student of the School of Art who has attended regularly for twelve months, takes a local medal, and passes examination in geometry, perspective, model, and freehand drawing, the school committee receives 1*l.*, and the art master 4*l.* Such students become prize students, studying without payment of fees, the Department of Art paying a sum of 1*l.* per annum to the fee fund of the school for each prize student so long as he annually takes a local medal in competition. Thus an active and energetic master of a School of Art has it in his power materially to increase both his own income and his school's prosperity; and this system is a vast improvement on the old arrangement of paying a master a fixed salary, irrespective of his success as a teacher.

Whilst treating on the subject of art-education, we must not forget to notice other features connected with the Science and Art Department, besides the arrangements for teaching, and the conditions upon which State assistance is granted for the diffusion of examples and the spread of instruction. There are other means by which public taste is elevated, besides the direct instruction given to children in parochial schools and students in schools of art. One of the results of the Exhibition of 1851 was the formation of the nucleus of an ornamental museum, in which the best examples of every branch of art-workmanship might be collected for the purposes of study. Formed principally from works obtained from the Exhibition, it was temporarily located at Marlborough House. Outgrowing its accommodation, and receiving constant additions at the cost of the State, the collection has grown into the noble museum at Brompton, which most of us have seen more than once. Heterogeneous as is now the character of this collection, the germ of it really existed in the selection of objects from the Exhibition of 1851, which was called the Ornamental Museum. A selection from this collection now circulates through the United Kingdom, under the name of the Travelling Museum. To students of Art-Schools the Exhibition is free, but to other persons a small fee is charged for entrance. We regard this Travelling Museum as a circulating School of Art of the first order, and our only regret is that, instead of one collection being current, there should not be at least half a dozen. The object sought by the project is the formation of a public opinion concerning such collections as would lead to the subsequent formation of local Museums and Galleries of Art. The process of circulation would seem to be a slow one. Since February, 1855, to December, 1860, thirty-one towns have received the benefit of an exhibition of this collection in them. During this time it has been open to the public 987 days, and been visited by 388,197 persons, who have paid a sum of 8,352*l.* 18*s.* 1*d.* for admission. Judging from the comparison of receipts from each town, we might gather, though of course other circumstances would have to be considered, that it is not well that the collection should remain for a long time in one place. Thus, at Barnstable the Exhibition was open five days only, and realized 2,437*l.*, being visited by above 32,000 persons. In Dorchester, also open for exhibition five days, 2,069*l.* were paid for admission by 37,158 persons; whereas at Birmingham, where the Museum was opened for thirty-nine days, 12,711 persons only visited it, paying 96*l.* 6*s.* 11*d.* for admission. At Liverpool it was exhibited thirty-six days, was visited by 16,965 persons, paying 169*l.* 2*s.* 6*d.* for admission. This is a somewhat remarkable comparison, and the singularity of it is not decreased by a knowledge of the population of the different towns. There can hardly be a more valuable influence brought to bear on the manufactures of a district than an exhibition of the very finest works yet produced in those branches of manufacture for which the locality is celebrated. We think that, for such a purpose, the Museum might spare several collections for circulation, for

the experiment which has been tried with one might be made as successful with several. London, with its numerous public collections, ought to be able to let the provinces have a sight of some of its treasures, especially when the good people in the provinces pay as much towards the cost of these collections as the more fortunate metropolitans.

The library possessed by the School of Design, at Somerset House, has, during the last ten years, grown into a very extensive and valuable collection. Besides the usual works on art subjects, it

possesses collections of prints and portfolios of *fac similes*, only to be surpassed by the British Museum Library, which it rivals in the specialities of art literature.

We must, however, draw our necessarily imperfect notice to a conclusion. The prime result of the action of the Department,—that for which it originally was formed, and on account of which it receives and deserves a large annual Parliamentary grant, viz., the art-education of the masses,—may be judged of by a table in the last Report, which we give:—

Table showing the Number of Persons receiving Instruction in Drawing through the Agency of Schools of Art in 1860, compared with previous Years.

	1855.	1856.	1857.	1858.	1859.	1860.
Public and other Schools	18,988	22,746	30,822	65,465	67,490	74,267
Provincial Schools of Art	8,274	10,204	10,238	10,784	13,787	11,121
Metropolitan and District Schools	610	692	778	1,147	1,393	1,530
Students in Training for Masters at South Kensington	72	116	71	62	64	68
Schoolmasters and Pupil Teachers in the Provinces	1,547	1,425	1,323	2,012	2,322	2,495
Totals	29,498	35,083	43,212	79,470	84,972	89,481

The number of Schools of Art established since 1851 is as follows (between 1851 and 1852, 19 local Schools of Design having been previously existing):—

Year ..	1852-1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.
Number established ..	2	13	8	5	4	3	11	6

which, together with the London District Schools, make an aggregate of 84 Schools of Art in operation at the end of the year 1860. With this machinery of art education at work, we ought to be able before very long to show a result; for let us not mistake the establishment of Art Schools and diffusion of art principles as the result: it is the means to an end, and not the end itself. We shall not see this result for ten more years, until the present generation of children, who are being educated with something like a knowledge of drawing, shall, as skilled artisans, have replaced those who are ignorant of it. At the present time, we are rapidly improving in our art workmanship, and this in individual cases very frequently may be seen to spring from an attendance of workmen at a School of Art. But what may be acquired during the evening, after a toilsome day, will not bear a comparison to what has been imbibed and absorbed during the process of general education, commencing at the earliest childhood; and therefore we say that we must wait patiently and see what this present generation of children will do as skilled artisans, before we can be satisfied that there is a result equivalent to our expenditure, and achieving what we have hitherto only attempted.

It has hitherto been our task, and a pleasant one, to record the successes of the Science and Art Department. We would willingly refrain from saying what we feel ourselves compelled to add, but that an impartial review must take cognizance of deficiencies as well as successes. Willing as we are to allow the great work now being accomplished by the Department, as seen by the numbers of individuals under art instruction, yet we begin to feel uneasy at the deductions which the Department makes from the fact, and the comparison which is incessantly made with the result of the working of Schools of Design. Thus, in one of these apparently triumphant comparisons, issued by the Department in the Blue Book of 1860, we have the following:—

Schools of Design.	No. of Students.	Cost per Student.	Cost per School.
1852-3	23	6,997	£778
Schools of Art.	No. of Students.	Cost per Student.	Cost per School.
1858	78	80,000	477

The public would not detect the fallacy of this comparison; but we shall explain it, because thereby hangs what, after careful investigation, we consider to be a weak point in the Department's work.

Of the 6,997 students of 1852-3, each was in attendance for three or more evenings a week at the school, receiving lessons of two or more hours' duration. Of the 80,000 students in 1858, 65,465 were children in parochial and other schools, the majority receiving only one lesson per week of one hour's duration; and to compare the cost of the instruction of the two classes, supposing it to be equally valuable and productive, is an absurdity. The fair comparison would have been to compare the cost of students in the Schools of Design of 1852-3 with that of students in Schools of Art in 1858, as both might be supposed to be receiving instruction of equal value, such as:—

Schools of Design.	No. of Students.	Cost per Student.	Cost per School.
1852-3	23	6,997	£778
Schools of Art.	No. of Students.	Cost per Student.	Cost per School.
1858	78	477	11,005

which, in round numbers, would have made the cost per student to the State, in—

1852-3 in Schools of Design	£2 11 0
1858 in Schools of Art	2 12 0

to which might have been added that 65,465 pupils of public schools were being properly instructed in elementary drawing at a comparatively low fee.

We cannot help regarding the fact that seventy-eight Schools of Art in 1858, having only 14,005 students in them, as a very triumphant comparison with twenty-three Schools of Design in 1852-3, having 6,997 students; for the average to each school will have been reduced from 304 students in each School of Design to 179 students in each School of Art. At the same time, though the comparison, by being made true, loses some of its astonishing dimensions, we are not ignorant of the fact that the great majority of the Schools of Art are yet new, and struggling into existence under great difficulties; so that we may reasonably expect the proportion of students in them to increase, and the cost to decrease. Moreover, we are willing to allow that the pupils are better taught, and that besides all this we have a vast number of persons outside the schools, properly instructed, and a training-school in London for the supply of highly-qualified masters.

We are content to pay a fair price for a good article; now, we are satisfied that the Department can supply us with a good article, and the Department does not increase admiration by declaring to us that we are being taught for very much less than we know we pay. The principle of self-support is an admirable one in theory, but, as applied to Art Schools, wholly fallacious in practice. Upon this principle the Department tells us that in 1858 seventy-eight Schools of Art cost the nation 479l. per annum for each school. Where, then, is the self-support? In the same year we are told that the average direct payments by the State to each Art School is 110l., whilst the actual cost of each school to the nation is 479l. What becomes of the 369l. per annum for each school, not expended in direct payment? Is this the cost of the management of each school? If so, the proportion is ridiculous, and the sooner it is looked to the better.

To initiate a general system of art-education will, for many years, cost this country, which is so badly prepared for it, a large sum of public money. By well-arranged rules, and careful supervision, the state may ultimately be relieved of this expenditure through the increased demand for art-instruction, which will in the end make it self-supporting as a profession. Meanwhile, we must not simply count the cost of the seed, but rather look prospectively to the value of the crop. A fostering hand should be held over the development of the central Schools of Art, for we must not neglect the centres of art-education, the roots of the tree; or the branches will wither, and the fruit never arrive at maturity.

Among other encouragements offered by the Government to the provinces, is a proportion of the expenses incurred in erecting new schools of art, the maximum proportion being 25 per cent. on the cost of the building. The conditions of the grant are such as would enable any town whose inhabitants are in earnest to avail themselves of it, whilst the public interest in the schools erected is carefully guarded.

Much inquiry is awakened concerning Schools of Art, and the appearance they will make in the Great Exhibition of 1862. In 1851, the Schools of Design received a medal in the Section of Design, and were tolerably well represented. The

Department of Art has issued a circular, stating that three prizes of 15l., and three of 5l. each, will be awarded for designs in various subjects to students in Schools of Art; the successful works to be reserved for the representation of the stage of applied design in the Great Exhibition. We shall be glad to find the response a hearty one, though we confess we look for more than this from the Department, for the encouragement of students with reference to the Exhibition of 1862.

In conclusion, let us hope that the Schools of Art will go on increasing and flourishing as they have done for the last ten years; that they will receive as great an impetus in the right direction from the Exhibition of 1862, as they did from its predecessor of 1851, and that the mistakes and shortcomings which may be detected may be treated with as unsparing a hand as they were ten years ago, and with an equally beneficial result.

MEDIEVAL RESTORATIONS IN FLORENCE.

WHAT Rogers says of the genius of Florence,—

“Tis the Past
Contending with the Present; and in turn
Each has the mastery,—

is most true, though in these days assuredly the Present is developing itself into a vigorous life that more and more outstrips the attainments of the Past.

When one looks down on this city from the height of S. Miniato, it is impossible not to feel an admiration blent with enthusiasm; for it is the very expression of a high-wrought civilization that scene of fine magnificence presents: the luxuriant Val d'Arno seems the fit framework; and the stately town, with its marble towers and domes, completes the brilliant picture as if by an artist-purpose. The recent restoration of the ancient basilica on this hill—a conspicuous and striking object from the quays along the Arno,—claims attention as one more proof of that appreciation and pride in her antiquities that has never more signally declared itself in Florence than under her present régime of liberal government. A humble oratory amidst forests was the only monument originally marking the spot where Miniatus and his companions suffered martyrdom in the third century; but very soon (early in the fifth century) arose here a church dignified by the title of Basilica, to which, then in a ruinous state, succeeded, in 1013, the more splendid temple erected by Ildebrando, bishop of Florence; still standing with all its essential features unchanged; and near it a monastery first assigned to Benedictines, under the jurisdiction of the Florentine prelates, who elected their abbots, and, on this account, desiring to establish a residence here, raised a stately, fortified palace (begun 1294), the turreted front of which extends beside the basilica's façade. In 1519 was built, by Baccio d'Agnolo, the lofty square campanile that forms a fine object on this summit, and still bears traces of the injury inflicted by the German artillery in the siege of 1529, when for ten days four great guns incessantly fulminated against it without any other effect than we see in the indentures left to this day, breaking the lines of its angles, whilst the body of the building remains unshaken. Still may we admire the massive bulwarks that sweep round this height, enclosing the church and palace, in accomplishment of the plans of Michelangelo for the defence so heroically sustained in that marvellous siege; but the fortifications, as now standing, are partly the work of Cosimo I., who dislodged the Olivetan monks (successors of the Benedictines), in 1553, to convert S. Miniato into a place of military strength, for which its situation is eminently suited. This church has long since ceased to be used for sacred rites, except that of interment and an occasional early Mass, and become the public cemetery, as is at once apparent from the numerous epitaphs set against its walls and on its pavement. Here reposes the satiric poet, Giusti, represented by an indifferent statue over his grave; but in a lateral chapel, completed 1466 by the sculptor and architect Rossellino, is one of the finest monuments of that century, to Cardinal Jacopo, archbishop of Lisbon (known as the Cardinal of Portugal), deceased 1459. One is struck on entering by the aerial majesty and richly harmonious effect of this interior,—by the features of the early Roman basilica, preserved in their simplicity amid magnificent details that in no way interfere with the grandeur and purity of the leading design. A most singular feature is the spacious crypt, entered under arcades that bound the extremity of the nave, and made

more important than the sanctuary itself, ascended to by a double staircase upon the roof of this crypt (or confessional), the latter being thus seen into from the portals, together with the tribune and apse on the higher level above. This lower church, divided into five aisles, supported by thirty-eight graceful columns, whose shafts and capitals are evidently (from their disagreement) the spoils of more ancient and classic buildings, impresses as a work of architecture extraordinary for the eleventh century, so pleasingly blended are solemnity and grace, lightness and solidity, in its features. In the tribune above are splendid specimens of marble intarsio, dark green and white, on the screen and ambo, unquestionably coeval with the church's origin; and the barbaric style of the figures on the ambo, whose desk is supported by an eagle, with the statuette below, betrays the inferiority of all save the merely ornamental in that period's art, these being supposed by Rumohr (*Italianische Forschungen*) offspring of some Greek chisel in the eleventh century. In the apse is a colossal mosaic of severe and imposing character,—the Saviour, in rich gold-embroidered vestments, on a throne, holding a closed volume, and giving benediction; the countenance stern and awful, with dark hair and beard; beside him the letters Alpha and Omega, and the accustomed symbols of the Evangelists; and lower, on one side, the Virgin; on the other, St. Miniatius, dressed in the regal paludamentum, and offering a crown; palms, fruit-bearing trees, the pelican and dove, and, on miniature scale, figures of monks, occupying interstices, and a frieze below, displaying an imperfect inscription, with the date 1297. But this is to be taken as referring to the mosaic's origin, or to some restoration?

An ample volume on this basilica (*Cluni Storico-Artistica*, &c.), published at Florence, 1850, by the Chev. Berti, ingeniously argues on the probability that this mosaic is far more ancient from the fact that the Benedictines are here represented entirely in black, not with the white cow, introduced in the Cluny reform of that Order, and followed by the community here in the eleventh century; and that St. Giovanni Gualberto, a saint of the same century, connected by his story with this church, and usually placed in art beside St. Miniatius, does not appear in this group. May it not, this writer suggests, be coeval with the edifice of Ildebrando (1013), and possibly a copy from some fresco in the earlier church, dating anterior to the Cluny reform?

Looking round us in this noble old church, we are struck by its analogies with the earliest basilica type, and also by the characteristics, thus soon developing, of the style peculiarly Tuscan. Nave and aisles are divided by very lofty columns of veined marble; and at the centre an arch spans the width, corresponding to the chancel arch beyond, and resting on clustering columns of dark green marble (now restored in scagliola). Above the nine arches on each side rise attics, pierced by narrow round-arched windows; and this whole surface, as well as the west walls above the three portals, is ornamented with that inlaid work in coloured marbles distinguishing Tuscan Medieval architecture in so many instances, but here only dark green and white; the latter forming the groundwork, on which are inserted diamonds, squares, circlets, and horizontal bands. Some beautiful Corinthian capitals have evidently been fitted to shafts not belonging to them: others with flat, heavy foliage, betray decadence in art. In front of the arcades, between the upper and lower church, stands an altar, beneath a vaulted canopy of marbles, beautifully wrought with coiffers and roses, by Michelozzi, commissioned by Piero de' Medici, 1448, to prepare this superb chapel in honour of the Crucifix once here, which bowed its head at the prayers of St. Giovanni Gualberti! Amidst the vicissitudes this church has passed through, several treasures of early painting have been perfectly preserved, though others are faded into mere shadows on its walls. Over the altar in Michelozzi's chapel, a panel-picture, comprising several scenes from the Evangelic history, the figures of St. Benedict and St. Miniatius, has merits which led the Florentine artist, Marini (lately deceased, and here highly esteemed for his works on sacred subjects), to class this among the finest products from the school of Giotto. Another highly-finished picture in distemper of St. Miniatius, surrounded by smaller groups, to illustrate his story, has been ascribed (but without reliable data), to Taddeo Gaddi. But the most valuable series occupies the walls of the sacristy, added in 1387, spacious, vaulted, and entirely adorned by the hand of Spinello Aretino: on the ceiling the four Evangelists; on the walls

sixteen subjects from the life of St. Benedict and his first followers, designed with truth and freedom, and power of natural expression, remarkable, indeed, for the artist's age,—the legendary and miraculous introduced with good effect, and the diabolic Tempter rather ludicrously prominent. Some restoration requisite was ably achieved, a few years ago, by Marini. It is six years since the renovation of this church, so creditable to Florence's taste and spirit, commenced, and the workmen are still engaged, though little remains to be done here; but that weather-beaten episcopal palace is left dilapidated, all shant up, and dismal to behold, its ample Gothic windows filled with masonry; and the cloisters of the deserted edifice contain only one picture, little noticeable, after having once displayed several by Andrea del Castagno and Paolo Uccello, now all obliterated. We are thus reminded of the vicissitudes both church and monastery have suffered from. In 1630 destined as a lazaretto in time of pestilence whose visitation lasted three years; in 1697 converted into an asylum for mendicants of least reputable class; in 1703 conceded to the Jesuits for periodical religious exercises; but in 1765 again a public hospital; and in 1774 again (the church, at least) granted, for occasional religious uses, to a confraternity of laics, who have continued to meet on certain days within this otherwise abandoned temple. This present façade, with a blind arcade and surface incrustated with coloured marbles in the favourite Tuscan style, was raised, probably in the fourteenth century, by the Guild of Merchants, to whose consols the charge of the edifice and its works had been assigned in the thirteenth century, and whose symbol—an eagle standing on a woodcock—surmounts the gable summit.

New interest has been excited for S. Miniatius, apparent in the concourse hither, especially on Sunday evenings, to enjoy this pleasant spot or admire the building, by the renovation still in progress, and carried on with an intelligence entitled to all praise. What we see achieved here, in fact, avoids all that modernises, and truly effects that which restores. Where marble or stonework, capitals or mouldings had been impaired, the deficiency has been supplied, the parts injured brought back to their original sharpness and freshness: the whole of the wooden roofing, which, with its naked rafters, had formerly presented a bare unsightly surface, is now adorned by a rich diaper colouring, as certainly were those of the primitive basilicas left thus exposed without vault or ceiling. On the whole, we have here a genuine appreciative renewal of the Medieval temple, without one sacrifice of the Past to the Present, such as (strange to say) Rome, with all her pretensions and means, has never yet accomplished, nor shown herself capable of accomplishing, her attempts to restore resulting in nothing else than the masquerading of Christian antiquity.

It must be regretted that another lately undertaken work, otherwise laudable, is to cause the desecration of an edifice, one of the most renowned among Florence's sanctuaries. The celebrated *Or' San Michele*,—originally a market-place, surrounded by open arcades, with a granary above, erected by Arnolfo di Lapo, 1284, and converted into a church in 1337, when Taddeo Gaddi encrusted its brick pilasters with marble, and built up the interstices of the outer arcades,—is again to be reduced to its original character as an open loggia of porticos, supporting the edifice above, still used for public archives (as appropriated in 1569), but no longer to be a place of worship. In architectural effect, no doubt, the gain will be great, and we may expect this structure, again thrown open, to prove one of the most gracefully majestic among Italian Medieval creations; and that inestimable series of statues in the canopied niches around, assuredly the grandest collection of Italy's sacred sculpture, noblest monuments of her art-genius of the fifteenth and sixteenth centuries—these, happily, will remain undisturbed; but we bear with alarm of the intention to remove, for erection in some other church (which is not yet determined), that magnificent marble tabernacle of florid Gothic, by Orgagna (1348-59), raised round the picture of the Madonna, the belief in miracles wrought by which about the year 1291 led to that veneration for the spot which finally caused the conversion of the market-place into a church. 86,000 gold florins were spent on this tabernacle and the marble incrustation of the pilasters; 20,000 on the works for inclosing the whole quadrangular building.

The Madonna of Or' San Michele was elected advocate of the Republic by a general assembly on the piazza in front, 13th August, 1365; soon

after which it was decreed that every affluent citizen should offer a banner, every man of arms a shield, at her shrine. At the Assumption festivals the rectors of churches and superiors of convents made rich offerings, according to their means, and the Gonfaloniers a present of fruit, the season's choicest, during the Mass at this altar. The confraternity called after this Madonna, originating in 1291, had its notary seated at a desk in the church every day throughout the year, to receive applicants desiring the honour of being enrolled; and at last even the dead began to be aggregated, with the pledge of suffrages at funeral Masses for their benefit! In 1348, the year of the terrific plague-visitation, the offerings here amounted to 35,000 gold florins. Shortly after the expulsion of the Duke of Athens, 1348, was erected, at an expense of 3,000 gold florins, a chapel in this church, dedicated to St. Anna; because on her festival, 26th July, that tyrant had fallen; and then was instituted the observance kept up till late years, for the civic authorities and heads of the guilds (*arti*), to attend that day's solemnities here, and for the race of the pallium further to celebrate it. The obligatory offerings at the Virgin's shrine were, after a time, commuted into the form of wax effigies, life-size, in the dress and ornaments fashionable at the day, which increased till so numerous that "as many as the *roti* of Or' San Michele" became a by-word. Oaths to administer justly were made at this altar by persons entering on municipal offices; and an old statute even declares null every such oath, *ex officio*, unless guaranteed by the *religio loci* of this sanctuary! Several paintings, fresco and oil, have been added in succeeding ages; and, fortunately, no change has impaired the character of antiquity in either exterior or interior of this singular building, so unlike a church, though so nobly venerable.

This painting of the windows, introduced amidst tracery of very simple design, is supposed the earliest example of this art in Florence, wrought by means of a secret imported from Flanders;—its subjects, miracles ascribed to the Madonna, but now, though with tints still vivid, scarcely allowing the designs to be distinguished. The repairs effected during late years on the exterior of this church have been in the best taste; carefully avoiding every alteration of the antique; and, indeed, restoring details to their original state, as in the removal of Donatello's celebrated "St. George" to its proper niche, where the reliefs on its basement illustrate that saint's story, from that in which it had long inappropriately stood, occupying the place of Madonna and Child (group by Simone da Fiesole), originally destined for the latter niche, but afterwards removed to an altar in the church. A most desirable restoration is that of the vaulted roof to its original condition, by cleansing from the hideous stucco which the priests here engaged had the barbarism to lay on, at some period in the last century; thus concealing its surface of *alta-marine*,* on which figures of prophets and saints were painted by Landini (called "Jacopo Il Cosentino"). For these works the church has been closed this summer; but a few weeks ago, finding one door open early in the morning, we entered, and were informed by an intelligent artisan respecting all done and to be done. With his guidance we climbed up the scaffolding so as to examine close the rich decoration of the ceiling, where one bay had been just cleansed from stucco; and in each compartment between the four ribs appeared the colossal figure, much faded, of one of Landini's series. The pilasters flanking the windows are also being freed from similar defilement; and the dimly-traceable frescoes on one had been uncovered shortly before my visit. Orgagna's tabernacle, the marvel of this church, is so ill-placed under a vaulted ceiling, far too low for its pinnacled structure, and with insufficient light for examining its fine reliefs of the Virgin's story, Prophets, and allegoric figures, that we may expect motive for rejoicing in its future location, wherever determined; but one remembers the historic sanctities of Or' San Michele with regret at their decreed banishment from observance here.

On the 29th September was re-opened, after being long closed for repairs, the Bargello, or Palace of Podestà, since that day made public, and visited by numbers every forenoon and afternoon. This is Florence's most ancient public building, and that most perfectly retaining its originality among all

* The lapis lazuli requisite for this was so costly at the time, that some complained of the exorbitant expense incurred for the splendours of this church; and (characteristically enough) one imprudent censurer was actually arrested as thus insulting the dignity or piety of the munificent Republic!

erected for civic purposes. Raised about 1250, by an architect supposed to be the father of the Arnolfo who built the cathedral; by Vasari, however, said to have been Lapo, a German, not the father, but the master of the same Arnolfo; and the date of its origin given in an inscription of Gothic characters, on its walls, 1255, probably the year of its completion, the first two lines of that metrical record:—

"*Somnus Alexander sanctus quem mundus adorat,
Cum Pastor mundi regnabant Rexque Gulielmus.*"

plainly avowing the Guelph sympathies which then led Florence to adore a reigning Pope (Alexander IV.), and to recognize William of Nassau as king of the Romans, in despite of the reigning emperor, Frederick II. The Dominican architects, Fra Sisto and Fra Riaro (then much esteemed), had a share in this construction, especially in the vaulting of the interiors; and in 1290 the spacious chapel was painted round its whole circuit by Giotto. The story of this building is that of the Florentine Republic in abstract. That century had not passed before it was attacked in one of the periodical popular tumults, set fire to, and pillaged by the invading mob (1295); again, in 1304, when the Podestà, a native of Parma, was driven away after a regular siege. The magistracy now resolved to repair and fortify it; for which purpose was voted a subvention of 100 gold florins per week; and in 1317 were commenced the new works, but soon to be destroyed by a fire (1332), which consumed the entire roofing; not, however, fatal to the shell of the building, though this also suffered from an inundation of the Arno that flooded the whole area a short time afterwards. In 1343 it was again attacked, taken by storm, and sacked in the revolution against the Duke of Athens, with immediate object of vengeance against the hated Podestà, Baglioni of Perugia, here installed by that foreign tyrant. Two years after this it was that the renovation began, by public decree, which Vasari erroneously ascribes to Angiolo Gaddi, whereas the real architect, as proved by extant documents, was Fioravanti, whose labours, completed 1378, gave its present character to the entire edifice, adding its crown of turrets with overhanging machicolations, the great Gothic window and portal, with the civic emblems and other mouldings on the south side; the external staircase, a beautiful feature, leading from the court to the first story; on the summit of the lofty tower the iron figure of a rampant lion; and at the angles of the battlements the gargoyles in the form of fantastic animals. About this period it became the residence of the Duke of Calabria, who had acquired the supreme power by favour of dominant parties; and, probably, the whole western section of the building, less lofty and less severe in style than the rest, belongs to the structure of Fioravanti. In 1378 was sustained another siege in the "Ciampi" insurrection, by a Podestà, who defended this his palace for two hours, but then capitulated to the populace. In 1502 the five judges forming the "Council of Justice" established their tribunal residence here, to prepare for which were required changes, particularly of the interior, effected by two architects, Baccio d'Agnolo and Giuliano di Sangallo, whose engagement, perhaps, accounts for some few discrepancies and more modern-looking features, the greater number of windows than comports with the older style, the handsome chimney-pieces, and renewed marble frameworks of doors and windows, some with merely ornamental instead of the heraldic devices seen in the rest. But, after 1574, when this edifice ceased to be the official residence of the Podestà, began the material alteration, indeed degradation, of its character: the judges and their tribunal, together with that chief magistrate, were transferred elsewhere, and the captain of police, *bargello* (sheriff), was established, with all his myrmidons; and prisons for political offenders were constructed within these walls, whence the new name retained till the present time—*bargello*—instead of "pretorio," or *Palazzo del Podestà*. Whoever is familiar with the story of the Medici may well imagine that the drama of horrors here enacted never reached scenes of such dark mystery or atrocity before as it assuredly did after that new appropriation under Cosimo I. The sullen bell which had sounded from its tower for capital punishment or other severe acts of justice, under the Republic, now tolled at a certain hour of night, beyond which no citizen was to go abroad under pain of losing one hand by the axe. The same bell used formerly to ring at night to give notice that all, after that hour, must be provided with lights and arms if going abroad, but under no such fearful penalty; hatred against the remembrance of which, or other tyrannies, induced the order, in 1518, that the bell of the *bargello* should sound

no more, nor has it since that revolutionary year been heard. Apropos of Medici influences here, it may be remembered that for the offence of expressing the suspicion that Pope Clement VII. owed his election to simony, the day intelligence of that event reached Florence a respectable citizen was arrested, and he was tried and beheaded in the court of this palace before the following night! Till recent years the *bargello* was still a common prison (no longer even privileged for crimes of state alone); but the late government had the merit of projecting and commencing, in 1858, the restoration so well ordered, originally under the direction of Mannetti, superintendent of public buildings, and carried out by the architect Mazzei.

Nothing could be more intelligent or tastefully conceived than this restoration, which, though it has almost renewed the massive stonework of the lower portions, and the frames or mouldings of many windows, has in no way impaired the stern simplicity of the antique or the effect of romantic gloominess in the whole. The portentous old pile seems still, as formerly, to speak of the historical past, and bear that impress of potent unbragued despotism which far more distinguishes it than does ought to remind us here of a free enterprising republic. Forming a large quadrangle, isolated by the streets that encircle it, with that stupendous tower, narrowing towards the summit, that stands like an impregnable guardian; at one side it still looks the most strictly Medieval building in Florence. Its windows, high above the ground-floor, are on the first tier of two lights, with cusped arches, and heraldic devices chiselled on the tympanum; on the second, single-lighted, but with the same arches and emblems. On the tower, at one front of its square, are the blackened remains of a fresco, said to be that Giotto was commissioned to paint as a political satire against the Duke of Athens and his creatures; each figure with a vituperative verse expressing scorn or evil qualities beside it—an adjunct no longer traceable. Entering, one is struck by the majestic simplicity, the effect of loftiness beyond reality, and the fine feature formed by that outer staircase, with the symbolic lion (the Florentine *Marzocco*) on a pilaster at its base, and on the first landing-place, a porch with horizontal frontispiece, enriched by emblems chiselled on the entablature; as, indeed, all around, in this court, the walls are incrustured with armorial reliefs in stone (some of terra cotta, painted), presenting a very curious chapter of Medieval heraldry. Porticos, with octagonal pilasters, are carried along three sides; and a corresponding pillared loggia opens upon this court from the first story of the side reached by that staircase. Within the portico are the sculptured shields of the *gonfalonieri* for the four regions into which the city was divided in the fourteenth century; and the vaulting of the loggia above is covered with painted emblems on a blue ground, besprinkled with golden lilies. In this quadrangle the Podestà had the right to detain any suspected persons, but not beyond three days: a chain hung across near the gateway marking the limit towards the street for those prisoners under surveillance. On the ground-floor we enter a gloomy vaulted hall, divided by pilasters, where once sat the judges, both for civil and criminal causes, and with which communicated the terrible *secreto*, or torture-room; some faded remains of sacred pictures, Madonnas and saints, being left on these walls. Most imposing is the immense lofty hall on the first story, that of the Communal Council, where the body, so powerful in the thirteenth and fourteenth centuries, divided into two sections, one of 90, the other of 300 citizens, used to be convoked by the Podestà; its vaulted and ribbed ceiling divided into two ample bays; its whole area alike divided by a widely-spanning arch resting on two pentagonal pilasters, with capitals of heavy foliage. Next is the chamber where the Podestà administered justice; its vault and the lunettes below covered with painted escutcheons; most conspicuous among which is the oft-repeated device of the Duke of Athens, a lion rampant, double-tailed, on azure field; but we are reminded by an epigraph on a tablet here, in proudly patriotic phrase, that the Republic had ordered to be everywhere cancelled, in 1343, the arms of that tyrant; only some remained for the sake of decoration. Most interesting is the chapel, though now surrounded by the fading traces of Giotto's frescoes, condemned by incredible barbarism to be whitewashed over, and long forgotten, till rediscovered by the artist Antonio Marini, who skillfully brought to light and retouched them, as commissioned by Government

in 1840. The principal composition, on the wall above where once stood the altar, interrupted by a high lancet window, displays the figure of the Saviour (but scarcely distinguishable) within an elliptical nimbus; and at lower levels several groups formally disposed, few figures preserved in more than fragments, though happily one of the least injured is the portrait of Dante (at the age, as assumed, of thirty-two) in the nearest rank at the front; the head in profile (full of thoughtful character); the dress, a long red mantle, with hood; and two figures near, about equally intact, recognized as Brunetto Latini and Corso Donati. On one lateral wall is the story of St. John the Baptist; on the other that of the Magdalene, in several groups on two tiers, but for the most part reduced to mere shadows, the figures little more than outlines, save a few, most striking among which is that of Mary kneeling before the arisen Saviour in the garden; its life-like earnestness sufficing to tell the story eloquently, though the form of our Lord beside her is completely obliterated. We can just divine on the other surface of wall the subject of the Last Judgment, not one figure escaped from decay; and the high vaulted ceiling, no doubt once painted, retains no trace of such adornment visible from below. At the sides of the altar-place are two superior wall-paintings by Ghirlandajo, St. Jerome praying in the Desert, and a Virgin and Child, each with an inscription dated 1490.

On the 1st of August was re-opened, after four years, the celebrated Dominican church, S. Maria Novella, which its owners had undertaken to restore to the ancient type, as to the interior at least, raised by the architects of this order, Sisto and Riaro, in 1279, the cost of this work entirely defrayed by the profits of the great pharmacy opened within these cloisters, in a style only too magnificent, many years ago, the whole under the direction of the Friar Farmacia, and the architect, one Signor Romoli. This interior had been disfigured, among other vile modernizations, by the square windows and utterly inappropriate altars added, in defiance of the antique, by Vasari. It is now restored in the simplest Pointed style, without any approach to the florid; very wide arches resting on clustering pillars and pilasters of grey stone, and finely-vaulted ceiling with massive ribs divided into many bays, lancet windows, all painted, lighting the aisles, and small circular ones above each archway along the attic; these being tinted only at the centre; an ample and very rich "ancona" giving conspicuousness to the high altar, and each lateral altar along the aisles surmounted by a frontispiece resting on pilasters. As we enter, the effect is majestic. Purity and aerial dignity impress in the general forms, though we might object to the too great extent of bare grey surface not sufficiently neutralized by the warmer yellowish hues of the stonework. The tinting of the lateral windows (renewed), though of good design as to figures and ornaments, suffers from comparison with the far more richly beautiful colouring of the great choir window, the original happily preserved, from the hands of a Florentine named Alessandro, in 1491; also with that of the large circle lighting the nave at the west wall. Most beautiful and elaborate are the high altar and ancona, by the same architect, Romoli, with sculptures by Egisto Rosi; on the paltium, of white marble reliefs within rich octagon borders of the theological virtues, the Preaching of St. Dominic, the Papal Legato granting Investiture to the Superior of this Convent, and twelve saints of the order upon the *mensa*, a tabernacle resembling a Gothic temple, with cupola of tinted marbles, intarsio of malachite and lapis lazuli; above, a reredos of similarly inlaid marbles and Gothic design; at the extremities, octagon pilasters, each surmounted by an angel in devout contemplation, and showings in niches under canopies, the statuettes of the twelve apostles; a shaft of white marble serving for support to each. This restoration has encountered severe criticism, both from the press and from an artistic deputaion, commissioned by Government, which, in February last, made its unfavourable report, with counsel that the whole work should be destroyed and re-undertaken at the public cost, rejected for financial reasons; though from that time forth another architect, Mazzei, was appointed by the authorities to superintend the continuance, and check (where possible) the errors apprehended in the accomplishing of the task still left. The commissioners were certainly right in reclaiming against the removal of a fine bronze by Ghiberti, the recumbent figure of Lionardo Dati, a well-known theological writer, and provincial of the Tuscan Dominicans, whose monument, once in the nave, has disappeared. On the other hand,

there is some compensation in the restoring of Filippo Lippi's admirable frescoes, from the legendary story of St. John, and the discovery of another, a Nativity, by Lippi the elder, behind one of Vasari's ugly altars that concealed it. The official condemnation was the more singular, seeing that another committee, under the late Government, had pronounced in exactly the opposite sense, to approve all up to that time achieved in the works at S. Maria Novella. At all events, we have here a return to the Mediæval, and one of those evidences to a revived feeling for art among hopeful signs of the times in Italy.

ARCHITECTURAL STUDY AND ARCHITECTURAL PROGRESS.*

AFTER numerous perils and vicissitudes, the Architectural Association is now about to enter the sixteenth year of its existence, and we may fairly hope that it will now prove to have outgrown most of those youthful disorders which have more than once (with the assistance, perhaps, of friends and doctors), brought it very nearly to a premature end. It will be our own fault if it does not continue year by year to enlarge its sphere of usefulness, and to satisfy more fully a want which, I have no hesitation in saying, would even now be keenly felt by a considerable circle in the event of its dissolution.

We have heard an encouraging report of the proceedings of last session, and I need scarcely remind you that in the year before us we shall have rich opportunities of observation and study in the forthcoming Great Exhibition, which cannot fail (if we use our time properly) to produce a good effect in developing what I apprehend to be the great end and object of this Association, viz.: "Mutual assistance and improvement in prosecuting the study of Architecture as an Art." I lay this stress on the word art, because I feel that into some of our discussions too much of what I may call the business element finds its way, to the no small detriment of that artistic progress which ought, I think, more exclusively to occupy our attention as students. I must not, of course, be understood by this to undervalue the business element in its proper place, nor to deny in any way its indispensable necessity to every architect in practice. But as a body we are not in practice, and whether in practice or not we are still young, and the majority of us at least have that time now to devote to artistic self-improvement which each successive year will render it more difficult to find. It seems to me that in an Association of this kind, composed of students (for we are all students, and for the most part young students), more real practical good would be done by the members uniting as one man in trying to understand thoroughly and help forward honestly, the development of true principles of art, than in discussing questions which might well be left to those whose opinions when published are likely to carry weight and authority. The nearer, in fact, we approach the character of a juvenile debating society, in which the most difficult political questions of the day are gravely discussed and decided by an assembly of headless youths, the further shall we be from reaching any useful result. Banded together and firmly united in a common honest purpose, as art students determined to carry out true principles at any cost, we may and must work out great and lasting effects on the progress of architecture. This, to my mind, is our proper province, and as it is a point that has perhaps been rather lost sight of in the last few years, I purpose this evening to address myself more directly than is usual on these occasions to the members of this body.

During the past session a very great deal has been said, and I believe something has been done, towards the settlement of that long-mooted question, the establishment of an Architectural Examination. The subject has naturally excited much interest amongst ourselves, more especially as I believe it was by the Association that such a proposal was first started. Many—I believe I may say a large majority—confidently foretell that such an examination, when fairly set going, will have the effect of raising the standard of the profession, and of excluding ignorant and incompetent persons from practising as architects. This result is, no doubt, much to be desired; but as I have already publicly expressed my opinion, with the reasons for that opinion, and found myself in a small minority, I will not enter on the subject now. I cannot help noticing, however,

that in the course of the various discussions which I have read and heard, several theories have been alluded to as acknowledged truths, which have struck me with extreme surprise. For instance, I have heard it casually stated, as a matter of course, at one of these discussions, "That a young architect should study every style, in order to be ready to meet the possible wishes of his client." Now, of course, in pronouncing this theory to be simply monstrous, I have no wish to set a limit (especially in this direction) to the study of all that is great and good in art of every period and every clime; but the idea of attempting to carry out the theory of practising every known style, to me, I must confess, suggests nothing so vividly as the conjuror's inexhaustible bottle, which is always ready with a modicum (and that sufficiently bad, be it remembered) of any liquor that may be asked for. The counter theory is that a man must be full of one style, just as a bottle must be full of one wine to give it really good.

The rapid and apparently perfectly natural and easy change from one style to another of totally opposite principles will to some minds smack more of the dexterity of the charlatan than of the sober earnestness of purpose of the true artist. But we are told that "we ought to be ready to meet the wishes of our client—to bow to his choice of style." Our client, on the contrary, if we were united in purpose, as we ought to be, or, in other words, if ours were an age of true art, should have absolutely no choice as to style. A patient does not tell his physician what medicine to give him—he tells his symptoms, and the doctor prescribes; so your client should tell you his requirements, the money at his disposal, and so forth, and these you should scrupulously attend to; but have no self-doctoring on his part, no interference in your especial province: here the artist should reign supreme.

It may well be doubted whether architects, as a class, do not tell their clients, the public, too much about the names and outward characteristics of various styles in an easy, smattering manner, which leads them to believe that they not only may, but are invited to choose for themselves, as the caprice or fancy of the moment may dictate. It is ten to one that when we hear an old gentleman in public or private discussing the relative merits of Classic and Gothic (a subject of which he is most likely profoundly ignorant, and for which he really cares not a straw), he is making use of hackneyed terms and threadbare descriptions which we architects have put into his hands, and which he flings about as intelligently and usefully as a boy throwing stones in the street. No doubt, one of the most formidable difficulties a young architect can have to encounter in commencing his career is to make people (particularly friends who only think about his "getting on") understand clearly that he has such a thing as principle, which prevents him from attempting to practise a variety of styles; and the sooner he faces this difficulty boldly and grapples with it, the better for the public and the better for him. Let him, by all means, study good art of every description, but the style which he woos and wins,—which he can swear to love, honour, and obey,—must be one and one only.

If it were possible for us, as a body, to agree on this point, our progress would, indeed, be certain and immediate, but I know very well that the vision is Utopian; such a thing is, at present, at least, an impossibility. Perhaps one of the greatest obstacles to anything like unanimity on this subject is the intolerable rage for so-called originality in our day. Each young architect seems to think himself bound to out-do every one else in broken-backed windows, or in some diseased form of chamber; but the worst stage of the malady is when we hear a complete new style talked of. The very mention of the Victorian style is enough to make one's heart sink within one, and tremble for the prospects of art. Such a thing as the creation of a new style would be so complete a falsification of all history and all analogy, that we may at once safely disabuse our minds of any such expectation. In architecture, at least, if in nothing else, the development theory is the true one, and that development must be gradual, and, to a certain extent, almost unconscious. As in the human frame, the various vital processes are carried on unconsciously to himself in the healthy man, and any continued introversion of thought directed to a particular organ must surely cause derangement and disease,—so we may well fear lest any attempt to force the natural development of our art by a morbid straining after originality may have the most disastrous results. This very fault was one of the chief causes of the decline of Mediæval art. Let us guard against it now,

and remember that the man who, from selfish motives of vanity or caprice, attempts to force himself to the front by extravagant sallies and inflated attempts at originality, is no true benefactor to art, but rather the reverse.

On this point I cannot resist quoting an admirable passage from an address delivered nearly a hundred years ago by the first President of the Royal Academy:—"It is evident," says Sir Joshua Reynolds, "that a great part of every man's life must be employed in collecting materials for the exercise of genius. Invention, strictly speaking, is little more than a new combination of those images which have been previously gathered and deposited in the memory; nothing can come of nothing; he who has laid up no materials can produce no combinations. A student unacquainted with the attempts of former adventurers is always apt to overrate his own abilities, to mistake the most trifling excursions for discoveries of moment, and every coast new to him for a new-found country. If, by chance, he passes beyond his usual limits, he congratulates his own arrival at those regions which they who have steered a better course have long left behind them; and the productions of such minds are seldom distinguished by an air of originality. They are anticipated in their happiest efforts, and if they are found to differ in anything from their predecessors, it is only in irregular sallies and trifling conceits. The more extensive, therefore, your acquaintance is with the works of those who have excelled, the more extensive will be your powers of invention, and, what may appear still more like a paradox, the more original will be your conceptions. But the difficulty on this occasion is to determine what ought to be proposed as models of excellence, and who ought to be considered as the properest guides."

The difficulty which Sir Joshua found on that occasion will probably be felt to be much the same on this, but the discussion of styles is one of which we are all rather tired; and as my own views are, I believe, pretty well known, I shall not attempt to apologise for what may seem the exclusiveness of my advice on this point.

I address myself to the young student who has chosen what I believe to be the true foundation for his efforts, and who subscribes to Sir Joshua's dictum, that the greater part of his life must be spent in collecting materials, and that the more extensive his acquaintance with works of excellence the more likely is he to be original in his own conceptions.

To him I say, begin at once; let your sketch-book be constantly in your hand; never lose an opportunity of examining, measuring, and sketching Mediæval buildings for yourself, and learning their uses and the principles which guided their architects; and in sketching them take care to sketch intelligently, not always with a view to picking up little bits here and there to make use of afterwards (that is not the way to collect materials), but with a leading purpose of understanding some principle, or of illustrating some phase or development hitherto new to you.

I recollect once seeing a young architect spend about two hours in tracing the profile of a cluster of vaulting ribs on an Early English cap. When he had finished with great labour, the drawing was quite correct, I believe, and very neat, but it was perfectly useless and unintelligible. If he had made a little plan of a bay of the vaulting, with a perspective sketch, and added a section or plan above the point where the ribs parted, his sketch would have been complete and useful, and he would have carried down his ribs and got the profile on his cap in a few minutes. I mention this anecdote merely to illustrate what I mean by intelligent as distinguished from unintelligent sketching, and it is much to be wished that many amongst us who have plenty of ability, could be led to feel the fascination as well as the use of this manner of collecting materials.

By the kindness of Mr. Street, I am enabled to illustrate my meaning better than by an anecdote, for he has to-day lent me these beautiful sketches, which were made by him to illustrate the very curious and interesting development of Romanesque architecture in Le Puy. These sketches are well worthy of your attentive examination, though the more practical and useful ones, consisting of plans, dimensions, sections, &c., being contained in note-books, are incapable of exhibition in this manner.

Never be deterred from measuring and sketching an old building, because it has been already published or because you can get photographs of it. The latter are no doubt most useful in many ways, but engravings and the published sketches of other architects, though pleasant and often

* Read by Mr. A. W. Blomfield at the opening Convention of the Architectural Association, as elsewhere mentioned.

suggestive to those who have sketched much themselves, are absolutely valueless to a student as the means of self-education. Your own sketch may represent what has been better represented fifty times before, and when finished you may perhaps never refer to it again; but if you have made it intelligently, it has done its work and your mind has been collecting materials which it will never lose. The power of sketching rapidly, correctly, and usefully, can only be attained by long and constant practice. The first attempts must be slow and laborious in order to ensure correctness, which is of course of primary importance; but every step gained and every new sketch you get will make your labour more of a pleasure, which indeed it ought to be to you from the first if your heart is in it. This advice, however, and much more like it, you will say you have heard so often that you are tired of it. I think it cannot be too often repeated until it bears better fruit than it has done hitherto. The approaching year will, I hope and believe, afford young architects a fresh inducement to this line of study in "The Pugin Travelling Fund." I can imagine no memorial to that gifted man which would more thoroughly accord with the spirit of his works and writings; we feel sure such a project would have had his hearty approval while living, and it is to be hoped in honour to his name as well as for the advancement of our art, that it may be productive of worthy results.

I may mention, also, parenthetically, that a rumour has reached us from artistic circles (which it is to be hoped may prove to be something more than a rumour) that the Royal Academy are about to bestir themselves to do much more for the students than they have ever yet done. If the rumour becomes a fact, it will be hailed with delight by all lovers of art, and we may hope that the architectural student will be honoured with a due share of attention, especially in giving him increased facilities of studying the figure. This branch of drawing is now, I believe, almost universally admitted to be essential to an architect's education, and yet the architects who can draw the figure with any approach to correctness may almost be numbered on the fingers. If the Council of the Royal Academy knew what a desideratum this is in our profession, and how gladly any facilities of this branch of study would be greeted, they would, I think, soon inaugurate the rumoured changes.

But to return to the sketching of old buildings. There is one subject for our especial study here to which I wish to direct the attention of such of our members as are of my way of thinking, because I cannot help fearing it is much neglected by many, partly, perhaps, from its comparative difficulty, but more I suspect from a doubt as to its ever being of any practical use. You will be surprised, no doubt, when I mention what it is, as those who profess to know "all about Gothic," of course include this subject under that head. I allude to the development of the Gothic vault. On this development the whole constructive history of Gothic architecture hangs, and unless we study it carefully, we shall never get that true and broad perception of its principles, which will enable us to apply them successfully in our own practice. We may rarely, perhaps never, be called upon to construct a Gothic vault, and I am not one of those who hold that a vaulted roof is necessarily and absolutely indispensable to a well-developed Gothic church in our own day; that is a matter fairly open to discussion in many ways; but what I mean to say is this, that as the whole gist of the constructive development of Mediaeval architecture lies in the gradual improvement and perfecting of the vault, we are bound in studying the style to pay especial attention to that point. We all know that in a cathedral of the thirteenth century, when the architect had settled how he would vault over his space, the plans or horizontal sections of the different stages followed with an varying certainty; so much so, indeed, that an inspection of any one of these plans would enable a man versed in the subject to trace the vault tolerably correctly without seeing it. Now, of all the young architects of our day who would complacently undertake the erection of a church in "the Gothic taste," how many do you suppose could do this? We will not inquire too curiously, but I believe if it were known, I should be held excused for insisting thus on what appears to be a self-evident truth.

I now propose to read to you a letter which I received yesterday from Mr. Scott, full of valuable suggestions and encouragement to us. After expressing his regret that the illness of a member of his family prevents his being with us this evening, he goes on to say:—

"I cannot help thinking that yours, as a junior society, has the means of doing fully as much good as the senior institution, and that without in any degree clashing with it; for there is no reason—but the reverse—why many of your members should not be Associates or Fellows of the Institute. You have, however, in your own society, more ample means of actual and practical self-improvement than we have; and as ours is an art the education to which ought never to stop, and which needs continual rubbing up to prevent retrogression, I think the society which does most to promote what may be called the self-education of its members, is the one most practically useful; nor do I think this one jot more needed by, or appropriate to, young architects, than those more advanced in age and practice. We all need it equally, for, as I said before, our education should be constant and irrespective of age; but it is the good fortune of younger men to have fewer hindrances to it, and to have minds more fresh and more susceptible of it, so that they should 'strike while the iron is hot,' 'make hay while the sun shines,' and work themselves up to the highest degree of perfection and artistic skill they can, while opportunities and susceptibilities are favourable. It would do us all good if we could be put through a course of elementary art of one kind or another every year, just as soldiers have to do with their drill. We old fellows cannot do so, and are, therefore, in danger of retrogression. Young men, in some form or other, can do so; and such a society as yours might greatly facilitate it. I do not think the oldest and most established members of your society should think it beneath them to practice together at stated periods those branches of drawing, modelling, &c., &c., which tend to make a man a true artist,—not in the sense of being a landscape painter or skilful representer of buildings (useful as these accomplishments are), but rather those kinds of art which make of him a true architect in the highest sense, e.g., the drawing and designing of sculpture ornament, of figures as used in architecture, and as combined with architectural ornament, of animal life (both natural and imaginary) as used in the same way; the drawing and designing of painted decorations, with and without figures and animals; the designing of mosaic work, pavements, and inlaying; the designing of metal work in which metal is made to do its duty, and in which the different modes of treating them; and lastly, modelling, and the actual execution of any of these works.

These are just the things which have been most neglected by architects, and the neglect of which has done most to damage our art. And, I fancy, a society such as yours could do much to promote them; indeed, I should greatly desire to see systematic schools for them, at which architects of any age need not scruple to become students, nor need there be any difficulty in any architect or student limiting his studies to the particular style or phase of art to which he desires especially to devote himself.

I cannot but regret the freedom of young architects striving too directly at originality. Originality should arise spontaneously from the overflowings of the heart and the imagination, and should follow, not precede, a perfect knowledge of more customary forms; but too often we see designs which most clearly show that the striving after new forms is indulged in close consort with ignorance of old ones.

I remain, my dear sir, with many apologies for the liberty I am taking, very faithfully yours,

ARTHUR W. BLIMFIELD, Esq."

GEORGE GILBERT SCOTT.

To enlarge any more on the subjects of Mr. Scott's valuable remarks would be superfluous on my part, and I believe enough has already been said to show you the kind of spirit which I should like to see infused more generally into our discussions and into our practice,—a spirit that should make us love our work and reverence our models,—love our work, because we should find nothing in it to despise or be ashamed of, and reverence our models, because each day's study would reveal new beauties hidden from every one but the true worker. By this means we might hope in time to be instrumental in really raising the standard of the profession, and giving it a higher position in the estimation of the public. That its present position is not as high as it ought to be, is painfully evident from the unmerited slight which has during this year been passed upon it. As we all know, the monster which is now rapidly developing its vast anatomy at Brompton was hatched as it were by magic, without the decency of even a nominal architectural incubation. The defence of the course pursued which has been attempted by some of the daily papers, viz., that architects had forfeited all claim to consideration by not having produced the successful design for the Exhibition building of 1851, is transparent and futile in the extreme. That building was temporary, and there was a competition in which numerous designs were received for it. Much of this building is to be permanent, and there has been no competition: none the less surely on that account, however, will it shed lasting credit or lasting disgrace (as the case may be) to the architectural taste of the country, and so on the architects. It would perhaps be premature at the present time to offer any criticisms on the building, more especially as, from the latest published views, it is evident that some embellishing hand has been touching up many of the details since the first perspective burst upon the astonished world in all its breadth and baldness. The confectioner has already begun to decorate the cake. If criticism, however, holds her tongue and bides her time, predictions of the most laudatory character are not wanting. When we are told, for instance, that "the entrance to the principal picture-gallery in Cromwell-road will

be through three noble recessed arcades," that "they are each 20 feet wide and 50 feet high, and will look as imposing in their quantities as the principal facade of St. John Lateran, at Rome, and other Renaissance porticos of Italy," the mind is awe-struck at once, and we begin to get up our enthusiasm; but the effect of this high-flown language is rather impaired, perhaps, when we read of another portion of the building—"How this part may best be decorated time will show;"—time thus taking the place of "the architect" quite naturally. After bathos such as this, we cannot do better than take refuge in the number of girders, shoes, bolts, &c., which will be used; the quantity of putty; how far the iron columns would reach if placed end to end, and details of this kind which are given in endless variety, and are believed, I suppose, to convey some definite notion of the size of the building to the vulgar mind. But, after all, when finished and in operation, it will not be the beauty or ugliness of the building which we shall care for; we shall not be looking at the basket, but the gems which it contains. So let it pass; if it answers its purposes of light, accommodation, and so forth, it will do more than many another building of higher pretensions, and we must not grumble. We shall have plenty to do in the various departments connected with our art, and more particularly in comparing the architectural progress of other nations with that of our own. It may fairly be presumed that with the comparatively speaking small space at their disposal, the Architectural Committee will reject all but works of real interest and importance, so that every drawing will be worthy of attentive examination.

It is truly refreshing to turn from all this bustle of preparation and excitement to the quiet contemplation of a most remarkable and beautiful building which has been completed within the last year. Time warns me that, instead of reviewing the architecture of the year, I must confine myself to the notice of this one building; but I feel no scruple in mentioning the church of St. James-the-Less, in Garden-street, alone, as in many respects it stands pre-eminent among modern churches, and, moreover, it exactly illustrates the principles to which I have so briefly and imperfectly alluded to-night. It would be an impertinence on my part to offer any criticism, or to speak in any ordinary terms of admiration, of this church. Therefore, I can only say to all lovers of Christian art,—Go and judge for yourselves: you will there find real originality—that originality most to be desired—the result of a man having all his life continued diligently to collect materials for the exercise of his genius. You will find all in harmony, for each part, and every detail has been thought over and worked out with a loving hand and an artist's eye. The whole of the building and its decorations (with, perhaps, one exception), bears the impress of one powerful mind. You see at a glance that the building was not, as is too often the case, planned so as to be carried out with least bother and trouble to the architect, and then handed over to the tender mercies of the ecclesiastical decorator and upholsterer, to make the best they could of the frigid carcass, but the design of the smallest detail forms an essential part of the whole. I will say no more of it than to recommend the eager student to go there to admire and learn; and the lukewarm to have his wavering fancies fixed, his enthusiasm stirred, and his energies braced to the work beyond him. Such a work as this places the fact beyond any dispute that real progress has been made in architecture in the last few years.

Fourteen or fifteen years ago, when Mr. Ruskin wrote that beautiful simile of the Mountain Ridge, the culminating point of Gothic art, up to which all had been progress and after which all was decline, he expressed a doubt whether the stir he saw going on was a real awakening or only a movement among dry bones. Since that day something more tangible has been done: his call has been answered by some, at least. A band earnest, if small, and though small, ever increasing, have girded themselves for the work and are again pressing steadily onwards. After the long night in the trampled plain, they are again climbing the mountain side; the mists are rising, they see clearly before them the point where travellers of another day began to descend, and to their upward gaze a new morning is already gilding the summits of more distant and more glorious heights. Their paths may not be, cannot yet be, identical; but though they work apart now, if all have the common end of truth in view, then just as the different schools of architecture in France, isolated but working for one common end, ultimately united to produce the

matchless buildings of the thirteenth century, so the true workers of to-day, or rather perhaps their successors of a future generation, must at length meet in a more glorious noon of art than the world has ever yet seen. Meanwhile, let us each and all endeavour to take our part honestly and earnestly in the onward movement, jealously guarding each upward step, but careful that each step be upward; and above all, let our march be temperate without extravagant sallies, or attempted short-cuts, for we have no valley of rest before us, no halting-place half mountain high; no, nor even the old ridge of the lowlier pass: what we seek must be the snowy peaks and the cloudless mountain top, and as in life so in art, our watchword must be "Excellence."

OPENING CONVERSAZIONE OF THE ARCHITECTURAL ASSOCIATION.

On Friday, the 25th, the opening meeting of the Architectural Association for the new session was held at the House in Conduit-street; Mr. Blomfield, president, in the chair.

Mr. Arthur Smith, hon. secretary, read the report of the Council, recording the various papers which had been read, and the other proceedings of the Association, which have been recorded in our pages.

Mr. T. Roger Smith read the following report of a committee appointed to adjudicate on the essays and drawings submitted in competition for the prizes offered:—

"We have read and duly considered the merits of the five Essays on 'Street Architecture,' which have been submitted to us, and having also carefully examined the series of Sketches from the Class of Design, we are happy to be able to state that we have arrived, without difficulty, at a unanimous decision on both points.

The Essay on Street Architecture, to which we adjudge the prize offered by the Association, is that by Mr. Lacy W. Ridge. It appears to us to evince more original thought, more study of the subject, and more care in its composition than any of the others.

"We should wish, however, to make honourable mention of the essays submitted by Mr. Samuel Rogers and Mr. Charles H. F. Lewes. In the essay by Mr. Lewes we find much merit and considerable boldness and ability in handling the subject, but the effect of the whole is, to a certain extent, marred by a crudeness of style which a little care in the composition would easily overcome.

The essay by Mr. Rogers is distinguished by a painstaking investigation of many of the details of the subject and by constant references to actual examples, which show a very thorough and practical mode of study. Unfortunately, however, its references to buildings are such as, except in the use of familiar examples, ought to have been accompanied by exact descriptions of those buildings or by numerous illustrations. The style also is in places less perspicuous than is desirable; a fault which a careful revision would have corrected.

The authors of the remaining two essays, of which one is by Mr. R. B. Mather, and the other is marked with the motto "Civis," though showing in each instance certain merits, have failed to sufficiently limit themselves to the subject proposed, or to grapple with its practical difficulties in the manner adopted by the other writers.

It having been already decided by the committee that the Prize Essay is to be read before the Association, at an ordinary meeting, we beg to advise that the authors of all the other essays be invited to read them before the Class of Design.

While we are glad to see in all these essays evidence of an amount of thought and study which is very creditable to those gentlemen who have prepared them, we cannot but point out a defect which is apparent, more or less, in all; viz., too great a tendency to diffuseness and generalization—a defect perhaps difficult to avoid in an essay of this kind, but still too serious to be left unnoticed. We trust that another year will produce a larger number of essays than this; for, after carefully reading the series before us, we cannot but perceive that their production must have been of real use to the authors, in leading them to study and think for themselves; and we are glad to find that this idea of self-improvement seems to have been, as it should be, the object of each gentleman, rather than the carrying off the prize.

For the guidance of competitors in future years we have ventured to add one or two suggestions

as to the points most desirable to be kept in view.

The prize for the essay being offered in order to induce members to think for themselves on important subjects, and to learn to express their thoughts in words, we recommend that competitors should endeavour to confine themselves very closely to the subject proposed, and that they should avoid very carefully obvious reproductions of the views of previous writers, unless in the shape of occasional and acknowledged quotations (which, for accuracy's sake, should be accompanied with a reference to the author, citing edition, volume, and page), and that no pains be spared to make the essays specimens of clear, plain English.

Repeated revision, the re-writing of many passages, the resolute erasure of every portion that encumbers without assisting the sense, the avoidance of long sentences, and of colloquial or vulgar phrases, and care in the choice of words, are recommended, especially in those passages which are intended to rise above the general level, and which are supposed by the author to be the best written ones in his first draft.

Marginal headings at the side of each paragraph or principal topic are always desirable.

Drawn illustrations are advisable, but not essential. If the essay is of a nature not to be understood without them, their absence will be, however, considered a defect. Slight sketches, tracings, or even prints or photographs would be admissible, and it must be understood that excellence of draughtsmanship cannot compensate for the absence of sound thought expressed in good language.

One of the most difficult of all literary exercises, and one of the greatest use to an architect, is to write a clear and graphic description of existing buildings. Such descriptions, if good, would often supply the place of drawings, and would increase the literary merit of the essay.

The prize for the best series of sketches is adjudged to Mr. C. J. Adams. This gentleman's sketches have already been honourably noticed, and we agree in thinking them, as a whole, by far the best series now before us. From amongst the rest, isolated specimens may be selected evincing much taste and talent, but we have thought it better not to mention any other name than that of Mr. Adams.

It will be understood that several sets of sketches have been produced in the Class of Design, which were not eligible to compete for this prize; the recipient of Mr. Tate's prize, and those gentlemen who sent in designs on less than a given number of subjects, being excluded by the rules.

Before closing our report we wish to point out to the Class of Design the extreme value of self-restraint in the matter of fancy in sketch designs. One very obvious rule to remember is, never to design a thing without having a clear idea of how you would construct it. Sketches are continually produced of the most impossible character from neglecting this rule.

It is far better to be practical than original, to be chaste than fanciful; and a good judge will always rather prefer a plain, well-proportioned, and practical design, for a plain thing, than one overloaded with ornament out of place, however clever the drawing may be.

ARTHUR W. BLOMFIELD, President.
THOMAS BLASWILL, Vice-President.
ARTHUR ALLOW.
T. ROGER SMITH."

The President then presented the prizes to the successful competitors, and afterwards delivered the annual address, which we give in full, under a separate heading. At the close of the paper,

Mr. Godwin, being called on, congratulated the Association on having overcome the difficulties that had threatened it. He referred to its foundation, in which he had taken part, and urged that the Association had a sphere of great usefulness open to it, and could not be viewed for a moment as clashing with the Institute. The class of design he thought particularly valuable. With reference to the study of figure drawing on the part of architects, alluded to in the address, he felt that its desirability could not be too much insisted on, and would be glad to find the Royal Academy offering greater assistance in it to architectural students. He concluded with moving a warm vote of thanks to Mr. Blomfield for his paper, which opened many interesting points for consideration.

Mr. Street seconded the motion, and spoke at some length on the advantage resulting from sketching from old buildings. He was not fully acquainted with the doings of the Class of design, but it seemed to him that more good would be done if the members would pay a visit to an old building, — say St. Albans, for example, — and

there fill their sketch-books. Every architect, whatever his age, should get a month's sketching each year. He wondered how many in that meeting had done so this year, and would ask them to hold up their hands. As there was no response, he said he must hold up his hand by himself. He had been into Spain, and his work had been, measuring the ground plans of churches and cathedrals. Although he advocated sketching, it was not with the view of their making use of the little bits they might bring home with them. The advantage resulted from the act itself, and it would be a good plan, if they had sufficient strength of mind to do so, if they were to burn their sketches as soon as they returned. He confessed he did not do so himself, but he locked them up, and never looked at them again. He cordially seconded the vote of thanks.

Mr. Robert Kerr, in supporting the motion, said there was a plan he would suggest to the last speaker, better than the one he adopted. He proposed that Mr. Street should give him his sketches, whenever he made any, and he (Mr. Kerr) would take care the producer never saw them again. He quite agreed as to the advantage of sketching from old buildings, but believed the Class of design had been most useful. From the foundation of the Association this had been attended to, and had produced good results. He applauded the chairman for his plain speaking in respect of the building for the approaching International Exhibition. However the structure might turn out, and it was evidently being improved, they had reason to complain that the architectural profession had been in no way consulted on the subject.

Mr. C. H. Smith, as an old student of the Academy, wished to say there was no difficulty in the way of the architectural students there studying figure-drawing from casts.

The vote of thanks was then carried unanimously, and the proceedings terminated. Numerous photographs and drawings were exhibited on the walls.

COST OF DUBLIN WATER ACT, SESSION 1861.

THE *Times's* own correspondent, October 22nd, reports as follows, relative to the cost of the Bill for water supply recently obtained for Dublin:—

"Alderman Haulson digested the economic members by reading the sums paid to Parliamentary agents, barristers, engineers, witnesses, &c., &c.:
Parliamentary agents, barristers' fees, &c., £7,815
Mr. Hawkshill, C. E., Government commissioner 958
Mr. Neville, engineer to the Dublin corporation 1,200
Mr. Thos. Hawksley, consulting engineer 1,787
Sir John Kenton, engineer 244
Dr. Apjohn, analyzing water 100
Dr. Wilde, ditto 90
Mr. Morgan, law agent 665"

These, with some other items, make up 14,000*l.* as about the cost.

Alderman Reynolds mentioned for the comfort of the ratepayers that the Dublin and Drogheda Railway Act cost 120,000*l.*

THE LATE SIR WILLIAM CUBITT, ENGINEER.

SIR WILLIAM CUBITT, whose death in his 77th year we lately mentioned, was born, in 1785, at Dilham, in Norfolk, and early in the century became connected with Messrs. Ransome, of Ipswich, first as journeyman and then as partner. Messrs. Ransome's business extended beyond the manufacture of agricultural implements, and Mr. Cubitt became extensively engaged in the construction of gas works. At the age of 22 he had attracted notice by his invention of the self-regulating sails for windmills. He soon became known as a general engineer; and in 1825 he invented the treadmill, whereby, as an early practitioner upon it remarked, if he could not add a cubit to his height, he could to his cursing. This "Cubit measure," as the sentences were called, of so many months at the mill, terrified all the thieves in London, and they have never taken to it kindly. The first treadmill was erected in Brixton goal in 1817. In 1827 an Act was passed for the improvement of the Norwich and Lowestoft navigation, and Mr. Cubitt was appointed engineer. The object was to open a navigation for sea-borne vessels from Yarmouth or Lowestoft to Norwich; and to effect this Mr. Cubitt united the river Yare with the Waveney, and thence to the small sheet of water known as Oulton Broad, through Lake Lothing, with a passage 700 yards long and of fair width. Lake Lothing was thus formed into an artificial harbour. The undertaking proved a disastrous commercial failure;

and, when the Norfolk Railway Company in 1846 directed its attention to Lowestoft, the canal and works became merged in the railway undertaking.

Sir William was a very early member of the Institution of Civil Engineers (of which he was once president), and a Fellow of the Royal Society.

Among his employments he designed the South-Eastern Railway, including the removal of the South Down Cliff by blasting, which feat was accomplished under his superintendence. He was officially appointed, being then a president of the Society of Civil Engineers, to exercise a superintending watchfulness over the construction of the building for the Great Exhibition of 1851, in Hyde-park; and he received the honour of knighthood for thus contributing his scientific experience in carrying out this national undertaking. The last great works upon which Sir William Cubitt was engaged were the two large floating stages in the Mersey at Liverpool, and the new iron bridge across the Medway at Rochester. Sir William was eminently the architect of his own fortune.

BRIDGNORTH WATERWORKS.

THESE works, designed and superintended by Mr. Rawlinson, are nearly completed. They consist of a 25-horse condensing steam-engine, which will be so arranged as to work alone, or in connection with the present engine, and will raise 20,000 gallons of water 260 feet vertical per hour. The water flows in the first place from the river Severn, through 21-inch cast-iron pipes, into a screening well; thence into the pumping well. Both these wells are composed of cast-iron cylinders, 8 feet diameter, the object of the cast-iron being to exclude the land springs, which have been so fatal to the existing works; but now the engineer has quite overcome that difficulty by getting the water from the river, and forcing it through a 10-inch rising main, into two filter-beds, constructed at the top of what is called the High Rock.

After passing through the filter-beds into the original reservoir, it flows by gravitation to the top of the highest house in the town. The contract for building engine and boiler houses, constructing filter-beds, &c., has been let to Mr. Edward Elocok, of Bridgnorth, for 1,566*l*. The contract for engine, boiler, pipes, &c., has been let to Messrs. Coulthard & Sons, of Blackburn, for 1,079*l*. Mr. Daniel Jennings, of Danesford, is clerk of works.

ECCLESIASTICAL DILAPIDATIONS.

THE Bill which has been brought forward by the Bishop of London on the subject of Ecclesiastical Dilapidations is exciting some correspondence, especially in provincial newspapers. The general purport of this bill is as follows:—

A sufficient number of surveyors are to be elected in each diocese, by the archdeacons and the rural deans of the diocese, each having one vote: the surveyors may be removed in the same way; both subject to the approval of the bishop.

The surveyors are to inspect houses, buildings, fences, &c., once in five years. They are to give four weeks' notice to the incumbent, who is under the penalty of 1*l*. a-day for any obstructions he may offer.

The surveyor is to report to the bishop the work required for repairs; the time when they should be done; at what cost; and whether the expense ought to fall upon the incumbent at once, or be spread over a term of years, the money being borrowed at interest from Queen Anne's Bounty.

If the incumbent objects to the surveyor's recommendations, the bishop appoints a referee, whose decision is final; and if it is against the incumbent, the incumbent bears the cost of the reference.

After the surveyor has reported that the works are executed, the incumbent and his representatives are free from the demand for dilapidations till the next inspection, except in case of wilful waste or damage by fire, flood, or tempest.

The amount and mode of pay of the surveyors to be settled by the archdeacons and rural deans of each diocese, with the approbation of the bishop. They are empowered to levy a tax on each benefice in proportion to its value, the money so raised to be "applied, invested, and accumulated" as they please, subject to the provisions of the Act.

Some of the clergy who have written upon it object to what they term "such inquisitive interference, as to be liable to have their houses inspected at any time from roof to cellar, and to have to pay for the disagreeable operation; and to

be compelled to have workmen about, whenever and to whatever extent it may please the surveyor to order."

But in truth it is no more than every leaseholder of premises is liable to. It is much better that an incumbent, while living and deriving the emoluments from his cure, should be periodically to effect the repairs that may be required; than that dying, and leaving his house dilapidated and untenable, his widow and children should find themselves heirs to an obligation which may be ruin. We have known more than one such case. A distinguished rector, who has addressed us on the subject, calls it "an iniquitous bill." We have failed to discover that it is so.

THE STAGE.

English Opera, Covent-garden.—In Mr. Harrison's first production this season, "Ruy Blas," an opera in four acts, Mr. Howard Glover has advanced his position as a composer. It contains some charming music, rather in the shape of ballads than of concerted pieces, in which former Miss Pyne (the *Queen*), Mr. Sanley (*Don Sallust*), and Mr. Harrison (*Ruy Blas*), are able to distinguish themselves. The opera, unfortunately, as it seems to us, follows so closely and completely on the drama in which both Mr. Fechter and Mr. Walter Lacy were super-eminent good, and includes so large an amount of spoken dialogue, that a comparison is perpetually forced on the audience to the damage of the new production, irrespective of its merits as an opera. Miss Pyne's solos, "Why, then, for such loving care?" and "Could life's dark scene be changed for me," and the duet with Mr. Harrison, "Those tones of Love, how new, how dear!" deserve to be popular. No expense has been incurred in respect of scenery. Macfarrren's "Robin Hood" is in preparation.

Princess's Theatre.—The long-expected production, "Othello," has not disappointed us as a whole, and will, doubtless, draw crowded houses for many weeks to come. Mr. Fechter's great intelligence, and Mr. Harris's taste and liberality in stage management, are eminently observable throughout. Mr. Fechter's presentment of the Moor is full of beautiful touches, and in some portions of the play leaves nothing to be desired. Whether or not the wholly domestic character he would give to the play throughout is the right one is another question, and one on which we are not prepared to speak in the affirmative. Mr. Ryder's *Iago* is an admirable piece of acting. Mr. Telbin has painted for it some charming scenery, especially a blue and gold interior, and a view of Cyprus. The latter, however, would be the better for more repose.

THE AFFINITY BETWEEN VIGOUR IN ARCHITECTURE AND MUSIC.

THERE is something grand and manly in the wild savage vigour of a Romanesque grotesque. There is none of that fiddle-faddle finish we find in modern marble sculpture. When they wanted finish they could give it: it was done chisel in hand; no rasping, filing, Dannecker-Ariadne-elegance. When they drew a line it was thick; could be seen at some distance: there was none of your petty German, fine-lined, modern Munich, Düsseldorf, Madonna sentiment. They drew a Madonna that could be seen all over the place: it made the people worship a good way off. They cursed hard and worshipped hard; and what they did, they did with vigour. But look at a modern German, who gets religious first, and then patriotic, over beer; increasing according to *schoppen* consumed. There is no healthy life in the man; nor in the modern Frenchman, or Italian either: it is all *blague* with the one, and braggadocio with the other. Now, with a certain number of modern Englishmen, thank Heaven, it is different. They are men, and work with men's hearts. More architects than sculptors: of the latter precious few. All much inclined to fine rasping and filing; mighty little hard chiselling; of lusing, biting vigour, none. We have noble architects who can draw, but few to cut the human and animal figure.

Now modern music goes well with modern art. Verdi and Meyerbeer make much theatrical melodramatic row in their orchestra, but there is no vigorous expression of sentiment. They write waltz rhythm airs—sensual sort of airs—like modern French sculpture; airs to be sung in drawing-rooms amidst crinoline; "Meet me by Moonlight!" sentiment; sentiment very different to the chivalrous sentiment of King Arthur's knights of the Round Table; sentiment of the Boulevards, but

wofully little courage; all talk, but no chance of showing itself in action. A modern Italian, whatever his state of mind, goes off into a waltz of the Verdi school, tragedy or comedy, precisely the same rhythm, and the accompaniment of one eternal trum, ta, la, la, la, like a large guitar: in fact, their orchestra is nothing better than a monster guitar. This is anything but cheerful; and any one except an Italian or Frenchman would not tolerate it. In England it is tolerated by an opera-going public, which public is a fashionable one, very different from the "Sacred Harmonic" public. Now it is very evident that the poem of an opera should be a good healthy poem, and not the usual washy twaddle one is forced to listen to. Can you not fancy the sort of music Verdi would put into the mouth of King Arthur had he to write an opera on the great Pendragon? Waltz and big guitar again, sledge-hammer *obligato*, like the second act of "Trovatore." He never differs. "Macbeth" and "Traviata" are precisely the same. It is, moreover, plain that the metre of verse and style of poem should suit the sentiment to be expressed. Equally certain is it that music must in the same way suit itself to the sentiment. There is no necessity to write a waltz in order to write a melody, and melody may exist in ten bars as well as in fifty; and forthwith it is clear that the melody must suit itself to the metre of the verse, and not the verse to the melody; and we come to the point, that the singer has to declaim the words and act the action of the dramatic poem, and that it is the special duty of the orchestra to express the sentiment: I mean that is, the complication of sound, the harmony of an instrumental orchestra that is to express the sentiment of the operatic poem. It is harmony which can appeal to the feelings: it is power of combination of instruments which touches the heart. This no composer except Beethoven in the Ninth Symphony and D. Mass has ever done with great force. Palestrina and that school did much, but the orchestra was not then perfected, and what they did was purely by vocal harmony. From the weakness of the libretti and the mistaken views of the public, Beethoven seldom had anything to do with dramatic opera: he confined himself to symphony. As to Mozart and Gluck, they followed in the Italian school.

It has been reserved for Richard Wagner to found a true school of opera, of dramatic music. His first attempts in this style were "Tannhäuser" and "Siegfried," the former produced at Dresden, in 1845. Here he began to develop his ideas; but it is in his recent works, not yet performed operas, "Tristan and Isolde," "Rheingold" (Niebelungen),—that the full force of this system may be heard. He speaks of the effect the orchestra should have upon the soul thus:—"The great melody, such as I conceive it, which embraces the whole dramatic work, should produce in the soul a feeling similar to that produced by a fine forest at sunset upon the traveller just escaped from the noise of the town. He distinguishes (in the silent solitude) tones of infinite variety: he hears what he has never before heard; and he finds in them a sublime melody he forgets not: he cannot repeat it, but he returns to it over and over again." And such is the effect of a grand composition of Wagner's. There are parts of "Tannhäuser" I could mention without end, especially the overture: one could not hum it, but one is enchanted by the combination of sound which so truly expresses the sentiment understood. I conclude this note, then, by saying I feel there is much that is similar in sentiment between the Pre-Raphaelite Romanesque-Vigour-Gothic school in England and Richard Wagner's music; or, as it is nicknamed, the "School of the Future," in Germany. What I have here said of its principles is quite enough to explain the behaviour of Frenchmen towards him in Paris,—that nation which is said to be so polite. I trust a love for Wagner's music may spring up amongst our Goths.

A. WAREINGTON.

* * We are not bound to agree in all our correspondent asserts, though we do with some of it. A vigorous over-statement may lead to thought, when the exact truth might be passed by.

LENDAL BRIDGE, YORK.

SINCE the accidental fall of the iron girders which were being raised to form the bridge at Lendal, the authorities have found out that it would have been a very ugly affair, wholly unsuited to the situation, and that it is in the wrong place. We quite agree in this, after a personal inspection; nevertheless, it seems very extraordinary, all now being apparently of this opinion, that the bridge was put up where it is, and as it is. The fall of the girders, a pure accident

does not alter the circumstances in the least. However, be that as it may, various meetings have been held; and the contractors, Messrs. Calvert & Locking, have agreed to withdraw from the contract, leave all the materials on the site, including the girders, said to be worth 1,000*l.*, and to rest satisfied with the amount already received by them, viz., 5,300*l.* The committee have called in Mr. Page, who is preparing a fresh design for a bridge, to be placed about 9 feet above its present situation.

It appears that the committee have received an account from Mr. Dredge, the engineer of the abandoned bridge, amounting to 721*l.*; and that he has charged, according to agreement, 10*l.* for every visit he paid to York, and 16*l.* when the visit was extended to two days. The sum of 100*l.* is also charged for drawings, and 210*l.* for letters and reports. An early meeting of the council will be held to decide upon the steps to be taken with reference to the bridge.

BATHS AND WASHHOUSES.

THE erection of baths and washhouses at Saltire has been determined on by Mr. Titus Salt, in connection with the new town, and the works will be immediately proceeded with.

The arrangements consists of a large and lofty washhouse, containing twenty-eight washing and steam-boiling tubs, and with drying closets, ironing and mangling-rooms, attached; a tepid plunge bath for men, and another for women; four first-class, and fourteen second-class baths; also a Roman bath, and all other requisites of a small but complete establishment.

The estimated outlay on the building and fittings is 3,500*l.*; and the works are under the superintendence of Messrs. Lockwood, Mawson, & Mawson, of Bradford and Leeds.

OXFORD.

IMPROVEMENTS DURING THE LONG VACATION.

MANY architectural and other improvements and alterations connected with the University and the city have been carried out during the long vacation.

A considerable number of workmen were employed for weeks at the cathedral, under the superintendence of Mr. Bruton, architect; and several portions of the building have been improved and restored. For instance, the stone roof has been cleansed, the triforium arches opened, the monument of Bishop Fel' removed to the west end, and an ancient stained-glass window taken away for the purpose of being restored and replaced in the window of the Latin Chapel. At University College, the new library, 70 feet by 27 feet, erected from designs by Mr. Scott, has been opened. Its situation is not such as to admit of it being seen in connection with the rest of the buildings. The wood carvings were entrusted to Mr. Chapman, of St. Clement's. In the interior are placed the two well-known statues of the famous brothers, Lord Eldon and Lord Stowell. Another improvement going on at this college is the restoration and partial rebuilding of the chapel, from the designs of the same architect, which are being carried out by Mr. Symm, builder, under the superintendence of Mr. Buckridge. At Exeter College the apse of the chapel has been completed by the addition of two stained-glass windows, one of them in memory of Mr. S. Marshall, M.A., late of the college. In the ante-chapel a brass memorial has been placed by the Rev. J. Rigaud, Fellow of Magdalen. The carvings at the New Museum are still being executed. The restorations at St. Mary's Church are being actively carried on.

Connected with the city some very considerable building operations and architectural improvements, according to the local *Herald*, have been carried out during the summer months, and several more are projected and in progress. Hythe Bridge has been rebuilt. Mr. Galpin supplies the designs, and the contractor was Mr. Dover. The cost of this improvement was 1,300*l.* In Broad-street a new building has been erected by Mr. Frederick Morrell, for the Churchmen's Union. The new church in the parish of St. Giles's is in course of erection by Mr. Joseph Castle. On Norham and Walton manors villas are springing up. On Port Meadow extensive improvements have been made. Turning to the other end of the city we find that a very large number of houses have been erected within the last six months, especially on the Cowley and Illey roads.

For the new corn exchange a large number of workmen have been employed in clearing away

the old buildings, &c., on the site, and making the necessary arrangements for laying the foundation stone. This ceremony was to take place on Wednesday, the 30th ult., with Masonic rites.

GAS.

THE Londoners in the City are greatly aggrieved on account of being deprived, by the operation of the Metropolis Gas Act, of the privilege which they have enjoyed for the last ten years of being supplied with gas at a cheaper rate than the inhabitants of other parts in London. Public meetings, and the other modes of agitation, are being used to get relief from what is held a grievance, and a remedy for what they regard as a betrayal. The object of the new Act, as our readers know, was to regulate the monopoly created by the Metropolitan Gas Companies (exclusive of the City), and to protect the public; and, though no similar arrangement had been made by the competing gas companies in the City, they were included in its operation. The Act fixed the maximum price at 4*s.* 6*d.*, and the illuminating power at twelve spermaceti candles of six to the pound; and provided for a reduction of price when the profits exceeded 10 per cent. But, as to consumers within the City, it authorizes the equalizing of price in all parts of the metropolis; and, by sanctioning the districting arrangement, it threatens to destroy the competition which procured them many advantages. The Great Central Consumers' Company, taking advantage of the general Act, which overrides their private one, have advanced their price; alleging that the new Act involves additional cost in manufacture. Three propositions have been referred to the committee of the Common Council for their consideration, by way of relief;—to apply to Parliament for an amendment of the existing Act; or for the exemption of the City from its operation; or for the erection of works by the Corporation of London to supply the inhabitants of the City with gas.

The Great Central Company have just declared a dividend of 6 per cent. per annum, after paying 25,000*l.* of compensation on account of the fire in Wood-street.

The Cuckfield Gas Company have lowered the price of gas from 10*s.* per thousand, to 8*s.* 4*d.*

If gas can be sold in Stafford at 3*s.* 9*d.* per 1,000 feet, and yield dividends of from 8 to 10 per cent., with a reserve fund amounting to 12,824*l.*, why, says a Dundee paper, can it not be sold at a similar price and as profitably in Dundee? This question, rejoins the *Gateshead Observer*, might be asked, very appropriately, in other towns than Dundee.

The directors of the Forfar Gas Company have requested their secretary and manager to make certain calculations as to the cost of manufacturing and supplying gas in Forfar, before definitely deciding upon any reduction in the price charged upon consumers. It is understood that the directors generally were favourable to reducing the price from 7*s.* 6*d.* to 6*s.* 8*d.* per 1,000 feet.

IRISH BUILDING NEWS.

THE new (R.C.) Church of St. Mary's, Athlone, has just been completed. The church is cruciform in plan, and contains nave, aisles, transepts, chancel, and side chapels, together with sacristy, porch, organ-loft, baptistery, tower, and spire. The interior length is 130 feet, breadth across nave and aisles 57 feet, breadth across transepts 66 feet, and is about 60 feet to the crown of roof. The general style is Early English, approaching in some parts to the Decorated. The tower which terminates one of the aisles supports a broached spire placed with two tiers of canopied lancet-lights, and is crowned with a Medieval cross about 150 feet from the ground. The west gable contains a moulded and columned entrance-door, together with a five-light window, two compartments of which form recesses for figures; the entire forming a triple window in the interior. The chancel and side chapels are lighted by traceried windows filled with stained glass. The central window contains a very artistic representation of the Nativity of the Saviour and the Adoration of the Magi, which have been procured from Caen in Normandy. Triple lancets light the aisles and double lancets, cusped, light the aisles and clerestory, furnished with columns in the interior. Cylindrical columns of Wicklow granite divide the nave from the aisles, and support lofty arches moulded in Portland cement.

The roof is of exposed and stained timber-work, decorated with cusped tracery; the portico being supported in the centre by lateral and

horizontal curved struts, which add very much to the general effect. The cost has been about 6,000*l.* Mr. John Bourke is architect.

We understand that the new church in Adelaide-road, Dublin, noticed in one of the last issues of the *Builder*, is to be called the "Catholic Apostolic Church."

The Great Southern and Western Railway Company are about erecting a new station-house in Church-street, Nenagh, county Tipperary.

The foundation-stone of a new Presbyterian church has been laid at Kingstown. The building will, we understand, be erected on the same plan as the new Presbyterian church just erected at Rathgar. Messrs. Cockburn are the contractors. Cost, about 6,000*l.*

The Bishop of Down and Connor has issued an address "to the members of the United Church of England and Ireland" with regard to church accommodation in Belfast. The object of his lordship is to obtain funds for the erection of a cathedral in Belfast or its vicinity. The sum required for the building, including its endowment, will be about 100,000*l.*

NEWS FROM NEW ZEALAND.

At a public meeting held on July 8th, 1861, at Waipuna, a petition was resolved on for making a road between Puketapu and the Puketitiri bush.

Auckland desires to be represented in the International Exhibition. Its natural productions are of more importance than generally supposed.

The erection of the Church of England at Napier is in progress, the frame being up.

A tender from Mr. Smith has been accepted for forming and completing six chains of Petane-road, at the rate of 3*l.* 18*s.* per chain. Messrs. McKain & Brothers' tender was 6*l.* 18*s.* 2*d.*

The road from Tokomairiro to the Tuapeka diggings, in Otago, could be made a good one with a little improvement.

The superintendent of Otago visited the Tuapeka gold fields on 12th July. About 1,000 ounces have been obtained from these diggings; of this 500 ounces were brought to town in one day.

The White-road, at Napier, as it is popularly termed, being that part of the continuation of Hastings-street which has been formed and metalled, now extends rather more than a mile and a furlong from the Star Hotel, Napier. The late contract is just completed, and the work is certainly a great public improvement, and at a moderate expense.

Napier Gaol.—The contract has been taken for digging the foundation of Napier gaol. The plans of the building are prepared. Tenders for the carpenters' work were to be shortly issued.

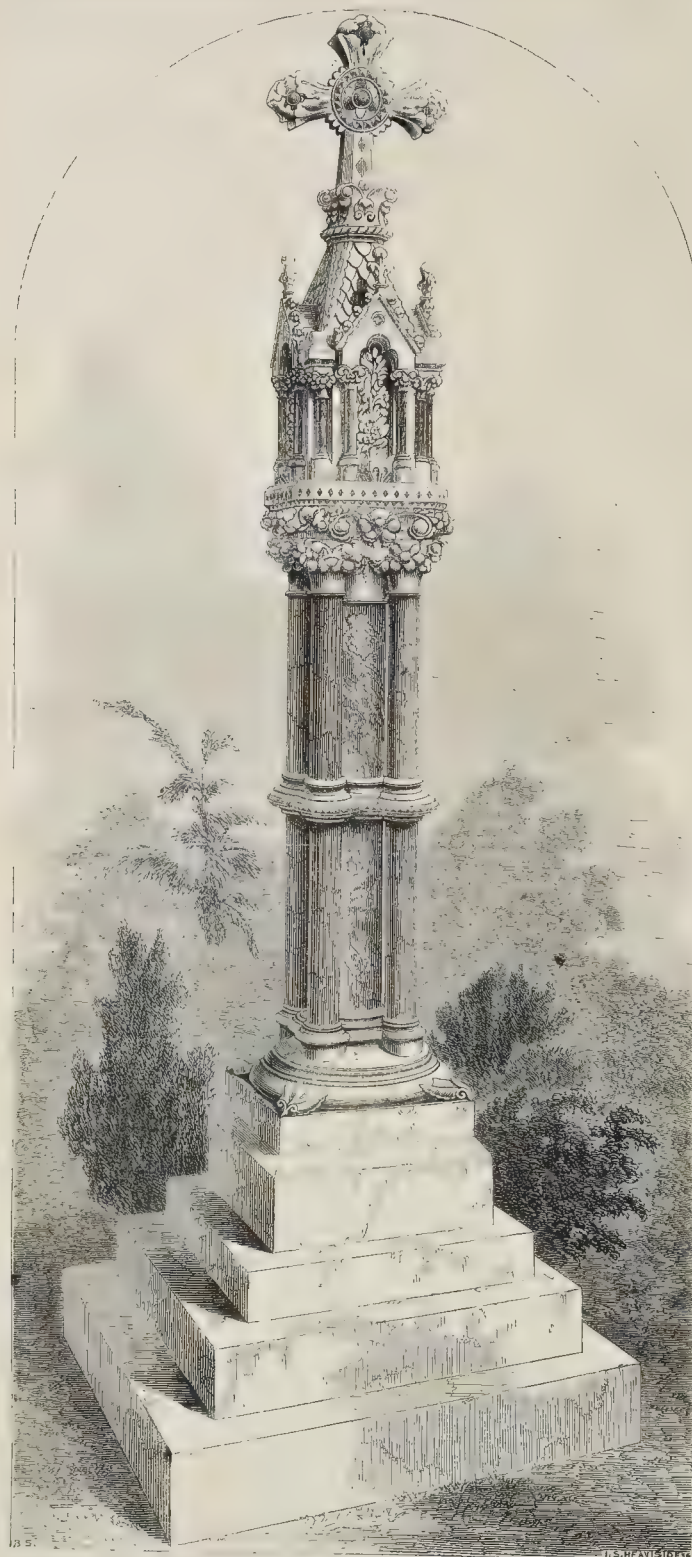
Meanees Bridge.—This bridge is in course of erection. Much of the iron and timber had been brought.

Canterbury Railway.—The first sod of the Lyttelton and Christchurch Railway was turned with becoming ceremony on the 17th July, 1861. The day was unfavourable, and accidents occurred

THE LATE MR. J. M. DERICK, ARCHITECT.

You may be inclined to add to your short notice (p. 743) of this deceased gentleman the following specific undertakings:—That he made the drawings for the folio work, "Views and Details of Stanton Harcourt Church, Oxon," published in 1841, for the Oxford Architectural Society; designed the Broom Testimonial Church at Carlow, Ireland, building in 1853-4, in which he introduced two granite arches of a form calculated to resist extension where great counterfort could not be given. A diagram to illustrate the principle is given in Vol. xii, p. 34. In 1844 he designed a church to be erected at Colabah, in the East Indies, in memory of those who fell in the wars of Scinde and Afghanistan. This was carried out in a modified Florid Gothic design, a good idea of which may be seen in a small wood engraving in the *Illustrated London News* for February 1st, 1845, p. 63, representing a cruciform plan, with tower and spire at the cross. The church at Leeds, the first stone of which was laid September 14th, 1842, and consecrated at the end of October, 1845, though then not finished externally, was designed for the Hon. and Rev. Edward Bouverie Pusey. The style is Decorated English, and the spire, proposed to be carried up 230 feet from the ground, was not then begun. He also made the selected design in the competition for the Choristers' Schools at Magdalen College, Oxford; and built a small church at Manchester.

W. P.



MEMORIAL CROSS, AURUNGABAD, INDIA.—Designed and Executed by Mr. Thomas Earp.

MEMORIAL CROSS, AURUNGABAD, INDIA.

THE memorial cross we have represented was designed and executed by Mr. Thomas Earp, and is to be erected at Aurungabad, India, to the memory of thirty-two individuals who were killed at that station during the late mutiny.

The cross stands altogether 25 feet in height, on three steps. The base is of red and yellow Mansfield stone the lower part of it contains an inscription, and the names of the killed.

The two centre columns are of Galway green marble, and the eight smaller ones of Aberdeen granite, the annulus being of white marble. The cap and canopy-work are of red and yellow Mansfield stone, with Pyrenean red and green marble columns.

The cross is of the white Mansfield stone, inlaid with coloured marbles and Derbyshire spar.

The design originally included sculptures in the four panels, under canopies; but the subscribers differed in opinion as to what subjects would be most appropriate, and it was ultimately decided to have representatives of the four seasons carved in English foliage.

This departure from the original design is to be regretted, as figures would have given more expression to the work, and have been more in harmony with the general design.

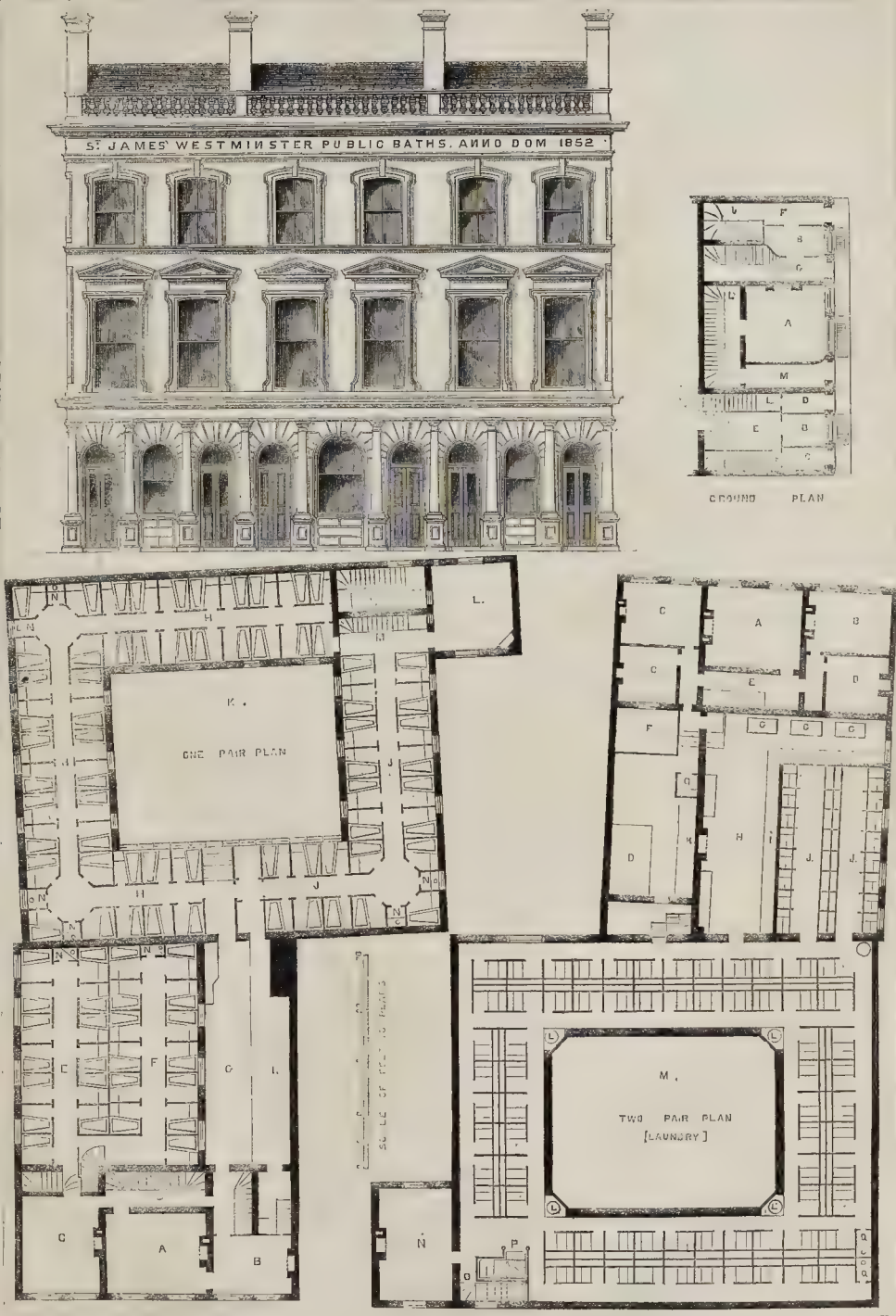
THE HORTICULTURAL SOCIETY'S GARDENS.

VERY beautiful indeed the gardens are now looking. The turf is as one huge emerald, and the beds are well filled with flowers. The "embroidery beds," formed as they are on slopes, so as to present a face to those who are walking, have a lively and agreeable aspect, suggesting care and taste, which pleasantness will be even more appreciable in the winter. The works have made very considerable progress since our last visit; the basins for water are completed, and the stone basement at the head of the principal body of water, on which the memorial of the Great Exhibition of 1851 is to stand, has been erected, and is ready to receive it. Last week a rough model of the Memorial was put up, and Mr. Durham's figure of the Queen, which is to surmount it, was submitted to the inspection of H.R.H. the Prince Consort, and others interested in the monument. It is a most elegant statue; and the whole promises to be, when completed, a most successful work. It is understood that the memorial will be solemnly inaugurated very soon after the opening of the International Exhibition,—probably on her Majesty's birthday.

Two circular dome-topped band-houses, of iron and wood (the latter covered with zinc), on brick and stone basements, are nearly finished. They are light and tasteful in design. The works here, as our readers know, have all been executed by Mr. Kelk. C. F. Harrison has been his general foreman from the commencement, and deserves a passing word.

Vases and statues (the former only temporary) are springing up in various parts of the grounds, including two Victories by Rauch in bronze, presented to the Horticultural Society by the Prince Consort. These stand on pedestals at the east end of the central cross-walk. With much that is elegant and satisfying in these statues, there is a weakness about the feet and legs of them, especially as seen, from some situations, that leads us to suppose they have suffered in casting.

NORTHAMPTON.—The foundation-stone of the new Town Hall has been laid in St. Giles's-square. In the space where the hall will be built there were nearly fifteen hundred people assembled.



BATHS AND LAUNDRY, ST. JAMES'S, WESTMINSTER: Marshall Street, Golden Square.

THE ST. JAMES'S BATHS AND WASHHOUSE, LONDON.

The legislative enactments of 1846 and 1847, enabling boroughs and parishes to erect public baths and washhouses with money charged on the rates led, as might readily be expected, to the building of several large establishments; and amongst them is the one to which the attention of our readers is directed in our present number. It was anticipated by those who in 1844 first promulgated this plan to improve the physical and moral condition of the labouring classes, that its system would be such as to meet, in the course of time, with adoption in all thickly-populated districts of the kingdom.

The establishment which our illustrations represent has recently been enlarged under the direction of Mr. Charles Lee, architect. The original structure was designed by Mr. Pritchard Baly, C.E.; and the peculiarity of the site has had considerable influence on the plan and arrangements. The commissioners, being unable to get a piece of ground of the extent necessary for the desired buildings, had not only to obtain the sanction of the Vestry, but also of the Poor-Law Commissioners and of the Guardians of the Poor, to enable them to appropriate for the purposes of the Act the freehold site on which the St. James's Public Baths and Washhouse are erected.

The building is necessarily divided into three floors, exclusive of the basement, which is wholly set apart to the business of the engineering and towel-washing departments. On the first-floor there are thirty-six first-class and fifty-four second-class private baths; a swimming-bath, 41 feet in length and 31 feet wide; besides a commodious board-room, and first-class waiting-room for women, and superintendent's office, communicating with the money-taker's offices and entrances on the ground-floor in Marshall-street, by separate flights of stone stairs; so that bathers of the two classes have to pass through the particular doors assigned to them. It deserves especial remark, also, that the swimming-bath, which contained upwards of 30,000 gallons of water, is constructed of wrought-iron, and over the area of the stoneyard belonging to St. James's parish. The depth varies according to the incline of the bottom. On the second-floor are provided eighty-four separate washing and drying compartments, five centrifugal wringing-machines, a commodious mangling and ironing department, appropriately fitted up with every convenience, and a large waiting-room. Access to the washhouse and laundry is gained by means of a roomy entrance in Dufour's-place, Broad-street, which leads to a double flight of stone stairs, communicating with the matron's office; in which a money-taker serves out tickets to the washers, marked with the time at which they were issued. On the second floor is also provided suitable accommodation for the superintendent and matron. The establishment is replete in every arrangement for the comfort and convenience of customers of both classes; and the first-class baths provided for women are attractive in the highest degree. The details of management are excellent, and everything works the semblance of order and regularity. The new buildings have been substantially erected by Mr. William Palmer, and the additional engineering works by the contractor, Mr. Alfred May.

The sum spent by the Commissioners for buildings, machinery, furniture, towelling, &c., from first to last, is, in round numbers, 21,000*l.*; of which, 15,000*l.* were raised at 4 per cent., and 6,000*l.* at $\frac{1}{2}$ per cent., on the security of the rates, repayable by annual instalments extending over a period of thirty years. Compared with many undertakings, and measured by the value of the results already obtained, this outlay may well be termed productive.

To so great an extent has the establishment been made use of that, since it was opened in 1852, the gross receipts from bathers and washers have amounted, to September 28th of this present year, to the very considerable sum of 19,726*l.* 9*s.* 5*d.*; of which, 8,134*l.* 8*s.* 11*d.* was on account of the washhouse, which had been used on 383,590 different occasions. 987,922 baths were taken; of which number there were 183,791 first-class, 555,896 second, and 248,235 swimming. It will be observed that the majority of bathers are second class: this is chiefly due to the preponderating numbers of the humbler classes who are located near this establishment.

It should be mentioned, however, that, as baths and washhouses have been increased, the demand advanced with the supply. In the year 1866 a return was made up by Mr. Woolcott, then

secretary to the parent committee, showing the steady progression of business at the metropolitan establishments, as well as the importance which this system had assumed in parishes where it was fairly and liberally started. By that return it was shown that,—

In the year 1848, the receipts at two establishments in London amounted to.....	£2,806	5	1
In 1849, at three ditto.....	6,379	17	2
In 1850, at four ditto.....	9,593	10	6
In 1851, at six ditto.....	12,906	12	5
In 1852, at eight ditto.....	15,947	5	8
In 1853, at nine ditto.....	18,213	5	8
In 1854, at eleven ditto.....	23,257	17	9
In 1855, at thirteen ditto.....	34,526	7	2

Producing an increase, in the year 1855 over 1848, of.....£21,630 2 1
And, including the receipts to the close of the years 1849 and 1847, making a total of 116,755 2 10

It is obvious that the system established in the year 1844 has proved highly beneficial to the community.

In advertent to the foregoing return, it would be unjust not to observe, that few measures of social progress have owed more to one individual than this important organization owes to Mr. Baly for the ability that he has displayed in applying his engineering knowledge and inventive powers to the purposes of daily life. The public are also indebted, very largely, for the direct and material aid which the parent committee have given to the development of its principles in the country. It is unnecessary to dwell at any length upon the great difficulties which that committee had to surmount: at the same time it must be remembered that one of the essentials of success, on which everything depended, was that baths and wash-houses should be *self-supporting*; and the difficulty lay in combining this essential with such charges as should place them fairly within the reach of the humbler classes.* That difficulty the company fairly met and grappled with. They proved that the remedy required by humanity and morality is not incompatible with the stern demands of political economy. They demonstrated most satisfactorily that dirt need not necessarily be the companion of poverty, and that the poorer classes of the community need not be subjected to an evil at once degrading and injurious.

Looking, then, to the fact, that during the last two years (1859 and 1860) there was a surplus of receipts over expenditure, at the St. James's Baths and Washhouses, of nearly 500*l.*; and that even now this valuable institution is comparatively unknown to many, owing to its retired situation; it may be safely said, that the results which have followed, and are likely to follow, will be advantageous to the ratepayers.

In conclusion, we will repeat the words of the report addressed by Mr. Baly to the parent committee in 1852:—"No honest blush need cross the mechanic's face at receiving here a dose of charity: he is enabled to pay for the benefit he receives, and he is only bound by that reasonable tie of gratitude to those whose position, influence, and skill have practically devised those means for his comfort, the acknowledgment of which is alike honourable to the recipient and the donor."

REFERENCES TO PLANS.

Ground Plan.

- A. Waiting-room to swimming-bath.
- B.B. Offices.
- C. Entrance to women's first-class baths.
- D. Entrance to women's second-class baths.
- E. Waiting-room to women's second-class baths.
- F. Entrance to men's first-class baths.
- G. Entrance to men's second-class baths.
- H. Staircase to women's first-class baths.
- I. Staircase to women's second-class baths.
- J. Staircase to men's first-class baths.
- K. Staircase to men's second-class baths.
- L. Stairs to one pair.
- M. Passage.

One-pair Plan.

- A. Board-room.
- B. Superintendent's office.
- C. Women's first-class waiting-room.
- D. Stairs to two pairs.
- E. Women's first-class baths.
- F. Women's second-class baths.
- G. Waiting-room to men's second-class baths.
- H. Men's second-class baths.
- I. Waiting-room to men's first-class baths.
- J. Men's first-class baths.
- K. Swimming-bath.
- L. Matron's office.
- M. From laundry.
- N.N. W.C.s.

* The Act 10 & 11 Vic. cap. 61, enacts, that the charges for the baths for the labouring classes shall be *one penny* for a cold bath, and *two pence* for a warm bath; also for the use, by one person, of the conveniences for washing and drying, *therepence* for two hours together in any one day.

† See "Statement of the Proceedings of the Committee appointed to promote the Establishment of Baths and Washhouses for the Labouring Classes," &c. &c. 1852. London: Edinham Wilson.

Two-pair Plan.

- A. Superintendent's sitting-room.
- B. Kitchen.
- C.C. Bed-rooms.
- D.D. Store-rooms.
- E. Landing.
- F. Well-hole to light waiting-rooms.
- G.G. Mangles.
- H. Ironing-room.
- I. Ironing-boards.
- J.J. Washing-places and drying-closets.
- K. Shelves.
- L.L. Wringing machines.
- M. Roof over swimming-baths.
- N. Washers' waiting-room.
- O. Stairs for ingress.
- P. Stairs for egress.
- Q.Q. W.C.s.

THE WELSHPOOL SEWERAGE AND WATER SUPPLY QUESTIONS.

AN adjourned public meeting has been held in the Town Hall, Welshpool, for the purpose of receiving and considering the report of the committee appointed at a public meeting of the ratepayers, held on the 9th of July last, to make inquiries and report in respect of the proposals for providing the town with sewerage, drainage, and water supply. The mayor presided. The report stated that the cost of the sewerage, according to Messrs. Dymond's estimate of 1855, was 2,958*l.*; to the tenders of 1857, 2,583*l.*; and to those of 1861, 3,245*l.*; and as to water supply, that the quantity of water flowing over the weir at the Black-pool was equal to 159,860 cubic feet each day, after continued dry weather, and that the quantity would appear to be generally much more, while that required for the supply of the town was only 17,564 cubic feet each day: a storage reservoir, therefore, it was conceived, would not be requisite: the cost of such a reservoir, according to Messrs. Dymond's estimate of 1855, would be 2,822*l.*; according to the tenders of 1857, 2,600*l.*; and according to those of September, 1861, 3,311*l.* The cost, without the storage reservoir, according to Messrs. Dymond's estimate, is 2,325*l.*; according to the tender of 1857, 2,262*l.*; and according to those of the present year, 2,874*l.* The meeting resolved unanimously, "That the report of the committee be approved of, and the ratepayers express a hope that the local board, in complying with the requirements of the Health of Towns Acts, do use their utmost endeavours to carry out the sanitary measures suggested effectually, with strict regard to economy." Mr. E. T. Harrison, surgeon, in seconding the motion, proceeded to show that the great cause of an epidemic lingering so much longer in Welshpool than in other parts of the country was because of the bad system of drainage which they had.

BATH SCHOOL OF ART.

A PUBLIC MEETING was held in the Guildhall on Saturday before last, presided over by the Mayor, to distribute to successful competitors the medals and other prizes awarded by the Department of Science and Art.

Mr. Tite, M.P., was present, and delivered an excellent address, in course of which he said:—When we were shut out from the Continent by the long war which followed the French revolution, "when," as Byron phrased it, "George III, was king," certainly in the art and science of architecture, painting, combination of colour, and all that related to the elegancies of life, England sank below the Continent. The opening up of the Continent after the peace revealed that to them; and their learned societies in London did all they could to encourage a better acquaintance with art literature, and with the ancient stores of painting, architecture, and sculpture abroad, of which they had become, to a certain extent, ignorant. Still nothing was done amongst the people until the revivification, if he might so speak, of the Society of Arts, with which he had been connected twenty-five years. That Society had diminished to 500 or 600 members, doing nothing, and was revived principally by the influence of that excellent man, the Prince Consort. It then brought this question distinctly under the notice of the Government, and Government had since given it the support which was becoming to them. Looking at the enormous sums of money required annually from Parliament for the education of the people, it was natural that the Government should desire in this case to encourage the admirable principle of making these schools self-supporting. It was a right principle for Englishmen to act upon, making them independent of Government aid. He wished to tell the lords now before him, that their skill was in their own right hands, and that the ability to serve themselves was the best ability

they could possibly possess. Those who had been disappointed in obtaining distinction this year should not give up. The Scottish patriot, when defeated, believed his country ruined, and threw himself on the ground in despair. While in that position, he saw a spider attempt nine times before it succeeded in attaching the end of its web. He had made eight attempts, and failed; but he decided from this incident to make the ninth, and he then succeeded. So it would be with the young folk before him; and if they deserved success next year, they would be successful.

Mr. Tite then proceeded to distribute the prizes; and, in seconding a vote of thanks to Mr. C. E. Davis, the honorary secretary, he said it was remarkable to see, in Roman Catholic Belgium, where great attention was paid to these matters, that art was lower, certainly amongst the painters, than in almost any country in Europe; so that Belgian painters stood no chance with English.

Had Mr. Tite been at the late Art Congress in Antwerp, we are disposed to think he would have qualified this remark.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

OPERATIONS will commence here on Monday evening, the 4th of November, when the president, Mr. Tite, M.P., will deliver an opening address; and a paper, "On the Conservation of Ancient Architectural Monuments and Remains," will be read by Mr. G. G. Scott, R.A.

In conformity with a resolution passed at the special general meeting, held on Monday, July 1, 1861, the consideration of the subject of Architectural Examination will be resumed on the second Monday in November (the 11th).

On the succeeding Monday evening, November 18th, a paper, "On the Mode in which Light was Introduced into Greek Temples," will be read by Mr. James Fergusson, fellow.

STATUES AND MONUMENTS.

Statue of the late Sir William Peel.—A white marble statue of the late Sir William Peel, in his uniform, in the act of drawing the sword from the scabbard, and of full life size, on a pedestal of veined marble, has been placed in the chancel of Sandy church: the inscription is on the pedestal. The statue, according to the *Bedford Times*, is a striking likeness. It was executed by Mr. Theed, of London.

Statue of the late John Fielden, M.P.—The committee to the Fielden Memorial Fund have determined to commemorate the services of the late John Fielden, M.P. for Oldham, in ameliorating the condition of factory children, by the erection of a bronze statue in a public part of Todmorden. The statue will be 7 feet 6 inches high, and will cost 1,000*l.*, independent of the pedestal and expenses of erection. The sculptor to whom the work has been entrusted is Mr. J. H. Foley, R.A. Amongst the public men who have contributed are the Earl of Shaftesbury, Lord John Manners, Lord Feversham, and the Right Hon. W. Cowper.

Statue of Sir Thomas Acland.—The somewhat novel circumstance of the erection of a monument to a living worthy has just taken place at Exeter. A marble statue of Sir T. Acland, of Killerton, Devon, has been erected on one of the plateaux of Northernhay, in the city of Exeter, by Mr. E. B. Stephens, sculptor. At the ceremony of inauguration the Mayor and corporation of Exeter attended in state; a large number of county gentlemen and others being present. Among these were the Earl of Devon, Lord Poltimore, Lord Clifford, Sir S. Northcote, M.P., the Right Hon. M. Adderley, M.P., Rear-Admiral Craigie, General Studd, Colonel Acland, Dr. Acland, the Rev. L. Acland, and Mr. J. B. Acland (four sons of the hon. baronet). A banquet was held in the evening, the Earl of Devon in the chair. The following motto on the pedestal was suggested by the late Earl Fortescue, who in early life was the political opponent of Sir T. Acland:—"Præsentis tibi maturos largimur honores." The statue contained the following inscription:—"Erected as a tribute of affectionate respect for private worth and public integrity, and in testimony of admiration for the generous heart and open hand which, without regard to party, race, or creed, have been ever ready to protect the weak, to relieve the needy, and succour the oppressed."

Monument to John Leyden.—The monument to the memory of Dr. John Leyden, the poet and linguist, which has been erected in his native village of Denholm, Roxburghshire, has been inaugurated, amid a vast assemblage of his admirers.

On the monument are the following inscriptions: "John Leyden, born at Denholm, 8th September, 1775. Died at Batavia, 28th August, 1811." "To the memory of the poet and Oriental scholar, whose genius, learning, and manly virtues were an honour to his country, and shed a lustre on his native Teviotdale, this monument was erected A.D. 1861." The Earl of Minto and Admiral Elliot took part in the inaugural ceremony.

Monument to M. Jacquard.—The monument recently erected by the Chamber of Commerce of Lyons, in the cemetery of Oullins, near that city, over the grave of Jacquard, the inventor of the loom for weaving figured silk, has been inaugurated, in presence of an immense concourse of people. The monument consists of a white marble tomb, raised several steps above the level of the ground, and sculptured with a bas-relief representing the city of Lyons crowning Jacquard's bust. Over this, in gold letters, "A. Jacquard" is inscribed. The tomb is surrounded by an iron railing.

EDINBURGH.

THE NEW POST-OFFICE, INDUSTRIAL MUSEUM, &c.

The Post-office.—The foundation-stone of this new edifice was laid by the Prince Consort on the 23rd ult. The day was kept partly as a holiday, and thousands witnessed the ceremonial. The site of the new building is one of the most central in the city, being at the point where the three principal thoroughfares,—the North Bridge, Princes-street, and Leith-walk,—intersect each other. To make way for it, the Theatre Royal and the adjoining buildings in Shakespeare-square have been removed; and, while in front the new building will be on the street level, the ground falls precipitously behind, and the North British Railway, from its central station in what was in olden time the "Nor' loch," will be able to send its vans for the mail-bags under the eaves of the building. The new Post-office will be built from designs prepared by Mr. Matheson, of her Majesty's Board of Works in Edinburgh, and is in the Italian style. The building presents a frontage of 136 feet to Princes-street, and of 178 feet to the North-bridge; both fronts being broken into three portions; the wings being three stories in height and the centres two stories. In the public lobby, as designed, the architect proposes to introduce walls and pilasters of polished red and gray granite. The internal arrangements of the office include two large saloons, 80 feet by 42 feet, for the letter-carriers and sorters. The contractor for the builder is Mr. George Roberts; and a period of three years has been given to finish it. The cost of the site was about 40,000*l.*, it being one of the most valuable in the city; and that of the new building is estimated at about 50,000*l.* The Prince Consort, in his reply to an address by the Lord Provost, alluded in commendatory terms to the new post banks, which, he trusted, would confer most important benefits on the working classes.

The Industrial Museum.—After the laying of the chief stone of the new Post-office, the Prince Consort and suite, attended by the Lord Provost and magistrates, proceeded to the University, in the large quadrangle of which the University rifle corps were drawn up as a guard of honour. The Prince was met on the staircase leading to the Natural History Museum, by Sir D. Brewster, the Vice-Chancellor and Principal of the University, and court and senators of the college, in their academical robes. The Prince then proceeded to lay the chief stone of the Industrial Museum, the site of which is immediately in rear of the University buildings. Unfortunately, the site is not one which will present a complete view of the Museum from any distance. For the present, only a little more than a third part of the building has been contracted for,—namely, the east wing and a small part of the centre. The designs for the edifice are by Captain Fowler, R.E., and Mr. Robert Matheson, architect to her Majesty's Commissioners of Works in Scotland. The entire frontage is about 395 feet, and the portion contracted for extends to 170 feet. The general character of the building is Venetian, but adapted in its arrangements to a more rigorous climate. The frontage of each wing is about 90 feet, and the central portion, which recedes from the wings about 26 feet, exhibits a principal entrance and upper and lower corridors, connecting the wings, and running parallel with the great saloon behind. The entrance is by a triple archway breaking the line of the lower corridor. The whole building is set on an elevated basement, diminishing to the westward with the rise of the ground. The edifice in the interior consists of a great saloon, which will be 266 feet by 70 feet,

and of large saloons behind each wing, 130 feet by 57 feet; and of side saloons, 70 feet by 51 feet. The present contract embraces the east wing saloon and side saloon, and 105 feet of the great saloon. The height from the floor to the roof of the latter is 77 feet. There are semicircular flights of stairs rising from either end of the great saloon, giving access to two galleries, upper and lower, which are carried round all the saloons. Ornamental iron hand-rails are carried round the galleries; and the roof, which is supported from the floor level on cast-iron pillars, is constructed of laminated arched ribs. In the east wing a large lecture-room will occupy the basement and lower story, with accommodation for 700 persons; and the two upper stories will form small exhibition saloons of about 80 feet by 52 feet. The present contract, it is expected, will take about two years to finish. The contractor is Mr. David Rae, who is just on the eve of completing another Government contract in Edinburgh—namely, the new Register-house, situate behind the original building, at the east end of Princes-street.

Holyrood.—After the ceremony at the Museum, Mr. Cowper and Mr. Matheson conducted the Prince over the new stables and gun-house now building in front of the palace, also over the grounds attached to the palace and the chapel. In the palace his Royal Highness had the opportunity of inspecting the designs of the new Post-office and the Industrial Museum.

The Ancient Market Cross.—Some time ago we noticed the proposal made by a number of gentlemen in Edinburgh to resuscitate, on or near the old site, the ancient Market-cross which had been removed about a century ago. This proposal we now learn has been abandoned; the town-council having refused by a majority to grant the site required, but proposing another, the acceptance of which the committee considered would be "inconsistent with all traditions on the subject, and irreconcilable with all the expectations that had been held out to subscribers." The committee conclude their statement by expressing "sincere concern at this issue of their repeated efforts; and fear that the possibility of reviving the Cross of Edinburgh in any shape, through concurrence of the town-council, is at an end." They now order that the money gathered for the re-erection of the cross be returned to the respective donors. The design submitted was as nearly as possible a *fac simile* of the cross removed in 1756; and the site requested was at the opening of Parliament-square in the High-street. The majority of the town-council (whose small sympathy with tradition and antiquity was singularly intimated in their refusal to fulfil the Act of Parliament in reference to Trinity College Church) proposed a site opposite the County-buildings, which did not belong to them, and which an Act of Parliament had expressly declared should not be built upon.

Co-operative Building Company.—The foundation-stone of the first new building undertaken by the Edinburgh Co-operative Building Company has been laid by the Rev. Dr. Begg. The company, says the local *News*, was commenced about six months ago with a nominal capital of 10,000*l.*, the shares being 1*l.* each. After having the society fully organised, a conveniently-situate piece of ground was secured between Canonmills and Stockbridge, at the back of Saxe-Coburg-place. The piece of ground is enough for the erection of five blocks of buildings, each separate block containing eight houses two stories high, and each house having three distinct apartments, with requisite conveniences; and, besides, attached to it, a plot of ground suitable for a garden.

NEW HOSPITALS.

Leeds.—A new hospital for women and children has been opened at Leeds by the Bishop of Ripon and the Earl of Carlisle. For the purpose, Springfield Lodge was purchased, at a cost of 3,000*l.*, and alterations and additions have been made at a further outlay of about 1,400*l.* The hospital is capable of accommodating fifty to sixty patients, and is situate a little to the north of St. George's Church, on elevated ground. The old building (the front part of which was two stories high, and the back three) was not pulled down, but the roof was taken off, so as to give greater height to the chamber floor, over which an additional story has been added. A lantern tower, rising considerably above the roof, marks its character as a public institution. The architects employed were Messrs. Perkin & Backhouse.—At a special general board of the trustees of the Leeds Infirmary, it has been resolved to erect a new infirmary at Mount Pleasant, or Sunny Bank, also near St. George's Church; the present infirmary and its

site to be sold for the purchase of the new site; but the cost of the new erections to be provided for by public subscriptions. A building committee has accordingly been formed, with full power to purchase the site, to obtain and select designs, and generally to carry the works into execution.

Devonport.—Plans have been prepared by Mr. Alfred Norman, of Devonport, architect, for a proposed "Devonport, Stonehouse, and Cornwall Hospital," to be erected on an elevated site at the head of Newpassage-hill. Miss Nightingale, Sir J. Liddell, Dr. Sutherland, and Captain Galton, R.E., are said to have been consulted in reference to the building. The intended building will consist of a centre and two pavilion wings, situate within ten minutes' walk from the railway station. The central block has a basement appropriated for the general offices. On the ground-floor is an entrance-hall, with a reception room for dispensary or out-patients; also a dispensary, a reception-room for the medical officers and managers, and a matron's room. On the first-floor are two special wards adapted for thirteen beds, proposed for reception of children and patients enabled to pay a weekly sum on the principle of the Mount Edgumbe Ward at Plymouth. On the second-floor are two special wards, adapted for six beds, which it is proposed to appropriate as an eye infirmary. The fall of the ground has made it available for a basement under the western pavilion wing; part of this is appropriated for additional offices, and the remainder (all of which is above the surface) for a casualty or accident ward, with eight beds. The first-floor of this wing will have sixteen beds for male patients, and the second-floor the same number of beds for female patients. The eastern pavilion wing has no basement, but contains two floors for sixteen beds each, to be appropriated, with a separate entrance-hall, staircase, and airing ground, exclusively as a female lock ward.

CHURCH-BUILDING NEWS.

Seaford, Sussex.—The chancel of this church has been removed during the past week: it was a square brick apartment, with flat lathed and plastered ceiling, and sash windows; and a new chancel and apse are being erected. Transepts are to be added, and the south porch and seating renewed. The Early English nave arches, which will not be disturbed, are remarkable for having the capitals of the piers sculptured, with full-length figures about nine inches high, representing sculptural historical subjects. The work is undertaken by Mr. Cane, of Brighton. The architect is Mr. John Billing.

Kingstone (Stafford).—The new church lately erected here, to replace the old dilapidated parish church, was consecrated by the Bishop of Lichfield on the 21st ult. It is designed in the Early English style of Gothic architecture, and consists of a nave, apsidal chancel, south aisle (divided from the nave by an arcade of five arches), and a vestry; and at the east end of the aisle is a tower and spire to contain five bells; but at present the three removed from the former tower only are used. The benefice is in the gift of the Earl of Shrewsbury and Talbot, and the church has been erected at his expense, with the aid of grants from the Lichfield Diocesan Society and the Incorporated Society for Building Churches, from the designs of Mr. D. Brandon, and is intended to contain sittings for 300 persons, all of which are open and free. The walls are constructed of stone from the Hollington quarries, in random work; and the dressed stonework of the windows, doors, buttresses, and copings is from other beds of the same quarries. The floors are paved with Messrs. Minton's encaustic tiles, of varied designs; and under the floor of the vestry a crypt has been provided for warming the church. The open-timbered roofs, resting on richly-carved corbels, are covered on the outside with Staffordshire tiles, and the spire with circular and square tiles of a similar description. The works have been carried out by Mr. Evans, of Ellastone; and the carving of the corbels, bosses, stone pulpit, and font, have been executed by Mr. Ford, of Stoke-on-Trent.

Crickhowell.—The old church spire (the only one in the county) has lately undergone repair. The old shingling has been stripped off, and it is now re-shingled with cleaved heart-oak, and restored to its original height, with a new nave and pinnacles. The work will cost the parish about 400l. The money has been borrowed, to be repaid, with interest, by instalments spread over a period of twenty years. A new town-clock is to be placed in the tower under the parapet.

Leamington.—The Roman Catholic Chapel, in George-street, is about to be replaced by a more

commodious structure, from designs by Mr. H. Clutton, of London, the execution of which has been entrusted to Mr. Gascoyne, whose tender of 3,102l. has been accepted by the referees. The new edifice, which will occupy the site of the present building, although the west front will project further into George-street, will be in the Lombardic style of architecture. Its extreme length will be 100 feet, and its greatest width 51 feet.

Offenham.—The church of Offenham has been renovated and enlarged, at a cost of about 1,800l., from plans by Mr. Freedy, of London, architect, carried out by Mr. James Griffiths, of Eldersfield, builder. Besides a nave and chancel, the church now includes a north aisle and vestry, and the porch is on the south instead of the north side; although the tower arch is no longer obscured by an unsightly gallery, there are seventy-seven additional sittings, in all nearly 200. The old tower (at the west end) has been preserved. Early Decorated is the style adopted. The length of the nave is 45 feet; chancel, 25 feet 6 inches. The old tower opens into the church with a pointed arch, having a square-headed moulding, ornamented with the Tudor flower, and the spandrels filled with a carving like a ribbon pattern. A lady (whose name is unknown except to the incumbent) has presented a window for the east end of the chancel: it is of three lights, with circular head. The large circle in the head of the window contains a representation of the Saviour walking on the Sea of Galilee, with the legend, "It is I: be not afraid." It was wished that this should be the prominent subject in the window, and hence the unusual shape of the head, where tracery would have otherwise been inserted. Below, and extending across the three lights, is represented the Feeding of the Five Thousand, the miracle which immediately preceded the above-named event. The lower compartments are occupied by the Last Supper, the Crucifixion, and the Breaking of Bread at Emmaus. The window was designed by the architect, as also were two smaller windows in the aisle, the one representing Moses and Joshua, this being a memorial to the late Captain Freedy, and the other containing the figure of Elias, the gift of the architect. The chancel has been laid with encaustic tiles by Mr. Godwin, of Lugwardine. Oak stalls with carved ends are placed in the chancel, and the nave and aisle are filled with seats of stained deal. There is an alabaster pulpit, of an elongated graduated shape, supported by small shafts of red Devonshire marble, with carved caps. The iron hinges, gates, palisading, and standards and brackets for lighting, were supplied by Mr. Leaver, of Maidenhead. The church seats, altar-rails, and communion-table, are of oak, portions of the timber in the old church having been introduced where practicable. Additional ground has been given to the churchyard.

Dundry.—The parish church of St. Michael, Dundry, of which we gave an engraving in a previous volume, has been re-opened, after having been to a great extent rebuilt. The tower, which is a celebrated landmark,—as, from its great height (being built on the summit of a high hill), it can be seen for a considerable distance out on the Atlantic,—has been allowed to stand, and has been restored internally, and a new ringing-loft provided. The church, which was in a ruinous state, has been entirely taken down and rebuilt on an extended scale. The Rev. D. Boutflower, chaplain R.N., gave, it is said, 600l. towards the rebuilding; and the remainder (except about 100l., which has yet to be procured), has been raised by rate and by voluntary contributions. The cost entailed has been 1,500l. During the demolition of the old church some interesting relics were discovered. The ancient stone pulpit was found imbedded in the wall; and a statue, 3 feet high, supposed to be a statue of St. Michael, much discoloured, was buried in plaster: some old coins were also picked up, among which was a Bath farthing of ancient date. The old church was supposed to have been erected in the twelfth or thirteenth century. The restoration, or rebuilding, rather, has been carried out under the superintendence of Mr. S. B. Gabriel, of Bristol, architect. A new aisle has been added on the south side, with piers and arches corresponding with the old ones on the north side, which have also been taken down and rebuilt. Such of the old windows as were in good character have been repaired and reinscribed in new walls, with a new east window in the chancel. The floor of the church has been raised 2 feet. The roofs are open, and of red deal, stained and varnished, with carved ribs and principals, filled in with tracery and supported on carved brackets, representing angels with different musical instru-

ments. Open benches of pitch pine, varnished, have been substituted for the old sleeping-boxes. The west gallery has been removed, and the fine tower archway restored and thrown open to the church. A new vestry has been built on the north side. The pulpit is octagonal, and of Bath stone, with red Devonshire marble shafts and freestone arches over. The chancel arch is also supported on red Devonshire marble detached shafts, and carved brackets representing two archangels. The roof of the chancel is polygonal, of red deal boarding, stained and varnished, with moulded ribs and bosses at intersection, the latter facsimiles of some old ones found in taking down the old roofs. The font has been cleansed of innumerable coats of white-wash, and is placed near the south porch. A new organ, by Bevington, of London, has been placed at the east end of the north aisle, and the church warmed by Messrs. Haden's apparatus. The altar rails, brackets and standards for candles, are of wrought iron and brass foliage, made by Mr. Singer, of Frome; and the carving was executed by Mr. H. Margetson, of Bristol. The whole of the works have been carried out by the under-mentioned tradesmen, all of Bristol: Mr. Stevens, the mason's work; Mr. M. C. Williams, the carpenter's and joiner's works; Mr. Osborne, the plumber's works; Messrs. Lewis & Son, the slater's, plasterer's, and painter's works; Mr. Harris, the smith's work; and Mr. Gay, the glazier's work.

Hayward's Heath (Cuckfield).—The Rev. T. A. Maberly has issued notice, urging the necessity of erecting a new church at Hayward's Heath; stating that the accommodation afforded in the school-room, which was never intended to be more than of a temporary character, is not sufficient; and that the time has come to extend it. He states that Mr. Sergison will give the site for the church, and he will himself subscribe 100l. towards the building. The sum required, he says, will be 3,000l.; and as soon as that sum is promised it shall be commenced.

STAINED GLASS.

Ludford Church (Herefordshire).—A memorial window has been placed in the picturesque little parish church of Ludford, by the Hon. Frederick Walpole and his sister, to their parents. The subjects chosen are the Baptism of our Lord, and the Last Supper. The tracery opens are filled with devotional angels, &c. This window was executed by Messrs. R. B. Edmundson & Son, of Manchester.

Elton Church (near Ludlow).—The Rev. Chas. Kent, M.A., of Ludford, has inserted a new three-light window in the west end of the parish church of Elton, and has had it filled with stained glass, in memory of his late wife, who was buried here. The subjects are,—in the centre light, Christ Blessing Little Children; on the left, the Raising of Jairus's Daughter; and on the right, the Raising of Dorcas. The tracery is richly filled in with ornament, emblems, &c. Messrs. Edmundson & Son, of Manchester, were the artists.

E. C. Chapel, Crook.—A stained-glass window in the Roman Catholic chapel at Crook has been destroyed by the explosion of gas mentioned in our last number. The cost of the window is said to have been about 300l. The building itself was much shattered.

Wisbech Church.—A memorial window has just been placed in the parish church of Wisbech. It occupies a place over the west door, and is substituted for a very large plain Perpendicular window. The design of the stonework is Early English, and was furnished by Mr. W. Smith, of London, architect. The window consists of four lights, and the tracery is formed by a pattern extending horizontally, and cut off by the arch of the window. Mr. W. Walton, of Wisbech, did the masonry work. The stained glass with which the lights and tracery are filled was designed and executed by Messrs. Clayton & Bell. Describing the subject from the left-hand corner at the bottom, and proceeding in horizontal lines,—in the lowest rank we have (1) the Healing of the Blind Man near Jericho; (2) the Healing of the Impotent Man at the Pool of Bethesda; (3) the Healing of the Man Sick of the Palsy; (4) the Woman with an Issue of Blood. In the next or middle rank are cartoons, illustrating four acts of mercy:—(1) Giving Garments to the Naked; (2) Visiting the Sick; (3) Giving Water to the Thirsty; (4) Giving Bread to the Hungry. In the uppermost rank are four subjects, illustrative of the resurrection:—(1) the Raising of Jairus's Daughter; (2) the Raising of Lazarus; (3) the Raising of the Widow's Son; (4) the Healing of Simon's

Wife's Mother. Half-length figures of the four evangelists are in the head of the four lights. In the tracery lights the Ascension of our Lord is represented. In the three lowest lights are groups of the apostles gazing up into Heaven. In the two middle lights are two angels, bearing a scroll. In the topmost light is the figure of the ascending Redeemer. The window is put in at the expense of the executors of the late Dr. Smith Burman, who left 300*l.* for this purpose.

Glasgow.—Three painted windows for the Glasgow Cathedral have arrived, the gifts of Mr. John Tennent, of St. Rollox; of Mr. Alexander Dennistoun, of Golf Hill; of Mr. James Merry, M.P., of Belladrum; and Mr. Alexander Cunningham, of Craigends. The subjects illustrate events in the lives of King Hezekiah, and of the Prophets Elijah and Elisha. We understand that the whole of the windows for the east end may be expected very shortly, and that rapid progress is being made with the great east window presented by her Majesty.

MR. CAVE THOMAS'S SYSTEM OF METAL DEFENCE FOR SHIPS.

MR. CAVE THOMAS'S plans for protecting ships by means of serrated armour plates and ribs has received the consideration of the Admiralty. The plates are to be composed of pieces of iron framed together in rhombs, each piece being inclined to the side of the ship, and across it, the edges forming rectangular serrations. This disposition of the metal introduces the principle of inclined surfaces into the construction of the plates themselves, and is intended to diffuse and parry the force of shot, the serrated edges to split shot and shell. Mr. Thomas's plan also included the suggested application of plate in the form of ribs on the same principle, and also that of plate of the kind now in use, in the form of ribs instead of blocks. Mr. Thomas attaches great importance to the application of plate in this latter form, as it is thus made an element of strength in the construction of vessels, and would be equally applicable to mixed and entirely iron structures.

THE STYLE OF DRAWING IN THE SCHOOLS OF ART.

As a constant reader of the *Builder*, and to some extent a thinker on the above subject, will you allow me a word in reply to "A. Warrington's" questions in last week's *Builder* concerning the style of drawing in Schools of Art?

The first question is this:—"Is the style of drawing now pursued in Schools of Art of that firm, decided, and vigorous character that we find in the works of the Byzantine and Gothic sculptor, in the works of the Mosaicists, of Giotto, Masaccio, Orgagna, Michelangelo?"

As a master of a School of Art let me inform your correspondent something of the system of instruction in drawing in the schools.

A student commences with the careful execution of abstract curves, and continues his practice in pure outline until he has achieved a power of making an accurate imitation of both symmetrical and non-symmetrical curves. Through a long course of Dyce's Outlines of Ornament the inexperienced hand is trained to something like steadiness of touch; the eye is educated to see the accurate form of the copy placed before it; and intense accuracy in the reproduction is at all times insisted on before further advance is allowed. We hold the principle that the alphabet must be acquired before the grammar and composition of the language of form can be successfully attempted. No compromise is made with a student's wishes or dislikes, and no royal road to art is recognized. We commence by disciplining the hand, and making it obedient in a simple way to the eye and intellect which direct it; and we hold that, until the eye can perceive and the mind comprehend the simplest form, and the chastened hand can work obediently to this perception, no progress is made, though the student may advance to more difficult and higher subjects. A uniform thickness of outline is alone recognized in ornament drawn from copies, the value of which as practice it is impossible to exaggerate. Nothing is easier than to make a line thicker or thinner in places; any superficial sketcher can accomplish that; the difficulty and the discipline of outline is to make one long line as thin as a hair, and in no place thicker than a hair, throughout its whole length. When the hand and eye can so far work in unison, then real power is being acquired which may afterwards be applied in any further studies.

From drawing in outline from the flat or copies of ornament, the student advances to drawing in

outline from the cast of ornament. In this stage also, the intensest possible accuracy is required, though a certain amount of variety in the depth or thickness of line is allowed.

In the next stage, shading ornament from copies, the student finds the value of his training. Shading in chalk may be said to consist of a power of using the point in the formation of lines, with unerring certainty, either thick or thin or curved or straight lines, crossed, parallel, and mingling with each other, so as to obtain the effect of shadow, uniform or varied, in accordance with the accident of light upon the object. Here the power of executing one line as thick or as thin as may be required comes forcibly into play; and, finding no difficulty in this, the student can give all his attention to mastering the principles of light and shade. Having seen the manner in which light and shade are rendered in the admirable examples supplied in the schools, he next encounters the task of drawing from the cast, where the principles he has learnt may be applied in original drawings. Casts of the best specimens of conventional ornament, and from natural foliage, such as the vine, the blackberry, &c., introduce him to the world of form; and his previous practice enables him successfully to cope with the task of its detailed reproduction.

After this preparation, the human figure becomes the subject of study in a precisely similar manner, commencing with details from copies, the whole figure in outline from copies, shaded, and from the cast in outline and then shaded. I will not multiply instances. The same principle is applied in the study of colour, design, modelling, as far as the necessities and requirements of the different materials will allow.

Thus much on the style of drawing pursued in the Schools of Art; and now to answer your correspondent's question.

The works produced from the schools are described as being wiry, thin, careful, mechanical, and not possessing the vigour displayed by certain draughtsmen. That these works should be wiry, thin, and careful, for outlines and shadings, or aught else, is an unqualified testimonial to their success; that they should be described as being mechanical is the result of a misconception of the principles on which the works have been produced; and if a student possessed the vigour in drawing which is possessed by certain artists, he would no longer need to be a student in a School of Art; which may possibly account for the absence of works characterised by such vigour.

It may not have occurred to your correspondent that Schools of Art are training schools for ornamentists, and not academies of fine art; and that their exhibitions are the evidence of careful training, and not the displays to be expected in an Academy exhibition. The moment a student becomes possessed of the training and the knowledge of drawing which the schools give him, he is immediately absorbed by the vast market which now happily exists for art power, and leaves the school he has been trained in to pursue his own advancement, and make room for fresh and untutored pupils to reap similar advantages and produce the same "careful" works.

The principle of State assistance to Schools of Art is to initiate art study on the soundest possible system, with the greatest number of individuals;—to produce a marketable and wealth-producing commodity in the shape of a vitalising art-power placed in the hands of workmen. It leaves the pursuit of high art to other agents and at their own cost. Its object is best accomplished by satisfactory evidence that thousands are well taught the elements of art, and not by seeing one or three individuals reaching the pinnacle of art. Your correspondent must not expect, therefore, to see in the schools' exhibitions works of the highest character, or possessed of the power of the best sculptors the earth has yet produced. The object of the schools would be diverted if that was sought for, and public money would be employed on an object which private enterprise should provide for.

The question which your correspondent raises, viz.—"Are the students of these schools to be mere designers of conventional flower forms? or are they to be artists, drawing ideas, groups of the human figure—those vigorous works with a piece of chalk at the end of a stick—something that has life, power, expression?" may be thus answered:—"First, the students are to be designers of conventional flower forms, or any other forms required by the exigencies of their every-day occupations,—and not artists, drawing ideas, groups of the human figure, &c., unless these ideas and groups of the human figure, or rather the power to produce them, can be developed in the time usually given by workmen to study. Secondly, if

they attempted anything so absurd as drawing with a piece of chalk at the end of a stick, they would deserve to be compelled to eat the chalk, and have the sticks broken about their backs. There are not a dozen men in England, Royal Academicians or others, who could produce the likeness of anything in heaven or earth with a piece of chalk at the end of a stick, or who would not have the common sense to take the chalk in their fingers, or use it in a portcrayon like rational beings.

Next, I will ask your correspondent to go to a Royal Academy exhibition, and select from it works by the president, and by the oldest Academicians, as well as from the works of the accomplished associates of the Academy, of all schools and styles. When collected together and forming a blaze of modern talent, let him carefully study them, and then propound this question,—"*Is the style of drawing to be seen in these works of that firm, decided, vigorous character that we find in the works of the Byzantine and Gothic sculptors, in the works of the Mosaicists, of Giotto, Masaccio, Orgagna, Michelangelo?*"

The answer and the inference I will allow your readers to decide for themselves.

WALTER SMITH, Head Master,
Leeds School of Art.

COSTUME.

THE costume question is well worthy of consideration in a hygienic as well as an artistic point of view; and, indeed, it may be regarded as a question of no small moral importance, and one demanding attention from physicians and philanthropists as well as artists.

The first requisite in clothing is, that it should be comfortable; the second, that it should be as graceful as economy will permit.

Clothing which is comfortable must be healthy, and no one can be in free health who is uncomfortably clothed.

Further, a graceful costume will be generally found to be an economical one.

An ungraceful garment is an expensive one, because it becomes odious as soon as its freshness has faded.

This fact is well illustrated, as your Oxford correspondent points out, in the case of the female bonnet. A fashionable bonnet is, at the least, generally unartistic, although it may be when new often attractive from the beauty of the material; but an old greasy bonnet is hideous: whereas a cambric handkerchief, costing one shilling, if clean, can be easily arranged into a charming head-dress, and can be at any time re-made into a fresh bonnet, after being washed at an expense of one penny.

Women of the working classes are very unfitly clothed, because, in these days of "progress," they prefer a vulgar imitation of their superiors to a becoming costume of their own.

But that the ill-educated and humbly-born female should have little common sense and propriety exhibited in her costume can be no matter of wonder, when we reflect that women of the upper classes, possessing the advantages of high education, refined taste, and high moral and religious culture, will yet, in slavish terror of a vile fashion, clothe themselves,—notwithstanding the protestations of husbands!—in a costume at once inconvenient, dangerous, and indecent; as, for example, in the monstrosity of crinoline.

If we are to improve the costume of the lower classes, we must begin with that of the higher; the propensity to imitation being much stronger and more universal than the faculty of truth.

The Roman tunic, and its descendant, the Caledonian kilt, appear to me to be costumes at once elegant, economical, and healthy; the tunic being lengthened into the robe in the case of elderly individuals. I fear, however, it will be regarded as somewhat absurd even to speak of so radical a revolution in costume.

Trousers have many disadvantages: they are dusty at the feet in summer, and muddy in winter. They get easily out of shape and baggy at the knees, and they much overheat the lower parts of the body, and thus to some extent demoralize the individual, while the practice of wearing unwashable trousers next the skin for six months is a dirty habit. True, if drawers are worn, this last inconvenience is avoided; but drawers impede free motion, press upon the stomach, and drag inconveniently at the braces.

The present practice of turn-down collars must be a great comfort to those who formerly wore tight cravats and stiff collars; but the student and the cricketer alike throw off the collar and necktie when much work is to be done; and it seems to me that for health and elegance the neck

should be as free as possible, and that a narrow shirt-band, fastened with an ornamental button, might be a good substitute for the "turn-downs." Indeed, the turn-down collars of shirts, coats, and waistcoats, form lines which do not harmonize with the square lines of the male figure, and they diminish the apparent width of the shoulders.

The cut-away coat, long waistcoat, knee-breeches, shoes, buckles, and three-cornered hat, were a picturesque costume.

Beards are natural to man, and it is a violation of nature to use the daily razor; but, at the same time, beards are too natural to harmonize with modern dress. If a committee were formed, consisting of men of taste—sportsmen, artists, soldiers, and physicians—assisted by the practical knowledge of manufacturers and tailors, a costume might be devised at once graceful, comfortable, and economical; and I do not see why, at the forthcoming Great Exhibition, the best manner of clothing the human body should not be thoughtfully considered.

A volume might be philosophically written on this subject, which is one hitherto considered to be the exclusive property of tailors and dressmakers; and yet it is a question which involves the weighty consideration of what is comfortable, healthful, economical, and beautiful, and is therefore a question of high social importance.

GEORGE WYLD, M.D.

DEAR SIR,—If I enjoyed the honour and pleasure of so intimate an acquaintance with you as my father has been so happy as to form, I need not have taken this mode of informing you that your little essay in a recent paper on the improvement of costume thoroughly and entirely expressed my own views on that subject: in fact, you would have known more,—that I have for several years past worn the hat and very low collar you commend; but, I am sorry to say, not without suffering positive pecuniary loss, as well as some such discomforts as were sustained by the unfortunate north-country gentleman some time chronicled by Addison; and, though I do not anticipate arriving at his disastrous destination, I am glad that you keep me in countenance.

Your printed opinions so usually coincide with mine, that I now write with the view of enlisting your strength in setting the human hair growing on the heads. I believe you were about the earliest advocate of the hair on the chins. What a contrast exists between the smooth-cropped, lubricated pols of gentle heads now-a-days, and the luxuriant locks of our Wren's days. I have not been near a barbers for six or eight months, and would send you my photo—but, unluckily, my hair grows far thicker than most men's, and now presents an appearance, candidly speaking, too heartily to be graceful. But I am sure few fellows would look ill, that way. Their heads at a back view now remind me of pitchers, with the great ears out on each side. No doubt some such fashion gave the name of ears to pitcher-handles.

I hope to see you getting folks to stick more to nature, in costume as well as in art. Besides, what a shame— isn't it?—to badger a sculptor's brains how to depict you decently in collars and chimney-pots. It is wrong; and I don't mean giving mine that trouble. But it is no better to give a painter the pain of trying to make you "interesting" without hair, which will does wonders as a back-ground. I remember seeing a golden-haired lady, some years ago, with her hair rolled thick, as the fashion was then; and I am sure I never saw, as she sat in the sunshine, anything nearer the aureole of an angel.

PHILIP ARTHUR FIRMEN.

18, Vanbrugh-street.

A CASE OF DRY ROT.

I THINK the following statement of a case of "dry rot" which has occurred in my practice may not be uninteresting to your readers, some of whom may probably be enabled to throw some light on this puzzling matter, and may give useful suggestions as to its treatment.

About two years ago I resealed a church in Cornwall, taking care to have the ground removed from under all the seats to a depth of 12 inches below the joists, and to have a layer of concrete 4 inches thick spread over the whole surface. In addition to this air-bricks were introduced in the usual manner, and every precaution taken to ensure a proper circulation of air. In spite, however, of these precautions, slight indications of dry rot appeared in one or two places about a year ago. By my advice the clergyman had a board taken up in several of the seats and left open during the week, so as to assist the circulation of

air. All those timbers which were affected by the fungus were thoroughly scraped and well washed with a preparation of viridol, which had the effect of destroying the fungus; and I had hoped that the evil was removed; but I have just received a letter from the incumbent, who describes the case so clearly that I cannot do better than quote his words:—"Our old foe, the dry rot, is again attacking us, and under such singular circumstances that I must again ask your advice. Since the first outbreak, now a year ago, I have constantly watched every part of the church, and kept boards up in every seat, so that nothing should escape notice. During the summer the fungus showed itself slightly in different places in the vicinity of those first attacked; but about ten days since there was a regular outbreak in various places,—among others in the chancel, where it had not previously appeared; but, taking it at once, the wood has not suffered to any great extent. The singular point connected with it is this,—that it manifestly grows out of the concrete, and thence ascends to the sleepers, &c.: a piece of brick or stone placed on the concrete beneath the floor is in a few days covered with the light mould, which is the first stage of growth, and this in full exposure to the atmosphere above and constant currents of air beneath. You remember my telling you of the quantity of bones taken by me from the foot of earth we excavated within the building? Can it be that the soil beneath the 4 inches of concrete is so impregnated with the dust of bygone generations as to give this abominable growth? I continue to use the wash of viridol that you recommended, which is effectual in killing the plant so far as it reaches; but it seems that we cannot extirpate the root beneath. As you wished me to let you know should this 'carpenter's friend' appear again, I trouble you with these remarks, for I am fairly at my wit's end."

Here is a case in which all the precautions usually adopted have been acted upon,—an abundant circulation of air, concrete spread to prevent damp rising, and a drain carried round the foundations of the church. And yet this evil seems unchecked.

T. H. W.

VENTILATION OF HOUSES.

IN the *Builder* of the 10th of November, 1860, under the heading "Ventilation of Houses," I said that so soon as I had tested the system of horizontal ventilation there set forth, I would communicate the results. Having now had experience of the efficacy of the treatment, I feel happy in fulfilling my promise.

While the walls were green, the aperture in the ceiling was not sufficient to remove the humidity; but when the walls thoroughly dried out, the ordinary effect of respiration, &c., in rooms 13 feet square by 9 feet high, was entirely taken off by an opening 4 inches in diameter, in the centre of each ceiling. I covered the openings by small pateras, surrounded by a moulding. The patera was composed of leaves formed cup-shape, with side openings, the complement of which equalled the main openings. When a lighted candle was held within 5 or 6 inches of the patera, the flame was drawn out to the resemblance of that from a blow-pipe, affording evidence that a constant renewal of the atmosphere was being effected in the apartments. I consider this system of horizontal through ventilation in small houses much better than that produced by rarefying the air in flues parallel to the fire-flues, for fires are not always on in these upper rooms; and then, when the air-flue is cool, there will be a down-draught of cold air into the higher temperature of the room; but this method is simply an air shaft, placed horizontally, through which there is a constant current maintained, no matter in what direction the wind may prevail. There is no down-draught except when doors are opened or shut; and then it is merely a puff which the patera spreads along the ceiling. This is a simple plan, and costs only two cast-metal ventilators and a small enrichment in each situation, with a few pieces of outside scantling nailed under the flooring, to prevent the unpleasant consequences of draught through the floor-boards.

I am surprised that cheap methods of this kind are not more generally adopted. Surely those who provide dwellings for the humbler classes in pent-up towns and cities should make more effort to renew the atmosphere in the interior of their

houses. When the great Creator beneficently provides an immense ocean of air held continually rarefied and pure, why should man, through indifference or parsimony, deprive his neighbour of that heat, health, and life-preserving element which Providence so graciously bestows?

R. A.

ALTAR SLABS.

I BEG to inform you that the following examples of incised altar slabs have come under my notice:—At the Bede House, or Browne's Hospital, Broad-street, Stamford, there is a very fine and unusually large one, measuring 11 feet 2 inches by 3 feet 4½ inches. It forms one of the stones of the pavement in the chapel of the Bede House. The other is in the chapel at Haddon Hall, where it is deposited under the present communion table. The entire thickness of the altar slab is above the floor, and two of the five crosses are clearly discernible. The others are nearly obliterated. With reference to this example, I am somewhat surprised that in none of the numerous descriptions of Haddon Hall have I met with any notice of the existence of this slab.

FRANCIS T. DOLLMAN.

At Howden, Yorkshire, there is a fragment of the altar-slab which, from its size and beauty, must have been the high altar stone. It now lies on the pavement of the south transept; is of marble; and, when perfect, was 11 feet 6 inches long, and 5 feet wide; about 9 inches thick. I am not aware of any altar stone, either ancient or modern, larger than this. The Arundel stone which has been mentioned is a very fine one: it was, however, a mistake to say it was in the chancel; for the Fitzalan Chapel was always distinct from the parish church, and a separate collegiate foundation.

At Liege, in Belgium, in the church of St. Hubert, is a very fine marble altar, of the fourteenth century, the top forming the altar stone: it is of grey marble, very simple, but large in size, and of good proportions.

M. E. HADFIELD.

THE NEW MODE OF TRACING DRAWINGS.

HAVING read your account of a process of tracing drawings by means of the application of benzine, I was induced to try it. The experiment was made with five different descriptions of paper, and the liquid applied with a camel's-hair brush, a cotton tuft, and a Buckle's brush, as mentioned in the account. Post, foolscap, and super-royal were rendered quite transparent; ink lines, however, could only be drawn on when the fluid had evaporated, and the paper was only damp; colour could not be laid on until the paper was dry.

Double elephant and cartridge, however, could not be rendered sufficiently transparent for tracing, although moistened with twice or three times as much benzine as the thinner papers.

In tracing by this method, it would be necessary to apply the liquid every few minutes, on account of its rapid evaporation, which is much greater the thinner the paper: when quite dry, the paper, as stated, is restored to its former condition, and the texture is in no way injured.

When a piece of paper, saturated with this liquid, was burnt, it emitted a dense cloud of very black smoke.

The great drawback to the use of benzine as a means of tracing is its intolerable smell. If you would kindly publish this letter, it might elicit some further information.

A. M.

THE SEWAGE QUESTION.

SIR,—The boxing-up of sewage matter in houses, and its forthrightly removal only, is no necessary part of my views. Remove the refuse, by all means, daily, if it can be done. If it cannot be done daily, then let it be done at longer intervals. But in every case, whatever be the interval, let the waste be deodorized, rendered unfitted to injure health or to impair comfort and decency. The permanganate of soda is all-efficient for this purpose. So is carbolic acid, and yet other substances which I might name. The "dry water-closet" ought to be, and might be, rendered perfectly innocuous. The ordinary water-closet is very frequently, as managed, a nuisance indoors, as its products are always a nuisance out of doors.

The soil itself is a sure and certain deodorizer, once the sewage matters are deposited in its recesses. The soil, at present not half manured,

* Vol. xviii., p. 726. The proposition was, when the joists run from front to back, to put an ordinary metal ventilator at each end of the space enclosed by the two centre joists, with an opening into this space in the centre of the ceiling, covered by a *rosace*.

is continually crying out for those matters which, instead of contributing to it adequately, we turn adrift into rivers or the sea, or lead away in gigantic sewers—a nuisance in themselves throughout their course, and doubly and tenfold a nuisance at their outlets.

Rivers are designed by nature, both in themselves and in respect of the atmosphere with which they are in incessant contact, as a continual solace and source of health and purity. They should be guarded with zealous care. A river-police should prevent a single impurity from vessels at anchor from being cast into them. A river-police should exclude all the crying abominations, the street-mud, the sewage matters, the waste dye-stuffs, and the gas-refuse with which now, with revolting and inconceivable recklessness, we defile their crystal purity.

In my humble opinion, the whole matter lies in a nutshell. The waste-dejections from living organisms should, with all convenient speed, be deposited in every case in the soil. Extremes meet. The doing so is the first impulse of savage man. No wild animal, no wild man, deposits its, his, excretions in his home. But half-civilized man does so, and suffers accordingly. Let the extremes now meet. Let us deposit the waste, at once, in the recesses of the soil, and this evil anomaly, the great nuisance of nuisances, should be removed from the list of our grievances for ever.

H. McCORMAC.

SIR,—In your number of the 19th ult. I observe a letter from Dr. McCormac, advocating the abandonment of the system of draining water-closets into the sewers, and the substitution of an improved kind of cesspool. The disadvantages of fecal drains and sewers are very obvious; but those of even the best-constructed cesspools are also evident. In Paris, where these receptacles are built under the strict supervision of the town architects and inspectors, and in whose construction an extremely impervious stone embedded in hydraulic cement is alone permitted, the escape of mephitic gases is by no means prevented. The impossibility of employing any but dry water-closets with cesspools is also a great drawback which has never been properly overcome. The peculiarly British system of closets provided with a superabundance of water, and emptying themselves into the sewers, may be regarded as one of the extremes of cloacal arrangements; and it is a question whether there is any safety or comfort to be found between that extreme and the other, which consists in the use of close stools, with a daily removal of their contents before they have time to ferment and putrefy. In some continental towns the latter system prevails; but it is by no means agreeable, and in large towns quite impracticable. An attempt has been made in Paris to steer a middle course. This is the *système séparateur*. Where the closet drains fall into the cesspools there are placed zinc vessels, constructed in such a manner as to retain the solid matter and allow the overflow or percolation of the liquid into the sewers. From time to time these vessels are removed, and empty ones substituted in their place. The former are carted to an establishment outside the fortifications, called the *dépotoire*, where have been constructed enormous tanks, into which the semi-liquid night-soil is thrown, and by means of powerful steam-engines and pumps forced through underground pipes a distance of four miles to the Bois de Boulogne, to be there manufactured into *poudrette*. This system is a considerable improvement on the old cesspools, in which the liquid as well as the solid matters are retained, and which consequently are incompatible with the use of the necessary quantity of water in the closets. It might be still further improved by the habitual use of some disinfecting agent, which would naturally be both more effective and more manageable, when applied to the less bulky solid matter of the separators, than where used on the mixed contents of an ordinary cesspool.

J. B. M.

CLERKS OF WORKS AND THEIR DUTIES.

SIR,—It appears very evident to me, that the proper duties and true position of a Clerk of Works are yet unknown, at least to the majority of those who are pleased to style themselves such; and the frequent disappointments which I have experienced in several engagements I have made fully confirms, to me, that such is the case. I find that the persons who mostly present themselves as candidates for this very important office are the better class of skilled workmen; viz., ex foremen of masons, joiners, &c. Now, what I have to condemn in this class is, that nearly the whole of their attention, or perhaps I may better term it interest, is given to their own particular crafts, and the other trades neglected; besides this, they have not received that office practice and experience which is so necessary to enable them to properly

fulfil this post. Let me ask the question. "What is a Clerk of Works?" I reply, the representative of the architect: good. Now, does any architect so flatter himself that he is ably represented by any of the above? No; these are not the men we want; what we require is something approaching nearer to the architect or surveyor, and less of the artisan. Now, where I suffer most is in cases where I have works such a distance in the country as to prohibit my inspecting them as often as I should wish; and have, therefore, to depend upon the clerk of works to overcome those several little difficulties which will always arise during the progress of any work; and here, in such cases as require a good correspondent and something of a draughtsman, I am put to great trouble and inconvenience; and I cannot believe that I am the only architect who has felt the description person I have mentioned as being greatly required.

The following are, in my opinion, the necessary qualifications for a clerk of works:—A competent judgment of all materials generally used in the erection of buildings. To be thoroughly acquainted with every description of artisan's work and its proper construction, combining good taste with strength. A good correspondent and measurer, and capable of making any drawings or sketches which may be from time to time required by the architect. This is the man that should be sought for, and when found, paid liberally, that we may so keep "the right man in the right place."

A LONDON ARCHITECT.

DECISIONS UNDER THE METROPOLITAN BUILDING ACT.

Tenants and Fees.—*Good v. Hudson*.—This case came on for hearing before Mr. Woolrych, at the Thames Police Court, Stepney, on Wednesday, 23rd October.

In the month of September last year, a Mr. Frostick, a builder, gave notice of his intention to build three houses at Glengall-road, Cubitt-town, Poplar. The walls were carried up, and the roofs put on; but, before the houses were completely covered in, the builder became bankrupt, and the property got into other hands. Eventually the covering in of the buildings was completed, and application was made to the builder and other persons, supposed to be the owners, for payment of the fees which had become due, but in vain. At length, about four months since, one of the houses became occupied by a tenant of the name of Hudson; and application was made to him, and a bill of the fee delivered, which he also refused to pay. A summons was then taken out against him. A solicitor attended for the defendant, who denied his liability, on the ground that the house had already been occupied by a labourer, put in possession to take charge of the premises. The magistrate decided that this was not an occupancy within the meaning of the Act;—that the first tenant who paid rent was the first occupier;—and that he was liable under the Act to pay the district surveyor's fees; and gave judgment accordingly.

Power of the Board of Works.—A case with reference to cubical contents (sec. 27, rule 4) was heard on the same day. An application had been made to the Metropolitan Board of Works for their sanction to the erection of a manufactory at the Isle of Dogs, Poplar, a large building containing about 255,000 cubic feet, exclusive of the thickness of the walls, &c. The construction of the building was approved by the Board, and a copy of the drawing was sent to the district surveyor (Mr. Good) in the usual manner, for his guidance. At the commencement of the works the builder was cautioned as to the cubical contents, when it was understood that the floor was to be raised, and other alterations made, so as to reduce the capacity of the building to the limit allowed by the Act. This, however, was not done; and, when the building was nearly covered in, notice to divide it by party-walls was given. No attention having been paid to this notice; after some delay a summons was taken out. The defendant, by his solicitor, pleaded that his client had obtained the sanction of the Board to the erection of the building, and that the building was carried out according to the approved plan. The magistrate considered that, as the Board had given their consent to the building (notwithstanding the latter part of sec. 56), it was not necessary for the district surveyor to take any further notice of the matter, and accordingly dismissed the summons.

PATENTS CONNECTED WITH BUILDING.*

APPARATUS FOR THE MANUFACTURE OF ARTICLES OF EARTHENWARE, &c. *T. Spencer*, Eccleston, near Prescot. Dated 23rd February, 1861.—This invention comprises:—First, making pipes with or without sockets in one mould, by pressing the material into a confined space; second, the use of moulds with roughened surfaces, and in connection therewith the use of oil, talc, or other lubricating material; third, the use of cloth or other such material for covering the moulds;

* From the Engineer's Lists.

fourth, the method described for forcing off the moulded articles; fifth, forming holes in the moulds for the escape of air, moisture, or superfluous material; sixth, forming several articles simultaneously, as shown in the drawings; seventh, the use of moulds with cores capable of expansion and contraction; eighth, forming the moulds for plumbago crucibles of zinc, copper, brass, or wood, or of iron coated with one of those materials, or with enamel; ninth, applying moulds without the usual "dod."

FIREPLACES. *W. Dray*, Farningham, Kent. Dated 25th February, 1861.—The object of this invention is to effect the burning of smoke; and it consists in the construction and employment of spherical, circular, or other suitably shaped grates, capable of being revolved or turned on pivots, trunnions, gudgeons, or otherwise, so as to cause the whole, or the greater part, of the gases evolved from a fresh supply of fuel, after the fire has been once lighted, to pass through the incandescent fuel.

ROOFS FOR BUILDINGS. *J. Taylor, jun.*, Streatham, Surrey. Dated 27th February, 1861.—The patentee claims the construction of roofs and the manufacture of tiles with the side flanges notched at the narrow ends of the tiles, as described; also ridge tiles with flanges at their ends, as described. He also claims the manufacture of tiles suitable for capping walls with c troughs at one side, as described.

PRESERVING STONES, BRICKS, SLATES, &c. *J. C. Coombe & J. Wright*, Bridge-street, Blackfriars, London. Dated 4th March, 1861.—The patentees claim, first, the exclusive use of a solution of fluosilicic acid, for the purpose of indurating and preserving stone, bricks, slates, wood, and other analogous materials. Secondly, the exclusive use and application of precipitated silica in the manufacture of cements and mortars, whether employed for building purposes or in the manufacture of artificial stone, terra cotta, and such like materials.

APPARATUS USED IN DRYING, PULVERISING, AND COMPRESSING CLAY. *W. Grimshaw*, Latham, Lancashire. Dated 27th March, 1861.—The nature of this invention consists, first, in heating, by means of steam or otherwise, the crushing rollers between which the clay or other materials are passed; secondly, in an improved arrangement of apparatus for drying clay and other materials as it passes from the crushing rollers to the brick machine; thirdly, in making concentric and eccentric grooves in the faces of discs of scribbling or pulverising machines; fourthly, in giving two or more separate compressions to the brick or other article to be moulded at one stroke of the piston; lastly, in certain improved modes of applying pressure to the sides of the brick or other article while in the mould.

Miscellaneous.

THE YORKSHIRE AND LINCOLNSHIRE ARCHITECTURAL SOCIETIES.—A joint meeting of the Yorkshire and Lincolnshire Architectural Societies has been held at York. The members and their friends met for the morning service at the Minster, after which the crypt of the cathedral, by the permission of the dean, was lighted up, and the rest of the building was thrown open for inspection. Certain churches in the city possessing peculiar objects of interest were then visited, under the guidance of Mr. R. Davies and the Rev. J. Raine. At half-past two o'clock, a public meeting took place in the theatre of the museum of the Yorkshire Philosophical Society, which was well attended. The Archbishop of York was called to the chair, and addressed the meeting. The Ven. Archdeacon Churton then read a paper entitled "A Traveller's Notice of the Basque Churches." The next paper was on "The Religious Reforms of St. Wilfrid," by the Rev. J. Lees, Mathematical Master of St. Peter's School, York. The Rev. J. Raine read the next paper, the subject of which was "The Scroopes in connection with York Minster." A series of drawings, the production of the Rev. G. Rowe, were exhibited to the visitors in the library of the museum. Immediately after the meeting, the ruins of St. Mary's Abbey, together with the Hospitium, with its extensive collection of Roman antiquities, were visited. The society then repaired to the gardens of Mr. W. Gray, to view the interesting excavations which have lately been made there; and about forty of the members and friends of the two societies afterwards partook of dinner at the Black Swan Hotel; the dean in the chair, and the Rev. T. BAXLEY, of the Yorkshire Architectural Society, in the vice-chair.

"SECOND-HAND INVENTIONS."—At the end of the last century Lord Stanhope proposed an improvement on reflecting telescopes, by fixing both a great mirror and the eye-piece, and employing a large plane speculum, *moveable in every direction*, to reflect the image on the object mirror; so that the observer in his closet, or elsewhere, might contemplate and examine at his leisure the objects placed before him, and no more light be lost than in the ordinary Newtonian telescope. With the able assistance of the late Mr. Varley, this design is said to have been carried into execution, and he latter has left an account of its effect. With the death of his patron, however, all further attention to the subject was relinquished in England; but in 1812, Professor Amici, of Modena, succeeded in executing a telescope on the same principle, but on a much smaller scale than the former one; and an Italian society rewarded his discovery with a medal. This reminds me of a travelling railway, for which an ingenious gentleman, in 1828, took out a patent in England, when the identical invention was submitted to the Society of Arts of Scotland, in 1822, by a carpenter, under the title of "A Model of a new Construction for Wheels of Carriages, called a Moveable Railway."—J. B.

OUR HOSPITAL MANAGEMENT.—Workmen have been engaged during the past week in fixing the sites of the foundations of the new Herbert Hospital on Riddbrook-common, adjoining the Great Dover-road, about nine miles from London. The *Army and Navy Gazette* says,—"Whatever may be the advantage of this position, there is one thing to be very much regretted, that the new hospital will face the slope of the hill, and be within 300 yards of the new Greenwich and Deptford Cemetery, which, from its elevation, is unfortunately prominent on a large scale in the landscape. The daily average number of funerals there is considerable; and certainly the sight of the mournful ceremonies, with the attendant hearse, &c., is likely to be neither pleasant nor refreshing to the sick men. In short, it must be admitted that the sites chosen by Government officials for our national buildings are passing strange, if not quite inexplicable. The new barracks for the Royal Marine Artillery, at Portsmouth, have just been commenced in rear of a heavy coast fort commenced at the same time, and mounting guns of the largest calibre; so that in case of attack all shot missing the batteries will plump right into the barracks. Here we are to have our model hospital erected right in front of one of the widest graveyards in the kingdom. May we venture to ask who is responsible for these extraordinary selections? concerning which, sooner or later, there will certainly be some inquiry.

THE CITY PUMPS.—Dr. Letheby's sanitary report for the last quarter of the year reiterates those warnings which the *Builder* has for many years given as to the unwholesomeness of the water obtained from most of the London pumps. "The water from twelve of the City pumps," says the report, "has been analysed during the quarter; and the results, as in the former cases, show an enormous amount of saline and organic impurity. Altogether there have been thirty-four of the City pumps examined, and in every case the water has been fouled with surface drainage. There is not one of these pumps that derives its supply from the deep strata of the London basin; and, excepting the pump in Glover's Hall-court and that in Guildhall-buildings, none of them furnish water that is fit for domestic purposes. The fact of the presence of ammonia, saltpetre, sulphate of lime, common salt, and organic matter in large proportions is sufficient to indicate the source of the supply; and the knowledge of the composition of the soil through which the water passes should warn us of the danger that may at any moment arise from its use. It may be that it has often been drunk with impunity, and that it has rarely shown any immediate manifestation of its morbid action; but it cannot be that the products of corruption can be constantly admitted into the human body without danger of insidious mischief; and there is the still greater danger of the impurities of the soil passing unchanged into the water and being a source of quick and certain injury. Experience has shown that wells like these are liable at any moment to receive the leakings from a cesspool or a sewer, and thus to be the immediate cause of fatal disease. The notorious Broad-street pump and the cholera cases traced to its baneful influence, with other similar examples, are then given to show the pernicious nature of the water got from London pumps; and the percolations from the graveyards are not forgotten.

INSPECTOR UNDER LOCAL GOVERNMENT ACT.—Sir George Grey has appointed Mr. Robert Rawlinson, C.E. (formerly one of the first inspectors under the Public Health Act, and one of the army sanitary commissioners in the Crimea), to succeed the late Mr. Henry Austin as Superintending Inspector under the Local Government Act.

TOWN SEWAGE.—Mr. Mechi writes to the *Times* respecting the progress made in the application of town sewage to the production of food. He says—"At the Earl of Essex's estate, Cashibury, I yesterday saw a stream of sewage from Watford applied with much profit to the soil, as proved by the enormous crops of roots, rye grass, and other productions. The sewage of Wimbledon now flows over twenty acres of land at Wimbledon Park; and that portion on which it was applied in the spring has produced luxuriant and remunerative crops. The cost of preparing the land for its reception by gravitation is only between 3*l.* and 4*l.* per acre. At the Colney-hatch Lunatic Asylum the sewage is being availed of; and I am happy to say that the governing powers of various lunatic asylums, pauper unions, prisons, and charitable institutions are considering this important question.

DUNDEE HARBOUR.—At an adjourned general meeting of the trustees of the harbour of Dundee, the minutes of the Committee of Works, of the 11th of October, showed that the clerk had been served with a copy of a schedule and protest by the contractors on the 9th, for damages and remedy at law, for alleged interference with them in the carrying on of the works. At another meeting of the same committee, held on 14th October, the protest was read, and the clerk instructed to prepare and lay before another meeting a revised answer.—Approved. From the same minutes it appeared that the committee resolved to appoint Messrs. Stevenson & Leslie, civil engineers, to visit the fallen wall of Camperdown Dock, and report (1) as to what, in their opinion, was the cause of the east wall of the dock giving way; and (2), what they would resolve to recommend to be done in the circumstances. The Dean of Guild, Mr. William Thoms, and Mr. Charles Smith, were appointed to meet with these gentlemen after they had inspected the wall. The *Northern Warrier* states, that the harbour trustees, at a private meeting, have come to a determination to reject the proposals of arbitration, or accommodation in any other form, made by the contractors, and have resolved to call upon them to proceed with their works immediately, under pain of having them taken out of their hands, and being held liable for the expense incurred in their execution. We are not aware, adds our authority, how the contractors are to proceed with the works while the dock is full of sewage.

ST. CHAD'S WELL.—In the Gray's-inn-road, in the proximity of King's-cross, are to be observed a course of tenements lying back a short remove from the highway. This locality has been received under the appellation of "Fifteen-foot-lane," the name by which it is distinguished. One of the edifices was, about a century ago, called "St. Chad's-well House." The well itself parented a very popular chalybeate spa at that period of time, being strongly approved and recommended by the medical faculty of that day. Numbers of persons were in the habit of repairing to this spa once or twice during the week, and medicating themselves with its aperient waters. As the science of medicine progressed, and the members belonging to this curative branch of philosophy numerically increased, the above chalybeate establishment became gradually neglected, and is, up to this hour, recognized only in name. Old Mr. Munden, of theatrical repute, when he resided at Kentish-town, was for many years in the practice of visiting the above spa three days in the week, and partaking of the medicinal waters of the spring; as did the late judge, Sir Allan Chambers, when he lived at Prospect House, Highgate. Mr. Alex. Mensall, the well-known and highly respected schoolmaster, of Kentish-town, made it an invariable rule to medicate himself, and his numerous pupils, once a week, at this spa, as a means, he observed, of "keeping the doctor out of the house." Those who have indulged in the benefits derivable from these waters within the last forty years can speak highly of their medicinal properties; although at this period of time scarcely an individual but such as reside in the immediate vicinity of its presence are aware that the well is still in existence. It will very shortly cease to be; as it must fall within the line of the Metropolitan Underground Railway operations.—*Correspondent of the Globe.*

LIVERPOOL ARCHITECTURAL SOCIETY.—At the second meeting of the session of this society, held at the Royal Institution, Colquitt-street; Mr. Stubbs in the chair; Mr. Isaacs and Mr. Duckworth were elected members. Mr. Justin gave a short sketch of the life of the late Mr. Zwirner, well known in connection with the building of the Cologne Cathedral. Mr. Stubbs having vacated the chair, it was taken by Mr. Chantrell, and the former gentleman then read a paper on the Society's recent visit to Hawarden Castle and the vicinity. A discussion followed.

SALE OF THE FOREIGN OFFICE.—On Monday there was a sale by auction of the materials composing the dingy building in Downing-street which has hitherto been used as the Foreign Office, and which is now to be forthwith removed for the proposed public offices extension. On the south of Downing-street whole streets have vanished within the last few weeks, and more are to be forthwith sacrificed, in order that there may be as little delay as possible in commencing the new works. Monday's sale was conducted on the premises by Mr. Glasier; the materials disposed of consisting of 2,000,000 stock bricks, a large quantity of slates, plain tiles, timber in roofs, floors, &c., gilt moulded and other doors, mahogany plate-glass and other sashes and frames, upwards of 20 tons of lead in flats, paving, staircases, stoves, and fixtures and fittings of all kinds. Some of the materials fetched good prices.

INDUS FLOTTILLA DEBENTURES: WHO IS RESPONSIBLE FOR THEIR REDEMPTION?—An important question on this head has been raised by a pamphlet which has recently appeared, casting doubts on the validity of the Indian guarantees.* The contract between the Government and the Indus Flotilla Company, it seems, provides that 17 per cent. shall be annually set aside by the Governor of Bombay as a first charge on revenue, and which accumulated amount is to be forfeited to the Government should the latter be called upon to purchase the vessels. The question therefore arises, if this annual payment, or its accumulated arrears, is to be regarded as a *first charge* on the capital, where do the debentures rank? A debenture is, virtually, a mortgage of property, given as a security for repayment of money advanced as a loan. But it is only in special cases in which a mortgage is considered good, unless it is a *first mortgage*; and, in the case of such perishable property as river steamers, even a first mortgage can scarcely be considered a very eligible investment. It is highly important, then, that the fact of this alleged indebtedness should be fully investigated by those contemplating the investment of money in such Indian securities as those now being offered; as, if it should turn out that the vessels of the company issuing those debentures are already virtually mortgaged, by a charge of 17 per cent. per annum on the capital, a material fact will have been kept out of sight.—*The Sun.*

OPENING OF A DRINKING-FOUNTAIN AT TOWER-HILL.—On the 28th ultimo, Earl Russell opened a new drinking-fountain that has recently been erected on Tower-hill. The fountain is to be called Earl Russell's Drinking-Fountain, as the expense of constructing it has been mainly contributed by him, and the remainder by the Metropolitan Free Drinking-Fountains Association. The fountain is composed of a large polished granite basin mounted upon two steps. A trench is worked round the second step to prevent the surplus water escaping to the pavement. The basin is surmounted with a metal vase, decorated with bas-relief of the water-lily. Upon the plinth of the same are two "water lions," close to the basin from which the water flows; thus preventing the wind from blowing the stream over the steps. The fountain is from the design of Wills, Brothers, by whom it was erected. At the opening, after Earl Russell had addressed the meeting, Dr. Lankester, as medical officer of health to the Metropolitan Free Drinking-Fountains Association, said he wished to state that the water for these fountains was prepared and purified so that it could do no harm to any one. The water that the poor had in their tanks and got from pumps was bad, and contained many impurities detrimental to health; but that was not the case here, for they could have it better and purer for all purposes than that which came into their own houses. He hoped the public would do all that they could to assist in the erection of these fountains. The Association was badly in want of funds. They wished to erect 200 fountains in London; but the public had not in this instance shown their usual liberality in supporting a deserving object.

* "A Guide to Indian Investments." By a Manchester Man. London: Triibner & Co.

ST. MARTIN-IN-THE-FIELDS LIBRARY AND READING-ROOM, CASTLE-STREET, LONG-ACRE.—The first lecture for the winter season was given on Tuesday, the 29th October, by the Rev. W. G. Humphry, B.D., vicar of St. Martin's, who described, to a numerous audience, "A Summer in Germany," which he had lately spent, showing the manner in which the visitors to Wiesbaden (principally) spent their time; and enlivening his lecture with anecdotes and historical descriptions of past and present times.

OBSTRUCTION AT CHANCERY-LANE.—Much of the obstruction which prevails at the Holborn end of Chancery-lane would be diminished by Southampton-buildings being used as a thoroughfare to a greater extent than at present. If all carriages coming towards Holborn were to come up Southampton-buildings, leaving Chancery-lane for carriages going towards the Strand, for one week, the two currents would acquire a permanent set, to the great convenience of the public.—P. N. L.

THE NEW MARKET HALL AND ASSEMBLY-ROOM, ASHBOURN.—The opening of this edifice was inaugurated on the 17th ult. The chief features of the building are a market-hall in the lower story, and an assembly-room above it. Provision has also been made under the same roof for various public offices; the news-room and library of the Literary Institute; together with the librarian's house. Mr. Benjamin Wilson, of Derby, was the architect; and Mr. Brinsley, of Ashbourn, the builder. The front occupies a space of 33 feet in width, and is 36 feet high to the top of the cornice, and 51 feet high to the top of the final to the clock; and the building altogether stands upon an area of upwards of 400 square yards. The front is all of dressed Hollington stone, divided into three compartments by projecting pilasters, the centre one having a projecting portico. The windows to the lower story are circular-headed: the upper windows are square-headed. The front entrance is from the portico; which, with a wide hall, communicates right and left with offices, and the market-hall in the rear. It is 56 feet long and 28 feet wide in the clear, and is lighted on the side by large windows, the wall and floor above being carried by two rows of cast-iron columns. At the opposite end is another entrance passage, communicating with a reading-room, 27 feet by 15 feet, communicating again with librarian's house, armoury for rifle corps, &c., &c. The upper floors are reached by two flights of stone steps, and consist, to the front, of ante-room and the large assembly-room, which is 70 feet long by 36 feet wide, and has a gallery over the landing 37 feet by 14 feet. The other staircase and landing communicate also with the assembly-room, other ante-rooms, closets, &c.

HUNMUNDY CHURCH, YORESHIRE.—In this church (near Fife), there is a fine Norman chancel arch, about 13 feet wide, and of great elevation for the style in which it is wrought. The *Athenaeum* gives some particulars of the edifice. The view of the chancel from the broad and bold nave of the church is highly picturesque, and even impressive, notwithstanding the introduction of a poor Perpendicular window at the east end, which was made about thirty years ago, during a general restoration of the edifice. Some attempted renewals of the original colouring about this arch and opening have been made, which are tolerably successful in tint, if not very characteristic in the pattern employed for its display. The tower has some interesting points about it: it is, in the lower portion, of twelfth-century character. The entrance to the interior, through a shallow porch, is notable, being under a very plain square-headed opening, over which is a semicircular discharging arch resting on chamfered impost: the tympan, which is much wider than the door-opening, is flat and plain. In the rebate are the original hooks for the door, and within is the ancient bolt-hole for a wooden bar: inside the porch may be seen the fragments of a Romanesque font, undoubtedly the original one, and still worthy of repair: this has been tastelessly replaced by a modern and very poor imitation of a Decorated font. About midway in the height of the tower, on the external south side, is an excellent specimen of a two-light Norman tower window. Inclosed within a well-preserved billet moulding, set upon a semicircular dripstone, resting on corbels, are the two openings, round-headed, long in form, separated by a shaft with cushion-shaped capital and square base. This window lights a remarkable little chamber of unknown use, about 7 feet long, 2 feet wide, and 6 feet high. From its elevation this may have been intended for a look-out, but it is too distinguishable externally to be regarded as a secret chamber.

SANITARY CONDITION OF SOUTHWARK.—Mr. Robert Bianchi, medical officer of health of the St. Saviour's district, Southwark, has just issued a report on the sanitary condition and overcrowded state of portions of the parishes under his control; the latter owing to the demolition of houses for the construction of the Chatham and Dover Railway, and the new street from High-street to Blackfriars-road. He says that the mortality of the metropolis was last year considerably below the average of the twenty years preceding; the deaths from diarrhoea numbering less than one-half, while the St. Saviour's district was nearly exempt from that disease. Much, however, remains to be done.

PAPER FROM SEA-GRASS.—Your last number contained a notice of a new specimen of paper produced from "sea-weed," by Mr. Hartnell. Permit me to apprise you that in 1855, following upon another invention for remanufacturing printed and waste paper into pulp and paper again, I produced (as will be seen from the inclosed specification) fibre and paper pulp from sea-weed. I could, with your permission, say much more upon the matter, but will be content if you will kindly allow this fact to appear on the same page that placed Mr. Hartnell's production before the public; who, I hope, after experiment and expense, will not have to join your correspondent in *sic vos non vobis*. One sows and another reaps.—CHARLES MAYBURY ARCHER.

FEARFUL EPIDEMIC AT OVER DARWEN.—During the past six weeks the township of Over Darwen, which contains upwards of 20,000 inhabitants, has been visited with a dire epidemic (gastric and typhus fever), which has played sad havoc amongst the inhabitants; upwards of thirty deaths having taken place from fever, and about 1,000 cases have required medical aid. One of the Government medical inspectors has inspected the township, and his report is anything but favourable to its sanitary condition. Cesspools, piggeries, and more noxious places, were so situate, as fully to account for the spread of fever in the locality; and it is now stated that the township is undergoing a thorough system of sanitary renovation. The water comes in, too, for a share of public reprobation, and it will undergo an analysis.

NEW STREETS.—A return made by the First Commissioner of Works states that the Spitalfields line of street of 700 yards; Dock-street, 285 yards; New Oxford-street, 770 yards; Endell-street, 350 yards; and St. Martin's-lane and Cranbourne-street alterations, 370 yards, together, cost £37,560. The Spitalfields extension, 520 yards, cost £11,689. And the Pimlico improvements, 378 yards, 62,478. A return from the city states that New Cannon-street, 1,166 yards in length, cost £59,470. And the completion of the improvements authorised to be made by the Clerkenwell Improvement Commissioners, Victoria-street, Clerkenwell, 1,120 yards, 333,675, but there is building ground not disposed of in consequence of railway communication in the line of street being sanctioned by Parliament. Upon the whole 5,650 yards of street, not quite 3½ miles, there has thus been laid out 2,034,872, or 359. upon a yard's length of street.

PROPOSED ABATTOIR FOR BRIGHTON.—Brighton is making progress slowly in the sanitary direction. The town council, at a special meeting, have just resolved to act upon a report from their General Purposes Committee, recommending the corporation to apply to Parliament for special powers to borrow money, and to purchase a site for an abattoir, to erect one thereon, and to prohibit slaughtering of cattle in or near the borough, &c. The local *Herald*, in congratulating the Brighton people on the taking of this step, says:—"The obtaining of the Local Government Act was a great step; then followed the adoption of the bye-laws provided in that Act; and now, connected with these bye-laws, comes the establishment of a public abattoir and the rooting-out of the slaughter-house nuisances. This done, the improvement of the approaches to the railway will be facilitated. But even before that necessary work is completed the great question of town drainage will force itself upon the attention of the council. It cannot safely be put off. The new powers obtained by the council are but means to that great end; and the sooner these means are applied, the better. Of course, we are aware of the doubts and difficulties by which the question of drainage is surrounded. Seaward or landward? That is the problem which meets us on the threshold. Hitherto it has stayed our hands and paralysed all action. But it must have a solution. The time is ripe for the work; and, seaward or landward, Brighton must be effectually drained."

SINKING IN OF TWO HOUSES.—An accident of a singular and serious character has occurred at the Wisemore, Walsall, by which two three-story houses have been completely buried. The scene of the catastrophe is near to some limestone pits. A short distance from the shaft were two houses, which were literally buried by the giving way of the pillars in the mine beneath. The houses were worth probably 400l. or 500l.

PAPERHANGINGS.—We (*Critic*) are glad to hear that a brisk export of paperhangings has commenced to France, and it is likely that some of our qualities of writing and printing papers will shortly follow. There are some things French papermakers can do better than English, and some that English can do better than French, and these differences no perseverance can overcome. Each nation and each city and province of a nation has its speciality; some one thing it can do better than any other in the world. Wise political economy aspires to break down every barrier that interposes between the free diffusion, exchange, and enjoyment by all mankind of the specialties of each fraction.

THE GARDENS OF SHAKESPEARE.—On the 22nd ult., Mr. Halliwell purchased the estate of New Place, Stratford-on-Avon, and immediately handed it over to the corporation of that town, on condition that the gardens of the great national poet should never be built upon, and that the public should have for ever free access. The purchase-money was 1,400l.; but incidental expenses, and the cost of a memorial at New Place in honour of the donors to the fund, will bring the sum required up to 1,500l. This sum is proposed to be collected in subscriptions of 100l. each, neither more nor less. Six more names are required to cover the pecuniary liability incurred by Mr. Halliwell in carrying out this national object. The following is a list of the names of those who have at present subscribed:—

1. Henry Hath, esq., Sussex-place	£100
2. G. L. Prendergast, esq., Lowndes-street	100
3. H. B. Sheridan, esq., M.P.	100
4. William Tite, esq., M.P.	100
5. James Parker, esq., Chelmsford	100
6. Benjamin Webster, esq.	100
7. F. W. Cosens, esq., Water-lane	100
8. A. Lady, anonymously	100
9. Miss Burdett Coutts	100

THE ARTESIAN WELL AT PASSY.—On the subject of the new artesian well for Paris, of which we have constantly given information, Mr. Dumas has read an interesting paper to the Academy of Sciences, in which he gives a history of the undertaking and of the difficulties with which the engineer, Mr. Kind, has had to contend. The idea of boring this well originated with the necessity of providing pure and wholesome water for the population of Paris, which in a short time had increased from 1,200,000 souls to 1,700,000, thus materially augmenting the causes of infection to which the waters of the Seine are necessarily subject. The successful boring of the well of Grenelle had established the fact that the water which the local sands received from a distance might be made to rise to the surface, and even to 30 or 40 metres above. But the experiment had only been tried for bores not exceeding a diameter of from 20 to 30 centimetres, yielding a supply of from 2,000 to 4,000 cubic metres of water per day. Mr. Kind came forward with an offer to bore a well of a diameter of 60 centimetres, yielding 13,300 cubic metres at an altitude of 25 metres above the highest point of the Bois de Boulogne. After a series of difficulties had been surmounted, water was found for the first time at 577½ metres, but remained a few metres below the level of the orifice. On 24th September last, however, Mr. Kind saw not only his promise fulfilled, but even his more sanguine hopes to a certain extent realized. Mr. Dumas here quotes Mr. Michal, Inspector-General of the Works of the City, who has arranged in a table the relative variations experienced up to the 2nd October in the yield of the two wells of Passy and Grenelle; but on this score we have a later account, stating that the decrease in the latter does not exceed one-fourth of its yield prior to the 25th penultimo. On the 2nd ult. that of the well at Passy was 20,000 cubic metres in twenty-four hours. Mr. Dumas, according to *Galignani*, attributes the diminution of the yield at Grenelle to a diminution of pressure; and he is inclined to believe that when the tube at Passy shall have been brought to its normal altitude of 78 metres above the level of the sea the yield at Grenelle will again rise to its former figure, or nearly so. Whether other wells may be bored elsewhere in Paris without injury to the two existing ones is a question which experience alone can decide. The well at Passy has cost nearly 1,000,000fr., and will yield water sufficient for the wants of 500,000 inhabitants.

The Builder.

VOL. XIX.—No. 979.

Condition of our Towns. A Watering-place:
Scarborough.



EW places, just now, are in better repute than Scarborough: the local *Gazette* publishes the names and addresses of 5,000 visitors a-week—a circumstantial proof of the favour in which it is held. Besides being the chosen *Baie of the beau monde*, it is pre-eminently the watering-place of the northern counties; and to Scarborough resort the wealth and beauty of the vast manufacturing towns, of the great wool markets, and of the seed-crushing districts on the flat sedgey regions of the Humber. By far the greater number of visitors come from London. After the metropolis,

Manchester and Leeds are the next largest contributors to the throng; then come Hull, Huddersfield, Bradford, York, Sheffield, and other large Yorkshire towns. Newcastle is represented; so are Birmingham and Wolverhampton; even Cheltenham is quitted for Scarborough: so is royal Windsor; and so is the modest Dolgelly, in spite of its picturesque setting in the blue mountains of Wales. Penzance is not too distant, nor are the Cumberland Lakes too attractive to prevent residents of both districts from coming to Scarborough. Other groups on the Spa promenade come from Edinburgh, Dublin, New York, Madras; this one is from Bengal, that from Rouen; this from the north, and that from the south. Fashion's gayest votaries are here, as well as the scornors of fashion—the one set as startling in their costumes as the other. Crinoline and pork-pie hats relieved against gored dresses and spoon-shaped bonnets: the daintiest webs of veils, not much larger than masks, eclipsed by sombreros as large as umbrellas; the widest of flounces, contradicted by the narrowest of frills; an embarrassing profusion of riches, sequins, gold crosses, gold stars displayed on hair-nets, contrasted with a concentration of plaited dresses upon the very top of pretty brows; clusters of children spotlessly prim, a flutter of muslin, a rustle of silk, a presence of undistinguishable materials, with which the masculine gender is not familiar, except through the medium of advertisements and Christmas bills; a predominance of pink and magenta,—in fine, a kaleidoscopic view of wealth holiday making. There are no pale drab sand shoes; no old gentlemen in pea-jackets, with glazed hats tied by a piece of black ribbon to a button hole, carrying telescopes under their arms; no ladies' ringlets blown out of curl; no morning disable; scarcely a child deigning to dig a lake, a creek, or a reservoir on the sands, with the once familiar wooden spade; no donkeys with their white saddle-cloths, guarded about with scarlet, like the toga of a Roman patrician; no Dutch dolls for sale, clothed in an impracticable attire formed entirely of shells; no bouquets made of the same imperishable materials;—these are all things of the past. Scarborough is as removed from them as the Borough is from Belgravia.

The early part of the morning is spent on the

sands, either in bathing, or looking at those who do so. From eleven o'clock to one, the long terraced parade in front of the handsome spa saloon is thronged with company, who promenade to the music of a good band disposed in an ornamental orchestra. Loiterers lounge upon the numerous seats which line the sides of the walk, and it is idleness—all. The afternoon is spent in drives into the country, or along the coast to Whitby and to Robin Hood's Bay, or is passed away in shopping, at Jancowski's drawing-room lounge and Parisian saloon, or perhaps at Theakston's library, or Alder's photographic studio. In the evening the promenade is again crowded by brilliant groups, who are in full dress; the ladies simply protecting themselves from cold by the addition of opera-cloaks. The musicians again perform, the gay ranks flit to and fro, the sea-lashes are more subdued, the vault of heaven is a deeper blue, and an indescribable charm is felt by all. Later in the evening the promenaders gradually disperse, some of them joining the *conversations* and balls held at their hotels, or patronising the varied entertainments in the Spa Music Hall; others the drama in the Theatre Royal. This is how the pleasant days speed at Scarborough; or you may go pebble-hunting along the sands to Cornelian Bay, and seek for agates and cornelians among the quartz, and the green, red, yellow, and striped jasper on the shore; or take a canter along the sea-fringe; or in fact whatever else you prefer, so that your choice is a recognized idleness.

It is agreeable, after viewing the unsanitary condition which the magnates of Sheffield not only permit, but countenance, to find a municipal recognition of the great importance of cleanliness in this health-recruiting recreation-ground. Endeavours are made to keep Scarborough clean, though, as we find, not to the extent required by sanitary knowledge or with the vigour that should distinguish a town highly favoured in its natural advantages, and doubly so by the extensive patronage bestowed upon it. From a very early date attention has been paid to the matter of clean streets. Going back to the charter given to the town by Edward II., it is there set forth:—"All kind of dirt found in Scarborough, as well in the old town as the new, at all times of the year, is to be common to all and every of the bargesses to take and carry away wherever they will so that it be within the public street; and the dirt from the pavement is to be taken away once every week, that is to say, on Friday or Saturday, which, if not done, he who shall be keeper of the pavement shall enter the house of him from whom such dirt has arisen, and shall take surety for removing the dirt on the Monday following, and retain it till he is paid tennence for his own reward." Thus we learn there was a keeper of the pavement when there must have been but a very small quantity of it to keep how much more necessary must such a functionary be in these latter days! But the sweeping up of the dirt is never a difficult task: it is the proper disposal of it when swept up that is puzzling. On the coast it is too usual to cast everything into the sea. This appears to have been the custom at Scarborough, as a board at the base of the steep rock leading up to the castle gives notice,—"For the future no rubbish is to be cast over this cliff. May 1st, 1860." And a large green faecal pool still lying among the rocks above the level of high tide marks the drainings of the filth that has been cast over the cliff before the above date.

The sea-line of the town is remarkably fine. A dark rock "of a wonderful height and bignesse, which, by reason of steep craggings and cliffs, almost on every side, is inaccessible, beareth on the sea," on the summit of which rock stand the ruins of the goodly "large and strong castle," and from both sides of it, like outstretched wings, sweep irregular lines of houses. On the north side of the castle the new town crowns the cliffs; and on the south side the old town and harbour nestle at its foot; whilst beyond these, south-

wards, are the hotels, terraces, villas, and crescents, which have arisen in the neighbourhood of the famous Spa. The latter district is intersected by a valley, across which, for the more ready access to the spa, a company has built a high-level bridge. This forms a handsome approach to the wells of the spa, which are now covered by the group of buildings known as the Spa Saloon and Music Hall. The site of the town is thus disposed over cliff and valley. The approach from the railway, beginning with Alma-terrace, creates a favourable impression. The road is planted with young trees, and the footways, on one side a gravel walk, on the other side asphaltic pavement. Alma-square, likewise green and cheerful, and built of brick and stone, continues the road line, being composed of houses on three sides of the square only: the two rows of houses facing each other have bow windows, in the Brighton fashion, so as to obtain a view of the road, which the row that overlooks it does not possess. After this, there is one of those ugly spaces in new neighbourhoods,—the still unlet piece of building ground. In this case it is occupied by two moveable photographic shops, and large placarded advertisement boards on poles; but the reign of neatness is resumed in Albion-place, immediately opposite, where the bow windows are filled with plate-glass, and there are small forecourts, and the pavement is formed in small squares of composition, making the third variety of pavement up to this point; and Wilberforce-place is as nice, with semi-circular bow windows the whole height of the houses. Brunswick-terrace turns off at a right angle, and leads down to a large square of bow-windowed houses. Aberdeen-walk is opposite, at the corner of which and of the main road is the Bar Congregational Chapel and Schools, in the Early Decorated style. The details of these buildings are spiky, and the tower of the chapel squat, and the rock-faced ashlar, with its tooled margin round every stone, is a caricature upon weather-worn masonry; but, for the rest, the general design and grouping would just pass muster for occupying this important site. Midway down Vernon-place, the next opening from the main road, is an edifice, built in 1828, with a tower at the west end, in a coarse Early English style,—Christ Church. The western door-jambs, doors, and centre pillar, are completely covered with notices, old and new. Side by side with Christ Church is a Mechanics' Hall, with a heavy Grecian stone front, half Ionic, half Doric, and brick sides. The ground-floor is occupied as an upholsterer's shop. As it is so fortunate in one respect as to enjoy an open, airy site, it is so unfortunate in another as to expose the brick sides, which were of course not meant to meet the eye, but which are as visible as the stone front from the road. "Miss Georgiana Eagle's entertainment of magic, mesmerism, electro-biology, and clairvoyance," is announced for "this evening." The main thoroughfare gradually loses its suburban character, and becomes commercial, and has a sprinkling of confectioners, china-shops, and hotels, all enjoying a general new and clean character, till after passing Huntriss-place, it is bedstrid by a new gateway, called Bar-gate, recently built, in the place of an ancient gate,—"Newburgh gate meately good." This seems an error of judgment. If it was found impossible to maintain the ancient gate, we must lament that it was taken down; but there was no necessity to build a new one. These gateways, when venerable, are valuable, and the obstructions they create in the thoroughfare are forgiven for the sake of associations. But to obstruct a thoroughfare leading to the railway terminus of a rapidly increasing town, with an ugly, meaningless gateway, is unpardonable. The passages for the foot passengers are very narrow, and the windows of the shops in them make them, virtually, still narrower, so that it becomes necessary to pass through in single file. Looking through the centre archway, there is a pretty view of Newborough-street, sloping downwards, till a high rock in the distance rises steeply

upwards, and bears the castle on its brow. Within the bar the shops and houses are on an older type. It is observable that the streets running out of the principal one make most vigorous efforts to attract the eye of the passer-by. Nearly every house hangs out its sign or lamp, and "lodgings" are offered in every direction. Newborough-street, the name the same line of thoroughfare assumes within the bar, although a "High-street" of busy shops and hotels, is not behind-hand in a capability to receive lodgers; and the bow windows to the first-floors, overhanging the shops, give a movement to the perspective of the street, that is very pleasing. We do not know a very valid reason why the pretty and useful feature of bow-windows should not be generally adopted in towns.

Not far down, Newborough-street is traversed by King and Queen streets, making a four-cross-road. Here, in the very line of traffic, which has overgrown the proportions of the streets, now stepping out of the way for an omnibus, now stepping out of the way for a carriage, now stepping out of the way of a cart, stand the farmers, in knots and groups, holding, in the oldest of old-fashioned ways, an open-air corn-market. The absence of a covered corn-market was not so much felt when half-a-dozen farmers transacted all the business that was effected, and when the mail-coach, rattling over the stones but once a day, would be no inconvenience; but now that the town and neighbourhood have increased to such a large extent, and the spot on which they stand is the high road to the railway terminus, the sooner the antiquated custom ranks with the mail-coaches, among "the things that were," the better. Leaving the farmers standing in the road, and turning up Queen-street, we pass the surgery of Messrs. Weddell, Cross, & Wright, the Talbot Hotel, the residences of Dr. Cross and Dr. Robertson, the shop of the homoeopathic analytical chemist, and the post-office, conveniently situate at the corner of Queen-street and Market-street, and come in sight of the public Market Hall. This is commendable in intention, as affording a large space in the more crowded old part of the town. The wares exposed for sale are of a miscellaneous character, and the order of the stalls is as heterogeneous. Inconvenience has probably resulted from this chaotic state of things, as a notice is posted up that, "To avoid confusion in the market hall, the public are requested in all cases to keep to the right hand side in walking through the aisles and passages." But no provision has been made for the growth of the town; consequently, the hall is already too small, and many of the stalls are in narrow streets around.

Substantial schools have been built in Friars' entry, of the same character of architecture and masonry as the Bar Church, standing on a bank behind a parapet wall, with iron railings. We were sorry to see a disgusting want of cleanliness in the "closets"—the effect of example on the young is often indelible. In the row of old houses opposite, the ground floors are some steps below the level of the narrow street, and a particularly old and low building at the end of, and over against them, which is apparently a stable, has a dilapidated midden, the liquid contents of which are soaking through a hole in the wall, specially provided for the purpose, into the road. Auboro-street—steep, narrow, old-fashioned, and pebble-paved, with a pebble channel—conducts into the Castle-road. The national schools, lower down this road, at the corner of Granby-place, are worth turning out of the way to see, as they are a very clever adaptation of a small steep site at an awkward angle. They are built one over the other in white and red bricks and stone. But here, too, the privy accommodation is too confined, and not kept with the necessary cleanliness. We are deterred from our intention of viewing the Merchant Seamen's Hospital, 1752, on finding the whole extent of the green in front of it covered with linen hanging out to dry on lines with props. So we pass it, and proceed up the Castle-road until, opposite E. D. Nesfield's brewery, we come upon Wilson's Mariner's Asylum, built A.D. 1836. This is a low elongated stone and red brick building, consisting of a centre, with wings, and having transparent ends: the windows have three mullions, and ogee cusped heads with straight returned labels. There are fourteen separate dwellings, with two rooms in each. Scarborough is particularly fortunate in the possession of these and other similar charitable institutions. In Castle-road, too, stands a Roman Catholic Church with the same rock-faced masonry we have noted in the schools in Friar-entry and the Bar Church. The Early Decorated windows are particularly wiry in appearance in consequence

of the extreme narrowness of the fillet-edge; and a very shallow, shadowless effect is produced by inserting the glass too near the chamfered face. The edifice is still unfinished externally, blocks of stone standing out for possible carvings at some future time; and the tower and spire are in the same promissory condition. The entrance-gates and piers are neat and good, though so low that any one could get over them. Domestic buildings are in course of completion, in subordination to this edifice, that, on account of their close contiguity to the brewery just mentioned, appear doomed to receive the steam from it at the windows. At the corner of Blenheim-terrace, which is a double row of round bow-windowed houses, there is a shabby brick workshop with all the windows broken, which, in its present condition, is an eyesore in the approach to a principal part of the town, into which the other end of the terrace turns—the fine sea frontage known as North Cliff. This is occupied by lines of good houses, beginning with North Cliff House on the one side, and Devonshire House on the other, all of which possess a fine view of the ocean. The cliff at this point declines to the shore in an abrupt precipice; but at the base of it there is a natural plateau, which has been converted into pleasure-gardens. During the construction of the Rock-gardens a spa was discovered which is said to be similar in its quality to the celebrated wells on the south side of the town. There is a gymnasium in one part of the grounds, and a sunken garden in another, with an indifferent fountain in it. Grass grows in the gravel walks, and there is a general air of but scanty encouragement, notwithstanding there is but a penny admittance fee. There is also a circus, in reference to which a bill announced, "The Powells are coming here, so be of good cheer,"—a recommendation the sight-seers might find difficult to carry out nevertheless. Large quantities of algae are lying in the bay on the shore, and the general wild character of the scenery is not to be overcome. This is the recreation ground of the populace, in contradistinction to the fashionable spa on the south side of the castle promontory. On the cliff again we note the indifferent appearance of the edges, as if they had partially slipped down, and were partly composed of shot rubbish, and which, from the insecure protection against accident, are clearly dangerous. Lodgings are let at every house. The streets turning out of this frontage are all formed of bow-windowed houses. Where the cliff is wide enough there begin to be gardens in front of the houses, which then assume distinctive names, as Osborne, Clarendon, Brunswick, and Victoria houses. These are all tall, brick or cemented, and possess the invariable bow-window. The cement houses are generally dirty and shabby-looking, while in those faced with brick a mosaic-like variety is produced by the disposition of the bricks,—the stretchers being red, the headers white. Between these houses and the road down to the bathing shore, stand five shabby tumble-down wooden-box shops for the sale of jet ornaments, toys, and photographs. A board here gives notice, "that as the tide sets strongly round the foot of the castle cliff, all persons are cautioned." In the recess of the bay at the base of the cliffs where the shore is sandy, the bathing-machines are placed for this district. The cliff gradually loses its height, is occupied by the Queen's Hotel, with a plateau-garden in front of it; then by the Queen's-crescent, tall, isolated white houses, and appears likely to be built upon to the last foot. The edge of the cliff, however, should not be dirtied and made offensive with rubbish, as it is in front of the Queen's Hotel.

We must look further for our next.

MR. TITE'S ADDRESS ON CURRENT TOPICS.*

ON a similar occasion to the present, two years ago, you did me the honour to invite me to read an opening address, on the occasion of the inauguration of these apartments as our resting-place. On that occasion I endeavoured to bring before you a general review of the state of architecture at that time in Europe, and of its probable future prospects. The interval is not long, but it is marked with important incidents, whether relating to ourselves or the world of art in general. We have lost a noble and beneficent patron and president; and, on the other hand, some of the incidents and considerations which have occurred relating to art in general, and architecture in particular, are most important. These considerations

induce me to believe that in my new character as president you will allow me this opportunity of suggesting to you such views as occur to me having reference to the past, and such notice of the circumstances which are now occurring as I trust may be interesting and useful to us in our profession.

As to the first, one's mind naturally recurs to the personal or professional losses we have to record. At the close of this paper I propose to refer to the deaths more specifically; and therefore at present I proceed to notice topics of immediate interest; and first, that which assumes the greatest importance at the present moment—the Great Exposition of 1862. In some concluding remarks I made towards the close of last session, I referred to the position allotted in our modern society to our profession; and this appears to be marked, even in reference to the Exposition of 1862.

On the occasion of the first Exposition, as you may remember, the design proposed by a committee of architects for the building was set aside, and a design happily suggested by Sir Joseph Paxton was adopted in its stead. The services of the members of this Institute were, however, but slightly resorted to; and the superintendence of the working details of the building was entrusted to a member of the newly recognized branch of our profession, a civil engineer. On the present occasion, also, the claims of British architects, to co-operate in the design of a building which ought essentially to represent the state of the art amongst us at the present day, have been ignored; and foreigners are thus likely to form their opinions as to the merits of English architects from the production of a military engineer. I do not propose to criticise the designs of either of the Exposition buildings, notwithstanding the numerous lessons of "what to avoid" they both furnish. But, in the name of this Institute, I think it my duty to protest against the official exclusion of architects from the councils of those who assume to represent the taste of the nation in the various branches of art.

Unfortunately it would seem that the public in general participates in the species of disavowal which this exclusion of recognized architects from the councils of the past and future Expositions may be considered to indicate; and the cheers with which vulgar unreasoning abuse of our profession is almost always received ought to inspire us with serious anxiety. I believe, from the bottom of my heart, that the acclamations brought against us as a body are essentially false,—that architects generally are honourable, conscientious men; hard students, earnest thinkers, and bringing to bear upon their professional duties such an amount of varied information, practised skill, educated talent, and high-minded integrity, as would in any other profession ensure a far greater share of wealth and distinctions than we usually attain. Feeling very strongly as I do on this question, it is to me the more painful to observe the existence of an opinion precisely opposed to my own, in those who might be supposed to have known us intimately; as when such men as the present Under Secretary of State for Foreign Affairs did not hesitate to state in Parliament, in the debate on the British Museum, that he advocated the plan proposed by Mr. Oldfield, because it was not prepared by a professional architect, and that the great success of the great reading-room was due to the fact that in that case "the trustees were not trammelled by an architect's opinion, further, when in a crowded House these opinions met with considerable applause. Again, look at Mr. Layard's remarks in the debate on the Foreign Office, in which we are spoken of most disparagingly. And this being so, I am forced to ask myself whether these things can be true. They say that "there can be no smoke without fire," and it behoves us therefore to see that whatever fire may exist to cause the smoke now obscuring our fame, it is our duty to trample it out.

Again, I cannot but regret to observe the almost unanimous recognition of the distinction lately established between the pursuits of engineering and of architecture; because I am convinced that both of them would gain by being studied and practised simultaneously. In former time, and, indeed, until the establishment of the "Corps Royal des Ingénieurs des Ponts et Chaussées," in the middle of last century, no such distinction was admitted. Sir C. Wren and Mansard were both architects and engineers. Perronet called himself "Architecte du Roi." Robert Mylne called himself architect and engineer. Telford began his public career by building a church. It was the development of the canal system which first led to the separation of engineers and architects

* Read before the Royal Institute of British Architects, as elsewhere referred to.

amongst ourselves; and to some extent this may be explained; for the pursuits of the architect lead his studies rather towards the condition of statical than of dynamical forces, whilst the canal and dock engineer has to deal very frequently with the latter. But in the execution of roads, railways, and such works, there are no conditions which ought to be beyond the sphere of an architect's knowledge; and I very strongly suspect that, if architects had been more frequently employed on railway works, our marvellous network of rails would have been constructed at less cost than it actually has involved, and that we should not have heard of so many accidents from "striking centres too soon," or from "the rain washing the mortar out of the arches." It is true that the construction of railways does not afford many opportunities for the exercise of the artistic faculty, the noblest one the architect is called upon to employ. It is a kind of work which requires more of science than of art. But our profession ought above all others to present the union of the art and science; and he is a bad architect, in the true sense of the word, who is incapable of becoming "the best workman" in any of the branches of what I may be allowed to call *statical* construction. I dwell upon this subject because it seems to me that much of the favour with which civil and military engineers are now regarded, and that their employment to the exclusion of architects, in the cases of the Exposition buildings, may be explained by the mistaken opinions which prevail with respect to the pursuits and the abilities of the latter. Not to travel beyond the names I have before noticed, I may be allowed to observe that the engineering works of Mr. Hosking upon the West London Railway may well compare with the architectural achievements of Sir William Cubitt in the first Crystal Palace. Be this as it may, it behoves us at least to render ourselves capable of discharging the ordinary duties of engineers and architects. Hydraulic engineering may require a different mental training, and a course of study of a different character, to that required for building in the open air; but it is absurd to suppose that the man who can build a church could not build a bridge or a viaduct, or that he should be unable to conduct great earth-works or tunnels.

Before leaving the subject of the Exposition buildings, I cannot refrain from saying that the design, given in the *Builder*, of the Florence Exposition, strikes me as containing far more artistic merit, and as presenting a more satisfactory architectural character than the published design of the proposed building of South Kensington; no doubt because in this instance, as in the instance of the construction of the Palais de l'Industrie of Paris, educated architects were consulted. Passing over this part of the subject, however, I am sure that all my hearers will agree with me in the expression of the deep sympathy excited by the first Italian Exposition. These industrial gatherings have assumed, of late years, a deeper moral significance than could possibly have entered into the philosophy of their founders; and they have become the occasions for eliciting the expression of the most recondite forms of national thought and feeling. An Italian Exposition, held in the city of Giotto, Dante, Michelangelo, and the Medici, becomes, therefore, the matter for serious reflection to those who wish that in truth Italy should cease to be "a geographical expression." And we, whether admirers of the Broletti and of the town-halls of the Medieval republics, or of the palazzi, cassine, or churches of the *risorgimento*, must turn an anxious gaze on the first steps of the noble Italian race, in the political *risorgimento* which is at present taking place in that land, so long cursed with what all considered "the fatal gift of beauty." Our sympathies may be of small import to the Italians in the struggle they have still to go through before they can establish a strong nationality, such as the "advanced civilization" of the age requires; but I am sure that an assembly of architects will unanimously join in the expression of good will towards the Italian cause. May the Exposition of Florence prove the harbinger of the full glory of bright days for Italy.

The artistic Congress of Antwerp, too, fussy and unpractical though it may seem to have been, contains the germs of an organization which may, perhaps, produce for art consequences as important as those produced by our "Association for the Advancement of Science" in its particular sphere. In these days of architectural and artistic eclecticism, it would manifestly be advantageous for the student to be able to study, with his own eyes, every local manifestation of æsthetic feeling; for the subtle influences of climate, and political and

municipal organization, can never be appreciated unless we have the means of watching their daily operation; and few learned treatises on the Art History of Nations enable us to appreciate the nature and extent of the action and re-action of building, or of plastic materials, on the visible expression of art. The amount of good to be effected by these gatherings must depend on the manner in which they are conducted. As an isolated experiment, the Antwerp Congress was very successful. It was a marvellous pity that it should remain an isolated experiment.

Whilst thus alluding to foreign operations, it may be as well to continue our attempts to derive lessons from them, before turning to more decidedly local considerations; and I would therefore strive to point the moral of some other tales to be read in the proceedings of our immediate neighbours. Thus, all travellers who return from Paris are, upon a superficial view of what is taking place there, and it must be added in almost every important town of France, disposed to find fault with the comparatively slow rate at which improvements are effected in London. Within ten years Paris has been, in fact, remodelled throughout; and broad streets, open squares, and fine houses, have replaced the ancient, narrow, tortuous assemblages of dens of filth and impurity. It is to be feared, however, that the real sanitary improvement of Paris has gained little by these changes; and, indeed, so long as the water-supply and the sewerage of that town are conducted on the present systems, little effect can be produced on that infallible test of the value of the sanitary arrangements of a town—the *average death-rate*. I advise those who believe that "they manage all these things better in France" than we do here, to visit the "Intake" of the Chailot Water Works; or, to ponder over the charge he will have to pay, even in a private lodging, for that necessity of an Englishman's life, the daily hip-bath. Nor is this all: for they who knew much of Paris life in former times, must be painfully convinced that the embellishments of the town have resolved themselves into heavy charges on its inhabitants; whilst the utility of many of the costly works now in hand must seem more than questionable. House-rents have risen to fabulous heights in Paris: the poor are driven from their old haunts, and no refuge is provided for them; whilst, unfortunately, the sanitary defects of the old houses are severely reproduced in the new ones. But, however painfully these defects may strike us on second and calmer thoughts, it cannot be denied that there is something fairy-like in the rapidity and the brilliance of the change actually produced; and we naturally inquire by what financial agency it has been produced. My friend Mr. G. K. Burnell has made some inquiries into this matter, which I hope that he will be able to communicate to you in the course of the session; but, in the mean time, I may say that the impression I have derived from what he has told me is, that the improvements of Paris have been effected upon principles of political economy, and by dint of an abuse of public credit, which would never be tolerated in this country. We hold that local improvements should be paid for by local contributions, and that building speculations should not be assisted by financial corporations, patronized, if not directly managed, by the Government. The opposite principles prevail amongst our neighbours; and, sooner or later, it is to be feared, that they must produce, even if they are not now producing, confusion in the finances of the State.

One matter of detail may be worth special notice from us, viz., the conditions under which the municipality is now able to obtain land for the purpose of effecting any new works declared to be "*d'utilité publique*." Until 1852 the municipality, under the old law of expropriation, could only take compulsorily the land absolutely required for the establishment of the streets; and the proprietors of the land partially affected were entitled to retain the remainders of their property, with all the increased value conferred by the new frontages. At the very close of the dictatorial power assumed by the Emperor in 1851, a decree "having force of law," was issued however, by which municipal bodies charged with the execution of works of public utility were empowered to take an additional width of land beyond the lines of the intended streets, sufficient to allow the construction of good houses. The effect of this law has been that the municipalities of France have lately been enabled to sell the frontages on the new leading thoroughfares they open at advantageous terms; and thus, at the expense of the landed proprietors disturbed, materially to diminish the cost of the works. If the latter had

been discussed by a really representative body, there could be little reason to regard the advantages thus given with jealousy; but, when the works to be executed are simply prescribed by the Central Government, it is to be feared that great abuses may arise from the interference with the rights of private property it may be made to cover.

The success of the artesian well of Passy is a subject of great interest to all who are called upon to deal with the supply of water to detached mansions, or even to small towns; and to us Englishmen it is the more interesting on account of the recent failures to establish similar wells at Highgate, Harwich, as well as at Calais and at Ostend. The boring at Passy, after passing through the same beds as had previously been traversed at Grenelle, reached the water-bearing stratum at a depth of 1,797 feet 6 inches from the surface, and the water rose to a height of 13 feet from the ground. The lower diameter of the well is about 2 feet 4 inches; and the quantity of water it delivers has, after some oscillations, settled to about 3,791,000 gallons per twenty-four hours. At present, the sand and clay brought up by the water are in such proportions that the water is not fit for use,—a fact which was also observed at Grenelle during the first year after the completion of the boring: the water rises at about 83° Fahr. One effect of this well has been to diminish notably the yield of the Grenelle well; and it must, therefore, for some time to come remain an open question, as to whether or not the water-bearing stratum under Paris will be able permanently to maintain these two springs. The discussion of the failure of the attempts to obtain water in a similar manner, to which I have above referred, would extend to so great a length, that I must pass it over slightly at present; but the greatest lesson to be learnt from it seems to me to be, that at the present day our acquaintance with the laws of geology is only sufficiently advanced to enable us to say with certainty what we shall not find beneath the surface, in districts which have not been exposed to violent subterranean disturbances: they are utterly incapable of telling us what we shall find. At London, Harwich, Calais, and Ostend, the lowest member of the subterranean formations, from which the wells of Passy and Grenelle derive their supply, is entirely wanting.

A very warm and rather an acrimonious discussion is now being waged amongst the chemists and experimental observers on the laws of metallurgy with respect to the differences between iron and steel; and the names of Binks, Mushet, Bessemer, Frémy, and Caron, add weight and authority to the various opinions propounded on this very obscure subject: "*Non nostrum inter eos tantas componere lites*;" and Messrs. Frémy and Caron may well be left to settle the precise amount of influence exercised by the nitrogen, cyanogen, and carbon, present during the cementation of steel upon the resulting product. The influence these researches may exercise upon the building arts may, however, be very great; and the production of steel by the new methods suggested by an improvement in the theory of the production of steel may possibly place within our reach a material possessed of far more valuable elastic properties than either cast or wrought-iron. We must therefore follow, with interest, the steps of this inquiry, and hold ourselves ready to adopt any improvement it may place at our command. I would make the same remark with respect to the recent applications of electricity to the ordinary purposes of life; and I would urge the members of our Institution to avail themselves, whenever it is possible, of the great domestic conveniences that wonderful agent is able to supply. We in England are behind our French neighbours in this respect.

In domestic matters the most important lesson to be derived from the events of the last twelve months is, perhaps, the one connected with the terrible fires in the river-side warehouses. In a city so essentially commercial as London, it must always be desirable to interfere as little as possible with the arrangements or the operations of trade; and we must always bear in mind the fact that every interference of this kind resolves itself ultimately into a tax upon the articles affected. But the terrible effects of a fire when it once bursts out in large stores of merchandise of certain descriptions are such, and are likely to reach so many persons, that it would almost seem necessary to impose some rigorous limitations to the quantity of these goods, or some stringent regulations as to the construction and management of the warehouses wherein they are stored, if these warehouses are to remain in the centre of the town. All systems of so-called fireproof construction are use-

less to resist the effects of the heat evolved during the combustion of large masses of certain kinds of goods; and it even seems that the very precautions taken to ensure the non-combustion of walls, floors, and ceilings, only adds to the intensity of fires in such cases, by turning the buildings as it were into species of closed retorts, able to produce a destructive distillation. The only efficient protections against the spread of large warehouse fires seem to me to consist, first, in limiting the size of the warehouses themselves; and, secondly, in isolating them effectually if the goods they are to hold should be susceptible of easy combustion. Whatever sacrifices these precautions may entail, they ought to be borne for the sake of the public in general.

It may be as well here to mention, that in the course of the spring (9th of April last) the theatre of Barcelona was burnt to the ground; so that warehouses are far from being the only structures exposed to this terrible scourge.

There is reason to congratulate the country at large, as well as the lovers of our national architecture, on the zeal with which the good work of preserving and restoring our cathedrals has been lately carried on. In the metropolis, the Temple Church is again undergoing repairs under the directions of our excellent member, Professor Sydney Smirke;* and Westminster Abbey is in the eminently judicious care of our friend Mr. G. G. Scott. In the provinces, the cathedrals of Ely, Lichfield, Ripon, Chichester, the churches of Waltham Cross, Islip, Taunton, and numerous other relics of former times are being restored; and though, in the case of Chichester, a lamentable accident has occurred, I hope that the efforts to ensure the re-edification of the spire will be successful. In more modern constructions I think we may congratulate ourselves as a body on the improvement which is manifestly taking place in public taste, and on the skill with which the members of our profession have availed themselves of the opportunities afforded them of displaying their knowledge and talent. Art questions are now fortunately discussed on all sides; and a truer, sounder tone of criticism prevails amongst us as a nation than at any former period; and from the fact of our enjoying true liberty of thought and action, I suspect that I may add, than can prevail amongst the despotically-administered nations of the Continent. It is our special duty, as architects, to avail ourselves to the utmost of those advantages; and to devote our best energies to the advancement of our noble art. This can only be done by earnest, conscientious study, by devotion to our pursuit, and by an enlightened investigation of the various physical and moral laws it brings into play. Architecture is, as I have said before, an art as well as a science. Excellence in it cannot be obtained without labour, or without the sacrifice of ease. We must resolve, if we would attain in its ranks to that "Fame," the last infirmity of noble minds, "to scorn delights and live laborious days;" but the "fair guerdon" we hope to find will amply repay us; for art is its own reward, and its cultivation will at all times compensate for the toil and time expended in its pursuit.†

A GREAT COMPENSATION CASE.

The Governors of St. Thomas's Hospital v. The Charing Cross Railway Company.—This case has excited very considerable interest, and some details will be useful.

The arbitrator appointed by the hospital (Mr. Clifton), and the arbitrator appointed by the company (Mr. Alderman Bancroft, of Manchester), having failed to appoint an umpire, the Board of Trade appointed Mr. John Stewart, of Liverpool. The solicitor to the hospital was Mr. Wainwright, of the firm of Clayton, Cookson, & Wainwright, of Lincoln's-inn; and the solicitor of the company was Mr. Henry Toogood, of the firm of Henry & William Toogood, of Parliament-street.

Counsel for the hospital were Mr. Bovill, Q.C., Mr. Karlake, Q.C., and Mr. Field; and for the company, Mr. J. Horatio Lloyd, Mr. Johnson, and Mr. Horace Lloyd.‡

The inquiry was held at the Westminster Palace Hotel. It commenced on Friday, the 25th, and extended to the 26th, 28th, 30th, and 31st ultimo, and the 1st and 2nd instant.

The original claim made by the hospital for 3a. 3 r. 17 p. of land, and the buildings thereon, including consequential injury, &c., was 750,000*l.*

At the opening of the case this was reduced to

* And Mr. St. Aubyn.—Ed. † To be continued.
‡ It is rumoured that Mr. Bovill received 500 guineas with his brief, and 50 guineas a day.

500,000*l.*, classed under three heads; first, the value of the land, containing 3 a. 3 r. 17 p., as building land; secondly, the value of the buildings thereon, as hospital buildings; thirdly, allowance for compulsory sale, consequential damage, costs of removal, &c.

The surveyors called by the hospital were Mr. Tite, M.P., of St. Helen's-place, Bishopsgate; Mr. H. A. Hunt, of Parliament-street; Mr. Marable, of Whitehall-place (late architect to the Metropolitan Board); Mr. Clarke, of the firm of Farebrother, Clarke, & Lye; Mr. Clifton, of St. Helen's-place, Bishopsgate, the arbitrator for the hospital; and Mr. Currey, architect to the hospital.

Mr. Hunt, Mr. Clifton, and Mr. Currey considered that, by utilising the front land, and forming an arcade, ground rents amounting to 10,000*l.* per annum could be realized in four years from the time the land was cleared; and valued the land as building land at 275,000*l.* in round figures. Mr. Tite, Mr. Marable, and Mr. Clark did not speak to details, but, from their general knowledge of such properties, estimated the value of the land, as building land, at from 70,000*l.* to 75,000*l.* per acre.

The surveyors called by the railway company were Mr. Daniel Norton (of the firm of Norton, Hoggart, & Trist); Mr. Shaw, architect of Christ's Hospital; Mr. Charles Lee, of Golden-square; Mr. Oakley (of the firm of Daniel Smith, Son, & Oakley), Waterloo-place; Mr. Rushworth (of the firm of Rushworth & Jarvie), Saville-row; Mr. Snooks (of the firm of Allen, Snooks, & Stock); Mr. Francis Fuller, surveyor to the Brighton Company; and Mr. Edward Ryde, surveyor to this Company, and to the South-Eastern Company.

Mr. Norton and Mr. Shaw considered that ground rents, amounting to 6,500*l.* per annum, might be realized in six years, and valued the same in present money at the sum of 175,500*l.*; Mr. C. Lee's estimate was 161,868*l.*; Mr. Oakley's, 174,616*l.*; Mr. F. Fuller's, 145,150*l.*; Mr. Rushworth's, 142,882*l.*; Mr. Snooks's, 134,704*l.*; Mr. Ryde's, 151,000*l.*

The whole of the surveyors of the hospital claimed, in addition to the value of the land when cleared of buildings, the value of the whole of the buildings as hospital buildings. The amount varied from 100,000*l.* to 110,000*l.*

The surveyors of the company considered that, in addition to the full value of the land as building land, the hospital was entitled to the value of the buildings as old materials only; because the buildings must be cleared away before the land on which they now stand can be used for other building purposes.

Most of the valuations included sums varying from 5,000*l.* to 10,000*l.* as the valuation of these materials. Ten per cent. for compulsory sale was added to the valuation of the land by Mr. Marable, Mr. Tite, Mr. Clifton, Mr. Clark, and Mr. Currey; the latter added also ten per cent. to the valuation of the buildings.

The surveyors of the company considered that, as they had capitalized the ultimate annual value of the ground-rents in ready money, no addition on account of compulsory sale should be made.

The hospital also claimed for the loss of their medical school; the costs they should incur in hiring houses for the patients during the erection of a new hospital; for contingencies, and the extra expense of constructing a hospital, fitted with modern improvements, the sum of 60,000*l.*

On the part of the company it was argued that, the hospital having forced the company to buy the whole of their property, although they only required to put a bridge over a very small corner of a garden, and did not touch a building, they were not liable to pay compulsory price. (Vide the 92nd section of the Lands Clauses Consolidation Act.) But to obviate any possible injury to the hospital patients, the company offered to allow the governors of the hospital undisturbed possession of the whole of the buildings, until they had purchased a new site, rebuilt the hospital, and made it fit to be occupied. The offer was, however, distinctly rejected.

After very able speeches from Mr. Lloyd and Mr. Bovill, each of which occupied four hours, this great claim was left to the decision of Mr. Stewart.

It must be mentioned that, although not called by the learned counsel, we noticed that there were also present, on the part of the company, Mr. Jeremiah Mathews, of Edgbaston House, Birmingham; Mr. Richard Hall, surveyor to the Great Western Company; Mr. T. Marsh Nelson, of Whitehall; and Mr. Habershon, surveyor to the parish of St. Saviour.

ARE WE ONLY A NATION OF SHOPKEEPERS?

ALTHOUGH we have been called a nation of mere shopkeepers, as a matter of reproach; the keeping of a shop and a due attention to business are creditable to any one. In these brief notes, however, we will lay claim to the possession of other qualities besides diligence in business; and endeavour to show that, in a national point of view, we are not behind others in the highest intellectual qualities. In order to prove this, it is only necessary to glance at the names of some of our worthies, who have a world-wide celebrity.

As regards poetry, we can boast of Shakespeare, Milton, Gower, Chaucer, Pope, Scott, Burns, Byron, Landon, Hemans, and many others.

In pictorial art, although it has not been cultivated in England for much more than a century, we have produced Reynolds, Turner, Hogarth, Constable, Wilkie, Gainsborough, and many others, whose works have not been excelled by the artists of any modern foreign school.

In sculpture, the works of Flaxman are unrivalled in these times, for power of imagination and all high qualities of art.

In line engraving, Woollett, Strange, and many more, show a pre-eminence over their contemporaries; nor have the people abroad been able to equal Bewick, Hervey, Thompson, Linton, and other English wood-engravers.

It was in this "shopkeeping" country that the circulation of the blood in the human body was discovered by Harvey; and Jenner discovered that vaccination stayed the terrible plague of the small-pox.

Sir Walter Raleigh, Captain Cooke, Bruce, Franklin, Park, Livingstone, and others, have explored and discovered distant lands.

In philosophy and science a whole host of names might be mentioned, and amongst them Lord Bacon, Sir Isaac Newton, Sir Humphrey Davy, and many more.

As regards architecture, we may point to Westminster Abbey, York and Canterbury Cathedrals, and to St. Paul's Cathedral,—the great and more recent work of Sir Christopher Wren; to Sir Charles Barry's Westminster Palace; and, did we propose to extend our indications to the works of living as well as deceased architects, we could easily enlarge the list.

As regards the invention of steam-vessels, there is some dispute, as the Americans lay claim to the first invention; but we believe that the first vessel propelled by steam-power sailed on the artificial lake in Ayrshire (Robert Burns's country).* However this may be, it is at any rate certain that Watt made useful the power of steam applied to machinery; and it was in England that the Stephenson's perfected the locomotive, and first established the railway system. Here, too, the electric telegraph was realised; and in Pall-mall, the first street gaslights were used.

In all directions the power of machinery is working wonders; and so extensive are the various kinds of industry; so vast are some of our manufacturing factories; that it is difficult to conceive an idea of the immense manufacturing power behind that "shop-keeping" system by means of which we supply the markets of the world with so many of our own commodities.

As regards music, what national melodies can excel or even equal ours? In the more modern, complex, and elaborate compositions, too, since Handel found a home in England, and here produced some of his most famous works, taste for music has been on the increase.

In connection with the public taste for art in painting and sculpture, we may observe that the nation shows high appreciation of such works by the large sums which have been expended in the purchase of paintings and sculpture. Our National Gallery is only in the limited extent; but it has not been so long in the course of formation as some of the picture-galleries abroad; and although not numerous, the works of art are of a high order of excellence. And in no country in the world will there be found such valuable collections of both ancient and modern works of painters, sculptors, and engravers, as are scattered about in the mansions of the English nobility, gentry, merchants, and manufacturers.

To charitable institutions at home we can point with satisfaction. Nor when the occasion requires it are our varied qualities as a nation limited to

* There is a water-colour drawing of this event in the Museum of Patents, at Kensington, by the late Mr. Nasmyth, the father of the inventor of the steam-hammer. The portrait of the poet, in a bright red waistcoat, as we once before noted, may be seen on the deck of the boat.—Ed.

the land. We are the greatest seafarers in the world, both in peaceful occupations and in warlike ones; and in the latter phase of our protean character; such names as Drake, Collingwood, Nelson, Dundonald, Napier, &c., are not unknown on the sea, nor on the continent; neither are those of Marlborough, Wellington, and a host of others of our landmen. In various ways, in distant parts of the earth, our people are spreading civilization. Our ships are in all seas; and, if we look about at the works which are now going forward at home, and at the names of those at present amongst us who are eminent in the various walks of science and art, together with those who have passed away; it is clear that we may claim something more than the mere merit of being the greatest shopkeepers in the world, though that is something also to boast of, *even per se*.

OPENING MEETING OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The opening meeting of the Institute, for the session 1861-2, was held on Monday evening last, at the House, in Conduit-street.

The chair was taken by the president, Mr. Tite, M.P., and there was a very numerous attendance of members.

The minutes of the last meeting having been read and confirmed,

Mr. T. H. Lewis (hon. secretary) read a list of donations, including the fine oil painting by Pannini, of the Ruins of the Colosseum, the bequest of the late Mr. W. L. Donaldson, hon. solicitor to the Institute.

The President, in moving that the thanks of the meeting be given to the donors, called attention to a number of drawings and photographs exhibited on the wall; and which had been forwarded by Mr. Vaughan, the gentleman who had obtained the travelling studentship last year; and which, he observed, indicated not only great perseverance and industry, but also much artistic skill in the treatment. Among the contributions received since the last meeting was the work on Timber Roofs, by Brandon, which referred to a subject of very great interest to the profession. He had also to ask the Institute to receive, as a donation from him, the portraits of two Medieval architects, one of whom had flourished in Switzerland, and the other in France and Germany. It appeared by the inscriptions in German that the originals were carved in wood, about three-quarter full size. One of the effigies had in its hands an enormous compass and yard-measure, and the other had also a huge pair of compasses. The dates were 1440 and 1564; and there could be no doubt whatever of their authenticity. Believing they might be of some interest to the Institute, he had got them drawn and framed; and he hoped that space might be found for them as the representatives of two ancient worthies of the profession.

The vote of thanks having been carried *nem. con.*, The President delivered his inaugural address, which will be found in another place.

At the conclusion,

Professor Donaldson observed that he was sure they were all much pleased and instructed by the observations which the president had made with regard to the events of the past year. With respect to the improvements being carried out in France, he (Professor Donaldson) considered that the French Government was entitled to credit for them, because they were calculated to benefit not only the metropolis, but the cities of Lyons, Marseilles, Bordeaux, and, in fact, all the great centres of industry and population in the north, east, south, and west. He must say that he was not prepared to go entirely with the president in the view which he appeared to take of these improvements in a sanitary and financial sense. With reference to the sanitary part of the question, he had devoted some attention to the subject; and might, therefore, be allowed to express an opinion. The subways in the boulevards were intended to convey the sewage and the gaspipes in a manner described in a recent number of the *Builder*. This was carrying out one of the modern improvements of which we ourselves had talked so much and done so little. That the general salubrity of the atmosphere in Paris was improved by the laying out of new streets must be admitted; because the narrow, tortuous lanes which existed a few years ago had been swept away, and wide open streets had been built on their site. The energy of the French Government contrasted most favourably with the apathy and inertness of our own authorities. Look, for instance, at the block of houses standing in the narrowest part of Holborn, and the

entrance to Chancery-lane, in the same neighbourhood. There was no thoroughfare from Holborn into Lincoln's-Inn-Fields and the Strand, and in many other parts of the metropolis there was no adequate accommodation for the constantly increasing traffic of the metropolis. In fact, the population of London had outgrown its dimensions; and so blocked up were the streets, that every man of business knew that in making his way through the City he could do so quicker on foot than by cab or omnibus. He thought that it was their duty to urge improvements somewhat similar to those now being carried on in Paris on our own Government. Neither did he believe that in course of time the expenditure would not be productive; for M. Le Sueur, who had obtained the gold medal of the Institute last year, had assured him that a return of ten per cent. had been obtained on the capital expended by builders along the new line of streets in Paris. It was said that our own new Cannon-street had cost 500,000*l.*, only, and yet what a length of time was devoted to that work alone. He was aware that objection had been taken to what was called a central management in such matters; but it should be remembered that our own local boards could not cope with great improvements: on the contrary, they opposed everything in the way of comprehensive improvement. He was himself a member of a local board, and consequently knew what the feeling was. These boards were generally composed of persons who were tenants on lease or who had life-interests to deal with; and their constant cry was, "Wait until our time is up, and then you may spend as much money as you like." With boards so constituted it was impossible to expect any large measures of improvement. If, on the contrary, there was one central board, it would set local bodies aside, and deal in a comprehensive spirit for the well-being of the whole metropolis. The improvement of the Thames had also been the subject of discussion for thirty years; and yet it was only now that any practical steps were being taken to carry out the embankment project. The Government, instead of setting an example by inaugurating great architectural reforms in our streets and thoroughfares, would do nothing unless compelled by necessity. Then, again, look at the chief sea-ports of the kingdom—Dover, Portsmouth, Plymouth, and others. Why, they were the dullest and least picturesque places that one could live in; without public monuments, fine highways, or any of the improvements which characterized Continental cities. Antwerp, Havre, Marseilles, were all beautiful cities, embellished with fine architectural monuments; and although the latter was somewhat deficient in salubrity, the emperor had lately given instructions for the construction of large works; for his imperial majesty could not allow local bodies to interfere in such a case. Bordeaux was a very fine city, perhaps as fine as either Edinburgh or Dublin. He must say, however, that it could not be denied but that much had been done at home in the way of improvement within the last twenty or thirty years; and that a sounder public taste was growing up, not only in London, but in Manchester, Birmingham, Liverpool, and Glasgow; which latter city was emulating in its great squares the metropolis itself.

With regard to fire, he quite agreed with the president that some stringent laws should be passed with the view of lessening the chances of buildings being destroyed by accidental or spontaneous combustion. The subject, however, was one of great difficulty, owing to some extent to the circumstance that every possible obstruction was thrown in the way of surveyors anxious to carry out the Act of Parliament. The President had referred, in his list of eminent persons deceased, to the name of Mr. Grainger, of Newcastle, who might certainly be considered the Napoleon III. of that town. In the commencement of his career Mr. Grainger was involved in financial difficulties, and was for some time in obscurity, because the buildings which he erected were of a character to demand high rents in order to give an adequate return for the capital. The consequence was that for many years the property was unproductive, and Mr. Grainger suffered accordingly; but in the end the soundness of his conclusions was abundantly manifested, and he died in the possession of great wealth. In like manner he believed that Paris, like Newcastle, would be greatly benefited by the class of building operations now going on. With regard to Baron Bunsen, to whom the president had also referred, he (Professor Donaldson) had the privilege of being intimate with him for many years, and could speak from personal knowledge of his great abilities and the high estimation in which he held the art. The baron was president of the Archaeological Society at Rome; and among

other publications he printed a paper on the Forum, in which he called attention to the various monuments in that interesting part of the city. With respect to Mr. Clayton, he had published a valuable work on the timber houses of England, the perusal of which would prove useful to all architects. These timber structures were rapidly disappearing; one of the few remaining, if not the last, had lately been taken down at Leominster; so that in a short time Mr. Clayton's work would be the only record of these interesting and time-honoured structures. Referring again to Paris, Professor Donaldson in conclusion stated that he thought great credit was due to the Government there for what had been done; and that it would be better for us to endeavour to imitate the example of the Parisians than to carp at them. We wanted, in fact, the energy which existed in Paris.

The President said that Mr. George Gilbert Scott had promised to read a paper that evening, "On Ancient Architectural Monuments and Remains," a subject to which they were all aware he was in every way competent to do justice; but that he was prevented from attending by reason of the illness of one of his children. Under these circumstances, it was considered by the Council more desirable that the paper should not be read in Mr. Scott's absence, but that it should be postponed until a future evening. With regard to the observations which had fallen from Professor Donaldson, in reply to some reference which he (the President) had made to what was doing in Paris, he wished to state that the exception which he had taken referred rather to the want of care in building houses in which there was no through draught, and which were built back to back, in a manner which, to our ideas, was not considered wholesome. With respect to subways, he quite agreed with Professor Donaldson, that the Parisians were carrying out the system in a very efficient manner. A similar system had lately been adopted by the Metropolitan Board of Works in a short street leading from St. Martin's-lane in the direction of the Strand. Another subway of the same sort would be carried under the new street now in course of construction from the Borough to Stamford-street. The subway was not, however, a French invention. It was of English origin; and it was a pity that it was opposed; for, had it not been so, Cannon-street and all our new streets might have had it. The person who originally proposed it was, singularly enough, neither an architect nor a civil engineer, but a cheeseman, living in Whitechapel. That gentleman was the first to propose the plan to the corporation of the City of London; and the reason, and the sole reason, why it was not adopted, was the very obvious one,—namely, an apprehension that as the gas-pipes were to be carried in the same subway with the sewer, an escape of gas might occur, and houses might, in consequence, be blown up. This objection had, however, since been got over, by adopting a careful and sufficient mode of ventilating the subway. With regard to the cost of the improvements in Paris, it was borne by an *octroi* duty; and to make the collection larger, and at the same time extend the city boundary, the area within, and in which the *octroi* was levied, had been greatly increased. In London, we had no *octroi* duties, and were consequently dependant upon rates, which, no doubt, was a very undesirable way of raising money. Nothing could be more disagreeable to the occupier in London than to be constantly asked for three-pence in the pound for a main-drainage rate, and three-pence in the pound for improvements to be carried out by the Metropolitan Board of Works. Money might be raised easily enough in Paris, but we could not do things in that imperial way in England; neither was it desirable that such a principle of taxation should be introduced here. The question of public expenditure in England was a constitutional one; and by the constitution under which we lived a right was given to us to tax ourselves. If the sovereign were to recommend, and more, spend, 5,000,000*l.* upon metropolitan improvements, he had no doubt that the inhabitants of London would welcome it cheerfully enough, provided the expenditure were charged upon the consolidated fund. He was quite willing to give the Government great credit for what had been done in Paris; but at the same time it should be remembered that everything there was not *coulé de rose*. Ten per cent. might be got by speculating builders; but it should be remembered that when streets were pulled down and new ones laid out, the ground it was that had to be sold, and not the buildings that were to be erected upon it. He had no doubt that as much as ten per cent. had been realised by building speculators in New Cannon-street; but it did not follow that the

building sites paid ten per cent. or anything like it. The powers vested in the Metropolitan Board of Works had been in existence but for a very short time; and in his opinion the commissioners had done a great deal in that time. He believed that the great main drainage scheme would be completed in less than a year and a half, and that we should then once more behold the "silver Thames," of which poets used to write in such rapture. There was, he thought, a gradual and salutary change growing up in the public mind with reference to metropolitan improvements; in fact, a growing inclination in favour of improving our streets. There were occasional instances of a disinclination to tax ourselves for the public good, as evidenced in the case of the parish of St. Pancras: but the feeling was gradually fading away. The worst difficulty to contend with was that involved in private interests; for, whenever a house came down that one never wished to see up again, the greatest energy was exhibited in rebuilding it on the same objectionable site. In connection with this subject he might say that there was a monstrous defect in the law; for if the Commissioners of Sewers wanted to buy a piece of a house they could not do so without buying the goodwill of the occupier. The owner then had the right of pre-emption, and so many questions had to be raised that it was not an uncommon circumstance to impound half a dozen juries before the question of compensation could be adjusted. All this of course led to enormous expense, and great delay in first acquiring and then removing obstacles to public improvement. It was difficult to remove these causes of complaint at once, but the public were alive to them; and although it was undesirable to introduce the French system in England, there could be no doubt that they would be removed in the course of time. He admitted that a good deal had been done in London, but a good deal still remained to be done. We had lately legislated on the subject of improving the supply of water to the metropolis. The water was now taken from more distant sources and purer springs; and he believed that the water now supplied to London was the purest that it was possible to obtain. But there was nothing of the kind in Paris: the cost of the water there was enormous: the quality was very bad; and in some cases it was below the intersecting sewer; and he believed they actually pumped into their reservoir that which the sewer poured out. He was glad, however, that the remarks which he had made had elicited discussion, and he hoped they would elicit more. With regard to architectural works in general, he hoped they would stand up for themselves and their order. It was, he regretted to say, too much the fashion to sneer and snub the profession of the architect; but, for his own part, he thought the architect was quite as skilful and quite as honest as the civil engineer; for, as he had already observed, it was absurd to say that the man who could build a Gothic church could not construct a viaduct or a railway. He felt compelled to speak rather warmly upon this subject, because he had been present in the House of Commons, when he heard an honourable member rise and express the gratification he felt that a great building was to be erected without the intervention of a professional architect. "Oh! whatever you do," said he, "don't employ an architect." He (Mr. Tite) ventured on that occasion to say that he believed their friend, Mr. Sydney Smirke, had something to do with the new reading-room in the British Museum. Mr. Panizzi, the librarian, might have suggested the idea, but the credit of conducting the work was due to the eminent architect of the building in chief.

Mr. P. Prad'homme then explained the nature of his system of electric bell telegraphs as supplied to the Imperial Palace, and several public and private institutions in Paris, which he stated were intended to take the place of ordinary bells. He stated that they could reach any distance, could be fixed without injury to walls or ornaments, and might be relied upon as to accuracy. They had also the advantage of being simple in their mode of working, and inexpensive in construction.

The President announced that the consideration of the subject of Architectural Examination would be resumed on Monday next; and that on the succeeding Monday (the 18th inst.) Mr. James Ferguson would read a paper "On the Mode in which Light was introduced into Greek Temples."

IRONMONGERS' PRICES.—Mr. John Eldridge has printed as a pamphlet "The Ironmonger's Cost Price-Book," and "A Hardware Directory." The Price-Book shows the maker's discount.

HOUSE-WARMING AND COOKERY.

A GREAT change and improvement are needed in the construction of grates and ranges. An immense saving might thus be effected. The Committee on Sanitary Appliances for the International Exhibition have had the subject under consideration, and are most anxious to direct attention to it. Arrangements are being talked of with Mr. Pepper, of the Polytechnic Institution, for testing there any grates or ranges which exhibitors may choose to send; Mr. Pepper undertaking to see that the trials are conducted in the most careful and impartial manner. It has been proposed that exhibitors should be allowed to have their stoves and apparatus fed by their own men; the fuel being weighed by the officers of the Institution; and that visitors of the Polytechnic should be allowed to witness the experiments, and the exhibitors invited to control, by their presence, the testing of the grates and ranges of their competitors.

It has been proved by experience that the amount of fuel consumed for domestic purposes is greatly in excess of what is required either for cooking or warming; while in public establishments—such as barracks, workhouses, &c.—the fuel wasted amounts to a large item of the current expenditure. The amount of this waste may be estimated from the facts recently published in a War-office Report, which show that the amount of fuel per head required for cooking, in different large establishments examined, varies from 7 lb. per diem, to 6 lb., 4 lb., 3 lb., 2 lb., 1 lb.; the quantity diminishing with improved cooking ranges down to half a pound per head per diem, a quarter of a pound, and in one striking instance down to less than an ounce per head per diem. Similar differences are found to exist in domestic cooking ranges, leading to considerable pecuniary loss among all classes of society, but more particularly among the poor, who are often obliged to suffer serious privations from want of fuel during the winter, although the total amount consumed during the year may have been much more than requisite for all domestic purposes.

The waste is, no doubt, partly due to the extravagant use of fuel; but the Government inquiry alluded to has demonstrated that cooking ranges are frequently constructed on principles so erroneous as to render any economical use of fuel almost if not altogether impossible.

At the suggestion of Mr. Chadwick, Dr. Sutherland has drawn up some suggestions to guide inquiry. We take those which relate to

COOKING APPARATUS.

"1. It is suggested that the apparatus sent for exhibition should be divided into the following classes:—

- (a.) Cooking apparatus for—
- (α.) The cottage.
- (β.) The house.
- (γ.) The mansion.

The contrivances of class α should be capable of cooking the ordinary food of the working classes, heating the cottage, and affording heat for the customary processes of baking, washing, ironing, &c.

The contrivances of class β should be adopted simply for kitchen purposes among the middle classes, and should be capable of cooking for from four to six or eight persons.

The contrivances of class γ should be capable of being used for the various processes of the *cuisines* among the richer classes, such as roasting, baking, boiling, stewing, steaming, in short, preparing a dinner for twelve or more persons.

2. The cooking apparatus of each class should be capable of doing their work with a minimum quantity of fuel, and the apparatus used simply as kitchen-ranges should not overheat the kitchen.

3. The following are suggested as the points to be kept in view during the preliminary trials:—

1. The time required to raise the temperature of the oven to 260° Fahr.

2. The quantity of coal required to raise it to that temperature, and to keep it at the same temperature for two hours, without raising the temperature above 260° Fahr.

3. How long it takes to raise the temperature of water to 212° Fahr. in the boiler of each class of apparatus, namely, one gallon in the cottage stove, four gallons in the house stove, eight gallons in the mansion stove. In each case the nature and quality of fuel employed should be stated.

4. The heat of the oven fire should be tested, by placing before it a board 5 feet square, lined with tin-plate, having a small hole in the centre, through which the radiant heat of the fire passes, to fall on a bright bulb thermometer placed be-

hind the board. This board to be placed 5 feet from the fire, and the temperature noted.

5. When steam is used for cooking, the test to be used should be the pressure exerted through a 1-inch tube, at a distance of 9 feet from the fire, noting the quantity and quality of the coals used, the time required to obtain the pressure, and the amount of fuel necessary for keeping it up for two hours.

6. If there be a circulating hot-water cistern for baths, &c., the quantity and quality of the coal and the time required to raise twenty gallons of water to a temperature of 212° Fahr. should be noted.

7. All cooking apparatus intended for competitive trial should be, as far as practicable, submitted by their inventors or exhibitors to the preliminary trials mentioned above; the results certified.

8. Various forms of cooking utensils which may be intended for competitive trial should be submitted to such preliminary tests as their inventors consider necessary, and the results certified, together with a statement of the advantages possessed by such utensils."

LYONS: SOME HISTORICAL NOTES.

"C'est un grand cas de voir le Mont Pelion,
Mais qui ne voit la ville de Lyon
Aucun plaisir à ses yeux n'octroye."

Clément Marot, 5ème épitre.

A FRENCH work, "L'Eglise de Lyon," by Mr. Cl. de Faye, contains many interesting details of this city. Here are a few.

The Emperor Augustus Caesar lived at Lyons, and embellished it. A temple was built in honour of him at the confluence of the Rhone and Saône. He was ranked as a god. Money was coined, and historians assert that the ground produced gold and silver.

Claudius Caesar was born at Lyons. He conferred on it the rights of a Roman colony,—that is, he gave it an organization of laws similar to those of Rome. He pronounced a discourse, which was graven on two tables of bronze, which were found in a vineyard near St. Sebastian, in 1520. These tables are to be seen in the Lyons Museum.

Herod Antipas, mentioned in the Bible, was exiled to Lyons. There, some say, he died. Caligula instituted games worthy of him. There were literary tournaments, combats of eloquence in Greek or Latin, followed by a terrible judgment for the loser. He was obliged to crown the winner, and to sing his praises; and the unfortunate had yet to efface his own compositions with his tongue, in default of which, he was to be whipped, or thrown into the Rhone. In 59 A.D. the city was burnt. Nero, the emperor, sent, according to one, 1,050,000 livres to rebuild it.

About a century afterwards, the Forum of Trajan was built (Forum vetus, whence *Fourvières*?), and a temple to Antoninus, as remembrance of the benefits derived from this emperor. From a few inscriptions in the Church of St. Jean, it is supposed that with the remains of the heathen temple that Christian church was built.

In 152, Pothin, a disciple of Polycarp, came to Lyons. He was a Greek; and, owing to Greek being known in Lyons, he was able to teach in his native language.

Eight years after his arrival, Pothin was, no doubt, a witness of the great heathen sacrifice to the mother of the gods for the health of the Emperor Antoninus Pius, and for the prosperity of the colony. The altar on which the bull was sacrificed is in the Lyons Museum. It was discovered in 1704, on the hill of Fourvières. Religious persecutions then raged.

Bandolph afterwards arrived at Lyons, and established himself in a crypt at the confluence of the Rhone and Saône; and this erection was dedicated to Pothin, &c. With the remains of Augustus's temple, Bandolph built a house, which became afterwards the noted Abbey of Ainay, of which he was, it is said, the first abbot. The most famous crypt of our days in Lyons is that, says M. de Faye, under the Church of St. Irenæus. With respect to Ainay, some say it is derived from Athanasios; others, Esnay—an old word.

"Recluseries" were established in the fifth century by Eucher, bishop of Lyons. These hermitages were composed of a chapel and an adjoining cell of 10 feet square. In this abode persons of either sex devoted themselves to the most austere penance. These places had three windows; one for food, another for air, and a third by which the hermit heard Mass and received alms. There were in Lyons more than ten recluseries for men, and four for women. The principal were those of St. Irenæus, St. Bartholomew, St. Clair, and

St. Sebastian. Councils determined the size of the cells and of the windows. The reclus was admitted after a trial of four years. The bishop, accompanied by his clergy, conducted him to his cell, and ordered the gate to be walled in, and then the prelate put his seal on it.

A.D. 430 there was born at Lyons a celebrated man named Sidonius. He was the *littérateur* of his time,—a poet and philosopher, bishop of Clermont, and a warrior! He died in 489. "He is, for us of Gaul," says Charles Nodier, "the Cesar and the Tacitus of the Middle Ages." Bishop Patiens, having built a magnificent temple, which was destroyed by the Arabs, Sidonius thus describes it:—

"Its front faces the East. The sun is attracted by the resplendent ceilings, and reflects on the yellow metal his golden beams. Marble of various kinds adorned the vault, and the windows, and the pavement; and under the painted figures a green 'printanier' makes sapphires to shine on green glasses. Superb marble columns of Aquitaine support a triple portico, which forms the entrance to the temple."

In 548, at Lyons, was founded the celebrated Hôtel-Dieu, which was a hospital for the sick and the numerous pilgrims who traversed the town. In 1819 two statues, one of Childbert, and Queen Ultrogotte, who both lived at the time of its erection, decorated the façade of the Hôtel-Dieu.

Even in these early times we read, in 580, of the inundation of the Rhone. It chased the people to the heights of Fourvrières and St. Sebastian. Three years after (583) there was a council held at Lyons: it ordained that in each town there was to be a separate lodging for lepers, who were to be dressed and nourished at the expense of the Church.

Lyons was taken by the Arabs or Saracens. They destroyed (as said) the Church of Patiens: the Abbey of Ainay was devastated; that of Ile-Barbe ruined, and all the fine edifices destroyed. These invasions did injury to the kingdom, and filled the monasteries with men, women, and slaves. Times were such as to have a "lady" bishop! Archbishop Ledrardus repaired these churches in Charlemagne's reign; and we read that the Jews were persecuted and robbed, and that the Abbey of Ainay received some of the spoil. A distinguished geometrician, philosopher, and archbishop, named Halinard, when he died, divided his property between the Abbey of Ainay and the Church of St. Stephen.

Humbert I. was an archbishop of Lyons. He was deposed in 1076. He constructed, it is said, the Pont-de-Pierre, on the Saône, and acquired the right of coining money. In the exercise was found, "*Lugdunum prima sedes Galliarum*." "*Lugdunum*" was the Celtic name of Lyons, says De Fay. There are some inscriptions to be found still on this bridge which authorize one to think that the materials that served for its construction were Roman remains.

Our Anselm, of William II. memory, lived three months in Lyons, and presided at the council of Anse, near Lyons, in 1100. The town library of Lyons possesses in manuscript some works of Anselm.

At Lyons, according to Michelet, there were religious fêtes. The *Fête des Merveilles* was celebrated in the tenth and eleventh, and twelfth centuries. The monks of Ainay, and others, with priests, &c., embarked in boats, ornamented with leaves, little flags, torches, and rich draperies. They went down the Saône chanting. Another vessel followed bearing hundreds of individuals. Arrived at the Pont-de-Pierre, a bull was precipitated from the bridge, with observations on its struggles, these being regarded as presages. When the bull was taken up, he was strangled in a narrow street, which still is found—"Rue Ecorche-Bœuf"—the street of the bull-strangling. His flesh was then distributed. This fête ceased at the end of the fourteenth century.

In 1301 the Augustinian Friars fixed themselves in Lyons, on the right bank of the Saône. They built a house in the Faubourg of Chenevrières, the site having been presented to them. Some Carmelites came next.

Philip (Le Bel), king of France, imprisoned twenty-three cardinals in the convent of the "Jacobins," or Black-Friars, till they had nominated a pope: this was in 1316.

In August, 1331, the illustrations Petrarch visited Lyons. He had quitted Cologne, and was going to Rome. He stopped at Lyons, and wrote his 153rd sonnet. Here is a translated line:—

"Du secul hospitalier, où je viens de m'asseoir," &c.

Lyons, in the Middle Ages, had narrow streets, which were badly lighted by day, and imprac-

ticable by night without torches. Science and arts did not flourish, and public morals were low.

In 1350, the Abbot of Ainay visited the Monastery of St. Barbe, to inquire concerning the prior's life.

In 1529, famine and revolt reigned in Lyons. The mob pillaged the Monastery of Ile-Barbe, and took afterwards Lyons.

Sir Thomas More's "Utopia" was translated in 1559, by a martyr of Lyons, named B. Aneau. In 1548, Henry II. of France visited Lyons. He lodged at the Abbey of Ainay, where his wife, Catherine de Medicis, awaited him. In 1556, the architect, Delorme, restored the "portal" of St. Nizier's basilica. He built many fine houses. No. 8, Rue Juiverie, in Lyons, is by Delorme. The daughter of Edward Young, author of "Night Thoughts," died at Lyons, in 1736, and her tomb is in the garden of the Hôtel-Dieu, called "Pharmacie."

MERSEY DOCKS AND HARBOUR BOARD, LIVERPOOL.

MR. LISTER, civil engineer, has been appointed resident engineer to the Liverpool and Birkenhead Dock and Harbour Works. There were sixty-seven applicants. Twelve were selected to meet the Board at the Dock-office, Liverpool. Amongst the twelve so selected were the names of Mr. R. Rawlinson, Mr. Robinson, Mr. Neill (of the Swansea Docks), and Mr. Giles (of the Southampton Docks). Mr. Lister has been engaged at the harbour works, Guernsey, under Messrs. Walker & Burges.

The dock works now in progress at Birkenhead are on a gigantic scale, and in very difficult ground. We have heard the remark that the great low-water entrance and locks are in the wrong place, on the *silt*, and cannot be completed and maintained; so also that these works should have been formed on the Birkenhead or "Moorpath Dock" side, and on the north reserve, or Scaunbe side, where rock foundations could be secured. The young engineer just appointed will have all his energies taxed to carry through these works.

AGRICULTURAL HALL, ISLINGTON.

The first stone of this building, to which we have before referred, was laid on Tuesday, the 5th, by Lord Berners. The building will be composed chiefly of brick, iron, and glass. The principal front will be in Liverpool-road, and its most striking features will be two towers, one on either side, each 95 feet in height. The space between will be partially occupied by the spring of the roof, the arch being filled in with wrought-iron foliage and glass. On one side of the main entrance there will be a police-office, and a parcel and cloak room; on the other side there will be an inquiry-office, a post-office, and a telegraph-office. The body of the building will be fitted up for the exhibition of cattle. A space of 384 feet in length and 217 feet in width will be covered by an arched roof of iron and glass, and will be surrounded by a gallery 36 feet in breadth, supported by iron columns 24 feet apart. The span of the roof will be 130 feet. Behind the cattle-show there will be a place for the exhibition of pigs. This division will be 100 feet square, and will have a ridge-and-furrow roof of wrought iron. In addition to the glass in the roof, the walls will be pierced by numerous windows. The plans also include first and second class refreshment-rooms. The entire length of the building will be 500 feet; breadth, 220 feet; superficial area, 110,000 feet.

The tenders for the building we have already given.

We must repeat the expression of our hope that the directors will not fail to arrange for a good entrance to the hall from the Upper-street, Islington. The importance of this cannot be over-rated.

ARDINGLY CHURCH, SUSSEX.

"ARDINGLY CHURCH," says Murray's "Sussex," "has some good decorated portions, comprising an oaken screen." Looking into the church the other day, we found the good decorated portions—very good decorated portions,—but no screen was visible. Making inquiries and obtaining a key, in two senses of the expression, we mounted the ladders in the tower leading to the loft, and there, stacked against the wall for the most part, though some pretty bits are lying about separately, rests the screen, divided into five portions, waiting till it is sufficiently rotten to fall to pieces. One who knew, said it had been there fourteen or fifteen years, so that the writer of "Sussex" must have adopted some existing description of the

church, instead of looking at the building for himself. He did the same thing when he said Wakehurst Place, in 1858, was occupied by "Sir Alexander Cockburn," who had left it long previously; and described Lindfield church at the same date, as having on the wall a mural painting of the Decorated period (St. Michael Weighing Souls), which had been whitewashed over eight years before. A writer in the current number of *Notes and Queries*, "A. A.," at "Poets' Corner," (we all know him), inquires whether it was not the fear of plague which first induced people to whitewash the churches? If it were so (we don't think it), the fear of one plague certainly led to another. The walls of Ardingly Church are fortunately not whitewashed, but, as an obliging correspondent pointed out recently, have an agreeable tint, a warm stone-colour, not unlike that of the Sussex stone when first quarried. It may be as well to say that the colour in this case is not applied, but is that of the plaster used. Some of the windows, fourteenth century, are very good in design, especially the small window at the east end of the south aisle, which, seen externally, is remarkably elegant. There is a canopied niche or tomb, on the north side of the chancel, (and now containing a sculptured effigy), which is remarkable as having on the faces of the buttresses, at each end, representations, rudely sculptured, of the various traceries windows in the church. Rubbers will find some good brasses here, particularly one commemorative of a Wakehurst and his wife, 1464, on a perpendicular altar-tomb in the chancel, adjoining the canopied niche. The stair-turret to the roof which was formerly on the screen, now in the loft, still remains.

A CHAPTER FOR THE HISTORY OF COMPETITIONS AND TENDERS.

BELIEVING that the name of the designer of St. Andrew's Church, Edinburgh, is not generally known; and deeming that the accompanying extract will be new to all your readers, and that it is a very interesting notice of the state of the profession at the period; I beg to suggest its reprint in your journal.

W. P.

"An advertisement, dated, Edinburgh, December 20, 1790, by order the Right Hon. the Lord Provost, and Magistrates of Edinburgh, appeared in the papers; viz.—'The Magistrates and Council, having resolved to build a church in George's-street, in the extended royalty, request that architects may, belated and the 8th January next, give in to the clerks, at the Council Chamber, Plans (sealed up and directed thus, 'church plans') of a Church, of about 70 or 80 feet in front, by 60 or 80 feet in depth, with an arrangement of seats and galleries for about 1,500 persons; the front to be somewhat similar to that of the Physicians' Hall, with the addition of a spire above the portico; this church to have three doors; viz.—one in the front, and one in each end. The plan approved of will be entitled to ten guineas of premium.'"

This premium was, by the Lord Provost, Magistrates, and Council, unanimously adjudged to Capt. Fraser, chief engineer for Scotland, for an elegant plan of an elliptic church; which is the plan adopted. The captain declined accepting the premium, desiring it might be given to Mr. Robert Kay, drawing-master, in Edinburgh, whose drawings and sections of a plan of a square church were thought highly meritorious.

Another advertisement, dated Edinburgh, February 9, 1791, by the Lord Provost, Magistrates, and Council, appeared in the papers; of which what relates to the church follows, viz.—

"Whereas a church is immediately to be built in George-street, in the extended royalty, the artificers that may hereafter be employed for the following parts of that work, are requested to lodge their estimates with James Tait, at the Council Chamber, on or before Monday, the 19th instant; viz.—

Estimates for the church, of about 33 rods rubble, 2 feet thick, oval form.

35 ditto, ditto, square work.

2,600 feet, dove and striped ashler, oval form.

650 ditto, brotched steps, and platts of stairs.

1,100 ditto, polished modillion cornice on portico.

1,000 ditto, plain polished mouldings.

1,500 ditto, dove cornice, oval form.

2,400 ditto, plain polished work in ashler, pilasters, &c.

750 ditto, brotched pavement.

2,000 ditto, plain dove work, oval form.

250 ditto, ditto, square form.

1,150 ditto, brotched work, long stones in the upper beds of cornice.

Four columns, 28 feet 4 inches high, including capitals and base, diameter 2 feet 10 inches. Eight pilasters.

The whole of the columns, mouldings, steps, and platts of stairs to be of Craigleith stone; the ashler Redhall stones, of 1 foot broad in the bed, and a header quite through the wall, introduced at every fifth stone; the rubble to be good durable stone, and to run at intervals with hot lime, the walls, for 3 feet above the foundation, to be 34 feet thick, and all above that 3 feet. The plan to be seen at the Council Chamber."

The foundation-stone was laid on Wednesday, March 21, by the Lord Provost, &c., accompanied by the Ministers. In the stone were deposited the coins of the present king, and a plate, thus inscribed:—

"The foundation-stone of St. Andrew's Church, the first erected in the extended royalty," was laid on the 21st day of March, in the year 1791, by

(Here follow the names of the Lord Provost, Bailies, Dean of Guild, Treasurer of the city, and Andrew Fraser, Chief Engineer for Scotland, Architect; William Pirnie, mason.)

The carpenter's work is not given. "The Scots Magazine," vol. xliii., pp. 119-20, for 1781.

A MANUAL OF ILLUMINATION.*



ples of which we are enabled to give. The S is from a twelfth century MS. in the British Mu-

* "A Manual of Illumination, on Paper and Vellum." By J. W. Bradley, B.A., and T. G. Goodwin, B.A. 8th Edition. With practical notes, and entirely new illustrations on wood, by J. J. Laing. London: Winsor & Newton, Rathbone-place.

GREAT demand for works on the art of illumination still continues; and Messrs. Winsor & Newton meet it by placing the manual they had previously published in the hands of Mr. J. J. Laing, for the preparation of a new edition. That gentleman has executed his task very ably, and has greatly increased the value of the manual. Our readers are not unacquainted with Mr. Laing's careful pencil, and he has employed it in producing a number of excellent specimens of initial letters and borders, exam-

seum (Addl. 14,790). The letter A, at the commencement of this notice, is from a fragment of a French folio choir-book. B is from a MS. Bible, in the Advocate's Library, Edinburgh. The story is that of David and Goliath, often adopted by the illuminators. Both these letters are late thirteenth century work. The G (English Flower type), of the fourteenth century, is from M. I.—E. IX., in the British Museum. Of later schools, the Manual says:—

"Then gaudy and lavish colour with every artifice of fascination was used to atone for the graceful, fanciful design, and solemn earnestness of expression and richness of colour of the previous periods, when it was the aim to enhance and glorify the text as the true end of the art of illumination, instead of, as in these later centuries, striving at producing *picture* books more than *text* books—the artists seeking display of their own powers, thus losing sight of their mission. Then began that great change which took place in architecture, in glass-painting and illumination, each from their close connection reacting on the other, and from this and other causes leading to decline."

The Editor's view of the course which should be pursued in reviving the art of illumination is shown in the following note:—

"In regard to this, it may be mentioned as most important that this should be a *true revival*. Much injury has been done by charlatanism having undertaken to teach the art, and by the production of examples after no ancient manner, unless it be from the worst periods. In reviving an art, we must go back to the point at which it began to fall; and must humble ourselves to copy first, to become acquainted with its elements, before we can design well, as the artists in architecture, glass-painting and illumination of one period did from those of the former, as any one may trace; and by this obedience improved step by step, until the fourteenth century. But in the fifteenth century, they stopped this succession of obedience, and reversed the former ways in colours and everything possible for attempts at originality: then, art decayed and fell. There are great laws of successive obedience in nature tending to gradual developments of perfection, that cannot be infringed without hurt; and why not in art that has been a necessary part of man's existence in all ages, and held on progressing most truly in every branch to the fourteenth century? M. Paul Durand, one of the most learned antiquaries and artists of France, who has travelled repeatedly in European and Eastern countries, for close study of art, traces a gradual connecting progress from the Egyptian artists down to the end of the thirteenth century."

It is to be regretted that the present otherwise excellent edition of the "Manual" contains no

examples of colouring to illustrate the teaching in that respect which is given. To use the words of the "Manual"—"Twenty good colour studies patiently copied, are worth all the formulas in the world." We can cordially recommend it, nevertheless.

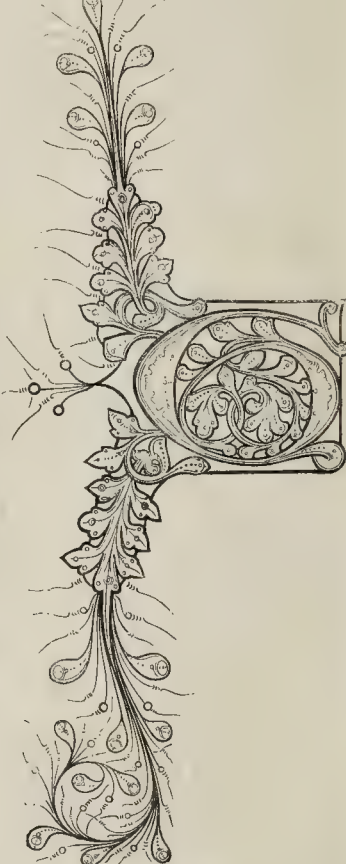
NEW CHAPEL, WELLINGTON COLLEGE.

A PORTION of one of the wings to the main building of the Wellington College has hitherto been allotted for the purposes of Divine worship; but it having been determined to erect a separate building, Mr. Scott was applied to for the design, which is now being carried out; the Prince Consort having laid the foundation-stone in July last. It will be perceived from our illustration that the style adopted differs from that of the College itself; and yet it is so designed as to group well with it in all directions. It is connected with the general mass by a Gothic arcade of coupled columns, and by a corridor, in continuation, attached to the college itself, and in character with it. These are intercepted by a boldly-designed archway across a transverse road, and harmonising with the first-mentioned arcade.

The chapel is a simple parallelogram, with a semicircular east end. It is divided by massive buttresses into five bays, corresponding with the divisions of the roof, which consists of polygonal rafters, with curved principals springing out of corbel-shafts attached to the wall. The construction of the trusses which support the *flèche* is of a different and more elaborate description. The total height to the summit of the latter, measured from the ground, will be about 100 feet; and to the top of the parapet in general 30 feet. The length of the building, internally, exclusive of the apse, is 68 feet; and its width 20 feet. A low vestry is added on the north side, and another, for choristers, at the west end. The walls are of brick, with Bath-stone dressings; and the roofs will be covered with slate. The contractor for the works is Mr. Myers, of Lambeth.*

* For a plan, particulars, and view of Wellington College, see our vol. xiv., pp. 83—87.

INITIAL LETTERS.



NEW CHAPEL, WELLINGTON COLLEGE, SANDHURST, BERKS.—MR. G. G. SCOTT, R.A., ARCHITECT.



SCHOOLS OF ART.

The Coventry School.—The seventeenth annual meeting of this school has just been held; Lord Leigh in the chair. St. Mary's Hall was crowded. The report stated that the school had passed through a difficult year with an average amount of success. The number of students entered on the books during the past year was 337, against 363 in 1859-60, and 353 in 1858-9. These figures show a decrease, in number, of 28 students, and may in some measure have been caused by the badness of trade. The fees received from the pupils in the central school have, however, decreased in still greater proportion, a circumstance to be deplored, as it is from this source mainly that the masters of the Schools of Art must in future look for their remuneration. The accounts still exhibit a large balance against the school. The adverse balance of about 302, mentioned in the last report, still remains. "Under the auspices of Lord Leigh," the president, continued the report, "a new feature has this year been introduced into the ribbon trade. An exhibition of ribbons and designs took place in September last, to compete for the gold and silver medals offered by the president. This exhibition showed in the clearest way the practical value of the School of Art to the ribbon trade. The character of the ribbons and designs exhibited far surpassed any former efforts. The exhibition was so complete a success that it may almost be looked upon as the first step towards the removal of that feeling of prejudice against Coventry ribbons which has so long existed to the detriment of our trade. With regard to the progress made towards the erection of the new schools, the building committee have to report that the whole of the preliminary steps are completed, the plans having been sealed by the Committee of Council on Education, and a tender of Mr. Maul's for the building, amounting to £2,135*l.*, accepted. The whole estimate, including all extras, is as follows:—

Site.....	£124 0 0
Building and architect's commission.....	2,000 0 0
Fixtures, heating, gas, &c.....	500 0 0
Provision for sundries.....	76 0 0
	£2,300 0 0

It therefore only remains to collect the necessary subscriptions. The amount now stands at above £2,000*l.* It is proposed to commence the building when the amount reaches £3,000*l.* It was announced at the meeting that as soon as the £3,000*l.* were made up, Mr. Samuel Carter, jun., Solicitor to the London and North-Western Railway Co., and a native of Coventry, will contribute 500*l.* for behoof of the school. We hope, therefore, that this will stir up those interested in the Coventry trade, and in its School of Art, to adopt the conditional means of realizing so handsome an addition to the funds of the school.

The Taunton School.—The fifth annual meeting of this school took place at the Rooms, Bath-place, on Thursday before last. There was a very large assemblage of the friends and pupils. Mr. A. Mills, M.P., presided. The report stated that the school during the past year had fully sustained its previous character for efficiency and usefulness. The number of pupils, morning and evening, receiving instruction in the school, is about 150. To this is to be added 430 (including 230 in Wellington) of the children of the working classes, who in the public schools receive from this Institution instruction and training in elementary drawing. The number of medals awarded by the inspector is 22. Mr. W. A. Sanford, in moving the adoption of the report, said there was one passage in it which particularly struck him, and of which he heartily approved. It was the recommendation that the employers of skilled labour should send their apprentices to this school to be educated in art. A singular instance occurred to him a very short time ago. He was then staying in a town of considerable size, and he sent to a leading cabinetmaker for an Ionic column; a design and a scale drawing being furnished him. He certainly made something; but there was not one single proportion in that column correct; many of the proportions being as much as one-half out. This showed the necessity there was for people knowing what a drawing meant; and one could not know what a drawing meant unless he could draw somewhat himself. He was extremely sorry that a large number of artisans did not make use of that school. As an instance of perseverance of one of that class he mentioned the case of a young man who had come into town from a considerable distance in order to attend the classes given there, and had at last raised himself to the position of pupil teacher; and he

hoped to hear, in a short time, that, instead of the designation of "artisan," he had earned for himself the glorious title of artist. The chairman, in his address, alluded to the art competition with France. It is peculiarly interesting, he remarked, to consider, as we are now within a few months of the opening of the Great Exhibition in London; what progress we have been making since 1851. Reports have been sent to us of the Exhibition in Paris, in 1855, especially with respect to that department in which Taunton has acquired some renown. From these reports it appears that there were in 1847 not more than 8,000 persons employed in Paris in the different departments of cabinet work; while, in 1851, there were about 10,000; and in 1855 there were from 25,000 to 30,000 men, thus showing an enormous increase in the short period of four years. I do not mean to say that a numerical increase of those employed in that particular trade by itself shows that a great advance has been made; but when it is coupled with the fact that they are now receiving very high wages, and that they are chiefly employed at ornamental work; and when we remember what magnificent works were produced by France at the Exhibitions of London and Paris in this department of cabinetwork, it shows how necessary it is to keep wide awake in order to maintain your fair place in the race of competition.

PROVINCIAL NEWS.

Oxford.—The foundation-stone of the new Corn-Exchange has now been laid. The building will be 100 feet long, 50 feet wide, and proportionately high. Two sets of offices, with galleries over them, are provided for concerts, dinners, and public gatherings. There will be two entrances to the Corn-Exchange, one from the Townhall yard, the other from the High-street, down Carter's passage. Owing to the building being entirely surrounded, the front will be of a plain and simple character. In the interior the walls will be divided by pilasters, which will support the main timbers of the roof into compartments, which are again divided into panels, with semi-circular arches, built with brick and stonework of several colours. With a view to get at the tier of windows immediately under the roof, a gallery will be constructed by corbelling out from the walls, a sufficient space to enable a person to walk along at a level high enough to reach the windows, and thus adjust the ventilation. This gallery will be supported upon a series of arches, extending from one corbel to another. The greater portion of the light being admitted from the roof, it is necessary that the roof should be open to the ridge, and the lines and material of its structure exposed. There will be no plastering, and the walls will show the coloured bricks with which they will be built, while the roof will also show the wood, iron, and glass of which it will be constructed.

Maidstone.—The works of the Maidstone Water Company have been formally opened under the superintendence of Mr. Pilbrow, the engineer. Mr. J. Cochrane was the contractor.

Newport (Isle of Wight).—The workmen employed in excavating for the extension of the common sewer along Bedford-place, Carisbrooke-road, have discovered the wooden pipes which were laid down in the latter part of the reign of King James I., for the purpose of supplying Newport with water from the Carisbrooke springs, but the project was not carried out. These pipes, the trunks of elm-trees hollowed out, have been buried about 240 years, and some of them appear to be sound now.

Bournemouth.—A joint-stock company, under the Limited Liability Act, is in course of formation for the purpose of extending and improving the docks at Bournemouth. The works are to include a tidal harbour of forty-two acres in extent, with a depth of water of 18 feet at low water of spring-tides; a floating dock of fourteen acres area, with a depth of water of 31 feet; five graving docks, with the necessary warehouses, shops, and other conveniences.

Truro.—A meeting has been held here with the object of establishing a Waterworks Company in connection with the town. Mr. R. Symons, an engineer and surveyor, produced a map and plan of the proposed reservoir and watercourse. The reservoir is to be about three miles and a half north-west of Truro, and the water to be conveyed by means of iron pipes into the town. Though £2,000*l.* had been mentioned when the subject was mooted in Truro some nine years ago, he considered that the works could be constructed at a much lower figure.

Brighton.—The proposal to open a new street through the heart of Brighton has been revived in the council, who have held a meeting on the subject, which has been adjourned. At the meeting it was stated that the project would not cost more than 10,000*l.*; but one of the aldermen said it was doubtful whether it would cost 10,000*l.* or half a million; and another, Mr. Smithers, advised that the subject of drainage should be first considered.

Derby.—The estate committees of the corporation have accepted the tender of Mr. Herbert Haffner, out of six tenders sent in by local builders, amounting to 1,145*l.* for the new Police Station and lock-up, to be built on a site forming part of the "new market," in rear of the town-hall; the sum of 150*l.* being allowed for old materials; making the net tender 995*l.* Mr. T. C. Thorburn, the borough surveyor, is the architect.

Liverpool.—Further extension of the Liverpool docks is in contemplation. The cost of the land required is estimated at 30,000*l.*, and that of the sea wall at 70,000*l.*

York.—For some time past very extensive enlargements and improvements have been going on, under the direction of Lieutenant-Colonel Hamlen, at the Cavalry Barracks, near this city. The area has been enlarged by the purchase of additional land on the south side, and the whole site has been drained. New stabling on the most improved principle has been erected for 210 horses, with quarters for a like number of men. An extensive range of buildings has also been erected for about fifty married men and their families, each family having separate apartments to their own use. The non-commissioned officers have had new mess-rooms and quarters provided for their exclusive use. On the opposite side of the Fulford-road an hospital for sixty patients is in the course of erection. Extensive open galleries run the entire length of the building. Previous to the alteration, York barracks accommodated from 250 to 300 men: now there is stabling for 500 horses (exclusive of the infirmaries stables for sick horses), and provision for above 500 rank and file, in addition to the officers' quarters. The works are sufficiently advanced to bring the new buildings into immediate use, and accommodation is afforded for an entire cavalry regiment.

Penrith.—An agitation has been mooted in Penrith, the object of which is to form a company to erect public slaughter-houses, provided the Board of Health will rent the same, or guarantee the shareholders a certain per-centage on the outlay.

Portobello (near Edinburgh).—It has been resolved to take steps for the erection of a town-hall for this town, at a cost of about 3,000*l.*

Guernsey.—The main culvert included in the new harbour-works was completed on the 19th ultimo, the sewage of the town being now conveyed to the outfall in the St. Julien Pier, near the White Rock. This outfall, as described in the local *Star*, placed on the northern side of the pier, is brought down to the level of the lowest spring tides, and debouches in a small deep bay north of the White Rock, whence the tides must carry the sewage seaward well away from the town and harbour. This main culvert extends from the bottom of Havel-road along the town frontage, the main drain along the Esplanade from the Salerie-Battery falling into the culvert at the roof of the new St. Julien Pier. Another culvert carries to sea the sewage of St. George's Esplanade, Paris-street, and the Bouet, and thus the town is drained. Before the harbour-works were commenced fully two hundred sewers, private and public, emptied on the beaches, some above high-water mark, and into the old harbour, filling the air with miasma and poisoning the town. The execution of this work has been a trouble some undertaking, the men being able to work only at low water.

CHURCH-BUILDING NEWS.

Wymering.—The parish church of Wymering has been re-opened, after having been restored and decorated under the superintendence of Mr. Street, architect. The retables, of white alabaster and coloured marbles, consists of three compartments of sculpture, representing respectively our Saviour carrying His Cross, the Crucifixion, and the Taking down from the Cross, and was executed by Mr. Earp, of London. The floor of the chancel is formed of Minton's tiles, combined with marbles of various colours. The painted glass is by Messrs. Clayton & Bell. The east window is a memorial to several deceased members of the vicar's family.

The subject is the Mother and Child, supported on either side by St. Peter and St. Paul, to whom the church is dedicated. Near the Purbeck font is a double-light window, representing on one side our Saviour calling little children unto Him; while on the other side St. Augustine is represented, according to the church legend, as finding the child on the seashore. An ancient fresco, so called, of St. Christopher, which was discovered on the walls, has been reproduced in a small window in the north aisle; it being found impossible to preserve the original painting. A new organ has been placed in the chancel aisle. The iron gates leading into the chancel, also the screen in the north aisle and the chancel aisle, are by Mr. Leaver, of Maidenhead. There is a new side chapel, which is appropriated to the Sisters of St. Mary the Virgin. The pulpit is of Caen stone, inlaid with marble. The heating apparatus has been supplied by Mr. Hayden, of Trowbridge. The old high pews have been removed, and moveable benches substituted. The exterior defects of the old building have been removed. The contractor was Mr. H. Ringham, of Ipswich.

Newton Abbot (Devon).—Early in 1859, the foundation-stone of a new church was laid here, as announced by us at the time; and the nave was completed at the end of that year, and has, since that time, been used for divine service under a licence from the bishop of the diocese, in consequence of the very great want of church accommodation in the parish for the very increasing population of the newly-built district near the station of the South Devon Railway. The Earl of Devon has a large building estate in this neighbourhood, on which a vast number of houses have been erected during the last ten years; and this, together with other circumstances, has had the effect of increasing the population of the parish in this time at the rate of 45 per cent. Seeing this, his lordship gave a site of about 1½ acre, and built the church entirely at his own cost. The edifice was consecrated on the 29th ult., as St. Paul's chapel of ease. It is in the Early English style, and is cruciform in plan, consisting of nave, transepts, and chancel, terminating in a polygonal apse, with an organ chamber on the south side, and vestry on the north side of the chancel. The walls are built with the grey limestone of the neighbourhood, with windows and other features in Bath stone. The roof is of open timber work, wrought, stained, and varnished. There is an oak bell-turret, with slated spire over the intersection of the nave and transepts. The benches are all open, and of stained deal. The stalls in the chancel have fronts of open ironwork, supporting the book-boards. The altar-rail is of oak, resting on iron standards, decorated in purple and vermilion, relieved by gilding. The floors of the seats are of wood, but the passages throughout, the nave, and transepts, are laid with red tiles and black borders, and the chancel with Minton's Lancashire tiles. The arch dividing the chancel from the transepts is formed with alternate vousoirs of dressed grey limestone and Bath stone, springing from carved corbels. There are reredos, credence, and sedilia of Bath stone in the sanctuary; and on the wall spaces are emblems of our Saviour, the four evangelists, and other decorations in colour. The east window is filled with stained glass, representing the Crucifixion. The quatrefoil opening in the western gable has the figure of the patron saint. All the other windows are filled with Hartley's green-tinted cathedral glass, with stained glass borders. The stained glass was supplied by Mr. A. Beer, of Exeter; the decorative painting by Mr. A. Welch, of Bovey Tracey. The church is warmed on the hot-water principle, by Messrs. Garton & Jarvis, of Exeter. The land was given and the entire cost of the building, about 4,000*l.*, defrayed by the Earl of Devon. There is accommodation for 500 persons. The architect was Mr. J. W. Rowell, of Newton Abbot; and the builders were Messrs. Wilcox & Woodley, of Teignmouth.

Winson Green (Birmingham).—The foundation-stone of a new Methodist chapel and schools has been laid at Winson Green. The building, which will be 42 feet long by 25 feet wide, is intended to serve the double purpose of chapel and school-room, being put to the latter use on Sunday mornings and afternoons, and to the former on Sunday evenings. It will seat between 300 and 400 children, and the total cost of the building and the land on which it is erected will be nearly 400*l.*

Great Barr.—The new parish church erected at Great Barr has been consecrated by the Bishop of Lichfield. The new edifice is built upon the site of the old one. The old church furnished accommodation for only about 240 persons, which

was so inadequate to the requirements of the parish that it was decided to rebuild the whole, except the tower and spire. The works were executed by Mr. Highway, of Walsall, from plans of Mr. Griffin, architect, Wolverhampton, and the cost has been about 4,000*l.* The building will now accommodate upwards of 500 persons, many free.

Coventry.—The restoration of St. John's Church is completed. The eastern end, the tower, and the north and south transepts have been restored to their original form and appearance. The whole of the east window has been opened, and filled with stained glass, the gift of Mr. and Mrs. R. K. Rotherham. The design and glass were furnished by Mr. Barwell, of Leith, and include figures of the four Evangelists in the upper compartment, and St. John the Baptist, St. Paul, St. Peter, and St. James in the lower. The effect of the window is aided by the glass which has been placed in the sixteen clerestory windows of the chancel, at the expense of sixteen of the parishioners of St. John's.

Kettering.—The works of the Kettering cemetery, according to the *Northampton Herald*, are now nearly completed. The spire is finished, except mounting the vane and the lightning conductor. The mortuary chapels and works generally are also built. The architect is Mr. R. W. Johnson, of Melton Mowbray, and the builder Mr. Henson, of Kettering. The style of the chapels is that of the Early English, or thirteenth century. They are divided by the vestries, and by a tower and spire, which rises to about 100 feet above the foundations. There is an open archway beneath the tower, which is groined over, affording a picturesque view of the fine grove near Warkton, and of the open landscape in the distance. The chapels, which have open-timbered roofs, covered with boarding, are lighted by large triplet windows in each end, and by small windows at the side. The doorways are also at the sides. The chapels are paved with Minton's encaustic tiles, and the benches are of deal, stained. In the centre of each chapel are biers, which revolve on an axis beneath. Round the chapel is a raised terrace, approached by four flights of stone steps. The ashlar work is of stone quarried on the site; and the windows, doorways, and other dressings, together with the bulk of the tower and spire, are of Ancaster stone. The lodge is built of lime stone, and has a board-room, and accommodation for the ground keeper. The back and north sides of the cemetery are fenced with a larch pale fence, to stand until a quick-set hedge, just planted, grows. The front next the turnpike road has a low stone wall, on which is fixed a cast-iron palisade fence, having pilasters at intervals. There are entrances at each end, having gate piers and oak gates, filled with foliated wrought-iron work. The stone for gate piers, coping to walls, &c., is from Hollington, in Staffordshire.

Bolton.—The chief stone of a new chapel for the Wesleyans, in Park-street, has been laid. The site is on a slight elevation almost equi-distant between the New and Old Chorley-roads. The buildings comprise the chapel and school-rooms, large meeting vestry, minister's and singers' vestry, and four class-rooms in the second story over the vestries; the whole of these being grouped together; the side wall of the vestries and the north gable of the school forming a continuous line with the transept gables. Detached from these, and standing at the north-west corner of the plot, will be a residence for the chapel-keeper. The total length of the principal group of buildings will be 141 feet 4 inches, and the greatest breadth externally 80 feet 4 inches. The chapel is calculated to accommodate 950 persons, and the school 260 scholars. The style adopted is Decorated Gothic of the fourteenth century. Externally the walls are to be faced with Yorkshire pierpoints, and the dressings of Wrexham stone, with St. Helen's stone for the relieving arches over doors and windows. The chapel consists of a nave, with north and south transepts, and a chancel at the west end, in which the organ will be placed; the singers' pews to be on each side, in the recesses formed by the extension of the nave beyond the transept. The internal dimensions of the nave will be 84 feet long and 42 feet wide, each transept 17 feet by 28 feet, and the chancel 13 feet by 26½ feet. The height from floor line to top of ridge in the nave will be 56 feet 9 inches, and in the transepts and orchestra 46 feet 2 inches; the height to the wall-plate in all being 23 feet 6 inches, and the spring of roof inside about 2 feet higher. The whole of the roofs will be supported by trusses springing from corbels, and will be open, with the exception of the upper portion of that to nave, which will have a flat ceiling at the

level of ridge to transept roofs. The meeting vestry will be 23 feet by 16 feet, on the north side of the chancel, and extending beyond its west wall; lighted by three single-light windows in the north wall. The minister's vestry, 18 feet by 12 feet, with lavatory and closet attached; and the singers' vestry, 11 feet by 10 feet, will be on the south side of the chancel, extending past its western gable also. The school-room will be on the west of the meeting vestry and chancel, 52 feet by 33 feet inside, with a recess 27 feet by 5 feet against the end of the latter, in which will be placed the library, with a small gallery over for the school choir. The height from floor to wall-plate will be 12 feet, and to the top of ridge of roof 36 feet. The roof will be open. The chapel will be heated by hot-water pipes; the heating-chamber being under the meeting vestry. The whole of the joiners' work in chapel will be of pitch pine, the other woodwork of common pine stained to match, and all to be varnished. The roofs will be covered with boards and felting, and then slated with blue and green Westmoreland slates in alternate bands, having ornamental crests to the ridge tiles. The lights in tracery will be in lead bands, the whole of the other windows glazed with Hartley's patent quarry glass in diamond panes. The whole of the walls inside will be plastered and finished in rough stucco, coloured in distemper. The builders are Mr. David Pilling, of Bolton; and Messrs. Statham & Son, of Manchester. Mr. George Woodhouse is the architect.

Snath.—The foundation stone of a new Wesleyan chapel, to accommodate 700 persons, has been laid by Miss Cook, at Snath. The building is to be in the Italian style, and will be erected from designs by Messrs. Lockwood, Mawson, & Mawson, of Leeds, architects.

STAINED GLASS.

St. Mary's, Colchester.—The recent project of filling in the windows of St. Mary's church, Colchester, with painted glass has been promoted by a gift from the IIgh Steward, occupying the easternmost window on the north side of the church, close by the tomb of the Rebou family. The ground of this work is chiorescuro, intermingled with colours, the chief embellishment being the full achievement of the Rebou and Gurdon family. Mr. Warrington, of London, who also executed the east window of this church, is the artist; and Mr. Rogers placed the window in its present position.

Hereford Cathedral.—A subscription has been set on foot to fill one of the windows of this cathedral with stained glass, as a memorial to the late Dr. Musgrave, Archbishop of York, who presided for many years over this diocese. The Archdeacon of Hereford undertakes the management of the fund.

Lumberstone Church.—A memorial window has been put up in this church, to the Rev. John Dudley, M.A., who for sixty-two years was vicar of the parish. The window consists of three compartments in the Decorated style of architecture. The centre light contains the Resurrection of our Saviour; on the left the Restoration to Life of the Widow's Son; on the right the Raising of Lazarus. In the tracery are the arms of Dudley and those of the donor, Mrs. Huskisson, of London, niece of the deceased. The subjects have been executed by Messrs. T. Baillie & Co., of London.

Tissington Church.—Five stained-glass windows have been inserted in the church of Tissington, near Ashbourne. One in the east chancel contains the bust of our Saviour, after Carlo Dolci, surrounded with emblems and foliage; two windows with cherubim and seraphim and borders; and one ditto with two circles, one containing a representation of Noah's Ark at rest, with the dove and olive branch. The inscription to this is, "And the dove came in to him in the evening, and lo, in her mouth was an olive pluckt off."—Gen. vii. The other circle contains, in a landscape, "The Rainbow," and inscription, "I do set my bow in the cloud, and it shall be for a token of a covenant between me and the earth."—Gen. 11, 13. The window is surrounded with a Norman zigzag border of blue, ruby, green, and gold colours. The fifth window is ornamental, and contains the royal arms on an oval in the centre, and the arms of Mrs. Fitzherbert, the donor, at the top. All these windows, in new stonework, are the gift of Mrs. Frances Fitzherbert, of London, who has also built a new aisle in the church, and built and endowed schools for the boys and girls of the village. Messrs. Baillie & Co. were the artists who produced the stained glass.

RAILWAY MATTERS.

Warning Railway Carriages.—We are glad to observe that the suggestion made in the *Builder* is being carried out. The London and North-Western Railway Company, with a view of availing themselves of the system of warning carriages from exhausted steam of the engines, as introduced with success in France last winter, have had a trial of the invention (by way of experiment) at Wolverton station, with the most favourable results.

The Charing-cross Railway Bridge.—The five iron cylinders near the Middlesex side have been completed above the level of high water, and are now being filled in with brickwork and masonry. The extension of the suspension pier on the same side of the water, and the construction of the abutment, have been commenced. On the Lambeth side, the lattice-work which assists in supporting the roadway has been carried out some distance beyond the suspension pier, and the greater portion of the girders between the shore and the pier have been fixed.

The London Road Railway Station, Manchester.—The London Road Railway Station is to be replaced by one much more extensive in every way, and on a totally different plan. For many years the station has been voted a nuisance as to arrangement, and wholly inadequate to the traffic. The first portion of the station to be pulled down will be the not ornamental or useful stone portion which fronts towards Piccadilly, and technically termed the "engine stable," which contains the refreshment-room and a few offices. The new main pile, which will contain rooms for every portion of the business done at the present straggling station, will have a frontage of nearly 200 feet, a height of more than 70 feet, and a depth from front to back of 116 feet. The building will not only stretch across the cab roads and footways by which the offices and the arrival platform are now approached, but on the side of the offices it will extend nearly 30 feet beyond the existing boundary-wall. In all essentials, the arrangement as to booking-offices, waiting-rooms, &c., will be the same for each company. In the front there will be an extensive glass-covered porch, supported on ornamental iron columns, somewhat similar to those at Euston-square and the new Victoria Station, Piccadilly. Under these, cabs, &c., will set down. Proceeding through a spacious vestibule, passengers will enter a hall, 64 feet long, 31 feet broad, and nearly 70 feet high, lighted from the roof. At the further end will be the booking-offices, semicircular fronted, having an office for the station-master in the rear, and abutting upon the platform, and with ample space on each side. The new iron and glass roof will be 600 feet long, with a span of 102 feet 6 inches; the space covered at present being probably not more than 450 feet by 130 feet. The constructional details are at present being worked out under the direction of Mr. Sacré, engineer to the Sheffield Company. The façades towards Piccadilly and Birmingham-street will be decorated with coigns at the angles; and the windows will have alternate triangular and segmental pediments. The cornices will be a good deal enriched; and above it, in the centre of the composition, will rise a lofty attic, with balustrades, pilasters, and terminal ornaments; a smaller and less decorated addition being made at the angles. There will be also a large illuminated clock in the façade—a want never supplied at this station. The architects for the main building are Messrs. Mills and Murgatroyd, of Manchester. The working plans are far advanced; and it is thought that in two months operations may be commenced. The widening of the incline from Piccadilly will be begun forthwith.

The Stockport Station.—At Stockport the railway directors have voted about 22,000*l.* for various improvements, and half of that amount will be expended in enlarging the accommodations at the Stockport station. The new station will be built on the site of the present one, but the building will be much larger, and the waiting-rooms and offices far more extensive and complete. It is intended to have four main lines of railway through, from the viaduct end to the tunnel mouth, in addition to several sidings which will be required for the Stalybridge and Manchester local trains. There will be a suite of waiting-rooms on the down side of the line, and a bridge will be thrown across to connect the offices on both sides. The platforms on each side will be 400 feet in length, and about 18 feet wide.

Perth and Inverness.—The foundation stone of the viaduct of the Perth and Inverness Railway, over the Divie, betwixt the Manse of

Edinkillie and the Mill of Dunphail, has been laid. This work, from abutment to abutment, will occupy a space of 371 feet, besides 60 feet of wing wall and mound on each side. It consists of seven arches of 45 feet span, and one of the piers is 105 feet in height, the greatest elevation being 135 feet from the bed of the river. The mason work will extend to about 10,000 cubic yards, and weigh about 20,000 tons. The estimated cost is about 10,000*l.*

ALTAR SLABS.

In reply to the suggestions recently made in your paper, I send you the following particulars of one of these slabs, now lying in the inclosure of the parish church of Stoke-upon-Trent.

Some thirty years ago Stoke old church was taken down, and at a short distance north of the site a new structure was raised in its stead; but the foundations of the ancient chancel still remain, and the original altar-slab lies on the ground, against the east wall, within the chancel. The dimensions of the slab are 10 feet 2 inches in length, 3 feet 1 inch in width, and 6 inches thick. Its material is a hard, rather coarse, sandstone grit. It is broken across the middle of its length; and the upper surface is worn down for more than an inch; consequently the usual crosses are not visible upon it. A straight chamfer of about 45 degrees is taken off the lower edges of the front and ends, leaving a face of 2½ inches: on this chamfer, in front, four moulded capitals are formed of Early English date. From the ends to the central lines of the first capitals is a distance of 7 inches, and the distance apart of the central line of the capitals is 3 feet. The shafts which supported the slab seem to have been 4 inches in diameter; but it is difficult accurately to ascertain this, and to get the section of the mouldings, owing to the present position of the slab.

I am informed that the slab fell in two on being lifted about five years ago: at this time excavations were made beneath it, but nothing excepting a number of skulls, placed in a row, was discovered.

C. LYNAM.

As an addition to your list of stone altar-slabs, I may inform you that there is one, which appears to be kept carefully yellow-stoned, in its proper position in Muston Church, near Filey, Yorkshire.

F. G. STEPHENS.

CLERKS OF WORKS AND THEIR DUTIES.

SIR,—It appears to me that your correspondent, "A London Architect," whose letter on the above-named subject you printed on the 2nd instant, has formed an erroneous idea of the duties proper to be performed by a clerk of works, and that he or any other architect holding the opinions expressed in that letter cannot fail to encounter constant disappointment.

Nothing could be further from my own wishes, or from those of such architects as I am best acquainted with, than that a clerk of works should for a moment consider himself as "the representative of the architect." In any case when it is unfortunately not possible for an architect personally to inspect the works as often as they require, he is bound, no doubt, to see that they are carefully overlooked by a competent deputy; but such a deputy will be more frequently to be found in the person of one of his best assistants than in that of the clerk of works.

I hold, sir, that the duty of the clerk of works is very nearly that of supplying the place of a builder's foreman who had no interest to attend to except the good of the building. It is essential under the contract system that proprietors should be protected not only against the possibility of the contractors attempting to make the work pay well at the expense of its excellence, but still more from the efforts of the builder's foreman to attend to what he considers his master's interests. It must have constantly occurred to your professional readers that they have had to condemn work the responsibility of which the builder had repudiated, and has thrown upon the shoulders of his foreman. Whichever be in fault, it is clear that there are two persons—the builder and the foreman—whose interests go, to a certain extent, counter to the architect's wishes. It is but fair that, if he takes the contractor in hand, he should have a competent assistant who can do the same by the foreman. A clerk of works who has himself been a foreman is better able than anyone else to do this; and is, consequently, a better man to employ than one of more extended education, but less practical insight into work. I hold that his duties are those that workmanship and materials are good throughout and ac-

ording to the specification, and that setting out is accurate. When there are two ways of constructing anything, I expect him to insist upon the adoption of the best rather than the cheapest; and I expect him rigidly to check all accounts for day-work and all claims for extra work. Difficulties I expect to have referred to myself; and if your correspondent will but take some trouble in selecting his clerks of the works, *i.e.*, will see all the applicants himself; get a specimen of their handwriting and drawing; chat with each one for five or ten minutes; and make inquiry as to the antecedents of the most promising ones from their references; he will, I think, have no difficulty in getting men who are good correspondents enough for his purpose, and good enough in other respects, even in the all-important ones of sobriety and strict honesty: at least, such is my experience so far as it goes.

In one complaint of your correspondent's letter, however, I must concur. I do find all clerks of works look far more keenly after their own trade than after others; and the only remedy I could suggest would be the employment successively of two men on the same work; the first, a mason or bricklayer by trade, who would stop till the carcass was completed; the second, a joiner by trade, who would then take the place of the first man, remaining till the work was completed.

ALSO A LONDON ARCHITECT.

DIRT AND DISEASE: OVER DARWEN.

As a tolerably experienced campaigner in the field, I heartily sympathise with you in your uphill fight against disease and dirt; especially seeing that (as in the case of Sheffield) there be some who will actually go out of their way to find excuses and extenuating reasons for their still putting off the attack upon the real causes of their excessive death-rate. Where it is really a question of life and death to toiling thousands, the "powers that be" rarely get beyond that point of view which is limited to the pounds, shillings, and pence of the question: ay, perhaps they might annually save ten or a dozen lives in a thousand; but that means earnest work, and expense, and increased taxation (this between the *poor-rate* and the *sewer rate*?), and thereupon some economist or other starts up and knocks on the head the benevolent movement, and therefore gains applause.

Here is a case: The small town called Darwen (Lancashire), with a very thriving population engaged in the cotton manufacture, is now visited by a severe epidemic. The brief notice you printed gives but a very faint description of the causes which have been, and are still, at work at Darwen; and did your space allow, details could be supplied which would "harrow up the soul" of any true philanthropist. It is gratifying to add that the people of Darwen know the causes of their visitation; admit them; and, like men, are using every exertion to remove them. This is but one example. Cities sleep in drowsy inactivity, and death annually runs off with thirty or forty per thousand. "The watchman waketh but in vain."

Blackburn.

J. H.

INTERFERENCE WITH ARCHITECTS' WORKS.

PARISH CHURCH, LEEDS.

You notice at page 621, *ante*, that "the parish church" of Leeds "has been reopened" and "renovated," and that "improvements have been effected in the chancel, of the vaulting." Those improvements, I am glad to find, extend simply to indurating and gilding; and that statues of the Evangelists have been placed in the "niches,"—rather upon the four foliated pedestal-stalls which were originally designed for the purpose. "The window-cills have been cut about 8 inches lower;" they were concealed by the tracery of the reredos, and the general proportion is in nowise thereby altered. At the time of building Dr. Hook would have been subjected to more violent attacks for introducing statues than he experienced relative to the piscina, had he allowed those statues to be placed thereon.

The style of the church is of the transition from geometric to vertical tracery; the arched heads of that tracery being ogival, or flowing from the vertical lines of the mullions into those above them; and harmony throughout the entire fabric was preserved. The reredos was designed to contain a picture by Correggio, presented by the Rev. Isaac Spencer, of York, but which is not seen to advantage from the intense colouring of the two side windows; which, with the eastern

window, all chiefly ancient glass, form an irregular semi-hexagonal apex; the gilding of the bosses in the roof has improved the general appearance thereof. Most of the windows (not presents) have been filled in with stained glass, as originally designed to harmonize with the west window, which was subscribed for by the patrons, whose coats of arms, on shields, were introduced into the design by the architect. The south-east window of the chancel aisle has been cut out, and the jambs and arch filled in with meagre tracery of a different character, as though designed to fit the painted glass left on hand in the shop of some modern glazier. The internal margin of that window, with hood-moulding resting on two gigantic coupled heads, most disproportionate, is carried down to the floor; a hollow between the mouldings being filled with conventional roses and leaves; and beneath the cill, panelling, and a line of quatrefoils, let all be Tudor. What would the architect of the Royal Exchange say, if some young Tyro, even though patronized for a worthy father's name only, were allowed to thus desecrate the Royal Exchange? or the architect of Doncaster New Church, were a Tudor window substituted for one of his, by the looting of Mammon of uncrupulous wardens of that fine work?

Reared in a noble school of architecture, I would not have dared, during nearly half a century of practice, to have thus intruded myself upon the work of any living brother professor. My church at Leeds is but imperfect; but, had I been unlimited, the clerestory windows would have had pointed arches, and the open roof of oak, enriched with tracery, and colouring wherewith to harmonize the *tout-ensemble*; and the sedilia, with several embellishments, intended, but left undone, would have enabled me to produce a work in 1840 which I could revisit, after twenty years' absence, with satisfaction.

Why should we talk of international copyright, if our works are in our own country permitted to be mutilated? Independently of my profession, courtesy, in some degree at least, I claim.

R. DENNIS CHANTRELL.

THE CONDITION OF MARGATE.

THIS autumn I was on a visit to the above quaint and pleasant town; so favoured by nature, and, in some of the most important respects, neglected by man.

When the vast amount spent here annually by Londoners in the pursuit of health is considered, with the exorbitant charges for all articles of living and lodging, the least that should be given in return would be such care and attention to sanitary matters as would prevent those in pursuit of health getting contagious disorders, and detriment instead of advantage.

I have then to state, that both sewerage and water-supply are on the most defective plan. The town mostly standing on chalk hills, there is no natural reason why both should not be perfect.

There are waterworks, which appear to be but poorly supported; as the major part of the town is supplied from draw-wells sunk in the chalk.

In very many places, including High-street, Park-place, and adjacent places, these wells are in almost immediate contact with the closets, which are on the old privy plan, and filtration is always going on; so that the wonder is, that the place is not devastated by cholera. I have lodged in various places, and found no difference, excepting on Port-crescent, where I paid three guineas and a half per week for three rooms, and where there was a water-closet, but only supplied by rain water; and, of course, frequently without any; the parties taking such rents being too sordid to pay water-rate.

At a respectable house near the Elephant, in High-street, there was no convenience at all; but down some back alley a gregarious one for I do not know how many houses. This was on the pleasant and conversable plan of serving for four; viz.,—two seats each side of a board partition about 3 feet high; I suppose for two females one side, and two males the other.

If you go and look at a very pleasant part, called Andrew's-place, a great thoroughfare out of High-street, you will be in a state of wonderment as to drainage and conveniences too. Parties have left there on account of the foul smells.

If the observant traveller looks at Marine-terrace,—which, from its position and proximity to the railway, should be the choicest part of the town,—he will find, level with the footpath, a floor which he innocently takes to be the ground-floor; but, on looking further down, to his immense

astonishment, he will find a sort of *oubliettes* or dungeons, or floor below the ground-floor.

The number of persons living in the season in these houses must be frightful; and to me they appear like rabbit-warrens; being packed from ground to roof.

It will hardly be believed that, all along the rear of these houses, there is an open ditch of semi-salt water, into which large quantities of sewage continually flow; and which caused this year such a dreadful stench, that I have smelt it right over the houses while sitting on the Parade.

I may add, that protection appears given to indecency in bathing; as scandalous scenes are enacted without a pretence at interference by anybody, and which might be so easily cured,—and help the trade of the town as well,—by causing every bather to wear a decent dress or drawers; and making the bathing people and boatmen responsible for any breach.

I write this in the hope that publicity may egg the authorities on to effect speedy reforms, so that Margate may be what it ought to be.

Ramsgate, in the crowded parts, I believe, will be found as bad as or worse than Margate.

PATER.

"RESTORATIONS AT FLORENCE."

IN an account of restorations being carried out on Mediaeval buildings, in Florence, your correspondent writes, speaking of the church of S. Miniato, in Monte, "The whole of the wooden roofing which, with its naked rafters, had formerly presented a bare unsightly surface, is now adorned by a rich diaphanous colouring," &c. The writer is mistaken in supposing that the wooden roof has been decorated lately for the first time.

In the spring of 1859 I visited S. Miniato, and made a careful sketch of the ancient decoration of the timbers then existing. The workmen had then just commenced to paint out the old colouring; they had also begun a pattern of the new; which was to be, in fact, nearly a reproduction of the old; with this difference, however,—they had substituted a light muddy grey as the ground colour, in place of the warm brown which formed the ground in the original decoration. The result, it need hardly be said, was most inharmonious, and makes it a matter of regret that the renovation in question was carried out.

J. D. CRACE, JUN.

COSTUME IN FLORENCE.

IN the number of your journal for October 26, your correspondent, "Oxonienis," writing on costume, says, "The world-famous Giotto, you know, invented the beautiful and convenient dress of the Florentine women." If you do know this, I shall be very much obliged if you will kindly impart the source of your knowledge in an early impression. But meanwhile I will tell "Oxonienis" what Giotto might now see "in his loved Florence" in the way of female costume. He would see and feel very outrageous-sized and stiff crinoline petticoats, and either very untidy hair, without any covering to the ladies' heads, or enormous and ugly hats of straw, looking like limp and flabby snakes' head decoration. I think it is called a nimbus, and by no means as round as the O of Giotto. Higher in the social scale the "world-famous" one would see that, although the ladies have forgotten the simple habits of Bellincione Berti's wife, they have not acquired irreproachable taste with increased cost; their dress being an odd mixture of the Palais Royal, Regent-street, and the sands at Ramsgate. The most vigorous Parisian jewelry is preferred before their own lovely Roman refinement in gold; the most *pronounced bottines*, with the true military-heel stamp in them, encase their feet; and hats of the most horse- and heart-breaking type, are perched on the heads of the degenerate countrywomen of the "world-famous Giotto." Perhaps "Oxonienis" has forgotten, or does not know, that the inventor of female Florentine costume was very fond of what is now called chaff; and he would certainly have been the first to laugh at a statement which, if not *cero, è ben trovato*.

P. DEI PILLELLINI.

A NEW OMNIBUS COMPANY.—The "Economic Omnibus Company" has been started in London, with a capital of 50,000l., "to supply a better and cheaper service of omnibuses for the metropolis and suburbs; introducing a superior class of vehicle both as regards appearance and comfort; and thus, with low rates of fares, enabling all persons to avail themselves of this mode of locomotion."

THE MANCHESTER POST OFFICE.

DURING the last three months the building in Brown-street has been undergoing alterations and extensions which will add materially to the convenience of the public and the comfort of the *employés*. The portion of the building which has been used as the city police-court is now devoted to the purposes of the postal establishment; and the money-order office, which has been inconveniently situated at a distance from the general post-office, will now be under the same roof; a room 80 feet by 17 feet being devoted to this important purpose. The want of a room for sorting letters has been much felt, and this is provided for by alterations in the former police-court, whereby an excellent carriers' sorting-room, 71 feet long, 35 feet wide, and 31 feet high, is provided. Several new offices for clerks, and lavatories and other conveniences, have been added to the arrangements formerly existing. Altogether, it seems to be the opinion that the Manchester post-office will be amply sufficient for the requirements of the city for twenty or thirty years to come; and the discussion which has existed for a considerable time past as to the provision of a suitable site for a new post-office seems to be set at rest. The plans for these extensive alterations were prepared under the direction of Mr. Williams, surveyor to the General Post-office, London; and the building contract has been executed by Mr. Robert Neill, of Strangeways, Manchester, under the superintendence of Mr. Francis Hunt, clerk of the works to the Office of Works.

A PAINTER'S GRIEVANCE.

SIR,—I respectfully wish to know whether you or any of your correspondents can oblige me by informing me through the means of your valuable journal, the *Builder*, what will be the best way to cure the following case. I have painted a staircase-wall one coat and then filled up with Paris white and size, then oiled it over, and after this given it four coats more of paint; also have had it painted in imitation of various marbles in a first-class manner, and to finish have given it three coats of Mander's best varnish. After all the labour in bringing it up to the highest perfection, it has broken out in various places in the staircase quite rough, which I think is caused by the plaster on the walls containing some kind of salt which works its way through to the surface. It is, I think, commonly called scurvy. If you could inform me what to do with it you would oblige very much.

L. S.—The work has been finished about three months.

BIRKENHEAD WORKHOUSE COMPETITION.

SIR,—Can you or any of your numerous readers throw any light on the doings in the above competition? I have the *Liverpool Courier* of the 16th of October now before me, from which I send the following paragraph:—"We beg to congratulate our townsman, Mr. Thomas Layland, architect, Castle-street, in having had the first prize of 50l. awarded to him by the guardians of the Birkenhead Union, for the best arranged plan for the intended workhouse, to be erected at Tranmere. We understand there were between twenty and thirty plans submitted to the guardians, who, in order to do full justice to each competitor, were ably assisted in their selection by the Poor-Law Inspector, and an eminent London architect." I have also heard that a Birkenhead architect has been awarded the second premium: this must also have been known to the party supplying the information contained in the paragraph, and it appears strange it was not mentioned, unless it was thought it would appear too much like a job to give publicity to the fact of two local men having obtained the only prizes offered, for which there were twenty or thirty competitors.

I have been daily expecting to receive my plans, or some official communication from the clerk, but have not done so, although upwards of three weeks have elapsed since the decision was made.

From the above I think you will agree with me, that it would be desirable to know if the architect called in had the whole of the designs submitted to him, or only a few favoured ones; and what is the reason the unsuccessful ones have not been returned, or no official information given as to the selection.

A COMPETITOR.

DECAY OF STONE AT THE ROMAN CATHOLIC CATHEDRAL, ST. GEORGE'S FIELDS.

SIR,—The public, if not the profession, have a right to presume that any criticism on stone by so able a judge as Mr. C. H. Smith must be necessarily trustworthy. Talent, however, is not always proof against prejudice, as this gentleman's description of the Bath stone at St. George's conclusively proves. A practical examination of the cathedral, "many of whose mouldings and ornaments," we are told, "are quite obliterated," really shows that not one fourth the stonework is injuriously affected by atmospheric influences. Indeed, the whole of the Bath stone, with the exception of some three blocks, is "as perfect as any reasonable observer has a right to expect." It is difficult to accredit a man of Mr. Smith's extensive experience with inability to distinguish between the materials employed at St. George's; but some such conclusion is almost unavoidable; since, were it otherwise, common fairness must have restrained him from making an indiscriminate attack upon the masonry generally, without regard as to whether the Bath or Caen stone were really at fault.

There is no need to follow Mr. Smith into the nice

questions which his letter raises touching the respective responsibilities of architects and builders: the premises of his argument on this delicate legal point have broken down so signally in the present instance as regards Bath stone, that no conclusions deduced from them can be considered valuable. There is one portion of his communication which cannot be thus lightly passed over by any one who recognizes the odiousness of some comparisons. Mr. Smith enters entirely in supposing that Mr. Pugin's shortcomings can be made to condense his own failures; and he greatly mistakes public opinion in trusting to indirect comparisons between the judgment of a thimble-headed architect and himself for any addition to the honourable reputation he now enjoys." E. HANDELL.

DECISIONS UNDER THE METROPOLITAN BUILDING ACT.

Curb Roofs.—Mr. Mayhew, district surveyor of St. James's, Westminster, summoned Mr. W. Higgs, builder, at the Marlborough Police Court, in respect of the house 114 and 115, Jernyn-street, on the ground that he had "fixed on the said building, which is built in order to be used in part for purposes of trade, a roof, so constructed that the plane or surface of the said roof inclines from the northern external wall of the said building upwards, at a greater angle than forty-seven degrees with the horizon; namely,—about eighty degrees."

This was objected to on the ground that the Act only allowed such roofs to be "public buildings, dwellings, and shops." As this house was intended for a shop, it was contended that a "shop" was not included within the buildings set forth in the Act. As there were other cases of a similar character in dispute, it was decided to reserve opinion on the matter.

Mr. Cates, who attended on behalf of Mr. Higgs, argued the case, and urged that the defining words of the section should be read together; and that the building in question—being a dwelling-house, with shops on the ground-floor,—was not used for the purposes of trade within the meaning of the statute.

Mr. Tyrwhitt did not see exactly where the line between a shop and a warehouse was to be drawn; nor did he apprehend that the Legislature meant to draw any such line. He was not sure that the terms of the Act did not include houses of all descriptions used for purposes of trade. In his opinion, a shop might be both a warehouse and a shop. He thought however the proper course would be to dismiss the summons.

A similar summons against Messrs. Trollope, for erecting a curb roof on No. 39, Duke-street, was also dismissed.

In the case of a new building at Poplar reported in the *Builder* of last week, as the architects of Messrs. Stewart & Son, engineers, we deem it essential to explain the matter rather more fully.

It would appear by the report that the Metropolitan Board of Works had approved of the plans of the building exceeding 216,000 cubic feet: this was not so. The building, intended to be used as an engineer's erecting shop, with side wings, was designed within the prescribed limits; but by alterations made by our clients during its progress of construction, the enclosure for brickwork of the main walls, and our clients being anxious not to raise the ground-floor of the building, we applied to the Metropolitan Board for permission to partition off one of the side-wing buildings by a wrought-iron partition, to bring the contents of the building within the prescribed limits, to which they gave their sanction; but the district surveyor objected to this iron partition, therefore the matter was brought before the magistrate for his decision, when, after hearing the facts, he said "he had no doubt the Metropolitan Board had well considered the subject before they gave their consent; therefore he dismissed the summons." The building consists of two stories; it does not come under the amended Act in reference to the manufacture of marine engines. JOHN MORRIS & SON.

Miscellaneous.

THE "HYDROPLAN."—A Birmingham paper describes what it regards as a very useful apparatus in dwelling-houses, offices, and shops. It weighs only a few pounds, and consists of two tubes of about 2 feet long. It will throw water 50 feet high at least, says this paper; will serve to wash windows; and, in the event of fire, would extinguish it in any dwelling-house while it was confined to a single apartment; for by its means water can be projected into the place without opening doors or windows. In fact, it can be poured in volumes through the key-hole; and where a close room is on fire it is not at all necessary that the water should touch the fire: it will be quite enough if it is converted into steam.

THE FORESTS IN FRANCE.—In 1791, the forests of France covered an area of 9,589,860 hectares (2½ acres each), of which 1,860,492 belonged to the State. In 1851 the total was 8,967,000 hectares; the State forests being 1,226,000. This last figure has since been reduced to 1,007,046 hectares. Thus, in the space of seventy years, the forests of the State have been diminished by 283,416 hectares, after allowing for the new plantations, which averaged 860 hectares a year, from 1821 to 1837; 1,300 from 1838 to 1854; 6,270 from 1855 to 1857; and planting is still continued on a large scale. The law of July 28, 1860, appropriated an annual sum of one million during ten years for replanting the mountains. For 1862 the proceeds of the forests are estimated at 38 millions, of which 33½ millions will be obtained by the sale of wood.

* We have received also a letter from Mr. E. Weby Pugin; but it was too late for insertion.

THE ROYAL ENGINEERS.—Great difficulty is experienced in obtaining well-qualified mechanics, artificers, draughtsmen, surveyors, &c.,—of which class the corps of Royal Engineers is exclusively composed. In consequence of the recent numerous discharges of men from the corps, chiefly on account of their unfitness for further service, that branch of the service is about 500 men below its proper strength.

MAHOGANY.—Should you not receive any more definite reply to "A. P.'s" question as to the size of the largest stick known in England, I beg to state that in a work entitled "The Mahogany Tree," published at Liverpool, in 1850, the following descriptions are given:—"Its trunk is often 50 feet in length and 12 feet in diameter;" and "wood of large dimensions is now very scarce: mahogany of 14 inches square and 27 feet and upwards in length, fit for shipbuilding, is obtainable; but logs of 40 to 50 feet are scarce. The tree is rarely met with to give a larger square than 24 to 26 inches, although occasionally trees of very large dimensions are seen." Logs for dining-tables run from 22 inches to 30 inches wide. For veneers, 19 to 24 inches, 27 inches, and 30 inches wide.—W. P.

DRY ROT AND CONCRETE.—We have received several communications as to the "Case of Dry Rot" in our last; but these chiefly ask questions and afford no useful suggestions. One correspondent says: "Some time ago I built six fourth-rate houses with basements, and eighteen months after was obliged to take up the kitchen-floor of one house and part of the next: the space between floor and ground was covered with fungus, and all the wood under rotten. The ground being very dry, on a gravelly soil, the houses being built on one plan, and ventilated with air-bricks, I began to consider why these two should be so affected and the others sound; and I fancied it was caused by making up all the mortar for the six houses on the ground of the one most affected. I have often noticed when taking down jamb lining in kitchens on 9-inch brickwork, that there has been the mark of the joints of mortar, and that part has been more perished than the other parts."

A FIREPROOF DRESS.—The Emperor and Empress of the French have been witnessing, in the park at Compiegne, a trial, by Mr. Buvert, of a newly-invented fireproof dress. A cottage was erected in the park for the purpose of the experiment. The framework of the building was iron, and the roof and walls were made of faggots and other combustible materials. Mr. Buvert's dress is described to be both waterproof and fireproof, and is copiously stuffed with sponges sewed together. He wears a helmet like that of a diver, with an apparatus for supplying fresh air, and glasses to see through. At a signal from the Emperor he set fire to the temporary cottage; and when the flames had got well ahead he went into the midst of them several times, it is said, with perfect impunity. The experiment was considered to be entirely successful. Fireproof dresses have been, of course, invented before, and have been exhibited in use; but practical difficulties have hitherto prevented their application to general purposes.

HEATING AND LIGHTING CITIES BY THE POWER OF THE TIDES.—Sir Humphrey Davy once remarked that people need have no anxiety in regard to the exhaustion of the coal mines; for, long before that was effected, some cheap mode would be discovered of decomposing water; and this would furnish an unlimited supply of fuel. This prophecy is already accomplished. By magneto-electric machines, water may be decomposed without any expenditure, except that of mechanical power; and, by some recent improvements in these machines, their power of decomposition has been greatly increased. As hydrogen can be obtained in unlimited quantities merely by mechanical power, we have only to make suitable arrangements to avail ourselves of the great force of Nature in order to get all the fuel and light we want, without any current expense whatever, except the trifling one of keeping the apparatus in order. The tide, as it sweeps through Hell Gate four times in the twenty-four hours, probably exerts sufficient power to turn enough magneto-electric machines to decompose water and furnish hydrogen for all the mechanical and domestic purposes for which fuel and light are required in this city. Here is an opening for a discovery which will be eminent among the marvels even of this wonderful age. In place of the enormous expenditure at present incurred for fuel and gas, our steam-engines may be driven, and our dwellings may be warmed and lighted, by the perpetual and undiminishing power of gravitation.—*Scientific American.*

NEW LECTURE HALL, AT BROMLEY-BY-BOW. The Lecture Hall recently erected at Three Mills-lane, Bromley-by-Bow, has been inaugurated. The Hall is situated about half a mile from the Bow station of the North London railway, and has been provided at the expense of Mr. Harper Twelvesire, for the benefit of his workpeople and of the inhabitants of the neighbourhood generally. The Hall is capable of accommodating 600 or 700 persons. It is intended to devote it to concerts, lectures, &c., on week-day evenings, and to religious purposes on Sundays.

SIR CHRISTOPHER WKEEN,—believe it, posterity, if you can, and execute the ministry who did it,—was "turned out of all his places," at the age of eighty, because "they were wanted for some political arrangement," as it was called; &c., for some "political combination" for particular persons to enjoy the "emoluments of Government." I am sorry to add that posterity have hitherto abided by the same principle, in refusing to do honour to themselves by erecting some "token of gratitude" to the memory of so virtuous, so able, and so generous a founder of their architectural magnificence, instead of the dusty and contemptible slab in St. Paul's. It is he, if any, that deserves the sort of honour in St. Paul's Cathedral, without any depreciation to the memorials of those great and exalted characters which are already placed in that second magnificent temple in the world.—J. B.

THE GALLERY OF INVENTIONS AND SCIENCE AT LIVERPOOL.—An aggregate meeting of the members of the Liverpool Architectural and Archaeological Society, and the local Chemists' Association, Historical Society of Lancashire and Cheshire, Literary and Philosophical Society, and Polytechnic Society, was held in the lecture-room of the Free Public Library and Museum, on Wednesday evening in last week, for the purpose of receiving the first annual report of the committee of management. Colonel Brown presided on the occasion. The chairman having explained the objects of the meeting, the secretary read the report, which stated that the committee had given the gallery the broadest possible name; and they expressed an earnest hope that manufacturers and others would send in the products of their labour and skill for exhibition in the gallery, so as to make it form one of the most attractive parts of the building. Mr. Arnott, in proposing the adoption of the report, said that while he regretted exceedingly that they had not made further progress, he felt they were not far from the completion of a useful gallery of inventions and science, which would be a great advantage to the working classes. The motion was agreed to. Mr. Joseph Boulton moved that the thanks of the aggregate meeting be given to the committee for their past services, and that they be requested to pursue their good works and praiseworthy endeavours to carry into effect the objects of the gallery of invention and science. This motion was also agreed to.

CHELSEA.—The fifth report of the vestry of the parish of Chelsea, under the Metropolis Local Management Act, signed by Mr. C. Lahee, the vestry clerk, has been printed, with its appendices. From this report it appears that the population has increased from 56,538, in 1851, to 63,423 in 1861, and that the excess of registered births over registered deaths in the ten years has been 4,302. The number of inhabited houses in the parish has increased from 7,591 to 8,318 in the ten years. In October, 1860, forty-seven slaughter-houses were licensed; but not much other sanitary work has been done in course of the past year, except that twenty-eight private drains have been connected with the sewers on application by the house owners. Gullies have been cleaned and sewers flushed, however, and various nuisances removed. We may here add that at a meeting of the Chelsea vestry, just held, attention was called to the necessity of not only widening Westbourne-place from Eaton-square to Sloane-square (now under the consideration of a committee), but also to hasten an improvement of a portion of King's-road, to afford greater street accommodation for the increased traffic to and from the International Exhibition next year. A communication was also read from the secretary of Her Majesty's Works, dated 29th ult., approving (with certain exceptions) of the plan for the proposed new wall of the Royal Military Asylum; and that, on the completion of the new wall, the old one will be taken down and the materials removed by the Board of Works without delay. Mr. Finch said that would widen that part of the King's-road considerably; and as it was of great public importance, no time should be lost. He moved that advertisements for tenders to erect the new wall should be issued forthwith, which was agreed to.

NORTHERN ARCHITECTURAL ASSOCIATION.—This society has published, in a pamphlet form, its "Proceedings" for 1860-61.

RECTIFICATION OF ASTRONOMICAL TABLES.—Marselles will be thronged with visitors on the 12th instant, to examine the passage of the planet Mercury over the sun's disc, as it is the only tangible method of rectifying astronomical tables. The first transit observed was by Gassendi in 1631. Since then, twenty-one have been observed, the last being on the 8th November, 1848. After that of the 12th instant, there will be five more this century, viz., 4th November, 1868; 6th May, 1878; 7th November, 1881; 9th May, 1891; and 10th November, 1894.

A CATHEDRAL FOR BELFAST.—The Bishop of Down, Connor, and Dromore has issued a proposal for the erection of a cathedral in Belfast, to be connected memorially with the name of Jeremy Taylor, some time Bishop of Down, Connor, and Dromore, and to be called the Cathedral of Connor. The old cathedral at Connor has long been in ruins. No substantial memorial of the celebrated Jeremy Taylor as yet exists in Ireland. It is estimated that for the building and endowment fund a sum of 100,000*l.* will be required; and it is felt, says the bishop, that, by a vigorous and well-sustained effort on the part of all classes of Churchmen, this sum can easily be raised. Donations, which may be paid either in one sum or by annual instalments, extending over not more than five years at the option of the donors, will be received by any of the banks in Belfast; in Dublin by the Bank of Ireland, and Messrs. La Pouché; in London by Messrs. Coutts & Co., and Messrs. Hoare, Fleet-street. The Dean and Chapter of Connor have unanimously passed a resolution in favour of the proposal.

DRINKING-FOUNTAIN MOVEMENT.—The Tunstall Local Board of Health have erected a drinking fountain. It has been constructed from a design prepared and presented to the Local Board by Mr. G. T. Robinson, of Leamington, architect, who designed the Market Hall. As it was decided to erect the fountain at the south-west angle of that building, adjoining the principal thoroughfare, it has been designed of a corresponding character, the principal portions being executed of Mansfield magnesia limestone, while the back panel is Egyptian green marble, and the basin of mosaic marble, polished. From the basin a bronzed semicircular iron grating to receive all the waste and spilt water, which serves to keep the foot-path dry and free from the annoyance so often seen in similar erections. The water flows into the basin from an ornamental electro-plated tube in the centre of the back panel, and a pair of electro-plated drinking tankards have been provided, secured by chains to links on each side of the fountain. The water is supplied gratuitously by the Staffordshire Potteries Waterworks Company. The marble- and stone-work have been executed by Mr. Sellers, marble mason, of Stoke-upon-Trent; the electro-plated fittings by Mr. R. Spence, of Burslem; the plumbing and painting by Mr. Latham, and the brickwork by Mr. Mullington, both of Tunstall.

NORWICH CASTLE AND SHIRE HALL.—The county surveyor, Mr. R. M. Phipson, has reported to the Castle Committee that the portion of the boundary-wall, at the Castle, which it has been necessary to take down, is now nearly rebuilt. Thirty-two feet has been the shortest depth at which a solid foundation has been reached, and in one part it has been necessary to go down the distance of nearly 50 feet, from the level of the ground. Walls have been sunk, lined with brick-work in the usual manner, 4 feet 6 inches in diameter, every 8 or 10 feet along the line of foundations, down to the original strata. These have been filled up with good Heydon lime concrete, and on the top of them laid large slabs of York stone, 6 inches thick. From these columns of concrete, semicircular arches in 33 brick-runs have been turned, upon which has been rebuilt the boundary-wall as it was before. Where the large stone arch over the subterranean passage to the Shire Hall has been rebuilt, two wells have been sunk on each side of it. This has been the most effectual and least costly plan, adds the reporter, which the circumstances allowed, though, of course, the expense has considerably exceeded the amount originally mentioned. The outlay will be about 450*l.* Mr. Phipson also reports, that the whole of the works at the Shire Hall have been completed to his satisfaction. The works, for which a vote of 500*l.* had been taken, have cost 535*l.*

SANITARY CONDITION OF BEDFORD.—The Town Council of Bedford have started the question of applying the Local Government Act to the borough; and they have already been discussing the matter, as appears from the *Bedford Times*, which has of late been actively engaged in ventilating the sanitary question; and it is to be hoped the issue will be a speedy and decided improvement of the sanitary condition of Bedford.

DRILLING AND BORING METALS.—An invention, which applies principally to the forming of holes through metal of moderate thickness, has been provisionally specified by Mr. S. Perkins, of Gorton Works, near Manchester. It is intended more particularly as a substitute for the centre drill and boring bar; its object being to save time, labour, power, and material, in the forming of holes in metal, by making an annular cut, so that the centre part of the metal in which the hole is to be formed can be removed solid, or with only a small hole in it; instead of being entirely cut away, as in the ordinary method of drilling or boring.

MASTERS AND MEN.—It is with surprise and regret we observe that although the principal metropolitan master-builders, as we learn, are all fully supplied, on the hour system, with men, 240 masons still think it necessary to stand out on the hour question, while the workmen of the London trades have resolved to pay these idlers 1*l.* a week for taking part in a strike which can no longer be said to exist; and that while the bricklayers' committee have expended about 2,000*l.* in this fruitless cause since March last, the masons have expended more than double that sum; 3,000*l.* having been contributed from the funds of the Masons' Society alone.

THE BROKEN BRIDGES OF YORK.—Mr. Browne, whose history of the Minster, published a few years ago, is known to ecclesiologists, has just drawn attention, in the *York Herald*, to one of the windows of the Minster, containing a representation of the destruction of a bridge across the Ouse in the reign of King Stephen. The bridge appears to have been a lattice one, very similar to that which more than seven centuries afterwards is now the subject of so much comment. The broken bridge—the Archbishop on horseback—the struggling and afflicted multitude, are all portrayed (remarks the *Herald*), in colours on glass; and, fragile as the material is, which represents a curious passage in the history of Mediaeval York, it has survived the vicissitude of more than 500 years, and is as fresh and perfect now as when the family of the Tunnoces offered the window to the church. The window is the second from the transept on the north side of the nave.

OBSTRUCTION OF CHANCERY-LANE.—Were the plan of your correspondent "P.N.L." (see p. 764), to be adopted, the two currents would of necessity cross each other at the junction of Southampton-buildings with Chancery-lane. The proper arrangement would be for vehicles approaching Holborn to use Chancery-lane, leaving those going southward to use Southampton-buildings. An instance of such imperfect arrangement as that suggested by P. N. L. was shown some time since during the repaving of the south side of St. Paul's churchyard. Vehicles ascending Ludgate-hill passed onward through the north side of the churchyard (thrown open for that purpose), while those going westward went from Cheapside *via* Paternoster-row and Ave Maria-lane; thus causing the streams to cross twice—firstly at the top of Paternoster-row, and secondly at the junction of Ave Maria-lane with Ludgate-hill. The error was, however, remedied before the completion of repaving.—W. H. C.

ACCIDENTS.—Owing to a workman ignorantly plunging a bar of cold iron into the melted ore at the Dowls Works, an explosion followed, when he was so injured that his recovery is out of the question.—Another water-main burst the other day at the works of the Metropolitan Underground Railway, near St. Pancras Church. No one was injured, although the main burst with great violence, throwing pieces of the pipe with the water over the derrick and the trees into Euston-square.

TEST FOR PARAFFINE OIL.—The explosive nature of some oils, criminally sold as paraffine, for domestic use, has led to the invention of a cheap safety-gauge. It is a small glass hydrometer, with a scale graduated to indicate the specific gravity of mineral oils between 820 and 850, or weighing 8 2-10ths to 8 1-2 lb. per gallon. The specific gravity of 820 is considered to be safe: if below 820, the oil should not be purchased, as being too light and dangerous; whilst 850, with the lamps usually employed, is the limit of a good burning oil.

THE FEMALE SCHOOL OF ART.—A course of lectures, "On the Art of Decorative Design," are to be delivered at the Female School of Art, by Dr. Dresser, commencing on the 12th inst.

THE GLASS TRADE.—On the first nine months of the present year, as compared with the corresponding period of last year, window glass, says the *Gateshead Observer*, increased from 33,179*l.* to 37,991*l.*; but flint glass fell off from 167,562*l.* to 167,086*l.*; common bottles, from 254,744*l.* to 216,401*l.* and plate glass, from 49,634*l.* to 35,047*l.*

DE ASTON SCHOOL.—The following tenders have been submitted to Mr. Fowler, of Louth, the architect to the trustees, in competition for the erection of the school and other buildings:—Binns & Smith, Lincoln, 3,366*l.* 10*s.*; White, Alford, 3,230*l.*; Chapman & Kendall, Raseau, 3,149*l.*; Fox, Lincoln, 3,052*l.* 10*s.*; Wallis & Son, Raseau, 3,015*l.*

OXFORD ARCHITECTURAL AND HISTORICAL SOCIETY.—A meeting of this society was to be held in the Ashmolean Museum (by permission of the Keeper) on Wednesday, Nov. 6th, when a lecture was to be delivered by the Rev. Dr. Millard, of Magdalen College, on "The Life and Character of Sir John Fastolf; with a notice of Caister Castle." Meetings will be held also on the 13th, 20th, and 27th inst.

LONDON "CROSSINGS."—A correspondent, with reference to crossing the crowded thoroughfares of the great metropolis, repeats the suggestion made long ago in our pages, that the introduction of light iron bridges or an underground passage is now necessary. The former might be constructed passing from the first-floors of the houses, on each side of the street, the Board of Works buying a small portion of property to form convenient staircases.

SHIP CANAL FROM AMSTERDAM TO THE SEA. It appears that the important question of cutting the long-talked-of navigable ship canal, through the narrow strip of land that runs up to the Helder, has been settled; as the king has granted a "concession" to a private individual—one Mr. J. G. Jaeger—for the construction of the canal, under favourable conditions. The Government, it is said, grants the *concessionnaire* an unconditional guarantee of 44 per cent. interest on eighteen millions of florins—amounting to 810,000 florins annually—during the progress of the works, and till the completion of the canal.

COMPETITION: NATIONAL SCHOOLS AT DRY-POL, HULL.—Designs have been submitted in competition by the following architects, viz., Mr. Kerby; Messrs. Botterill & Kitching, of Hull; Messrs. Ainslie & Blashell, of London; and three from Messrs. Bellamy & Hardy, of Lincoln. At the first meeting of the committee, Mr. Kerby's and Messrs. Ainslie & Blashell's were selected; and at an adjourned meeting the decision was in favour of Mr. Kerby's. The design includes boys', girls', and infants' schools, and is to be carried out forthwith.

THE "MINIMA" ORGAN.—This new instrument has been invented and patented by Messrs. G. F. & J. Stidolph, of Ipswich. The recommendation claimed for it consists in its retaining, within the size of the ordinary piccolo pianoforte, every requisite for the performance of organ music, and adapting itself to the sphere of the drawing-room. Besides the means of varied expression, even beyond the old organs, it combines the desiderata of elegance of appearance, durability, and portability. In economising space no sacrifice has been made of effect: we have the same or more favourable results produced with the mechanical means on a smaller scale. "This is, in fact, a pedal organ, with 16-feet open diapason and a commensurate swell, within a space of 7 feet, and with, in some instances, double feeders for the feet, so that it may be blown by the performer."

PIERCING HOLES IN GLASS.—The piercing of glass by electrical sparks is no novelty, but there has been hitherto no instance of such an operation being performed on a plate of glass two inches thick and upwards. The French Academy of Sciences was therefore somewhat surprised the other day, when Mr. Faye produced two plates or rather lumps of glass, one of the thickness of 4 centimetres, the other of six, pierced through and through by the induction spark of Ruhmkorff's large machine. M. Faye observed that the trace left by the spark consisted of an opaque white thread, along which cracks, two or three millimetres in length, were perceived spirally situate under different azimuths. There was no trace of fusion. During the experiment, Haidinger's coloured tassels were noticed, showing that a powerful pressure was being exercised by the spark on the surface of the glass.

The Builder.

VOL. XIX.—No. 980.

Architectural Examinations, and the Institute of British Architects.



It will be remembered that at a special meeting of the Royal Institute of British Architects, held on the 1st of July last, to receive and consider the Report of the Council on the subject of Architectural Examinations, Mr. Penrose in the chair, a long discussion ensued, and ultimately the further consideration of the scheme submitted was deferred to some Monday in November, and the committee who had drawn it up were instructed to endeavour to obtain the opinions of the other architectural bodies on the subject. The proposed regulations, the curriculum, and list of works recommended to candidates, together with a full report of the discussion, will be

found in our pages.* On Monday last, in pursuance of this resolution, a special general meeting of the Institute was held at the House in Conduit-street, to receive a further Report from the Council as to the scheme and curriculum; Mr. Robert Kerr in the chair.

As reporters are not admitted on these occasions we must content ourselves with a general notice of the proceedings. The chairman having briefly introduced the matter, laid before the meeting the revised regulations. The changes are but small. The two classes of examinations previously called "Class of Ordinary Proficiency," and "Class of Honourable Distinction," now stand as "Class of Proficiency," and "Class of Distinction." The apportionment of marks is slightly altered; and the instruction to the examiners to take into consideration other degrees, certificates, or diplomas possessed by candidates is withdrawn.

Mr. John Papworth then read the replies from other architectural bodies as to the Regulations, from which it appeared that the Institute of Scotland approved, but pointed out that the laws in Scotland affecting buildings, being different from those in London, it would be better to have a special board of examiners in Scotland: the Northern Architectural Association approved, but thought examination should be compulsory: the Birmingham Architectural Society approved: the Liverpool Society had referred the consideration of the regulations to a general meeting to be held next year; and the Glasgow Society had given no reply. It was stated that the regulations had been sent to these societies before the alterations to which we have referred were made.

Mr. Aschpit moved the reception of the report, with a recommendation "that the council should be requested to appoint a sub-committee, which, having sketched a form of examination-paper, shall be instructed to revise for condensation the list of books, to edit the regulations, &c., for publication, and to take such other measures as may seem to that sub-committee necessary to promote the success of the proposed voluntary architectural examination." He was pleased with the manner in which the societies applied to had responded.

Mr. Jennings seconded the motion. He viewed the project wholly as an educational measure, but

thought hereafter the examination would become a necessity.

In reply to an observation, Mr. Papworth said he would by and by offer a motion that it was not desirable for the elder members of the profession to go up for examination. Mr. T. Bury objected to the proposal altogether. It went too far, or not far enough: and he thought the curriculum required too much. Mr. Seddon thought examinations would do harm instead of good, and objected to the step altogether. Mr. C. Barry thought the scheme would be a failure. As no diploma was to be given it would be an examination without a result,—a thing he had never before heard of. Mr. H. H. Burnell said he had never heard, before, of an examination without a previous course of study, and thought it would be useless to establish the examination proposed.

Mr. Godwin pointed out that this was not then the question. The Institute had already decided to do so. The present meeting had only to consider the best mode of carrying out that intention, and the regulations to be observed.

Mr. G. E. Street said he was afraid the profession took no interest in the proposal. He afterwards expressed his fear as to the useful working of the scheme. Mr. Roger Smith spoke strongly in favour of the scheme. Mr. Horace Jones moved an adjournment, in order that the revised regulations might be sent round for reconsideration.

Mr. Cockerell, R.A., in seconding it, expressed himself in stronger terms than he generally uses, against the opposition manifested to a proposal which was by far the very best step the Institute could take, and which was the only one indeed likely to obtain for the profession the full confidence of the public. Education, knowledge of all kinds, was what was needed. The chairman explained at some length the views of the committee in the matter, and the amendment, on being put to the meeting, was negatived.

Mr. Hayward spoke in support of the scheme. Mr. T. Bury withdrew his objection to it altogether, if it were to be applied only to students; but moved an amendment to the effect that the scheme before them was not likely to effect any good. This, after being seconded, was negatived by the meeting, and the original motion was then carried.

It ought to be thoroughly understood by this time, but apparently it is not, that what the council is now doing is simply a response to the cry which had been often raised by younger members of the profession: "Give us the opportunity of showing that we have fully studied our profession, and are fit and competent to practise it." We do not agree in opinion with those who would close the profession against all who had not made certain provisional studies and passed certain examinations. Such a restriction in an artistic profession, if it could be brought about—and we know very well it could not be—would be more harmful than useful; and this we have said for years, and we have given reasons for so saying. What is proposed by the council of the Institute, however, has, as our readers equally well know, our warmest concurrence. It is purely an educational movement, and by pointing out to students the course of study to be pursued, and the sort of knowledge to be striven for, and affording them the opportunity of showing that they have pursued that course, and acquired more or less that knowledge, is likely to effect great good. At present architectural education is very insufficiently attended to: the want of precise knowledge is often, in consequence, very strikingly apparent. At the last meeting of the examiners appointed by the Institute under the Metropolitan Building Act, as to competency to fill the office of district surveyor, out of five candidates the examiners were able to grant a certificate only to two; and this is a very simple and restricted examination.

The fullest consideration to the preparation of

the examination papers will, doubtless, be given by the sub-committee about to be appointed. There is no occasion to hurry: the examinations being determined on, it is as well that those intending to go up should have time before them to prepare.

THE CONDITION OF SCARBOROUGH.*

WE spoke of the North Cliff at the close of our first notice. The Board of Health does not seem to pay much attention to this district, yet it is clearly entitled to good scavengerage, as a large rate is gathered for local purposes. There were rates of 2s. and 4s. in the pound on houses, and of 6d. and 1s. on land, levied in August, for "certain purposes under the Local Government Act, 1858, and Public Health Act, 1858," which should furnish means to keep up a scrupulous neatness and cleanliness. Scavengerage, however, is not sufficiently attended to anywhere, nor are efficient storm-grates provided, the natural fall of the streets performing what surface drainage takes place, when, as a matter of course, the lowest parts of the old town, near the harbour, are rendered insalubrious proportionately. At the corners of nearly all the streets is painted up the word "Lodgings," and nearly every house has the same sign permanently painted over the doorway, or on the fanlight, or hung out upon boards. This is a puzzling arrangement, as there is some indication between the apartments that are still vacant and those which are already let. Good bands are perambulating the streets, stopping when they choose to perform good music with good instruments, and in such profusion that it is almost difficult to get out of the sound of music all day long. From time to time flies, or open carriages, for hire are passing: these are driven by boy postillions in gaudy, bright-coloured jackets, which, smart enough when new, possess the drawback of looking miserably seedy when in every-day rough and ready wear. This is not so unimportant a matter to the appearance of a town as might be supposed, for these bright dots of colour light up the streets with as pictorial a result as that effected by the old ladies in red cloaks, so frequently introduced in the foreground of amateurs' sketches. There are other colours as effective which do not look so slatternly when soiled, and which would be more conducive to a favourable aspect of the town.

The parish church is formed of the remains of a conventual church, which in Leland's time was a cruciform building with a central tower and two others at the west end; but the choir and transepts are ruined, leaving only the nave and south aisle. To these a north aisle was rebuilt by Charles II., and a tower built on the ruins of the central tower, which now occupies the unusual position of being over the altar at the east end, which is now therefore on the site of the centre of the transepts. A restoration under Mr. Christian has placed these remains in good repair; a second north aisle has been erected; new sittings, and stained glass to many of the windows, and decorated texts round the arches, contribute to the completeness of the decorations. The church stands on the castle rocks in a most commanding position in a large graveyard full of tombstones, many of which,—characteristic of the locality and the seafaring tastes of the inhabitants,—are erected in memory of the drowned whose bones are whitening other shores. The graveyard is now very properly closed. Passing a massive drinking-fountain (illustrated in these pages) erected to the memory of Thomas Hinderwell, the historian of Scarborough, and founder of the Museum, by "some who knew and loved him well," we near the castle precincts. There is but one road into the castle, as it is surrounded, as we have seen, by the sea on three sides. The gateway still stands, though very much worn and ruined; and passing through this, the walls are found to circuit a large desolate plain, in the midst of which stand the remains of the massive keep, built on the very early Norman type. These are of great antiquarian interest, and appear to be becomingly preserved. There are a few barrack-houses within the walls, which are occupied; but the impression raised by a glance around is, that here is a large space turned to very little account.

Descending to the heart of the old town by Churchstairs-street, we note the general absence of house drainage. Open channels run down the edges of the streets, little arches being made under the door-steps for the course of the waters, and as pigs are kept on some of the high levels,—Poad's-yard, for instance,—the result is open to objections; and gratings, where the channels meet

* See pp. 457, 475, 477.

* See page 765, ante.

the drains that exist in lower levels, are choked by impediments less innocuous than soap-suds. Looking up the long pebble-paved street, with its gabled houses rising one above another, and at the church, so high above all, the effect is exceedingly picturesque. Long West Gate-street, another old-fashioned street of small gabled houses, with the same superficial channel drainage in place of house drainage, traverses this street, which is afterwards called St. Mary's street. Out of this run various passages and courts—Barry's passage and Chapman's-court—which require looking after. At Low Conduit-street, at mid-day, there is a crowd of children, just escaped from school, waiting about a pant, for their turns to come to get their water-pails full. There are three similar public dribbling conduits for this large closely-packed old neighbourhood, the water to which is laid on from 6 a.m. to 9 p.m. We are not given to speculating, but suppose there was a fire here after 9 p.m.! What a waste of labour and time, and of clothes too, this nearly obsolete necessity of carrying water about entails! We trust it will not be long before our young people will be emancipated from this service, and that the simple expedient of a pipe to every house will supersede the necessity of getting wet-footed every time water is required for use. The people about White Head-hill and Tinker's-yard red-ochre their brick fronts, and paint their shutters green to give a cheerful appearance; those about Williamson's-court, Cook's-row, and Tiesman's-yard, make theirs smart with yellow wash and green shutters; but all have to be deterred by threats of prosecution from casting their dirt upon forbidden spots—a tendency that only the absence of proper ash receptacles could account for; and open channels run along the edges of the streets, under the door-steps, as before noticed. St. Thomas's Church and Schools are another clever adaptation of fall of site; they are built of red brick, out of which white brick quoins project, but tastelessly. We were glad to notice in this neighbourhood that there are some new houses—Albion-place, Spring-gardens, and Spring-field-place—building to which house-drainage is being applied; and the Board of Health cannot be too strongly urged to make the application imperative. In Cook's-row there are more charitable institutions—the School of Industry, and Taylor's fourteen free dwellings, and near to these is the hospital of Trinity House, founded in 1612, rebuilt in 1832. The last might be rebuilt again, as it is close, and badly lighted. In the centre of the small court there is a grating which is boxed round to prevent the filth from spreading. There are other old houses, bearing date 1716, 1724, with monograms and initials grouped round hearts on the fronts, which have come down to be lodgings for travellers, marine stores, pawnbrokers' and hucksters' shops, with attendant horrors in the rear. At a lower level the new gasometer occupies the site of a nest of crowded houses, and so far is advantageous; but such an offensively-smelling neighbour is scarcely desirable in a closely-packed old town. And so we make our way down to the harbour. This is unsavoury. What with the black coal-dust from the colliers, the storm-waters from the higher parts of the town, which bring down all the surface filth with them, the natural silting up of the harbour with sand and mud, and more than these nuisances put together, the discharging of the main drains at the mouth, the contents of which are washed back by the incoming tides: we repeat, the harbour is unsavoury. More than this, too, between the harbour and the most frequented bathing-place, and close to the baths of the Public Bath Company, and near the Royal Sea Bathing Infirmary, is the spot chosen for the fish-market; for there is no building, and here the fishermen scrape and clean the fish and wash their creels and baskets, leaving a sediment of gut and a muculent surface of fish-scales that must in the course of receding and advancing tides annoy the bathers, as well as befoul the harbour. Among the bathing-machines, some seventy-five in number, some of which are gaily painted with red and white stripes, others with green and white, and red wheels, looking in the distance like a Medieval camp, there are seven on an improved patent principle, by Mr. Crosbie, which are deserving of notice. These latter are suitable for invalids and children: by means of louveres the sea is admitted into the machines, which are divided into a high and low compartment; so that from the upper or dressing portion of the machine the bather steps into the lower part, through which the sea flows, forming an internal bath, without being obliged to open the door.

The horse-men and -women galloping up and down, sometimes five and six abreast, among the women and children waiting their turns to bathe, is a nuisance which certainly should be put down. Their approach is inaudible on the soft sands, so that pedestrians are never certain whether they are going to be run over from the front or the rear by these indifferent horsemen. Cooke's circus band, with a team of ten cream-coloured horses driven in hand, pirouetting round and round in a circle on the sands before the assembly on the Spa Promenade, was to be excused and admired as only occurring once in a way.

The Museum is exceedingly interesting. It is built in the form of a rotunda, for the purpose of showing the respective positions of the several strata and their fossil remains, if a section were made through the surface of the earth. The ceiling is painted with representations of the strata, and in cases and drawers below repose the fossils that pertain to them in corresponding order. The local ornithology, conchology, botany, fossilology, and entomology, are fully illustrated, with very many choice specimens, kept and arranged in admirable order. In one room there is a very large aquarium, well stocked with the living flowers of the ocean, fish and molluscs, which is constantly replenished with new specimens. Among the miscellaneous relics are the entire skeleton, in the dried skin, of an ancient British chief, together with the cist in which he was found; a Medieval jug, dug up in Stunstris-ruw; relics from Rievaulx Abbey and Kirkham Abbey—keys, crosses, breast ornaments, and altar candlesticks; a horse, carved by Chantrey when he was sixteen years old; and a Chinese pawnbroker's stamp; also a chair formerly fixed on the old pier for the purpose of ducking scolding women.

The springs were under the cliff, a part of which fell down in 1737, and the water was for some time lost; but, in clearing away the ruins to rebuild the wharf, it was recovered. "to the great joy of the inhabitants," The Cliff Bridge Company entrusted Sir Joseph Paxton, in conjunction with Mr. Stokes, to improve this site, which had been occupied by a Gothic hall, built in 1837, and suitable and attractive buildings have been erected adjoining the former saloon, which latter has, with the addition of an intermediate vestibule, been worked into the new plan. These buildings are situated on a terrace, on which a colonnade forms a long covered walk, the columns serving as supports to a wide gallery above, on a level with the next floor, about 320 feet in length. Between the wide flights of steps from the first-mentioned terrace to the level of the esplanade between the spa and the sea, are sloping banks of flowers cleverly arranged for contrasts of colour, and exceedingly well kept. In the rear of the buildings an acclivitous bank is laid out with flower-beds, shrubs, winding walks, and terraces, and is withal thickly wooded. The summit of the steep sloping bank behind the spa grounds, is occupied by a crescent having, in the centre, the Crown Hotel, and at the end the newly built Prince of Wales Hotel. The continental system of *table d'hôte* prevails at these and other principal hotels, and covers are laid for fifty or sixty guests daily. The visitors at one hotel install a president, and subscribe, and give balls to those at another, to which they will invite any strangers they please; such, for instance, as the officers of a French man-of-war, which was this season lying off the harbour. The whole of this breezy neighbourhood is laid out with very handsome villa residences, and a new church is in course of erection.

On the road to the cemetery we take occasion to note St. Nicholas-street, as containing several handsome shops worth especial mention. Wright & Sons, from Sheffield, an emporium of Parisian goods, has glass mullions, and white and gold decorations. The Royal Hotel, is white and cheerful, clean, and roomy. The York City and County Bank, is a handsome building, with a stone front; and Parkin's drapery establishment, is particularly striking; it has three large semicircular arches, with red granite columns, the centre being the entrance; over the doorway, the large glazed fanlight is filled with an iron ornamental grail. It is only one story high, and finishes with a somewhat meagre cornice surmounted with a balustraded parapet. The cemetery is in a very pretty situation, and is nicely laid out, and has a fine view of the country and of the sea. The chapels are in good taste, and the central tower and spire group well. A few more trees—yews and weeping willows, suitable to a cemetery—would, however, be an addition and improvement to the present ephemeral floral planting. In this suburban quarter, evidences of the still increasing growth

of Scarborough, are visible in the newly-erected and erecting rows of houses, and a sprinkling of chapels. Haddo-terrace, Hyde Park-terrace, and Dean-street, present neat specimens of the modern small suburban terrace style; and the Methodist Jubilee Chapel, 1861, with a projecting sort of tower at each of the four angles, is a pretentious mixture of the club-house and tabernacle type.

The Scarborough "Repository," 1826, has many panegyrics on this pleasant watering-place, which even then, it says, was as full as every description of vehicle, "from the coroneted carriage to the humble gig," could make it. One of these commences with the exclamation, with which we are fain to end:—

"Farwell, O Spaw!"

MR. TITE'S ADDRESS ON CURRENT TOPICS.*

In the course of the twelve months which have elapsed since the last annual inauguration of our meetings, death has by no means spared the ranks of those who have been interested in, or who have indirectly assisted, our pursuits. A short notice of the more distinguished of those persons may perhaps suggest, to many, lessons of deep significance, both morally and artistically; and I hope, therefore, you will bear with me whilst I pay the following short tribute to the memories of our late fellow-workers.

The losses of our profession this year have been of a threefold character: we have lost conditors in the more recondite branches of archæology; in the more abstruse branches of mechanical, chemical, and physical sciences; and from amongst our own immediate ranks. Amongst the former may be cited the names of Baron Bunsen, of the Earl of Aberdeen, and of Sir Francis Palgrave: in the ranks of scientific men connected directly or indirectly with our studies we miss such men as Wertheim, Vicat, Sir William Pasley, Eaton-Hodgkinson, Berthier, and Sir William Cubitt: whilst amongst our own colleagues we have to regret the loss of Professor Hosking, Mr. John Clayton, Mr. Henry Austin, our late esteemed solicitor and valued friend Mr. W. L. Donaldson, Mr. George Bailey, and Mr. Robert Grainger, of Newcastle.

The researches of Baron Bunsen, whom I name first because his death occurred first in the order of time in our sad list (he died on 25th November, 1860) have, as you must be aware, tended greatly to clear the obscurity which surrounded the history of that marvellous system of civilization of Egypt, and also to throw some light upon the early history of the Church during the existence of the Roman empire. The learned works upon "The Place of Egypt in the World's History," and upon "Hippolytus and his Age," may be referred to as illustrations of the patient investigation and of the wide range of study requisite for the comprehension of the more obscure periods in the history of our race; and though the minute details with which the various questions involved are discussed at times renders the writings of Bunsen slightly wearisome, yet our confidence in the results so obtained must be increased by the conviction of the conscientious examination their author must have bestowed upon them. Bunsen does not seem to have been much of an artist, and he does not therefore dwell upon the influence of art and of social organization upon one another; more than is necessary to support his views of "The Place of Egypt in the World's History." A curious chapter is still to be written on the artistic problem; and equally as it would be desirable to trace the nature and the extent of the action and re-action of science, art, and politics in ancient Egypt, so would it be desirable to trace them during the times of Hippolytus. The elements of both these chapters are to be found in Bunsen's works.

The Baron was born on the 29th August, 1797, and died 25th November, 1860. He had resided in England, as Prussian ambassador, between 1841 and 1854, when he resigned his position of account of his disapproval of the wavering policy of his Government in the Russian war. In his latter years Bunsen seems to have confined himself to his Biblical studies.

The Earl of Aberdeen is principally known to us on account of his earnest efforts to promote the study of Grecian art, and of his patronage the researches undertaken under the auspices of the Athenian, of the Dilettanti, and of the Antiquarian Societies, amongst the ruins of the Hellenic civilization. The Earl had travelled, in his youth, in Greece; and, like most enthusiasts of his generation, he had returned an ardent

* See p. 756, ante.

Philhellenist. It is to this fact that we may attribute much of his attachment to the pure Grecian architecture; and the fashion of the day afforded a singular reflex of the peculiar tastes of the noble earl. He seems, however, to the end of his life to have remained true to the gods of the idolatry of his youth; and, notwithstanding the sacrifice he made for the service of his country by his long devotion to her political interests, he retained to the last his affection for the studies and for the pursuits which had earned for him, from the satirical pen of his relative, Byron, the equivocal title of "The travelled thane, Athenian Aberdeen."

Sir F. Palgrave rendered great service to the cause of archaeology and to our knowledge of the political and moral condition of our Saxon and Anglo-Norman ancestors. It may appear to casual observers that this class of researches has but little reference to our professional pursuits; yet, if we reflect upon the intimate relations which must exist between the social organization of a nation and its mode of artistic expression, we must be convinced that it is impossible to understand the latter without being intimately acquainted with the former. In these days of revival of Mediævalism, therefore, it is essential for us to be well informed of the ruling principles of the times we are called upon artistically to repeat; and few men have been more successful than was Sir F. Palgrave in his descriptions of the manners and customs, or more correct in his accounts of the social organization, of our ancestors.

The Earl of Aberdeen was born on the 28th of January, 1784, and died on the 13th December, 1860. Sir F. Palgrave was born in the year 1788, and died 6th July, 1861.

The knowledge of the more abstruse parts of the science of natural philosophy applied to our profession has been so much advanced by the distinguished men I have cited amongst our recent losses, that we may well devote some time to a review of their works. Thus, to Mr. Wertheim (who was born at Vienna on 6th May, 1815, and died at Tours 19th January, 1861) we are indebted for some important investigations in the laws of elasticity, and of the sonorous vibrations of air and gases. In 1848, Mr. Wertheim published a *Mémoire*, written in conjunction with Mr. Chevalier, "upon the mechanical properties of wood," which unfortunately has not yet been translated into English; and in a *Mémoire* "upon the double refraction produced in isotropic bodies," Mr. Wertheim discussed the results obtained by Mr. Hodgkinson from his experiments upon the elastic conditions of cast and wrought iron; suggesting, for the purpose of observing the gradual effects of compression of solid bodies, the elegant chromatic dynamometer. This *Mémoire* will be found in the "Annales de Chimie et de Physique," vol.

The name and works of Vicat are of course known to all who have followed the history of modern science. Engaged in early life in the actual practice of his duties as engineer of the ponts et chaussées, he constructed some of the roads leading to Genoa; on the banks of the Isle river, in the Perigueux; and in 1813 he was appointed engineer to the bridge of Souillac, over the Dordogne; and it was in the course of the preliminary studies for this work that he was led to the discoveries which have so materially advanced the building arts and immortalized his name. At Souillac, Vicat introduced the system of founding the piers of bridges on masses of concrete, sunk under water within close-piled enclosures, or "caissons sans fonds," and to secure the success of the system it was necessary that he should use a lime which should be capable of setting under water. The chemical theory of limes and cements was at that period but very little understood; though the researches of Smee, Higgins, Guyton de Morveau, Bergmann, and De Saussure, and the introduction by Wyatt of the Roman cement, had placed at the disposal of inquirers many of the elements of its solution. About 1817, Vicat communicated to the Académie des Sciences the results of his analytical and synthetical experiments upon the composition of limes of various qualities; and he then propounded the theory which subsequent inquiries have confirmed and developed, to the effect that the hardening of mortars depended on the combination which takes place in them between the lime and the alkalis of alumina they contained. Vicat published in some separate brochures the results of his subsequent experiments; and in the "Annales des Ponts et Chaussées" he has also published some important *Mémoires* on the strains to which suspension bridges are exposed, on the resistance of iron-wire ropes, on the compression of solid

bodies, and on the statistics of the lime-producing formations of France. He co-operated with M. Leger in the introduction of the manufacture of the artificial hydraulic limes; and indeed he must be considered to have led the way to all the modern improvements in that important branch of the building arts. M. Vicat was fortunate enough to witness the universal recognition of the truth, and of the practical importance of his discoveries, which, with the true spirit of a philosopher, he had at once unreservedly placed at the service of the public. He received honours from every government which in turn has ruled in France during his long and useful career; and in 1845 the legislature of his country unanimously voted him a pension of 6,000 francs a year, on the strength of a report presented by MM. Arago and Thénard. When, in 1853, Vicat resigned his post on account of his advanced age, he was named, by a special decree of the Emperor, "Honorary Inspector-General of the Ponts et Chaussées," a dignity created expressly to honour this earnest and disinterested student. Vicat's works have been translated into almost every language of Europe; into our own, by Captain E. H. Smith.

Vicat died on 10th April, 1861, aged 75 years.

In the course of this year, also, the ranks of science have lost M. Berthier, the distinguished author of the "Traité des Analyses par la Voie sèche," in the course of which will be found some chapters bearing upon our profession. Berthier devoted, in fact, much attention to the examination of Vicat's discoveries, and has discussed the principles on which they are founded; he also paid attention to the analytical inquiries into the nature of other building materials, and of the metals used in construction. Berthier died 24th August, 1861.

We have to regret, also, the loss of Sir Charles Pasley, whose name has been so intimately connected with the diffusion in our country of the inventions and theories of Vicat. Sir Charles was born in 1781; and in 1797 he entered the army as second lieutenant of artillery; but in the next year he exchanged into the Royal Engineers. He served at the defence of Gheta in 1806; at the Battle of Maida; at the Siege of Copenhagen; as aide-de-camp to Sir J. Moore in 1808-9. In the Walcheren Expedition, Sir Charles, then Captain Pasley, was wounded twice; he then served in the Peninsular war until 1812; and in 1813 he was appointed director of the Royal Engineers' establishment at Chatham, a post he retained until his nomination as major-general in 1841. The connection of General Pasley with our profession is to be sought principally in the various papers inserted by him in the corps papers of the Royal Engineers; in his "Observations on Limes, and Calcareous Cements," 8vo. London, 1838; in the interesting operations for the removal of the wreck of the *Royal George*, and in blasting the Round Down Cliff, near Dover: indirectly his duties, as Inspector of railways, also brought General Pasley in contact with some of the members of our profession. Perhaps I may be allowed especially to call attention to the part which Sir Charles bore in the introduction of the artificial over calcined cements, known at the present day by the name of the Portland cements. In this instance Sir Charles worked in connection with the late Mr. Frost; and those gentlemen seem only to have missed the discovery of the influence of excessive calcination upon the action of the slow-setting cements, in their curious and valuable researches. General Sir Charles Pasley, died on 19th April, 1861.

Mr. Eaton Hodgkinson, was one of the students of the abstruser branches of science connected with our profession, whose labours will long continue to influence its practical details; and he may also be cited as one of those who achieved distinction by his "self-help," even whilst following studies of the most recondite order. Without any adventitious aids from family connection, or of wealth, Mr. Hodgkinson had succeeded in making himself sufficiently known for his acquaintance with the application of the higher branches of mathematics to the physical sciences (especially by the publication of a paper, in the "Memoirs of the Manchester Society," for 1822), to be employed by the engineers of that very practical town to conduct some experiments on the strength of cast iron, and on the best form of section to be adopted for girders. Previously to the publication of Mr. Hodgkinson's inquiries, the rules laid down by Tredgold on these subjects had been universally received by practical men; and he reasoned upon the supposition that cast iron, like other solid bodies, resisted equally the force of compression, exercised upon the top, or upon

the bottom, when loaded as a beam. Tredgold, therefore, inferred that the best form of section would be one resembling the letter T, with equal flanges at the top and at the bottom. Hodgkinson, however, discovered that cast iron presented some anomalous conditions of elasticity, and that especially it resisted efforts of compression with an energy which was nearly six times as great as the energy with which it resisted efforts of extension: he was thus led to recommend a form of cross section for girders, in which the upper and lower flanges were made to present sectional areas corresponding with the efforts of compression and of extension, they would respectively have to resist. The late George Stephenson was one of the first engineers to adopt this form of girder, for the bridge on the Liverpool and Manchester Railway, over Water-street, Manchester, erected in 1830: since then it has been adopted universally; though for my own part, I confess that the unequal rates of cooling, in the top and bottom flanges of Mr. Hodgkinson's form of girders, seem to me to involve a very serious practical danger on the score of the soundness of the casting in which the areas of the flanges are so markedly unequal.

Mr. Hodgkinson then devoted his time and attention to a series of investigations into the general laws of the elasticity of rigid bodies, and of the strength of pillars of cast-iron, and of other materials. His methods of observation were far from being as elegant or refined as those adopted by Mr. Wertheim; but they have been made more practically useful, and the empirical formulae deduced from them still regulate the practice of engineers and architects. Mr. Hodgkinson's results were published in the transactions of the Royal Society in 1840, and they were judged worthy to secure their author the Royal Gold Medal, and his nomination as a member of that learned body. In 1845, Mr. Hodgkinson was engaged by Mr. Robert Stephenson, in conjunction with Mr. Fairbairn, in the experiments it was considered necessary to make previously to constructing the tubes of the Conway and the Britannia Bridges; and it is to the results so obtained that we are indebted for the wonderful change introduced in the building arts by the application of wrought-iron plain and boxed girders. The most important facts thus elicited by Mr. Hodgkinson were communicated by him to the "Commissioners to inquire into the application of iron to railway structures," named in 1847, in consequence of the failure of the Dee Bridge at Chester, and were published by them in their report. In the fourth report of the British Association is inserted a paper, by Mr. Hodgkinson, on "The Collision of imperfectly Elastic Bodies," and on "Impact upon Beams." In 1842-46, he also published a second edition of "Tredgold on the Strength of Cast-iron," and from time to time he inserted various other scientific papers in the Transactions of the British Association of the Royal Society, and of the Literary and Philosophical Society of Manchester. It would be very desirable to collect and arrange in systematic order these very detached essays.

Mr. Hodgkinson was born on 29th February, 1789; and died on 18th June, 1861.

Sir William Cubitt was, perhaps, more immediately connected with our profession than the other eminent men hitherto noticed, on account of his connection with the original Crystal Palace. Sir William was the son of a miller, of Dilham, in Norfolk, and at an early age he was apprenticed to a joiner. After some years spent in the exercise of his trade and in the works required for repairing the mills of the district in which he was educated, he entered the factory of Messrs. Ransome, the agricultural implement makers and mechanical engineers, of Ipswich. In their employment Sir William became practically acquainted with the details of civil engineering; and about this period of his life he invented the self-winding apparatus of wind-mills, and that important instrument of prison discipline, the tread-wheel. About 1826, he removed to London, and began business on his own account as a civil engineer; and by dint of perseverance, industry, and honourable conduct, he slowly attained the foremost rank of his profession. The works executed by Sir William Cubitt on the Norfolk and Lowestoft navigation, on the Severn navigation, the South-Eastern and the Great Northern railways, the landing stages at Liverpool, the new Rochester town bridge, the Berlin waterworks, &c., may be referred to as illustrations of his practical genius and ability; and it is not too much to say that the manner in which the South-Eastern line is carried between Folkestone and Dover is one of the boldest pieces of engineering of which

we have examples in England. In 1851 Sir William was charged with the superintendence of the working details of the Crystal Palace, and for his exertions on that occasion he received the honour of knighthood.

Sir William Cubitt was born in 1785: he died October 13th, 1861.

Mr. Robert Grainger, like Sir William Cubitt, furnished another illustration of the ease with which real talent and sound character may achieve distinction in our country. Grainger began in the very lowest ranks of life, and even received his education in a charity school. By dint of energy, prudence, and economy he soon raised himself above immediate want; and, having been fortunate enough to enter upon the bold scheme of speculative building, which so changed the aspect of his native town; and, after some vicissitudes, left him a wealthy man in his later days. It would be invidious to criticise the style of building adopted by Mr. Grainger; and, after all, a man should be judged, in his artistic capacity at least, by the standard of his times rather than by a comparison with the productions of more recent periods. Mr. Grainger's new streets and open spaces in and about Grey Town, in Newcastle, when judged upon in advance of the provincial street architecture of his times; and the manner in which he introduced stone instead of brick in the elevations has certainly given a monumental character to designs which in themselves would not have attracted much attention. The new market, Exchange, Theatre, Dispensary, Musichall, &c., of Newcastle, are works of considerable merit; and, though no doubt Mr. John Dobson contributed much of their artistic character, it is to Mr. Grainger that the inhabitants of Newcastle are indebted for these important buildings. Mr. Grainger died 4th July, 1861, in the sixty-third year of his age.

Professor Hosking, born in 1808, died 2nd August, 1861, was in his very early life apprenticed to a carpenter and builder, in New South Wales; but in 1820 he was articled to Mr. Jenkins, architect, of Red Lion-square. I believe that he took lessons in drawing of Mr. George Maddox; and after leaving Mr. Jenkins he travelled in Italy and Sicily. Some lectures on architecture, delivered at the Western Literary and Scientific Institution, led to his being engaged to write the articles, "Architecture and Building," in the "Encyclopædia Britannica," which at once established his reputation as an architectural critic. Mr. Hosking very wisely refused to recognise the modern distinction between the professions of architect and civil engineer; and in 1834 he executed the works of what is now known as the West London Railway. Upon this line he constructed, amongst other works, a very remarkable bridge near Kensal-green, by which the canal and the common turnpike-road are carried over the railway; and it may be added that, in most of the recent foreign works on construction, this architectural piece of civil engineering has been reproduced. Mr. Hosking also designed and executed the Abney Park Cemetery, and some rather important private buildings about London; but he was most known from the fact of his having been named one of the official referees under the Building Act of 1844, and from his having filled the Professorship of the Principles and Practice of Architecture at King's College, London. In addition to the treatises on architecture and building before noticed, Mr. Hosking published an "Essay on the Construction of Bridges," and a "Guide to the proper Regulation of Buildings in Towns." Some of his lectures at the college have appeared in the columns of the *Builder*.

Mr. Henry Austin, formerly Secretary to the General Board of Health, and of late years Superintending Inspector of the Department charged with the Administration of the Local Management Act, died on the 9th of October, 1861. Mr. Austin was articled to Mr. E. Dixon, of Furnival's Inn, and subsequently entered the service of Mr. R. Stephenson, during the construction of the Blackwall Railway. On the commencement of the sanitary movement, Mr. Austin appears to have succeeded in securing the attention of its leaders; and he was thus connected with the singular theories of sumpts, of small pipe-drains, and pot-piped gathering-grounds, which for so many years were forced upon the unfortunate towns who submitted to the guidance of the General Board of Health. Mr. Austin was, however, a scholar and a gentleman; and in private life he was esteemed and beloved by those who knew him.

Mr. John Clayton, the only Fellow of our

Institute to whose loss I have yet referred, was known in early life by the publication of an "Essay on the Churches of London, and on Half-timbered Houses." He settled afterwards at Hereford; but his pursuits do not seem to have been of a nature to have brought him prominently before the general public. At least, I have not been able to obtain any particulars of them, beyond the fact of his having been engaged to construct the station buildings on the Hereford and Abergavenny Railway, and some private mansions in South Wales.

Our late Fellow, Mr. George Bailey, was another of the fortunate men "who have no history." He was originally a pupil of the late Sir John Soane, and he remained for some years in the office of that eminent architect after the expiration of his articles. On the death of Sir John, Mr. Bailey was appointed curator to the Soane Museum, and he held that post until his own death in the commencement of the spring of this year. Mr. Bailey held for many years the distinguished office of one of the secretaries of this Institute. In that capacity he was most unwearied, courteous, and able; and much of the success of the earlier years of our history is connected with the exertions of Mr. Bailey and his distinguished colleague.

Our late respected honorary solicitor, Mr. W. L. Donaldson, had at all times so identified himself with the interests of our Institute, and had displayed so much talent, energy, and disinterestedness in advancing its prosperity in all matters which entered into his province, that I fear we shall never be able to supply the loss. He carried us through the early period of our existence; and guided us by his friendly advice when we most needed both friends and advice. The tribute of respect we can offer to his memory is, I fear, but a feeble consolation to those who mourn his loss; but in the sincerest and most earnest manner do I now beg to express, in the name of the whole body of the Institute, our feelings of grief and of sympathy for the loss they have sustained.

"All heads must come
To the cold tomb—
But still the actions of the just
Smell sweet, and blossom in the dust!"

A VISIT TO THE JEWS' INFANT SCHOOL, COMMERCIAL ROAD, SPITALFIELDS.

It is very disheartening to see how slowly improvement goes forward. New thoroughfares have been opened: churches and schools have been built; and benefits in this way have been conferred; but over large districts the homes of the poor and industrious population are unchanged. The water-supply is bad, the drainage shocking, and the neglected condition is such that it is difficult, either by description or sketches, to convey any just idea of it. In few parts of the metropolis is this neglect more apparent than in the neighbourhood which surrounds the well-known "Rag Fair" of the Jews. To this part we now wander, and do not fail to be impressed with the peculiarities of the people who live here. A large portion are Jews; but in these dingy and pestilential courts the visitor will meet with German and Dutch families, with French, Chinese, Negro, Indian, and other peoples, some of whom can speak but little English: there are even natives of Ireland who cannot speak or understand a word of our language. It is singular to notice all the varieties of physiognomy, and the different appearance and condition of the homes. As we have already remarked, a considerable part of the inhabitants are Jews; and, although some of these have been born in Poland, Austria, Turkey, and elsewhere, the features are all alike. Here, in places of the most wretched condition, are to be found women and children of this ancient race, who would make rare studies for the painter. As we have in former papers said, it is in a great measure owing to the personal cleanliness and the wise attention paid to their homes and food, that the Jews are enabled in such localities to preserve more than the average amount of health amongst their neighbours. This is, however, to a considerable extent rendered difficult by the insanitary conditions and the very inadequate water-supply. Calling from house to house in these courts, &c., the people say that they are very short of water: for instance, in one court there is no water-cask or cistern—and the people tell that some days it does not run for more than five minutes, and sometimes the water does not come in at all. In one yard which serves for two houses, in which more than forty men, women, and children live, there is a cask which, if whole,

is cracked from about half-way from the top—so that a vessel is provided for the water-supply of forty persons, which would hold about fifteen gallons. Closets of the worst description are provided but to these and overflowing drains and cesspools, we will not just now particularly refer. Go where we may, the complaint of the "water-famine" on Sundays is great. For forty-eight hours—two days and nights—the people are left without any supply from the mains. Surely this state of things should not be allowed to continue. The constant supply of water during each day, without the need of cisterns or casks is most necessary; and will, with proper regulation, be a great boon to the dwellers in those neighbourhoods, and not attended with loss to companies. In certain ways, however, there is too much water. From the neglect in making necessary repairs, the walls and ceilings are rotting with damp in these places, so that we need not be surprised at hearing of cases of diphtheria and other complaints of this description.

The parish authorities should see that the dust-contractors do their duty here. There is just reason for complaint in this respect. In one house, in which the family of a German Jew lives, although every care was evidently paid to cleanliness, the house is unwholesome. An untrapped closet is situate on one side of the narrow passage which leads to the staircase of the sleeping-rooms, and just opposite to the room in which the children generally live. Below this room there is a cellar which, before these persons came here, was filled with rubbish, and they knew not what. It smells badly; and rats, mice, beetles, and other vermin find their way into the house. Notwithstanding several applications, the dustmen have refused to clear this away. Passing through these scenes of neglect, we walk towards the new thoroughfare which has been dashed through Spitalfields, and are glad to come to a building of plain but neat architectural design, and large and substantial. On this is the inscription—"Jews' Infant School. Established 5601. 1841." On one part of the building is a notice that the children of Jews may be vaccinated at particular times.

After leaving these spots, swarming with neglected children, it is agreeable to enter this school, and meet with a kindly reception from the mistress, who is of lady-like manner, and possessed of much intelligence. A din of cheerful voices echoes through the place,—about 400 children, all under six years of age, are at play. They have left the school-room, where Miss Harris, the mistress, has been giving them a lecture on the pores of the skin, showing them by such familiar examples as the youngest can understand the necessity of keeping those valves of health open. The play-ground is spacious, in part open, and in the other covered. This is an animated scene. Games and all kinds of romps are going forward; but some little men and women, of four or five years of age, are examining the pores of each other's faces, and those on the hands and arms. As soon as the children have left the school-room, which is very large and of excellent proportions for the purpose, and has been carefully swept, all the windows are thrown open, and vessels of chloride of lime put here and there for the purpose of neutralizing any impurity of the atmosphere. In all the windows there are plants of various kinds. In one box is mignonette, in very good flower, which has formed the subject of several pleasant lectures. The nature of the manure and soil was in the right season explained to the children: the seed was sown in their presence, and great was the delight when the flowers came forth. The regular course of instruction here is reading is carefully attended to. This is rendered more difficult by the teaching of both Hebrew and English. The moral truths of the Jewish dispensation are taught; and such texts as "Come, ye children, hearken unto me: I will teach you the fear of the Lord." Personal cleanliness is strictly advised: the teeth are cured for; and the hair of the girls is cut to a certain length (not as short as to disfigure); and this is supposed not only to be beneficial to the health of the children, but also in after years to make the hair stronger. Round the wall of the school-room there are pictures of lions, elephants, and other objects of natural history; and in another room there is a small but well-chosen museum of fossils and vegetable productions. Amongst the most prized of these is a cotton plant, which was sent by one who had been a scholar, who had gathered it far away. In the class committee-room,—in fact, throughout the house,—the sanitary and other arrangements are excellent. In one room we found a young artist

at work, painting a very fair little study in art. He had once been a pupil here; and, having shown taste in this way, and his friends being poor, he has been encouraged and sent a student to the Royal Academy, and this apartment is put to his use.

The Jews' Infant School was established in 1841, for the care and moral training of the children of the Jewish poor. The first school was in Houndsditch, and was, in September of the above year, opened for the reception of 200 children; and, in proof how much the advantages and need of the school were appreciated, it may be mentioned that no less than 136 names were entered on the books on the morning of the opening of the school. Applications for admission continuing to increase, in 1853 the premises in Houndsditch were enlarged, so as to afford accommodation for seventy additional children; and in 1856 a small branch establishment was opened in the neighbourhood of Spitalfields. In 1856 a lease of a plot of ground in Commercial-street was obtained from her Majesty's Commissioners of Public Works, for eighty years, at a ground-rent of 76*l.* per annum; and the present building was erected at a cost of nearly 5,000*l.*, in 1858. The school was opened and consecrated by the Chief Rabbi, the Rev. Dr. Adler, under the presidency of the Earl of Carlisle.

At the present time there are 560 names on the school-book. The average daily attendance is 348.

From the opening of the school in 1841, 3,176 children have been admitted, the greater number of whom have been drafted into more advanced educational establishments; thus making the Jews' Infant School an important auxiliary to the other Jewish schools of the metropolis. The pence of the children are of course insufficient to meet the expenses; therefore its existence depends on the contributions of those who feel interested in the advance of knowledge.

The large outlay incurred in erecting and furnishing the new school materially diminished the funded property of the charity, for such indeed it is, although the poor people fancy that it is otherwise, and feel a spirit of independence by making a certain amount of payment; consequently, the income arising from interest is greatly reduced, while the expenditure has been increased by the additional number of teachers required in the new establishment. To meet this deficiency an annual ball is given, with satisfactory results. Notwithstanding, the number of applications for admissions still increase; and the committee, which is composed of gentlemen and ladies of well-known repute, believe that branch establishments are required in other localities where the poor reside. This could very readily be done if those in affluent circumstances would but take the same walk as we have just done, and then hear what the mistress of this school has to say about her scholars.

THE ARCHITECTURAL ASSOCIATION.

The usual meeting of members was held on Friday, the 8th inst., at Conduit-street. The chair was taken by the president, Mr. Blomfield.

The following gentlemen were, on ballot, elected members of the Association:—Messrs. J. D. Mathews, Johnson, Willis, Thomas Plummer, W. A. Garney, Friend, Collins, W. S. Niblett, Thomas Green, and John Heath.

The Secretary read a communication from the Northern Architectural Union, submitting a scale of professional charges for the approval of the Association.

On the motion of Mr. Paraire, the consideration was postponed until the next general meeting.

Mr. Reeves read the report from the class of design, which stated that a great improvement had taken place in the class during the last session in many respects. This improvement was chiefly manifested in the increased number of attendances, and in the improved quality of the designs. The number of students attending the class averaged sixteen, against five in the preceding session; and the designs averaged twelve, against ten in the corresponding session last year. In the former session, the majority of designs were rather rough pen-and-ink sketches; while those submitted in the session of 1860-61 were, in any instance, carefully studied and elaborately executed drawings, exhibiting considerable artistic merit, both in drawing and colouring.

The report was received. Mr. Ridge then read the prize essay upon "The architecture, and its proper treatment. We have an extract:—

"Attention not to be confined to the Fronts.—"

While undoubtedly the front forms the important part which we have to deal with in streets, we must consider that most houses display in the upper portions more or less of the construction of the sides, which are deserving of more attention than is now paid to them: in fact, so far has the elevation principle of designing prevailed, that, when called upon to build at the corner of two streets, we usually do nothing more inventive than return the features of the front at the side; only substituting blanks for windows; thus making a frightful deformity, and sacrificing that which by nature is a strong position for obtaining architectural results.

The choice of the materials to be used in our buildings is of the utmost importance: natural limits and economical considerations, however, too frequently bind our free will; and it then behoves us to use to the best advantage any material necessity presses upon us. In London, and a very large proportion of other places, brick is principally employed in structures of an ordinary kind; and its cheapness, and even its durability, compared with stone, will probably cause this state of things to continue; consequently our treatment of this material must affect, more largely than anything else, the appearance of these towns. The treatment of brickwork has been so long neglected, that bricks and mortar have come to represent all that is inartistic, dull, and unpleasant; and no wonder, when we look at the black rows of gloomy brick houses which are so numerous in London. We may, however, rejoice that much alteration has taken place in this respect: feeling the necessity of using brick, architects have been striving to ennoble it as a building material; and the introduction of different species of ornamental brickwork bids fair to be one of the principal architectural characteristics of the present age. Bricks of a light colour are particularly valuable for imparting a more cheerful aspect to our streets; and the divers colours in which this and its relative manufacture, tiles, are capable of being produced, give peculiar advantages for the introduction of polychromy structurally in the building; thus encouraging that love of colour which, after so long and so sound a slumber, is reviving among us. The great difficulty with external coloured decoration is the evil effect of a smoky atmosphere, whereby colours are often soon dimmed or altered, and occasionally hid altogether, beneath a coat of brown dirt: this has led to an almost universal feeling that our efforts should be limited to constructive polychromy, in which the effect shall be produced by the native colours of the materials employed; and it would indeed be incautious to expose unprotected to the influence of our climate the work of the painter.

Modern instances are not wanting, in which the contrasts of colours are most unpleasantly strong and ill-chosen: in fact, it requires some care so to adjust the colours, that they shall be neither painfully exaggerated at first, nor lost altogether after a year or two of exposure. As we can hardly, by our present means for colouring, calculate on the appearance which time will produce, we must beware that it do not in any way divert our attention from the more essential and lasting features of form, outline, and symmetry. Colour is far capable of being made ornamental: the attentive arrangement of those bricks which can now be obtained monied, in the forms which most frequently occur, may, with but little cutting, be made to produce very good results.

If the manufacture of some slightly-glazed facing-brick (for which architects have for some time been seeking) could be accomplished, without a disproportionate increase in the cost, such that the rain would remove the deposits, from the smoke, which attach themselves to our buildings, we should have a material which, for variety of effect, cheapness, and durability, both as to substance and appearance, might be fairly esteemed very nearly perfect for all general purposes.

Encaustic tiles are useful for producing brighter effects of colour, as well as more varied shapes, than we can easily obtain from brick alone: the quantity of them, however, which we introduce, should be limited; owing to their being merely a facing, and adding nothing to the stability of the building.

When we have stone at our disposal, it scarcely seems to be used to the best advantage, unless it be made expressive, in a way which brick cannot be, by sculpture or carving, that it may appeal directly to our intellect, or our sense of the beautiful.

The facing walls with hewn stone, however desirable in buildings of a high class, should cer-

tainly not take precedence of these methods of expending the means at our disposal."

At the conclusion,

Mr. Paraire, in moving a vote of thanks to Mr. Ridge, said, it was, he thought, extremely creditable in so young a man to have prepared a treatise from which no element on the subject had been omitted. The preparation of such papers as that which they had just heard (which should be regarded rather as works of investigation than of literature) was extremely useful, and he hoped that the example would be more generally followed for the future.

Mr. Blomfield said he quite agreed in the observations which had fallen from Mr. Paraire as to the desirability of members contributing a greater number of essays.

Mr. Walker observed that, although an unsuccessful competitor for the prize, he quite agreed in the decision of the judges, who had awarded the prize to Mr. Ridge. He owed to the pleasure which he felt at being fairly defeated by so able a competitor.

After some observations from Mr. Lewis and other gentlemen, the vote of thanks was put from the chair and carried unanimously.

COMPETITION.

Chester Market.—We are informed that the second premium in this competition was awarded to Messrs. Ward & Son, of the Potteries. Our informant "cannot but remark on the partiality shown" by us in not mentioning this before; and "is somewhat at a loss to understand the omission," &c., &c. He need be at no loss. It was not mentioned simply because it was not known. If architects and others would give us information, instead of ascribing motives for its being withheld, our records would be very complete.

ALTAR SLABS.

In the church at Chipping Sodbury, Gloucestershire (St. Mary and St. John Baptist), the original altar-stone remains. The five crosses are very plain, and the stone is placed in the floor of a passage leading from the north chancel aisle to the nave, and just under the reading-desk.

WM. R. LAWRENCE.

In the chapel connected with the hospital of St. Mary Magdalene, near Ripon, is, or was in 1850, an altar-stone, with the five incised crosses, as usual. Whether it was still in use, or formed part of the pavement, I cannot now remember.

WM. R. CORSON.

CAMBRIDGE ARCHITECTURAL SOCIETY.

On the first meeting of the Cambridge Architectural Society for the Michaelmas Term, held on Thursday, Oct. 31st, the Rev. H. R. Luard, M.A., Trinity College, in the chair, a report for the past year was read and agreed upon. It said:—

"In reviewing the architectural proceedings of the year, we have to observe that in the town, with the exception of the Guildhall, no original work has been taken in hand at all. The works there have been steadily advancing, but they are not yet in a condition to warrant any opinion upon the artistic merits of the building.

We had hoped, we think with good reason, that the past year would have shown a commencement at least of certain important works intended to be carried out both at Great St. Mary's and All Saints' Churches. In both instances we have been disappointed. The works projected at Great St. Mary's have been delayed by technical objections, which have unfortunately been started, whilst the more common difficulty of collecting sufficient funds has, we believe, retarded the commencement of a new church in the parish of All Saints'. We trust, however, that both the works mentioned are certain of being commenced next year.

At the Fitzwilliam Museum there has been what we cannot but consider a measure addition to the boundary wall. This addition, as might have been anticipated, called forth, as soon as it appeared, some free comments in the Cambridge papers. All competent judges must, we fear, pronounce the wooden screens to be very ugly, whilst the iron railing is quite out of line with the fence. At St. Edward's a chimney has been run up in the angle of one of the buttresses, plastered and elegantly lined out into square stones. We can scarcely recommend those who are entrusted with the funds for the completion of the reredos to commit that work to the designer of that chimney.

In matters of repair we have to congratulate the Provost and Fellows of King's College on the partial accomplishment of the works they have undertaken in their chapel roof. At the Church of St. Mary the Less we have much pleasure in noting the faithful restoration of the windows that is being carried out. Clare College has also undergone considerable repair; and at Trinity a large and somewhat effective chimney has been built for the kitchen."

Mr. W. M. Fawcett read a paper on "Hauxton Church." Under the southern arch a fresco of St. Thomas of Canterbury was found. It is the

original fresco which was placed on this wall when the arch was made, and is still in very fair preservation.

PROVINCIAL NEWS.

Portsmouth.—It is stated that a plan has been submitted to the authorities, having for its chief objects the improvement of the channel of entrance to Portsmouth harbour, and the securing of a larger area of basin accommodation. The estimated cost of the work is 450,000*l*. The urgent necessity for the creation of large docks for the reception of iron ships of war is acknowledged on all sides; and it is understood that steps will be taken by the Board of Admiralty to construct the first of such docks in the north-east portion of the mud lands of Portsmouth harbour.

Oxford.—At the weekly meeting of the Board of Guardians, a report of the New Workhouse Committee was read, recommending the purchase of land belonging to Magdalen College and Pembrooke College, as a site for the proposed new workhouse. The report was approved of; and, after some discussion, Ald. Ward moved and Mr. Birt seconded, that Oxford architects be invited to send in plans for a new workhouse. Ald. Towle was strongly in favour of throwing the competition open to the whole country, so as to get the best possible plan; and he moved an amendment to that effect. The Rev. Mr. Wingfield took the same view of the matter as Ald. Towle, and seconded the amendment, which was then put to the meeting and lost by four votes against fourteen. The motion was carried. The chairman said he thought architects should be instructed to furnish accommodation for not fewer than 350 patients, exclusive of the Infirmary accommodation. It was finally resolved, however, that accommodation be provided for the minimum number of 300 patients.

Aldershot.—The assembly-room, with board-room, cloak-rooms, &c., has been completed for the Market Company, and opened with a concert under the patronage of Sir J. L. Pennefather, commanding the camp. The building presents a frontage of 60 feet to the High-street, forming an additional story to the shops already built. It is 25 feet wide and 20 feet high, and has three entrances, all opening outwards. There is a platform at one end, and chairs are used instead of benches. Three Venetian windows afford light by day, and five sun-burners in the ceiling throw a light at night. The architect was Mr. T. Goodchild, of Guildford; the contractor, Mr. Duke, of Farnham; and the gas-lighting was by Messrs. Defries & Son, of London.

Norwich.—The new town-hall has been opened. It is a parallelogram, 125 feet by 81 feet, having three large entrances from Exchange-street, and an exit door below the floor of the hall, communicating with Little London-street. Two committee-rooms and other accommodation are provided in a recessed part of the site, adjoining Messrs. Jarrold's premises. Under the hall is a large cellar, facing Little London-street. The side walls internally are constructed of brick, with white facings, and occasional bands of red bricks, the whole length being divided into six bays, the piers standing out from the recessed portions, and each recess being arched over, so as to bring the whole to a uniform thickness at the top. The arches, which are semicircular, and alternately of red and white bricks, spring from stone impost mouldings, a moulded stone dado being also inserted above the plinth. The end towards Exchange-street shows semicircular arches over the entrance-doors, a large semicircular-headed window in the centre, and smaller windows over the side doors. The end towards Little London-street is similarly built, except that as there are no doors on this floor a large triplet window of three semicircular-headed lights of considerable height occupies the centre, and two lofty single-light windows, similarly arched, the side positions; the impost moulding of the side arches being continued to the springing of these windows. The roof, which is entirely of iron, is supported by five lofty columns on each side, dividing the building into what we may term a nave and aisles; wrought-iron semicircular ribs, 20 feet span, connecting the columns longitudinally with each other and the end walls, and transversely with the side walls. The nave, or centre portion, 40 feet wide, is spanned by semicircular wrought-iron ribs, united by longitudinal iron purlins, and covered with stout galvanized corrugated iron. The interior dimensions of the building are as follows:—From the floor to capitals of nave columns, 27 feet; from top of capital to springing of nave roof, 16 feet; or the whole height from floor to apex of

nave roof, 66 feet; the height of side walls from floor to glass roof, 41 feet. The building is to be lighted with gasreaths or coronas, nine in number, three in each compartment of the roof. The floor is to be of English oak, 1½ inch thick, dowelled; and the space between the joists is to be doanefed or pugged, so as to assist as far as possible the acoustic properties of the building. The style of the building is Italian, adapted to the iron and the glass arrangements of the interior. The contractors for the whole building, except the roof, are Messrs. Ling & Balls, of Norwich; and the contract for the roof has been taken by Messrs. Barnard, Bishop, & Barnards, also of Norwich. The cost of the whole when completed will be about 8,000*l*. The whole of the buildings have been executed from the designs of Mr. Barry, of Norwich, and Mr. H. Butcher (late Goodwin & Butcher), of London. The roofs have been adapted and carried into detail from the design of the architects by Mr. E. A. Cowper, C.E., of West-minster. Mr. Smith was the clerk of the works.

Staindrop.—The almshouses, twelve in number, built by the Duke of Cleveland, are now nearly completed. They are built in the Elizabethan style. Each house consists of a living-room, scullery, and pantry, on the ground floor, and two bed-rooms above; the yard and conveniences at the back. There will be a small flower-garden in front, bounded by a low wall. The cost of the whole will be about 2,000*l*, and the endowment to each house 20*l*. per annum.

Kirkdale.—Through the liberality of the Earl of Derby and Mr. C. P. Melly, a spacious public playground is forthwith to be provided for the inhabitants of Kirkdale and its neighbourhood, in a desirable and central part of the township.

Halwhistle.—A new building for the Mechanics' Institute of this town has been opened. It is in the Italian style of architecture, and has a frontage to the main street, of polished stone; the monotony of the outline being broken by the introduction of a clock tower. Inside, the building contains, in addition to rooms for the use of the magistrates, three living-rooms for the persons placed in charge of the building; two class-rooms, a reading-room, library, and large hall for the purpose of lectures, public meetings, &c., the dimensions of which are 38 feet by 23 feet. The cost of the building has been nearly 1,000*l*. The architect was Mr. Howison, the county surveyor; and the contractors were Messrs. Watson & Liddell.

Gateshead.—The arrangements for transfer of the Windmill Hills as a public park, says the local *Observer*, are fixed. On the 18th instant the representatives of the borough-holders, in obedience to the instructions of their constituents, will hand over the public recreation-ground of the people of Gateshead to the custody and guardianship of the town-council.

SCHOOL-BUILDING NEWS.

Bristol.—The Colston School buildings have been arranged for the reception of 140 boys; and the ground appropriated to school purposes (about four acres) affords ample space for play-grounds, cricket-ground, master's garden, &c. The school buildings contain on the ground floor three school-rooms, about 32 feet by 24 feet each, besides two smaller class-rooms, a chapel, an entrance-hall with stone staircase, a dining and examination hall, 65 feet by 31 feet, and 18 feet high, with a vestibule leading to the playground; ushers' sitting-room, surgery, consulting-room, and the usual domestic offices, with bedrooms for servants over the latter. On the first and second floors are the boys' dormitories, ushers' sleeping-rooms, sick wards, wardrobes, store-rooms, &c. At the extremity of the new dining-hall, and communicating therewith, a new residence for the master has been erected. The works have been executed by the contractors, Messrs. Lewis & Sons, of Clifton, under the superintendence of Messrs. Fosters & Wood, as architects to the trustees. The entire cost of the alterations has been under 3,000*l*. The school is about two miles from the centre of the city, and is on two sides bounded by the river Frome.

Birmingham.—The new schools of St. Barnabas, in Ryland-street, have been formally opened. They are in the Gothic style, and are situate nearly opposite the church. They were built by Messrs. Barnsley & Sons, contractors, from the designs of Mr. J. J. Bateman, of Birmingham, architect. The rooms are heated by hot-water apparatus, supplied by Messrs. Smith & Hawkes.

NATIONAL GALLERY.—The Gallery has been some weeks closed for the purpose of receiving the Turner collection, but is now open again.

CHURCH-BUILDING NEWS.

Wilsford.—Saint Mary's Church, Wilsford, has been restored and re-opened. Wilsford is situate about half-way between Sleaford and Grantham, and adjoins Ancaster, of the stone of which the church is built. The chief work has been internal restoration and arrangement, with new pulpit, desk, lectern, and open seats, under the direction of Messrs. Kirk & Parry, of Sleaford, architects. The expense of the restoration has been defrayed by a rate for 800*l*., granted by the parishioners; a donation of 100*l*. from the rector; and about 200*l*. raised by the leading proprietors.

Wathe (near North Thoresby).—The church of St. Martin, Wathe, has just undergone a restoration and partial rebuilding, from the designs and under the superintendence of Mr. James Fowler, of Louth, architect; and has been re-opened. The church consists of a nave, north and south aisles, chancel, south transept, and a central tower. The old building was erected about the tenth century (the tower being the oldest part); and in restoring the architect has carried out the style of the ancient work. The exterior is built of stone; the interior, red bricks, stone bands, with inlays of embossed and enamelled tiles. The windows are all filled with stained glass, from the works of Messrs. Ward & Hughes, and Messrs. Powell & Sons. Owing to want of breadth in the windows the cartoon, "The Last Supper," has two tables introduced. The old arcade of the nave have been retained and restored. The whole of the pavements are from Minton, Hollins & Co., Stoke-on-Trent, arranged by the architect. The works were entrusted to Mr. R. Ryall, builder, and Mr. J. H. Ryley, stonemason, both of Louth.

Rushmore.—The church here, except the tower, has been re-built and re-opened. The walls of the nave and chancel are rubble. The church stands on the old foundations; but, on the northern side, aisles have been added; thus materially adding to the number of seats—now about 260. The style is the Early English, but the chief entrance—to the south,—consists of a Norman doorway, which was preserved when the old building was pulled down. The roof of the nave is the old one, but that of the chancel is new. The church is benched throughout; and the standards which terminate the benches in the nave are carved; the elbows being formed of angels. Under the tower-arch stands a square stone font, which, with the ornaments on the top of the tower, is the work of Mr. Frewer, of Ipswich. The stone screen separating the chancel from the nave contains a piece of carving presented by the architect, Mr. Hakewell, of London. It represents St. Andrew (to whom the church is dedicated), bringing his brother Peter to Jesus, and is the work of Mr. White, of London. The wood-carving was executed by Mr. Polley, of Coggeshall. The remainder of the stone-carving was executed by Mr. Jacket, of London. The east window, which, to be in union, is in the Early English style of architecture, is rather heavy in appearance, and is filled with stained glass; there are also stained-glass windows on the south side of the chancel. The contractor for the re-building of the church was Mr. Henry Luff, of Ipswich. The cost of the restoration was upwards of 1,000*l*.

Uppingham.—The parish church here has been reopened, after having been closed for thirteen months, for the purpose of being restored, or rather almost rebuilt. The work was entrusted to Mr. H. Parsons, of London, whose restoration of the neighbouring church of Ridlington was then drawing to a conclusion. Of the tenders obtained, that of Messrs. Halliday, of Grantham and Cave, of Oakham, being the lowest, were accepted. As it was necessary to provide seating for a larger congregation, and that entirely on the ground-floor, an extension of the church was requisite. To obtain this result the dilapidated chancel has been taken down and the chancel rebuilt the length of one-half of the nave arcade farther to the east, thereby increasing the length of the nave by one-third. The north wall of the north aisle has been taken down and rebuilt stone for stone, 8 feet further to the north, making 20 feet wide instead of 12 feet. A new chancel has been built, and also two transepts to both communicating through an open arcade with the chancel: that on the north forms an organ chamber and vestry: that on the south is to accommodate the school children. A stone porch has been erected on the north side, facing the market place, and an oak timber one on the south side. The roofs and fittings throughout are of English oak. The chancel is 28 feet long, by 18 feet inches wide. It is faced internally with rubble Clipsham stone, and separated from the transept

on either side by an arcade of two arches, moulded; the central column and responds being executed in serpentine marble from the Signal Staff Quarry of the Lizard Serpentine Company. These columns are surmounted by carved caps of natural foliage, and the trefoil spandrels within the arches are enriched by carvings of foliage, typical of life, eternity, &c., each being a different design. Behind the arches and columns, and separating the chancel from the transepts, are oaken screens of open tracery. The east window is about 12 feet wide by 19 feet high, in five lights, the head full of tracery. It is contemplated to finish the wall under the window with a reredos. The old pulpit of Jeremy Taylor, which, although of a different style (Jacobean), has been preserved as a memorial of that illustrious divine, is placed on the north side, upon a base of serpentine, which is worked into the wall as a part of the whole. The chancel throughout has been laid with Minton's encaustic tiles, at the cost of the rector, and from a design made by Lord Alwyne Compton. The body of the church throughout has been seated with oak benches, the ends of which are square, finished with a deep moulding, ornamented with ballflowers, &c., and running down to the floor. The tower and spire have been restored, and various other restorations effected. A new heating apparatus has been applied by Messrs. Stuart & Smith, of London. The gas-fittings and the wrought-iron hinges have been executed by Messrs. Plard & Jackson, of London. The cost of the whole work is upwards of 4,500*l*.

Thurlston.—The church of Thurlston has been re-opened. Both sides of the church have been taken down; and, with the chancel end and arch, have been rebuilt, as well as a new roof added. Three windows of the Early English character have been placed in the building. The ancient Norman arcade has been cleaned of its covering of white-wash, and the whole of the interior newly stuccoed, the windows having been embellished with dressings of stone. The work has been done under the direction of Mr. Slater, and the stonework was entrusted to Mr. Fenn, of Leicester; the woodwork being done by Messrs. Taylor, of Thurlston.

Sinfield (Horsham).—A new parish church and burial ground have been consecrated at Sinfield, by the Bishop of Chichester. The church has been built with Horsham stone and Bath stone dressings. It consists of a nave rather over 60 feet in length; and the whole length, including the chancel, is about 90 feet. There is a south aisle with a vestry room at the east end; and at the west a tower, 66 feet high, surmounted by a stone spire, the height to vane being 108 feet. The roof is open timbered, stained and varnished; and the plastering is tinted gray and blue. The windows are glazed with plain quarries. The small window opposite the tower is given by Mr. R. Brander, of Horsham. There is a square of glass in the centre on which is a Spanish painting of our Saviour. The chancel windows are all of stained glass. The east is an Early English triplet window, with marble columns, carved capitals, and moulded heads. The glass was given by Mrs. Vincent and the ladies of Sinfield. It represents the crucifixion, burying, ascension, and acts of mercy. Mr. J. Briggs gives a memorial window, which is placed in the chancel; Mr. E. Holding also presents one; another, the gift of Mr. and Mrs. Drew, represents a marriage. The pulpit is the gift of Sir H. Pelly, bart. (Warnham Court). It is from a design of the Rev. T. A. Latchard, of St. Leonards-on-Sea, and of French workmanship. It is made of oak, the panels being carved, and representing Christ and the evangelists. It is supported by a column relieved by three figures, intended for Faith, Hope, and Charity. This is placed on the north side of the chancel arch. On the south side is the reading desk, also of oak, designed by the architect, Mr. Barry. The chancel is paved with Maw's encaustic mosaic tiles. The style of the whole building is Early Decorated; and the edifice is estimated to accommodate 470 persons. It was built by Mr. E. of Brighton, who has just completed works at Lancing, Aileston, and East Dean churches. The cost of the building is about 3,500*l*, and the money has all been raised with the exception of about 400*l*.

Sutton at Hone.—St. Paul's Church here has been consecrated. The church is built of Kentish rag, with bands of red brick, after a plan of Mr. Christian, the architect. It is fitted with open seats, the greater part of which are free, and can accommodate for 240 persons. Mr. Stamp, of Brompton, has carried out the design.

Brighton.—The foundation-stone of a new church has been laid at St. John's Common, Burgess Hill,

for the united parishes of Clayton, Keymer, &c. The church is of cruciform plan. The length of the nave is 85 feet, and of the chancel 30 feet. There will be only one aisle at present, on the south side; but provision is made for one on the north side, by which a large number of sittings will be obtained when required. The width of the nave and transept is 25 feet, and the height 45 feet. The tower and spire, at the west end, will be 90 feet high. The style of the church is Early Decorated. The facings generally will be of various-coloured bricks. The windows, doors, buttresses, copings, &c., will be of Bath stone. The church will contain 700 sittings, of which number 400 will be free. The architect is Mr. T. Bury, of London.

Highworth.—The parish church here is being restored, under the supervision of Mr. J. W. Huggall, architect, by Mr. W. Pedley. Two niches have been discovered, and a distemper painting, copied by Mr. Bull, jun., representing St. Dunstan shoeing a horse, the hoof of the animal being on the anvil, not between the legs of the smith.

Shapwick.—St. Mary's Church has been re-opened, after having, during the last sixteen months, undergone extensive restoration. The restoration of the nave and chancel has been conducted by Mr. Scott. The roof, which was previously filled in with plaster, and painted, has been renewed: the west door, hitherto closed up, has been thrown open: the walls have been fresh stuccoed: the old-fashioned high pews have been replaced by sittings of solid oak and plain workmanship. There are two painted memorial windows in the body of the church, which have been contributed by Mr. Warry and members of his family. The chancel has been restored by the lay rector of the parish. It has received a coating of freestone inside, in place of the plaster with which it was formerly defaced: the roof, which is of oak, is entirely new; and all the windows,—five in number, one of which has been opened,—are of stained glass. The east window is a memorial to some members of Mr. Strangways's family. The pavement throughout the church is of encaustic tiles, in a simple pattern. The wood for the altar-rails Mr. Strangways ordered from Australia. The cost of restoration, independently of the chancel and the organ,—a gift from Mr. Mason,—has been about 900*l*.

Battlefield (Shrewsbury).—The Church of St. Mary, at Battlefield, near Shrewsbury, which has been restored under the direction of Mr. Scott, architect, and Mr. S. Pountney Smith, of Shrewsbury, has been re-opened. When the work of restoration commenced, says the *Shrewsbury Chronicle*, half of the building was unroofed and in ruins; the broken summits of the walls, nearly 9 feet below their original height, covered with shrubs and grass; the window-openings, of course, without glass, and dilapidated to the last degree. The tower, which had sunk aside from the admission of water to the foundations until it was one foot out of the perpendicular, had lost its floors, its bells, and its roof; a miserable shanty covering its small bell: in its declination the tower had dragged the western end of the church walls in the same course, and rent itself in all directions to stop its further sinkings. The first and most pressing object was to arrest the ruin of the tower. This work was entrusted to Mr. Pountney Smith, and proved to be a difficult and dangerous affair. The tower was entirely taken up by massive shoring, the bottom of the footings drained, the staircase turret to a great height, and the angles of the south-western angle of the nave taken down, the soft clay earth cut out from under the tower walls, and an entirely new and spreading footing put in with Portland cement and concrete of Wenlock lime. The staircase and angle of the church have been rebuilt, and the whole secured. After this, some time elapsed before further works were undertaken. The upper parts of the old walls, which, for ages, have been uncovered to the storm, have now been, as far as necessary, taken down, and rebuilt to the original height, and surmounted by a new masonry parapet; and the buttresses of the nave, which have at the top less projection than those of the chancel, have been finished with sloping water-tables against the plain parapet. The east gable, unfortunately, could not be finished in time for the opening; but it is intended to add a suitable parapet and cross, and to restore the canopied niche containing the statue of the founder. The restoration of the masonry of the tower parapets is also unavoidably incomplete. The traceried windows of this building have been restored or renewed. As the width of the church necessitated a heavy span for the new roof, whilst the walls were comparatively weak, the hammer-beam roof

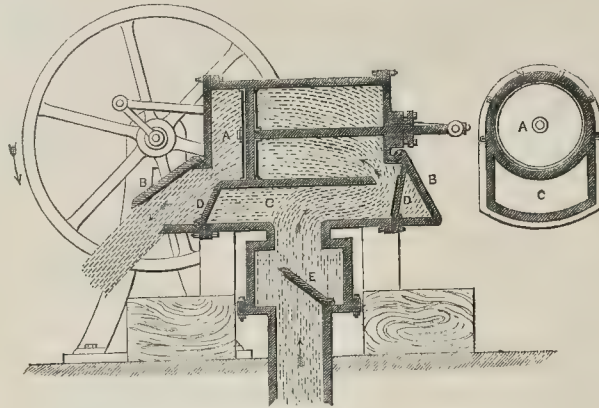
was adopted. A considerable amount of work has yet to be done to the roof in carving and decoration of the new windows. Twelve lights of the chancel have figures of the Apostles, with canopies and accessories. The other windows of the chancel, except that to the east, have devices in stained glass. The nave and tower windows are in diaper, with borders. The great east window remains untouched for the present. Dividing the chancel from the nave, in place of the old rood-loft, is a traceried and carved wood screen, 14 feet high, in seven divisions. The nave seats are plain. The ironwork of the doors is charged with the crown, in relation to the Royal founder. The floor is of encaustic tile throughout.

Barnsley.—The Bishop of Ripon has consecrated the new burial-ground at the cemetery. The buildings are in the Geometric style, and consist of entrance-gates, lodge, mortuary chapel, consecrated and unconsecrated chapels, with catacombs on each side, with a screen of arches connecting the two chapels. Mr. Perkins was the architect.

STAINED GLASS.

Sleaford Church.—A memorial window has been placed in this church to the late Mr. W. Foster. The work has been done by Hardman, of Birmingham. The designs are from scenes in the life of the Apostle Paul. The upper portion of the window contains a likeness of the Saviour, apparently in the act of publishing those life-giving words which made the "common people" glad. In the left hand compartment Paul is represented sitting at the feet of Gamaliel, and receiving instructions from that great teacher. The next compartment shows him receiving letters from the chief priests, authorizing him to take to prison those who believed in the Saviour. In the third he is represented as standing before the Jewish Sanhedrin. The fourth shows him before Agrippa.

Morton Church, Bourn.—Two stained glass windows have been inserted, one in the west end of the north aisle, and the other in the south window of the south transept, of this church. The former contains three lower compartments, with tracery in the Perpendicular (fifteenth century) style of architecture. The subject of the window carried through three compartments is the "Incredulity of St. Thomas." The two figures in the centre group illustrate the words of the risen Saviour, "Reach hither thy hand and thrust it into my side," and is a copy of an ancient painting in the possession of Mr. Parker. The whole of the apostles are also represented as present. The tracery is filled with emblems of the Pelican, the Cross, and Anchor, Alpha and Omega, and foliage. Turning eastward in the north aisle, the first is a mosaic window of three lights and tracery. Next to this is another three-light window illustrative of the life of St. John the Baptist, the patron saint of the church; and containing, first, St. John preaching in the wilderness; second, the baptism of our Lord; and third, Herodius with the head of St. John in a charger. The tracery of this window is filled with the Lamb and Flag. The next window is of a mosaic pattern, with three compartments and tracery; and further on is a window with four compartments containing groups, viz., the Annunciation, Nativity, Crucifixion, and Ascension. The next window in the east end of the north aisle contains the Resurrection of our Lord in the three compartments with tracery lights. The south window of the south transept contains three events in the life of King David, viz., Slaying the Giant, Playing on the Harp, and being anointed King of Israel. These are by Messrs. Thomas Baillie & Co., of London. Besides these there are several windows by Messrs. Powell & Sons, of London: they consist of the east, north, and south chancel, and the west windows, the south and clerestory windows. The chief of these are the east window, containing four subjects taken from the parables of our Lord; viz. the Good Samaritan, the Prodigal Son, the Sower, and the Good Shepherd; and the west window, containing eight subjects from the Miracles of our Saviour; viz. the Marriage at Cana in Galilee (water made wine), Healing the Sick Man at the Pool of Bethesda, Restoring Sight to the Blind, Feeding the Multitude, Miraculous Draught of Fishes, Raising the Widow's Son, Raising of Lazarus, and Stilling the Storm. Messrs. Powell have sent another window for the south aisle, which contains the following three subjects; viz. Our Saviour's triumphal Entry into Jerusalem, Little Children brought to Christ, and Christ in the Temple disputing with the Doctors. In the lantern of the tower are two stained windows by a tradesman of Bourn.



THE PATENT DOUBLE-ACTIONED "FLOOD PUMP."

THE PATENT DOUBLE-ACTIONED
"FLOOD PUMP."

WE have recently seen in operation a patent double-acted lift or bilge pump, which seems to us to possess peculiar merits, and is justly called the Flood Pump.

Except for the purposes of a force-pump or fire-engine, the horizontal principle has not, we think, been applied with anything like a good practical result in the manufacture of pumps. Various applications of so desirable a motion have been made to the ordinary lift or bilge pump; but, from the fact of power being in all the instances required to drive out the water from the cylinder, from the misplaced position of the outlets, and the extreme difficulty, amounting almost to an impossibility, of getting at the valves—a fatal objection to a good working pump,—but little success has attended their introduction. These objections, however, have been removed in the invention to which we allude, and a double-acted pump, of striking simplicity, has been constructed. The arrangement of it may be best understood by reference to the accompanying sketch.

A shows cylinder, with a packed piston working through stuffing-box, motion to which is given by means of cross-head, parallel slings, crank, and fly wheel.

B B are the outlet valves, placed as low as possible in end covers of casting for egress of water by its own gravity, on "suction" being destroyed by reversal of stroke.

C is water-course entering cylinder by valves D, E, foot valve, the seating flanged on as shown. The valve-box water-course and cylinder being all one casting.

The end covers of the casting are also flanged on, by which means access may be readily had to the piston; while access to the valves D is obtained by simply raising or lifting off the outside valves B.

Of the value of such an arrangement to the contractor, too much, as it seems to us, can scarcely be said. It is a pump, in the use of which stoppage is rendered next to an impossibility, all the working parts being as it were on the surface, and under immediate control; while, as a ship's pump, its importance cannot be too strongly urged, bearing in mind the repeatedness with which ships, having valuable cargoes, have been abandoned owing to the inefficiency of the pumps, from their tendency to get choked, and the impossibility, from the position of their working parts, of keeping them clear.

Nor does extreme simplicity of arrangements constitute the only merit of these pumps; but, as a means of raising water, they certainly seem to us unequalled. A small pump of 4-inch bore, with a 6-inch stroke, worked by a man at 45 revolutions of the wheel a minute, discharged, from a well 16 feet from the surface, by actual experiment while we looked on, a quantity of water equal to 1,455 gallons per hour, being within a fraction of the measured capacity of the cylinder twice filled every revolution; while a pump with a 12-inch cylinder and 18-inch stroke, with two men making 30 revolutions per minute, is capable, it is stated, of discharging within the hour, 26,400 gallons; a result that cannot be arrived at

with the ordinary two-barrel contractor's pump, with about four times the amount of power in the same time. The specimen we saw was at No. 151, Newport-street, Paradise-street, Lambeth. The flood of water which it belched out from a neighbouring well was something to remember.

MR. WILLIAM LEE, M.P., AND HIS EMPLOYEES ON THE SOUTHERN HIGH-LEVEL MAIN DRAINAGE WORKS AT NEW CROSS.

LAST week a presentation took place at the Railway Tavern, New Cross, at which Mr. Lee, the member for Maidstone, presided. Messrs. Lee & Bowles are now carrying out two sections, of nine miles, of the important sewage works for the main drainage of the southern side of the metropolis, extending on the main line from the pumping station at Deptford Creek to the Plough Inn, at Clapham; also that of the Effra branch, commencing at the same point, and diverging from the Dennett-road, Hatcham, terminating at Coxted-heath, Dulwich, the whole of which has been entrusted to the professional superintendence of Mr. Joseph Jeffrey Bennett, their managing engineer.

The clerks, foremen, and workmen, immediately under Mr. Bennett's control, were anxious to testify their esteem for his uniformity of character and justice; and, desirous to carry out the object of the promoters, they met together, and resolved that Mr. Bennett should be presented with a suit-

able testimonial. At a dinner Mr. Lee presented Mr. Bennett, in behalf of those who had subscribed, with a silver salver and a silver tea and coffee service, and an illuminated testimonial, designed by Mr. T. Turner, an artist attached to the firm of Messrs. Standidge & Co. Various speeches were made, and much good feeling was expressed.

INSTITUTION OF CIVIL ENGINEERS.

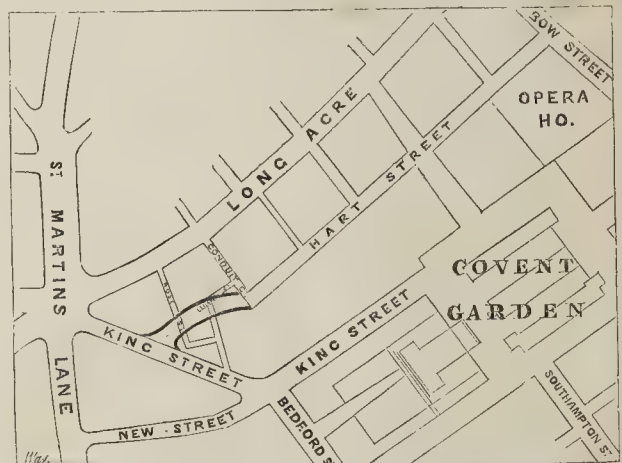
ON November 12th, Mr. Bidder, president, took the chair. Before commencing the business of the evening, the President alluded to the singular fact of its having been his painful duty, on the first meeting of the late Session, to notice the loss of some old and distinguished members of the profession. Thus, he had announced the loss of Mr. Brunel, Mr. Robert Stephenson, and Mr. Locke, and now he had to mention the decease of Sir William Cubitt. The chairman then gave some particulars of his career.

The paper read was on "The Hooghly and the Mutla," by Mr. J. A. Longridge.

The subject was divided into the following heads:—Firstly, a statement of the commercial importance of the Port of Calcutta. Secondly, a brief account of the present mode of transport of the traffic to the port, and the modification of it, by works now in progress. Thirdly, a sketch of the physical features of the two outlets, the Hooghly and the Mutla. Fourthly, remarks on the past and present state of these rivers, as navigable channels, together with a consideration of remedial measures.

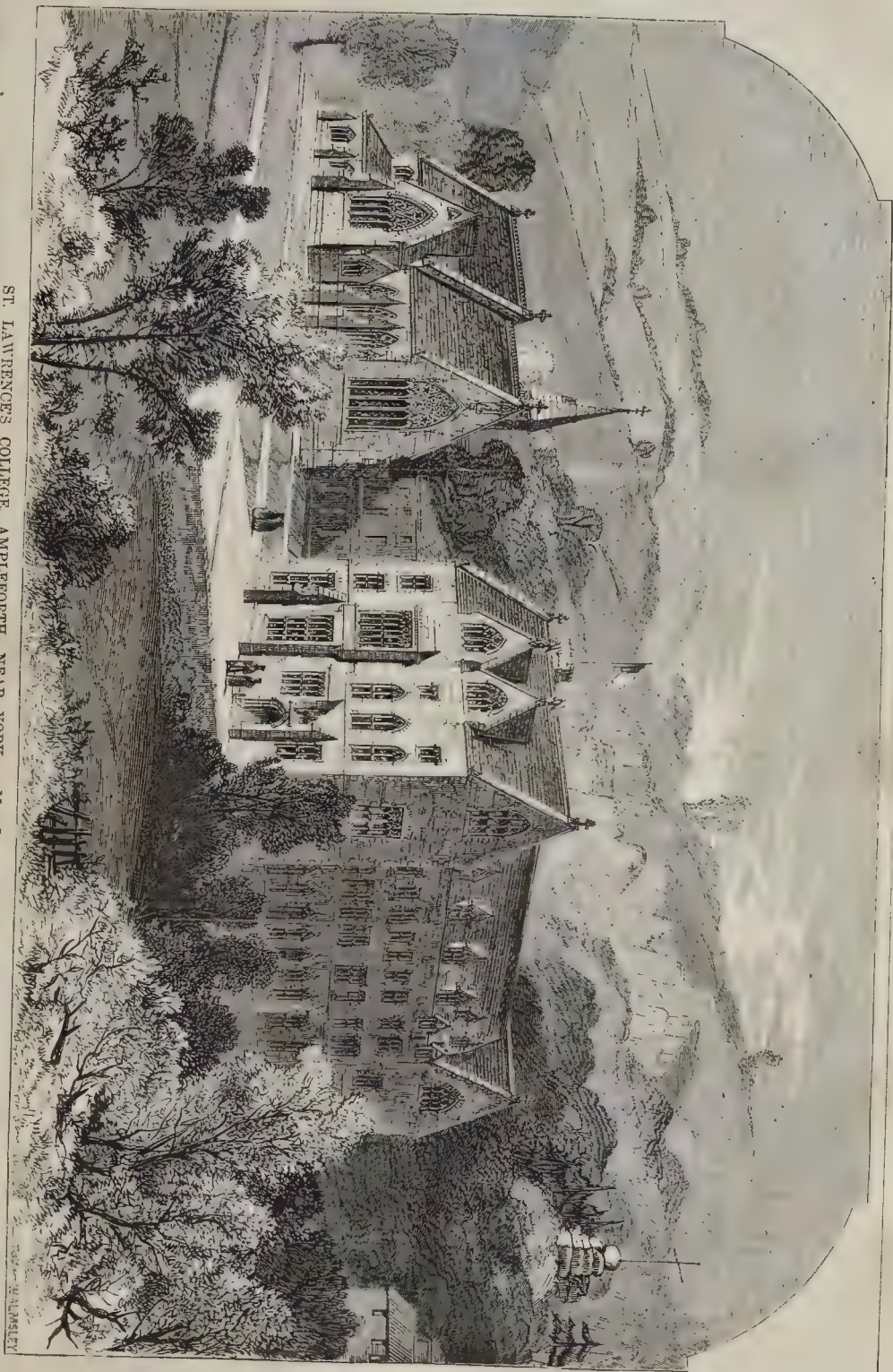
COVENT GARDEN APPROACHES: STREET IMPROVEMENTS.

It is contemplated to carry out the remaining portions of Mr. Pennethorne's plan for Covent Garden approaches, submitted to the Commissioners for Improving the Metropolis in 1846, by a continuation of Hart-street into the new portion of King-street. By thus opening up Hart-street the increased traffic from the new warehouses lately erected there will find an exit, and the carriages for the Opera-house will be able to arrive and depart with greater facility. An easy and direct approach would also be given to the royal entrance to the Opera-house in Hart-street, and a great improvement made to the neighbourhood by the removal of several low houses and brothels. The Duke of Bedford has liberally offered to carry out the improvements at his own cost; and the only difficulty at present is with the Metropolitan Board of Works, who would be required to sell the necessary two plots of land in their new street to enable the opening at the west end of Hart-street to be carried through. In the plan laid down, and which we have engraved, the proposed new part of the street opening into King-street is curved. This should be avoided if possible, and the street made straight.



COVENT GARDEN APPROACHES.—Proposed Elongation of Hart Street.

ST. LAWRENCE'S COLLEGE, AMPLERFORT, NEAR YORK.—MR. JOSEPH A. HANSON, ARCHITECT.



ST. LAWRENCE'S COLLEGE, AMPLEFORTH, YORKSHIRE.

THE new college represented in the accompanying engraving was opened on Wednesday last. It forms one wing of the Benedictine priory of St. Lawrence, Ampleforth, a foundation commenced about the beginning of the present century, and is designed for the education of Roman Catholic youths, whether intended for a secular or ecclesiastical state. The priory stands near to and about midway between the ancient Cistercian houses of Rievaulx and Byland, and is almost central to the present important houses of Castle Howard, the seat of the Earl of Carlisle; Duncombe Park, Lord Faversham's; and Newburgh Park, Sir George Wombwell's, formerly the seat of the earls of Faulconberg. Gilling Castle, so long and at present the residence of the Fairfaxes, stands opposite to it; the Vale of Mowbray lying between it and the priory. Bransby Hall, the seat of the Cholmeys; Hovingham, of the Worsleys, and other important residences and domains, lie as it were close around, so that it is in a neighbourhood of old and present celebrity; and, considering the importance attached to the question of education, it has been attempted, as far as the circumscribed present means of the priory would allow, to make the building equal to every demand that can reasonably be made upon those who conduct it.

The style of architecture chosen is tolerably near to that which prevailed in this country in the fourteenth and fifteenth centuries, and is of a collegiate character. Light and height, and general spaciousness are secured. There are three main stories, each averaging about 20 feet in height, and, though transomed and mullioned windows admit light and air to the various rooms contained within them, they are of such height and frequency as almost to render the building obnoxious to the charge of being in a glare rather than in a gloom.

The first story, which is about 9 feet lower than that of the old centre building—by reason of its being adapted to the fall of the ground—contains a library for the elder boys, 37 feet by 25 feet, and 19 feet high; a play-room, 56 feet by 25 feet, and 18 feet high; a library for the junior boys, 25 feet by 22 feet, and 17 feet 6 inches high; and the procurator's room of stores for the boys, about 20 feet by 11 feet. All these rooms open out of a great cloister or ambulatorium, about 160 feet long, 17 feet wide, and about 19 feet high, which is lighted at the east side by arched and caseried windows. At the lower end of this apartment, and close by the boys' outer south door, is a spacious recess, screened off between two archways at the side, wherein are a lavatory and shoe-closets, for the use of the boys on coming in from the play-ground. At the upper end, a flight of steps, the whole width of the cloister, leads to the level of the old house, and opens upon its corridor to the left, nearly 300 feet long, and which is 13 feet 6 inches wide at this portion; and, turning round again, after six steps of that length, an ascent of 9 feet more is made to the floor of the great schools, by two easy flights of eight steps each, and broad middle and upper landings.

On this floor is the study-hall, 107 feet long, 25 feet wide, and 22 feet 6 inches high. Out of the hall, to the east side, are a junior boys' school-room, 29 feet by 25 feet; and three class-rooms, about 26 feet by 17 feet each; and a small room for the prefect, at the south-west angle. Another class-room, about 24 feet by 23 feet, is approached from the great landing; and a sixth room, 44 feet by 25 feet, is attained at ten steps above the landing at present appropriated as the lavatory, but designed as a future portion of the schools.

Ascending 13 feet 6 inches from the main floor last described, there lie over the class-rooms a suite of students' rooms, about 13 feet by 10 feet 6 inches each, and a large store-room for theatrical and other properties, used for the boys' recreation at Christmas and other holiday times. These form an *entre-sol*, or midway story. There is also an infirmarian's room at the south-west angle.

Ten feet higher, ascending by a spacious staircase, we reach the dormitory-floor, which contains one "dortoir-hall" of 107 feet by 44 feet, and 22 feet high, fitted up with seventy-four enclosed beds; a second room, 44 feet by 25 feet, for fifteen beds; a smaller special chamber, for six or eight beds; prefect's rooms; water and slop closets; spacious landings for presses, &c.; and, finally, at a moderate height above the landings and smaller rooms, is another dormitory for fifteen beds.

The building is warmed by hot water in exposed pipes in every room; the boiler-vault being in a basement story under one end of the elder boys'

library. The lavatories give a basin to each boy, with the water let on and off at his command, and closets for his brushes, soap, &c.; and, besides this, a portion of the old building close to the new wing is set apart for washing-closets, in which a complete ablution will be made by each boy once a week, having hot and cold water supplied to them.

It remains to be mentioned that, besides the great staircase at the upper end of the building, a great turret-stair-case, of 9 feet inner diameter stands at the south-west angle, and runs from the boiler-vault to above the roof ridge, and commands in its course every floor, as well as gives from the lead flat a commanding prospect of the country.

The play-grounds, ball-court, gymnasium, exercise walks, and the rest, are all laid out with the same consideration for the boys' comfort and advantage as has been displayed in the interior of the building.

The church, which forms the western wing of the priory, was built from the designs of Mr. Charles Hanson, of Clifton, and opened about four years ago. The present building is by Mr. Joseph Hanson. The contractors were Messrs. Simpson & Malone, of Hull. The hot-water apparatus and plumbing work were done by Messrs. Hodgson, of York.

FOREST OF DEAN CENTRAL RAILWAY.—FALL OF A BRIDGE.

ON Friday, the 8th instant, as four men were removing the centres of a bridge erected at a great height across a deep cutting of the above railway, near Blakeney, after having partly accomplished their task, it was observed by Captain Humphreys, the resident contractor, and Mr. Hopton, his chief agent, who were personally superintending the operations, that the stones in the arch were cracking and giving way, and gradually following the supports. An order was immediately given for the workmen employed to clear from underneath the structure which they had barely time to do before it fell with a terrific noise; completely crushing the timbers beneath, and blocking up the railway with wrecks of wood and stone. Neither Mr. Grantham, the engineer of the line, nor his local assistant, Mr. Graham, happened to be upon the spot; but their presence evidently could not have prevented the catastrophe, which appears to have been anticipated by men of experience in the neighbourhood. Either the company or the contractors will be at considerable loss by the unfortunate occurrence; but we are happy to hear that it will not cause any delay in the opening of the line for traffic, which is fixed for the early part of next month.

METROPOLITAN BOARD OF WORKS.

AT the usual weekly meeting of the Metropolitan Board of Works, on the 8th inst.; Mr. J. Thwaites in the chair; a memorial was presented from the vestry of Bermondsey, which stated that they had been informed that the Government and the Metropolitan Board of Works had had under their consideration a proposition for the embankment of a portion of the Thames; and, as many lands on the south side of the river were below high-water mark, and subject to inundation, they were of opinion that any embankment for the improvement of the river would not be complete without an embankment on the south side.

A deputation from the district board of the parish of Fulham waited upon the Board to present a memorial, urging the commencement forthwith of the main drainage works for that district. The memorial stated that a large portion of this densely-populated parish was entirely undrained, by reason of the sewage falling into the Thames and creating an enormous and pestilential mud-bank, extending from the Creek to the Suspension-bridge; and they considered that the construction of local sewers in such places under present circumstances would be removing the evil from one place to create a great nuisance in another. Large areas, with a crowded population, were without any sewerage whatever; the whole being riddled with cesspools, which, by percolation, were poisoning the wells and rendering them unfit for domestic purposes, while the costly works of the Counters Creek Sewer had been of no benefit to them, being cut off by the West London Railway and the Kensington Canal.

Mr. Bazalgette said it was utterly impossible to carry out all parts of the main drainage at the same time; and the most urgent districts had been taken first, which he was sure that the memorialists would feel was the proper course to be taken.

They had let as large a portion of the contracts as possible. There had been some delay last year on account of the very wet weather and the very high price of bricks; and they were waiting to have decided the question of the Thames embankment. That delayed them for some time, but, as far as he knew, that was now settled; but before they could commence the western division of the main drainage they must have in readiness to receive it the pumping engines at Plumstead marshes.

A report was received from the Building Act committee, stating that they had further considered the complaint against Mr. J. H. Taylor, district surveyor for Newington, Lambeth, and Battersea, of imperfect supervision of certain buildings; and, having received a verbal statement from him upon the subject, they were of opinion that the whole proceeding showed a laxity of conduct which, if persisted in, might lead to very objectionable practices.

The Board, after some discussion, came to a resolution adopting the views of the committee, and ordering the suspension of Mr. Taylor from his duties for a month.

Mr. Wood was appointed to the duty for that period.

BIRKENHEAD WORKHOUSE COMPETITION.

NOTICING the letter on the above subject in your last number, signed "A Competitor," I thought it might add to his gratification to know that not only in the above competition, but in two others in the immediate neighbourhood, viz. that for the Wesleyan chapel at Higher Trannere, and that for the Chester market, the fortunate recipient of the first premium has been either a Liverpool or Birkenhead architect; thus proving, either that the "local talent" is "pre-eminent," or that influence of some description has had its due weight in deciding these competitions.

The Guildford Town-hall and Hull Town-hall competitions have shown how some competitions are decided; and thus the "curious coincidence" of three local men having obtained the first prizes for the Birkenhead Chapel, the Chester Market, and the Birkenhead Union Workhouse competitions, will also cause doubts as to the disinterestedness of these selections; and may warn others, as it most assuredly will me, from wasting time and money upon so-called open competitions; and thus prevent them from ever having the chance of signing themselves

AN UNSUCCESSFUL COMPETITOR.

*** We have received five other letters on this subject, but it would be useless to print them.

FORM, COLOUR, AND SOUND.

MR. WARINGTON'S letter, in your issue of the 2nd instant, calls attention to vigour in music producing the same effect on the mind as vigour in architecture or form. That this should be so is not so singular as that the fact should be so little recognized as to call for special comment. It is probable, nay, almost certain, that form, colour, and sound exercise the same effect upon the mind; and it is only the varying intensity and rapidity with which the conveying medium acts in individuals which renders one person more sensitive to one phase of art than another; and it is a question if form, colour, and sound are not governed by the same laws, and perhaps but the varied expression of the same cause.

We can reduce each down to the same simple divisions. In form, but three primary figures exist,—the square, triangle, and circle; in colour, but three primary hues; and in sound, three primary tones; and the spectrum and the gamut each follow the same divisional scale.

That sound influences form, we know by the arrangement of particles produced by vibration; and again, vibration, by altering form, produces sound. The influence of colour and form on each other we all know; but, alas! more by its misuse than its use; and, to a man born blind, yet by medical science enabled to see, colours at first produced on him the same effect as sound. It is not, therefore, strange that vigour or weakness in any one of these should produce a parallel effect, seeing that they themselves are parallel. But what is much wanted is some research into their co-relationship; and we should then be spared many of those miseries we from our ignorance now endure. What architect is there, who, after much thought and labour bestowed on his work, has not found it spoiled, and all his formal music turned into discord by some decorator and upholsterer,—all his harmony of form destroyed by

contrast of colour,—and his contrast of form reduced to a flat, unmeaning level by carefully-blended tones of colour? Or, worse still, how often do we find a man spoiling his own work from the same want of knowledge? Again, how frequently do we see a fine building beautiful to look at, but impossible to hear in? And I have no doubt that the first reliable step in acoustics will be found in searching for some co-relationship between form and sound.

Here is an almost unbroken field for research, and great results await the successful prosecutor: I should be glad to see thought turned into so useful a channel.

GEO. T. ROBINSON, F.R.I.B.A.

ADID TO STRUGGLING MERIT.

IF a moiety of the sum expended by the Legislature on the detection and punishment of crime could be devoted to schemes for its prevention, by elevating the aspirations, by the encouragement of industry, virtue, and genius amongst the working classes, the decrease in the expenditure for the one would amply compensate for whatever was given to the other, while society would reap the benefit. Of course, any encouragement, if judiciously held out or administered, would be available only to merit or worth; but the stimulus thus given would ultimately lighten the mass; and the buried hopes of many would become reanimated amid more congenial influences, and a new impetus given to thought as well as action by the consideration that virtue as well as vice would, in despite of poverty, meet with its legitimate deserts, and be duly recognized by humane laws.

How far it may be right or expedient for a government to be philanthropic in its laws, it is not my province to say; but that it should throw legal impediments in the way of any from rising by their own merits seems to me both impolitic and unjust.

This subject has suggested the following ideas to my mind; viz.,—that an arrangement might be made by which a department in the International Exhibition of 1862 might be set apart for the reception of properly executed models of useful and practical inventions and ornamental designs from working men, and the inventors be entitled, while their models remained there, to the same protection which is given under the Patent Act, except the privilege of manufacturing the same for sale; but reserving to the inventor the option of selling his invention; after which he would cease to have any claim for protection until a patent was procured in the usual form. By this means I presume many valuable contributions would be made to the Exhibition, and be an increased source of interest, without taking away the trade from the Patent Office. It would in all probability extend its business, as it would give many a working man the chance of advantageously disposing of his inventions, and the rich and enterprising for investing his capital.

Should this not be compatible with the arrangements of the Exhibition, could not an institution be established, having this exclusively for its object? Such an institution is much wanted; it would, I have no doubt, encourage and expand our ideas, and open up new fields for commercial enterprise.

P. G. CHISHOLM.

LIFE IN LEEDS.

WHEN we recently made known to a certain extent the condition of Leeds, the *Mercury*, if we recollect rightly, was the only local paper which did not attempt to throw discredit on our statements. This paper now finds in the Registrar-General's Report ample argument in favour of the course it took. In a sensible article on the Report, the editor says:—

"It is very unpleasant to find that while in average healthy localities the number of deaths every year is only 17 in 1,000, the West Riding exhibits a much higher mortality. In Bradford the number of deaths is about 25 in 1,000, and in Leeds it actually amounts to 36 in 1,000. We fully recognise the fact that in Leeds the difficulties of drainage and of many other sanitary improvements are much greater than they are in Bradford and in many other towns; nor can we complain that at present, at all events, there is any lack of activity in the pursuit of sanitary measures. . . . It is certainly a fearful thought that thirteen lives out of every thousand, which might by proper sanitary arrangements be spared, are now annually sacrificed. In a population of 100,000, which is below the population of the township of Leeds, the number of deaths due to this cause alone amounts yearly to 1,300. In other words, upwards of 1,300 lives, which might be spared if our sanitary arrangements were properly improved, are now sacrificed in the township of Leeds alone. Nor is this all. For one life that actually gives way, a dozen lives are enfeebled, and a dozen per-

sons rendered less fit, or wholly unfit for work. Thus, for 1,300 persons who actually succumb to unnecessary causes, 15,600 are more or less enfeebled in health. The Registrar-General may well say that almost any sum spent in removing the causes of this mortality and debility would be economically expended."

THICK-LINED DRAWING.

ONE of the objects I desired to ascertain in my recent letter was to know if the schools of art were likely to produce any fresco-painters. Now, if it is necessary in instruction to keep a thin metallic line of uniform thickness, I would ask the masters whether they impress upon their pupils, on leaving the schools, the necessity of using a wide line of uniform thickness. It is evident that frescoes which are generally intended to be seen from a distance should not have much fine shading, since this would be entirely lost to an eye viewing it at any distance; and, moreover, it takes away from the strength of the outline. The great power of mosaic is from its thick line and absence of fine shading. The same in glass painting. A fresco should be accurate, minute, and careful in detail outline. The whole painting should gain its effect by thick lines: fine shading is work thrown away, since fresco is nearly always intended to be seen at a distance; hence should be vigorous.

A. W.

THE WORKS IN LEEDS CHURCH.

SIR,—Allow me to explain in a few words how far I have been connected with the execution of the memorial window at Leeds. Some time since I agreed, at the request of a friend, to revise a design he showed me for the window in question; and returned to him the design so revised, to be submitted for approval to the church authorities and their advisers. I do not know what has since been done, or who has done it; and, for my own part, should certainly not have carried out any work in Leeds parish church except with the approval of Mr. Chantrell, or his present representative.

I may add that the only reason that led me to have anything to do with the matter was, that I was assured that Mr. Chantrell had long ceased to act in connection with the parish church.

EDWARD M. BARRY.

CLERKS OF WORKS AND THEIR DUTIES.

SIR,—I read the article as above, and signed "A London Architect." It gave me some hope; and I now begin to think there are architects who would actually choose a man, as clerk of works, that originally served in architects' offices, and has since gained eight or ten years' practical experience in carrying out works for architects, contractors, &c., as he would select a man that has been only brought up as a joiner or mason. I have often experienced great difficulties in procuring engagements, shrewdly because I was not brought up to the bench or the banker. Surely this does not always follow. No; I succeeded in obtaining a berth, where I not only acted as clerk of works, but I worked two quarries, made my own bricks, and, in fact, I acted more the part of a contractor, at a salary, than otherwise; and I had no foreman under me. Then in order to obtain a more practical *looking* reference, I took the management of a very extensive work for a "Builder," as his foreman. I had over 100 men under me. I set out all the work for carpenters, masons, and the whole of the stones for the stone-cutters, by moulds, &c., which I also marked out,—and all the other duties of a builder's foreman, of joiners, stone-cutters, and masons, besides time and book keeping, and making sketches and working drawings. Now, with these qualifications, added to surveying and levelling, and being a very fair draughtsman and colourist, a man would expect to obtain something more than 2*s.* 2*d.* per week, or of what use is it learning anything more than an ordinary foreman of any building trades? I have only been half paid right through the piece; and yet I have been always treated as a gentleman, because I commanded it, and was expected to keep up the appearance of one. Why? Dependent sayeth not. Then, I maintain that superintendents of works of my class are not paid at all in proportion to their merits,—possibly there are exceptions.

M. M.

CLERKS OF WORKS AND THEIR DUTIES, AND ARCHITECTS AND THEIR DUTIES.

SIR,—In your last week's issue "A London Architect" complains of the want of proper qualifications in the class of persons offering themselves as "clerks of works," and also states what, in his opinion, should be their qualifications.

Perchance "A London Architect" would not object to know the qualifications the Government insist on for the War Department clerks of works, whose duties are principally the construction and maintenance of barracks and other army buildings.

If we turn to the last Report of the Civil Service Commissioners, we shall find that the qualifications for a clerk of works, as stated in the Code of Regulations, are, that "He must be fully acquainted with designing, building, artificers' work, and the quality of building materials of every description: he should be competent to draw, with neatness and accuracy, plans, sections, and elevations, and be qualified to give estimates and compare the different parts of a building: he must understand thoroughly how to estimate and measure works of all kinds; and, in order to obtain promotion from a lower to a higher class, he must be prepared to pass a further examination in architecture, drawing, the value and measurement of work, the quality of materials, and the keeping of accounts."

No person is to be appointed without these qualifications; and, in addition thereto, he must possess the strictest integrity, activity, and attention."

In order unmistakably to ascertain that he is properly qualified, the candidate has first to undergo a probationary employment of at least six months; and, if he performs his duties satisfactorily during that period, he is then sent to London, and has to pass a final examination (of about a fortnight's duration) before the Civil Service Commissioners, prior to receiving his official appointment as a clerk of works of the lowest class.

It may be mentioned that, while the Government is so particular in ascertaining that his qualifications are up to the required standard, he is not obliged to produce any professional testimonials, diplomas, or anything of that kind. It matters not whether his father be a peer or a plebeian, so long as the public are not put to any expense for his professional education, and he really possesses the qualifications laid down, which are indispensably necessary to him, as he has to act up to them daily; and it is not intended that he should ever become one of the drones in the official hive.

"A London Architect" may not object to know also the education, training, and qualifications that the Government consider necessary for their War Department architects, whose duties are also in barrack construction and maintenance, and who are placed in authority over the clerks of works; and here, be it said, the kind and fostering hand of Government is at once displayed, to ensure having, particularly in London Architects' Club, concluding quotation, "the right man in the right place."

The embryo War Department architect is therefore taken in hand by the Government in his tender years of boyhood, and, having previously obtained some elementary schooling, he is sent to a Government college, and a chance afforded him of learning all sorts of things, military and civil, except architecture. His education is completed at Chatham, where he is drilled and disciplined as a soldier for about four months; at the end of which he commences his architectural studies in right earnest, and makes such amazing progress that in the space of about a fortnight he comes forth, with about a score of years on his head, a completely finished, and we must presume, in the opinion of the Government, a duly qualified War Department architect; and forthwith, without any examination whatever as to his real qualifications, he is placed in architectural charge of the barracks and army buildings, for which he is held responsible to the country; and, extraordinary as it may appear, he is invariably successful in all his professional duties, if we are to judge by the fact that he never fails to get promoted to the highest rank, if spared for any length of time to his country.

Now it is understood there exists a difference of opinion between the War Department architects and the War Department clerks of works, as to what the proper qualifications and duties of these two distinct classes of public servants ought to be. The clerks of works think, no doubt, that their qualifications and duties are rather *too high* for their position and pay, and the architects rather *too low*; whilst it may be presumed the architects themselves think that everything is admirably arranged. This question is now again under the consideration of the Government; and, if report speaks truth, the high officials are in a quandary, and scarcely know what to decide on.

AN ENGINEER.

THE DECAY OF STONE AT ST. GEORGE'S CATHEDRAL, SOUTHWARK.

SIR,—It is somewhat strange that so stout a champion of good material as Mr. Smith appears to be should commence his attack on my father and others, at St. George's, with an apology for the faulty stone used at the Houses of Parliament; but it is evident that the statement concerning the decay of stone at St. George's is a mere feint to draw off public attention from the lamentable condition of the Palace of Westminster.

Mr. Smith is set up by others for this purpose, and his last article, "An editor's postscript to St. George's," is far too poor a cloak to conceal the opinion in view. Mr. Smith, or any one else, may lament the decay which appears in the stone, not only of St. George's, but of the Bank of England, and of numerous other buildings in London; but why should St. George's be singled out and made to bear the blame of all the rest?

I do not intend to enter into the question why Bath stone was used for the main body of St. George's, and Caen stone in the parapet, pinnacles, and other ornaments, for I am myself at a loss to know the reason; more especially since Caen stone in this instance was more costly than Bath, inasmuch as the contractor had a quarry of the latter material; nor am I about to defend its being used, although the reason which Mr. Smith adduces in favour of the selection of the stone for the Houses of Parliament stands equally for the stone used at St. George's. Indeed, I know several instances where Caen stone has stood twenty years, and still retains the aristas as sharp as on the day they were worked, whilst the Bath stone at its side has perished, and has had to be replaced. I do not intend to others the castigation which the very attack deserves. I will simply call the attention of the public to the fact, that whilst mention is made of "Pugin's building" in one case, the architect's name is studiously avoided in the other.

Mr. Smith has the simplicity to wonder why the materials used in such a building as the Houses of Parliament should be called in question by the public press; whilst, he can easily express his opinion in the case of very different on the other side of the river, where there is an immense amount of decay, and little said about it." In this last sentence lies the whole point and gist of the letter. It is to say a *little more* about it, that Mr. Smith commences, and goes on the principle of "Lay it on thick, something will stick."

In answer to his question, why so much is said about the decay in the stone at the Houses of Parliament, and so little about St. George's, I should have thought that he would have had the sense to have guessed the reason, in the fact that whilst one is the principal public building of the day, costing the nation something over two millions, and the other is simply a private and comparatively humble edifice, costing not an infinitesimal portion of such a sum.

The truth about St. George's is simply this,—that the entire network in the body of the church is as solid as the stone of which it is composed; the decay exists only in the parapet and ornaments, which a contractor has agreed to restate in an approved and durable stone for the sum of 500*l.*; and I trust the day is not far distant when this will be carried into execution.

E. WELBY POIN.

COMPENSATION CASES.

Wood v. The Metropolitan Railway Company.—This case was decided before Mr. Serjeant Hayes, assessor, and a special jury, at the Sheriff's Court, Clerkenwell, on the 1st instant. For the plaintiff, Mr. Deborah Wood, it was stated that the works of the Metropolitan Railway Company, by which her house had been rendered unfit for habitation, and her tenant had been turned out by the police. Believed that the houses would require to be absolutely rebuilt. The premises were now known as No. 9, Guildford-place, but when first built were described as being "in Spafelds." They were let for 30s. a year to Mrs. Ingold, who had occupied them for a very considerable time, which was the reason why the rent was not raised, notwithstanding they had become worth 40s. or 50s. a year. The house was perfectly safe when the railway works commenced. So early as July it was apparent that the house began to sink; and it had been necessary to put up shores to support it during the time the works were actually going on. The Government inspector thought it his duty to make application to a magistrate, and to get a warrant to eject the tenants, on the ground that the houses were unsafe, and unfit for habitation.

Mr. M. G. W. Horne, architect, gave evidence for the plaintiff to the above effect, stating that the depth from the surface of the ground to the top of the arch of the railway was 30 feet. (The depth of the tunnel, it was stated, was 40 feet.) The distance from the surface of the ground to the top of the arch of the tunnel was 16 feet. The distance from the surface of the ground to the top of the houses in Guildford-place at the latter end of July or the beginning of August. A settlement had taken place, and the cracks in the wall and the sill in the front door. The sill seemed to have sunk towards Baginbun Wells-road, consequently it left an opening all along the door, and then it went on cracking along the front of the house. The sill was removed from the floor boards nearly two inches. It had gone out at the bottom of the struts were not so strong. Had watched the premises ever since the commencement of August. The damage had increased. Did not think that the house could be put into its former state without rebuilding. The expense of doing that would be about 500l. If the old materials were used. Had been over the house so recently as last morning, when he found a fresh settlement. It was a cross-examination, at which he stated that, when he first went into the house, he examined it to see whether there were any cracks in it. Saw some indication of an old crack, but very little indeed. It had been painted over. It might have been there with twenty years ago: it was a very old one, and of no consequence.

Mr. Noble, surveyor to the ground landlord, the Marquis of Hampton, in his evidence stated that this was a cross-examination, at which he stated that, when he first went into the house, he examined it to see whether there were any cracks in it. Saw some indication of an old crack, but very little indeed. It had been painted over. It might have been there with twenty years ago: it was a very old one, and of no consequence.

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PATENTS CONNECTED WITH BUILDING.*

"VENTILATORS." *C. Gammon*, Cloak-lane, London. Dated 14th March, 1861.—This invention consists of a box or case composed of any suitable material, preferably of zinc. The outer side or face of this box is perforated with small apertures, or formed of wire or network. The inner side or face is divided into a series of rectangular or other shaped spaces, each alternate one being perforated or of open network. The edges of this face are turned over so as to form guides or grooves, within which a cover or shutter slides. This cover is divided into spaces similar to those upon the face upon which it slides. Each of the alternate spaces upon the face of the slide is either perforated or uncut or non-perforated. When the slide is drawn back the cut out portions of the slide coincide with the perforated or open network of the face below: when pushed in the opposite direction the perforated or open network spaces of the face are covered by the non-perforated space in the slide.

"IMPROVEMENTS IN SASH-FRAMES AND SASHES, AND IN BALANCE WEIGHTS TO BE USED THEREWITH." *J. Deakin*, Birmingham. Dated 15th March, 1861.—This invention consists in dispensing with these of inner and outer casings, back-linings, pocket pieces, parting beads, and laths, and sash beads, by the employment of tubes, for which the patentee prefers metal tubes to contain the weights, and a solid pulley stile grooved to receive tongues upon the sashes. The improvements in the sashes consist in grooving them upon their edges to receive moveable tongues to be inserted in the grooves of the sash frame and sash, by which he is enabled readily to remove a sash from the frame for glazing and cleansing, without disturbing any beads or other work, and at the same time obtaining a more perfect wind-tight fit between the parts, with fewer angles for the accumulation of dust. The cords may be inserted at the back of the pulley stile, and they will thus be completely concealed: these cords pass over a wooden roller, secured to the pulley stile above the weights. The improvements in these weights consist in making them jointed or articulated, so that they will readily pass down the tube, and out at a bead at the bottom, by which he dispenses altogether with the pocket pieces usually inserted in the sash frame, and obtains a means of instantly adjusting the necessary weights for the sash. He can remove them for the purposes of repair without damage to any existing work, the bead at the lower end of the tubes coming out under the floor, or at the back of the skirting, allowing an easy mode of access to the weights.

"APPARATUS FOR HEATING." *J. A. Bolton*, Campbell House, Leicester. Dated 19th March, 1861.—This invention consists of improved apparatus through which atmospheric air, heat, and smoke are caused to pass, the said apparatus being so constructed as to present a large surface from which the heat radiates, and also the heated air passes to be given off when and as desired. For example, in adapting this invention for heating Turkish baths, the patentee proceeds as follows:—He conveys air from the street through an ordinary air grating down a shaft formed of wood, or other suitable material, to a flue under the floor of the room which it is desired to heat. The flue passes towards a fire-hole; and when within about three or four feet thereof the shaft bifurcates or branches off in two opposite directions, so as to embrace by two flues each side of the fire-hole. The top of the fire-hole is formed of a plate of metal, whence the heat from the fuel in the fire-hole radiates; and, impinging against another fire-hole plate fixed in the brickwork of the fire-hole, enters by an opening into a large chamber or reservoir of heat built immediately over the top of the fire-hole. In connection with the said hot air chamber and fire-hole are two separate flues, one over the other: one of such said flues conducts the smoke from the fire-hole under the floor of the room, and the other flue returns the smoke into the chimney shaft situate alongside of the fire-hole. A pipe also proceeds from the said hot air chamber, and passes in any desired direction under the flooring of the room. A perforated plate or plates of metal is or are let into the floor for the passage of heat into the room: two or more branch pipes are also connected to the aforesaid hot-air pipe turning upwards into the floor of the room, and furnished with rotatory ventilators flush with the floor. By these means a body of hot air may be let into the room or building, as desired. It is proposed to arrange reclining seats or cushions over or upon the aforesaid flues, and

also to leave a small space between the sides thereof and the wall of the room through which the heated air passes into the room.

"WINDOW FRAMES." *J. Ratray*, Manchester. Dated 30th March, 1861.—This invention relates particularly to casements known as French lights which open inwards; and the object is to prevent rain penetrating through them to the interior of the room: the invention consists in making grooves and rebates round both the framework of the window, and the casement of the light which moves on hinges inwards; so that, if the rain beats heavily against the outside of the window, it will find its way into the grooves, and run out at the bottom on to the sill, instead of beating into the room, as is the case with the French lights as hitherto constructed.

"CONSTRUCTION AND ORNAMENTATION OF ARTICLES MADE OF TERRA COTTA, STONEWARE, AND PLASTIC CLAYS, ADAPTED FOR THE CONSTRUCTION OF FIREPROOF STAIRS, STEPS, LANDINGS, &c." *M. H. Blanchard*, Blackfriars-road, London.—Dated 3rd April, 1861.—This invention consists, first, as regards the improvements in the manufacture of columns, in shaping a hollow cylinder or shell of terra cotta, in length, say of 4 feet each, in a mould formed in two parts in the direction of its length: the plastic material is first spread over the surface of one-half of the mould: a rod of metal is then placed thereon lengthwise of the mould, and the plastic material worked round and about the same: another similar rod is then placed by the side of the former rod, and at any desired distance therefrom, and the plastic material worked round same as before; and this is repeated round the half mould: the plastic material is then worked over the whole until a half cylinder or shell has been formed, so that, when the aforesaid rods are withdrawn, hollow chambers or channels are thus formed about midway in the thickness of the aforesaid half-cylinder or shell. The other half of the mould is similarly treated, and the two half shells are united together, and to a moulded base or cap piece if required, to form either the top or bottom of the column; and in this state the moulded material is dried, then removed from the moulds, and placed in the kiln to be burnt or baked. The aforesaid hollow chambers allow the hot air and vapours to pass through them, and thus preserve the moulded form from distortion or alteration of shape. To construct a column, say, 18 feet long, the patentee places four of such lengths one upon another endwise, connecting them together by cement. He then inserts solid or nearly solid cores or dowels of terra cotta, stone, or iron inside same; the dowels being of such lengths as to break joint with each length of hollow cylinder, and he cements or grouts the whole together with cement; and, finally, he affixes the cup of the column thereto, moulded in half moulds, as before stated. A column thus made has found extremely strong, and this mode of manufacture applies to chimney-shafts, posts, pedestals, standards, and similar articles. Secondly, as regards the improvement in the manufacture of landings, slabs, and tiles; it consists in forming holes longitudinally and transversely of the material in the thickness thereof in moulds as before stated or otherwise. Thirdly, as regards the improvement in the ornamentation of articles made of terra-cotta, stoneware, and plastic clays, it consists in compressing the plastic material with the ornament in a mould or moulds, either with or without the before-mentioned hollow channels, and then removing some of the plastic material by hand, or indenting by the mould, then burning them, and afterwards filling in such removed or indented parts with coloured clays, marble, stones, wood, metals, scagliola, vitreous, and other colours, and, if necessary, afterwards re-melting the whole surface.

"CHIMNEY HEAD." *J. Billing*, Abingdon-street, Westminster. Dated 23rd March, 1861.—This invention consists of a chimney-head constructed of terra cotta, zinc, iron, or other suitable material, having a cylindrical, octagonal, or other shaped tube closed at the top, but provided with an opening or openings in the side of the tube, a short distance down from the closed top, for the issue of the smoke. This opening, or these openings, is or are covered by a chamber formed round the inside of the tube, by means of a cylindrical, octagonal, or other shaped short tube attached to the first-named tube, which chamber is open at top and bottom for the passage of the smoke. To both of these last-named openings the patentee attaches coverings or shields in the shape of hollow truncated cones, or octagonal or other shaped truncated pyramids, whose smaller openings are large enough to leave narrow spaces for the pas-

* From the Engineer's Lists, and other sources.

page of the smoke round the first-named tube. Or the abovenamed coverings or shields may have curved in lieu of straight surfaces, thus deflecting the wind in both an upward and downward direction. Over each of these wind deflectors he places one or more similar deflectors; or he places one or more such deflectors over the top opening of the chamber, and only one over the bottom opening, or one or more at the bottom and one only at the top, according to the particular circumstances under which the improved chimney-heads are applied. He sometimes constructs such before-mentioned chamber and wind-deflectors of angle iron, or of iron of a semicircular or other-shaped section, or of a similar shape, in any other suitable material. He sometimes forms round openings in the side of the first-named tube or shield or shields, of angular or half-cylindrical-shaped section, which serves to direct any current of wind that may enter the chamber away from the aforesaid side opening. The chamber and wind deflectors are fixed to the central tube by means of round or flat stays or partitions, or in any other suitable manner.

PLASTERING WALLS AND CEILINGS. *W. A. Dixon, Newport, Monmouthshire.* Dated 17th April, 1861.—This invention consists of an improved method of covering walls and ceilings by means of plates composed of fibrous and plastic substances, such as gypsum, ashes, manilla hemp, cocca-nut fibre, sawdust, or any other suitable materials. These materials are well incorporated one with the other, by being passed through a devil, or other suitable crushing or mixing apparatus; and, when reduced to a proper consistency, the patentee adds about one ton of plaster of Paris of commerce: a portion of this compound is then mixed with a sufficient quantity of water or other liquid to render it into a paste, which is put into moulds, and then pressed by means of suitable presses in the usual way; and, when dry, is ready for use.

Books Received.

Jerusalem: a Sketch of the City and Temple, from the earliest Times to the Siege of Titus. By THOMAS LEWIN, Esq., of Trinity College, Oxford, M.A. London: Longman & Co. 1861. THE already "vexed questions" regarding the genuineness of the Holy Sepulchre, the site of the Jewish Temple and Antonia, the courses of the ancient walls, and other points of interest connected with the topography of Jerusalem, regarding most of which such discordant views have been taken by Fergusson, Thupp, Robinson, Barclay, Schultz, Kraft, and others, are destined by Mr. Lewin's new work to be still more "vexed" than ever. He states that he has little hope that his own lucubrations will solve the enigma; but he brings no little force of argument in favour of some of his views. Like Mr. Fergusson, however, he labours under the disadvantage of not having himself examined the ground; but he appears to have carefully and fairly examined the various theories.

To the storehouse of facts adduced by Robinson of America, the author confesses himself to be more particularly indebted for his materials; but, so far from coming to Robinson's conclusions, he is of opinion that not one of the four propositions put forward by him is correct,—that Zion was *not* the south-western hill,—that the site of the Temple was *not* that of the Mosque,—that the tower just south of the Jaffa-gate was *not* Hippicus,—and that the Damascus gate was *not* in the second wall.

As regards Mr. Fergusson, who has largely contributed to the elucidation of this subject, Mr. Lewin acknowledges that he has adopted many of this gentleman's original views,—as that the tower by the Jaffa-gate, if one of the towers of Herod, is Phasaelus,—that the name of Zion belongs not to the western but to the eastern hill,—and that the Temple must have stood at the south-western corner of the Haram. He also admits that the architectural knowledge which Mr. Fergusson has brought to bear upon the description of the Temple is of the last importance. In other points, however, he is of opinion that Fergusson has "gloriously offended,"—as in attempting to identify the Mosque of Omar with the Church of Constantine,—in the position he has assigned to Hippicus,—and in the courses of the ancient walls.

The greatest light which has yet been thrown upon the architectural character of the Palace of Solomon, Mr. Lewin is of opinion is derived from the recent discoveries in and near Nineveh; Solomon having studiously copied the Assyrian style,

"Take, for instance, the north-west palace of Nimroud, which would almost seem to have been the pattern after which the royal palace at Jerusalem was built. Thus the Nimroud Palace is nearly a square, of about 330 feet each way; and the area of Solomon's palace is 335 feet by 320 feet. In front at Nimroud was a great hall, 152 feet long by 32 feet wide; and in front, at Jerusalem, was a hall, the house of Lebanon, 150 feet by 75 feet. The hall at Nimroud was supported by rows of pillars, not of stone, but of wood; and the Hall of Lebanon was supported by three rows of cedar pillars, fifteen in a row, making forty-five in the whole. In the centre at Nimroud, was a spacious open court; and in the centre at Jerusalem was also a court. On the sides, at Nimroud, were suites of apartments three deep, decreasing in width as they receded from the light supplied from the great light against light in three ranks. At Nimroud, in the rear was a double suite of apartments; and in the rear at Jerusalem were the separate suites of the king and the queen. At Nimroud the interior walls were lined with sculptured slabs; and at Jerusalem the apartments were also wainscoted with stones carved in imitation of trees and plants."

The present church of the Holy Sepulchre, in Mr. Lewin's estimation, agrees in so many particulars with the Basilica of Constantine, that the coincidence can only be accounted for by the identity of the two; and whether the sepulchre be now as it was when the Redeemer was laid in it, or whether it be either partially or totally changed; here, on this very spot, he believes, the body was laid in the sepulchre of Joseph of Arimathea; and he asks,—If the Mosque of Omar, as Mr. Fergusson supposes, be the church erected by Constantine over the Sepulchre, when did it lose that character? and when did the present church on the opposite hill acquire the honour?

"Through all the historical records," he adds, "from that time to this, and they are voluminous enough, there is not a title of evidence, and not even a hint, that such a transference was ever made. Besides, how was it possible? Streams of pilgrims, from the days of Constantine downwards, visited yearly the holy shrine of our Lord's burial and resurrection; and how could they have made a mistake? Was it ever read or heard of, that any single pilgrim, in any age, visited the Sakrah as the site of our Lord's sepulchre?"

The argument chiefly insisted on by Mr. Fergusson, the only writer who has ventured to maintain this opinion, is that, from architectural indications, the Mosque of Omar must have been a Christian edifice, erected in the first half of the fourth century. We do not admit the fact; but supposing it to be so, does it follow that the mosque was built by Constantine? The emperor died in A.D. 337, and the mosque may have been built by Constantine's successor, still in the first half of the fourth century. When the Roman world became Christian, new churches for many years were continually springing up; and the so-called Mosque of Omar may have been one of the number. At what precise period it was erected may never be proved; but it is clear to demonstration that the author of it was not Constantine."

As to Constantine's own precise knowledge that it was indeed over the sepulchre of our Lord that The Temple of Venus which he removed had been built, Mr. Lewin asks, "How could tradition have gone wrong in the time of Constantine, just 300 years after the Crucifixion?" He adopts Mr. Fergusson's own remark, that, during the first three centuries after Christ, a legend was not so easily invented as a few centuries later; and that men who tried the experiment would have only been laughed at for their pains. In the days of Constantine, Mr. Lewin conceives, not the least doubt was entertained where the sepulchre was situate; and the only hesitation was whether, by removing the temple, the sepulchre itself could be recovered.

"The attempt was made, the temple was taken away, and the substrata removed, until the natural surface of the rock was reached; when, to their great joy, and beyond their most ardent hopes, the very sepulchre came to light. The emperor and his courtiers might certainly be mistaken; but, as the sepulchre was known to be under the Temple of Venus, the area to be explored was very small; and it is not likely that more than one tomb would answer the description, more particularly as the Sepulchre, from the notices of it in Scripture, had some remarkable and characteristic features."

On the peculiarities of Jewish sepulchres, Mr. Lewin gives some curious and interesting details. One peculiarity, for example, of such sepulchres, about the time of our Saviour's crucifixion, was the singular mode of securing the door; namely, by a thick circular stone, like a heavy mill-stone, which moved along a groove, cut laterally in front of the sepulchre; and which, when the tomb was to be closed, was rolled sideways to the mouth of the sepulchre; and, when admission was wanted, was rolled back. In the Tombs of Helena, or, as they are now called, the Tombs of the Kings, we have to this day a remarkably well preserved specimen of this machinery, of which an illustration is given by Mr. Lewin, copied from Barclay. Now every one will remember how, at the entombment of Jesus, "they rolled a great stone to the mouth of the sepulchre," and how "the stone was rolled away," although "it was very heavy;" the "angel of the Lord" having "rolled back the stone from the door and sat upon it." By these and various

other tokens, such as the recess where the body was laid being "on the right side," and so cut as to afford place for "two angels in white, the one at the head and the other at the feet," and so on the author endeavours to identify the sepulchre, to a great extent, even as it at present exists; in which endeavour he also makes good use of the "garden" in which the sepulchre stood; and which, he considers, was an area planted with funeral shrubs, and connected with the sepulchre itself, and not a pleasure garden for the living.

The author, in his preface, acknowledges his obligation to his accomplished relative, Mrs. Spencer Lewin, for her assistance in constructing an accompanying map of Jerusalem.

Sketches of the Natural History of Ceylon. By SIR J. EMERSON TENNENT, K.C.S., LL.D., &c. London: Longman & Co. 1861.

THESE very interesting sketches, a portion of which formed a section of the author's more comprehensive account of Ceylon, which came under our notice some time ago, include many curious anecdotes and narratives illustrative of the habits and instincts of the Singalese mammalia, birds, reptiles, fishes, insects, &c.; and also a monograph of the elephant and a description of the modes of capturing and taming it. This monograph is replete with interest, and is obviously written by one who has closely observed and appreciated the semi-human intelligence of the elephant; and wonder that Professor Owen speaks so highly of as he does; characterizing it as "the most complete and correct history on record of that stupendous animal." Were we to say more on the subject we might be tempted to occupy too much space, without giving any adequate idea after all of the interest of the monograph.

Turning to another of the many subjects of interest contained in this volume, what shall we say of those entomological elephants, the spiders of Ceylon, one species of which weaves threads, cords rather, as they are correctly called, athwart the pathways, which more than once actual lifted Sir Emerson's hat off his head in riding, and when they struck the face, produced a painful twang across that tender district of the body. There is a Ceylonese spider with legs which would span an ordinary-sized breakfast plate; and seems to be a fact, now pretty well authenticated, that these fellows seize small birds and feast upon their blood! It is also known that there are spiders both in Australia and in Hindostan. The webs of such spiders are strong enough to entangle, and hold the small birds, on which they are said occasionally to feed. The birds, however, are more of the nature of humming-birds than of larger size. Small house lizards will also be seized and devoured by these spiders.

The work before us, which contains a large number of facts first brought under notice by the author himself, as well as a general account of all that is known of the natural history of this very interesting island of which he was some time the ruler, is also illustrated by nearly 100 engravings, from original drawings by Wolfe, Forde, and other artists who have made such subjects their exclusive study; and altogether the volume forms a valuable acquisition both to science and to entertaining literature.

VARIORUM.

MR. THOMAS HOOD, of whose ability with pencil we have had occasion to speak, has illustrated a little volume of stories by his sister Mrs. Broderip,—*"Tiny Tadpole, and other Tales"* recently published by Griffith & Farran. "Speed back in the Fairy's Car" is a quaint little diction; and in the "Village Pump" there is considerable amount of character. The stories themselves are very charmingly written, especially "The Tour of a Sunbeam" and "The Little Architects."—"The Daughters of King Dal" by Thomas Hood (Saunders & Otley), is the most important poem the author has yet attempted; it is a story of the Mohammedan invasion of Scotland with much elegance and power, and turns the artfulness of injured women:—

— "Who may tell
What cruel vengeance will not woman wreak
For beauty slighted,—even where harm would spring
Of approbation."

It contains several passages of great merit. Mr. Hood has added some minor poems contributed to the *St. James's Magazine*, and some periodicals. Of these we like best, "The Scolding Lark in the City."—Messrs. Heath & Butler's "Illustrated Catalogue of Stained Glass Windows," although but a trade publication

tains some suggestive memoranda, and by the examples it gives, with prices, affords the means of judging as to what can be done for a specified amount.

Miscellaneous.

THE STREET-TRAMWAY MOVEMENT.—Street railways are about to be introduced into Darlington; and at Aldershot.

SANITARY CONDITION OF PERTH.—"A physician of the Fair (?) City," in a letter to a contemporary, writes as follows:—"I may mention that I have not for years seen such a variety of contagious diseases as are in our midst at this present moment, and every day the number increasing. I trust, under such circumstances, that our civic authorities will give this grave question prompt and serious consideration. If not, I see nothing for it but to call a public meeting on the subject."—*Dundee Courier*.

INTERNAL CONVEYANCE IN THE EAST.—The want of a comprehensive system of internal conveyance in India having been long felt, as well as of facilities for communicating through one responsible medium between this country and internal stations in the East; the Oriental Inland Steam Company announce that they have made arrangements of an important character. According to the *Daily News*, parcels and merchandise are now booked by this company in London for transmission to most points of India, whether on the coast or in the interior; the company undertaking to forward such goods by railway, by steamboat, or otherwise, as shippers may desire, to their several destinations, and to take proper custody of them up to the point of delivery.

RATING PUBLIC COMPANIES.—The representative council of the parish of Paddington met to take into consideration a report from the finance committee of that body, recommending the assessment of 2,717*l.* on the Imperial Gas-light Company, as fixed by the Court of Queen's Bench on the 13th July last. The Imperial Gas Company propose that the rating from June, 1859, should be reduced from 2,500*l.* Mr. H. R. Price moved a resolution—"That the assessment of this company's property at 2,717*l.* be now adopted," and this was carried. In a discussion that ensued, the supporters of the resolution set forth a tabular statement exhibiting the results of the litigation with the various public companies in the parish, showing that it had been a gain to the ratepayers. The Great Western Railway Company's property was assessed in 1855 at 15,000*l.*; and the subsequent increase, by mutual arrangement, after much litigation, was to 20,000*l.* The Imperial Gas-light Company's assessment in 1855 was 550*l.*, and had been subsequently increased, after much litigation, to 2,717*l.* The West Middlesex Water-works had been increased since the same period, after much litigation, from 200*l.* to 2,400*l.*—the Grand Junction Water-works, after litigation, from 700*l.* to 2,488*l.*

THE HISTORY OF A TOMB.—The late Colonel Macdonald, of Exeter, sent a marble slab to Kilmuir, Isle of Skye, suitably inscribed, to be placed near the remains of the well-known Flora Macdonald, to point out the spot; but it was broken before it reached Skye, and the whole has been since carried off by tourists. So far the account of the first tombstone; but lately Captain John Macdonald, of the Bengal staff, grandson of Flora Macdonald, has given instructions to a monumental stone-engraver of Inverness, Mr. D. Davidson, to form a tomb and slabstone of Italian marble, to mark her last resting-place in the churchyard of Kilmuir, Isle of Skye. The tombstone is 4 feet by 2 feet 6 inches, and is to be encased in a framework of Gothic design. The slabstone is 5 feet by 2 feet. On the perpendicular stone at the head of the grave the inscription is to be as follows:—"In the history of Scotland and England is recorded the name of her by whose memory this tablet is rendered sacred; and mankind will consider in Flora Macdonald were united the calm heroic fortitude of a man together with the unselfish devotion of a woman. Under Providence she saved Prince Charles Edward Stuart from death on a scaffold; thus preventing the House of Hanover incurring the blame of an impolitic judicial murder." Chambers says, in an interesting history of Flora Macdonald in the sixth volume of *Chambers's Miscellany*:—"As memorials of her legendary adventures, she preserved a half of the bed in which the prince had slept in that house the house at Kingsburgh, intending that it should be her shroud [as it afterwards was]; and also a portrait of Charles, which he had sent to her after his safe arrival in France."—W. H. C.

"TURNIP ENAMEL."—At the Glen Urquhart annual cattle and farm produce show, Mrs. Endall, of Kilmichael, exhibited a work-box enamelled with a preparation, it was alleged, got from turnip, the polish of which was equal to that of any paper *miché*.

FALLING OF A CHURCH ROOF.—A serious accident has occurred at the new church of St. Luke, in Carlton-road, Nottingham. The roof was in an unfinished state, nothing but the rafters and gables having been put on. It is believed the weight of the roof forced the principal supports off the walls, and the consequence was that the whole of the framework in the roof, from one end of the building to the other, fell in, breaking the whole into pieces. It is estimated that the loss will be 150*l.* Fortunately for the workmen, the fall occurred on Sunday.

GENERAL SIR HOWARD DOUGLAS.—We hear with great regret that this officer died on Friday, the 8th, in the 85th year of his age, having been born in 1776. His career, military and scientific, had been both long and distinguished. He entered the army in early life, served in Portugal and Spain in 1808 and 1809, formed part of the expedition to Walcheren in the following year, returned to the Peninsula in 1811, and served there until the close of the campaign of 1812. He was Governor of New Brunswick from 1823 to 1829, was Lord High Commissioner of the Ionian Islands from 1835 to 1840, and represented Liverpool from 1842 to 1847. He was the author of many scientific treatises, especially on fortification and gunnery—a subject which occupied his attention until the very close of his life.

THE DRINKING-FOUNTAIN MOVEMENT.—At a recent meeting of the Street Commissioners of Oxford, the Rev. R. Gresswell submitted the design made by Mr. Scott, architect, for a fountain, with a flushing apparatus, to be erected at the north end of St. Giles's-street. He explained that it consisted of a fountain rising from out of a wide basin, around which was a low basin to catch the water a second time. Over the foundation would rise a caupied niche, containing a statue of King Alfred. The essential part of the work might be executed first, and the niche and statue added afterwards. The estimated cost of executing the whole in Mansfield Woodhouse stone, with shafts of polished Peterhead granite, was 1,206*l.* 12*s.* If executed only to the base, the cost would be 682*l.* 12*s.* Mr. Gresswell stated that the estimate was furnished by Mr. Phillips, and that Mr. Scott considered it a reasonable one. The Chairman said the fountain could only be erected by voluntary subscription; and it would be a great ornament to Oxford.—Mr. C. P. Melly, of Liverpool, better known as "Fountain Melly," has been presented with a silver epergne and candelabrum, valued at 1,000*l.*, as a token of the estimation in which he is held by his fellow-townsmen, rich and poor, on account of his public spirit and liberality in the erection of numerous drinking-fountains throughout the town. The plate bore an inscription, which alluded to the gifts of a free playground, and wayside benches, which Mr. Melly has also made to the town.

THE FRIARY RITING DISCOVERED AT SHREWSBURY.—An interesting letter, by Mr. Wright, the archaeologist, appears in the *Shrewsbury Chronicle* on this subject, in which some quotations are given from "The Creed of Piers Ploughman," on the Friary and other conventual arrangements in the time of Richard II., when the friars were in their highest state of prosperity. Piers thus gives his own impressions of the appearance of the buildings. He says that when he had entered the court, he "gaped" with astonishment.

Swich a bild bold
Ybuid upon erthe heighte
Say I nought in certeyn
Synthe a long tyme.
I semed upon that hous,
And yerie thereon looked,
Whow the pileres weren ypaint,
And pulched ful cience,
And quently curven
With curius knottes;
With wyndowes weyl ywrought,
Wyde up alofte,
And thanne I entred in,
And even forth wente;
And al was valied that wone,
Though it wold were,
With postures in pryete
To pisen when ham bete;
Orcheyardes and erberes, &c.

Piers then visits successively the magnificent church, "wonderly wel ybild, with arches on everiche half," and its no less magnificent tombs "piled and peynt, and portreyed wel cience;" the chapter-house, full of sculpture, the refectory, kitchen, &c. &c. The foundations of most of the buildings so described have been traced at Ludlow,

A VOLUNTEER FIRE BRIGADE.—A fire brigade for the northern and central districts of the metropolis is being formed on volunteer principles; and it is said with approval and support from official quarters.

WINCHELSEA CHURCH, NEAR RYE.—The restorator of Winchelsea, through the liberality of a private gentleman and the Bishop of Chichester, has been enabled to remove a large portion of the unsightly whitewash from the fine old pillars and walls, &c., in his church at Winchelsea; and, in order to complete this good work, more money is required. The kind consideration of the public is therefore requested for this purpose.

SAFETY SIGNALS FOR RAILWAY CARRIAGES.—Mr. Bazin, of Angers, has invented an apparatus, according to *Galvani*, which has been tried on the Orleans line. A cord is placed within reach of the traveller, by pulling which a small ventilator is set free, and begins to rotate in virtue of the current of the train, whereby it causes a bell to ring, which gives the alarm. At the same time a coloured disc is pushed out, which shows in what carriage or compartment the alarm has been given. Once in motion, the apparatus cannot be stopped, except by the guard. Thus a traveller who might be induced to play a practical joke would be discovered by his own act. The experiment is said to have been a successful one.

BREAN DOWN HARBOUR AND RAILWAY.—A new company is being formed, called "The Brean Down Harbour and Railway and Weston Super-Mare Landing Slip Company," the objects of which will be seen from the following quotations, from a report of Mr. Coode, the company's chief engineer, addressed to Sir J. E. Eardley Wilmot, bart., the chairman. I propose to form the harbour and to acquire the necessary shelter by the construction of a pier from 800 to 850 feet in length, run off from a point about 100 yards from the west end of Brean Down, and so designed, that about 400 feet of its length shall afford sheltered quayside with from 21 to 25 feet depth of water at low-water spring tides, and about 400 feet with from 19 to 21 feet depth at low-water of the same tides. As regards the connection of the harbour with the railways of the district, it is intended that a line of railway should be laid down from the outer end of the Landing Pier, and thence along the north side of Brean Down, until within about 600 yards of its eastern end, where the line would pass to the south side by a short tunnel of about 200 yards in length. The cost of the harbour, and a single line of railway to connect with the Bristol and Exeter line, near the river Axe bridge—a distance of from 44 to 5 miles—including all works and land, but without preliminary expenses, is estimated at 105,000*l.*

BRICKMAKING EXTRAORDINARY.—The *Mining Journal* gives a description of an improved patent brickmaking machine, which fills successive groups of moulds with tempered clay, half dry; it compresses the clay into the moulds by a double eccentric; it shaves off the surplus clay, which is thrown back by the eccentric. The group of filled moulds is discharged by the machine, and inverted by hand in an instant; a spring receiver is run underneath, and the whole group of moulds is instantly delivered on to it by a quarter turn of a small pinion. "By a calculation of the working power of the machine, and taking each group of moulds at thirty bricks, we find that it is capable of moulding 360 bricks every minute, allowing the 4-horse power engine to make but forty revolutions per minute: 360 per minute are 21,600 per hour, or 216,000 in ten hours. The facility with which the bricks are taken away in groups, and stacked in stoves to be dried in eighteen hours by steam heat, or stacked in the open air to be dried in four days, without regard to weather, is equally to be admired, as the production of so large a number; for every single brick has its top, bottom, sides, and ends equally exposed to the heat. The mode of obtaining a full and constant supply of clay to keep the largest-sized machine in constant work, and the mode of tempering that large supply preparatory to moulding, are not less ingenious and efficient than the construction of the machine itself. The machines can be made to produce any required daily quantity of bricks, from 20,000 to 800,000. The estimated expenses for cost of clay near London, grinding and tempering clay, moulding and drying bricks, fuel for burning, packing and discharging kilns or clamps, is 10*s.* per 1,000 best stock bricks. The patentee (Mr. W. Morris, C.E., of Lambeth-walk), states that he has experimentally tested all the parts of this small though efficient machine, and that 5,800*l.* is quite sufficient capital to fit up and work one machine, capable of producing 200,000 bricks per day, ready for sale."

MAIDSTONE WATER WORKS.—We are asked to state that the engines, pumps, and boilers, were contracted for and made by Messrs. Handyside & Co., of Derby.

THE PRINCE CONSORT AND THE DUKE OF ATHOLL.—We (*North British Mail*) understand that the Duke of Atholl, as Grand Master Mason of Scotland, lodged a protest with the Prince Consort against his laying the foundation stones of the Post-office and Industrial Museum, on the ground that it was the province of the Grand Master Mason to perform that ceremony in the case of all public buildings. The duke, we believe, handed the protest to the Prince Consort at the station in Perth, when his royal highness came through to Edinburgh to perform the ceremony.

SHAKESPEARE'S LAND.—New Place having been purchased, Mr. Halliwell has also secured, to prevent its getting into speculative hands, the Great Garden of Shakespeare, adjoining that estate. The purchase-money of these two estates amounts to 3,400*l.*, exclusive of expenses; and the subscriptions, up to November 6, reaching only to 2,401*l.*, Mr. Halliwell, at present, is personally liable to incur a loss of upwards of a thousand pounds. It is of great importance, therefore, that subscriptions should now come in liberally and rapidly. He has a larger scheme, including a public library and museum; but for this from 50,000*l.* to 60,000*l.* would be required. One of the laws laid down, in the prospectus issued, is the following:—"If any one individual subscribes 10,000*l.*, or upwards, to the fund, the first person subscribing that sum in one payment shall have the option of selecting the design for the buildings to be erected for the library and museum, provided that such design belongs to the architecture of the Shakespearean period, and that it can be carried out with the funds in hand at the time it is selected."

DANGER OF BAD AIR.—When bad air works gradually, and is not directly obvious, its effects are not believed in. An accident which has recently happened to Sir F. Goodricke and his family at Studley Castle will probably have a good effect. According to the *Birmingham Post*, it would seem that to provide for the increasing severity of the weather the servants had commenced heating the various apartments of Studley Castle by the hot air flues provided for that purpose. Whether from want of proper regulating, or from negligence in removing and not replacing the covers of the apertures, a large quantity of carbonic gas was emitted to the several rooms. The first to feel the perilous effects of this supercharged atmosphere was a lady visiting at the castle. Finding that she was rapidly becoming insensible, Sir Francis instantly set out for Mr. Morris, surgeon, who came at once, and on his arrival found that Lady Goodricke was also apparently dying. Mr. Morris soon divined the cause and took his remedies accordingly; but while he was attending to Lady Goodricke and the lady first seized, Sir Francis himself and Miss Goodricke also swooned. Every attention possible was given to the sufferers, and happily they were all ultimately restored.

FALL OF A HOUSE FLOOR IN MARYLEBONE ROAD.—Mr. George S. Brent, deputy-coroner for West Middlesex, opened an inquiry on Saturday night into the circumstances attending the death of Henry Green, aged forty-three, in the employ of Messrs. Foster, bottled ale and beer merchants, Marylebone-road, occasioned by the sudden falling in of the flooring of the warehouse on last Thursday morning. The evidence went to show that on Thursday morning a number of workmen were employed at the warehouse in the Marylebone-road washing ale-bottles at the tubs on the first floor. Suddenly a part of the floor gave way with a loud crash, carrying the next floor with it, and precipitating several of the men into the basement, and burying them in the ruins of shattered timbers and a large quantity of broken bottles. The unfortunate men, among whom was the deceased, were extricated as soon as possible; but Green received fatal injuries, and died almost immediately afterwards; three other men were also bruised and cut by the broken bottles, but not to a serious extent. The floor was supported by large joists and heavy iron pillars. No sufficient evidence for the jury could be produced to prove why the iron pillars and flooring so suddenly gave way. Some impression, however, seemed to prevail, that a drain running in close proximity to the building, which was made by the Metropolitan Railway Company to drain their works at that part, might have had something to do with it. The jury adjourned, to enable them to make a thorough inspection of the premises. They afterwards returned a verdict of accidental death.

SOCIAL MOVEMENTS.—We understand Miss Faithfull intends to publish a series of tracts on "Social Movements." One has appeared this week, on "Friendless Girls, and How to Help Them."

DISTRICT SURVEYORSHIPS.—The death of Mr. Samuel Beachcroft, on the 10th inst., leaves the district of Chelsea vacant. Hackney, which is vacant by the resignation of Mr. Wyatt, will probably be divided into two. The number of candidates is very large.

DECLENSION OF THE FEVER AT DARWEN.—The township having been officially visited by Dr. Hedlam Greenhow, one of the medical inspectors of the Privy Council, says the *Manchester Courier*, he recommended a cleansing by limewash and disinfectants of every crowded alley and place, the removal of all piggeries existing in the proximity of habitations, and also a better and proper provision of conveniences to cottage property, which are at present very limited in number and badly situated; organic matter in many instances prevailing in adjoining habitations, producing thereby pestilence and death. These recommendations of the Board of Health are being strictly carried out, although opposed by many sections and interests. Piggeries are being removed; and cesspools in numbers have been cleansed and purified, new ones constructed to prevent a recurrence of pestilence from a similar cause, and the fever has been, and still is, declining. Upwards of forty persons have been sacrificed, and many are still prostrated by it; but it is gradually giving way to sanitary improvement such as the town never before possessed.

TENDERS.

For villa, at Carshalton, Surrey, for Mr. J. McRae.		
Messrs. Nelson & Innes, architects:—		
		If Stone Dressings.
Fish.....	£2,300 0 0	£180 0 0
King.....	2,085 0 0	150 0 0
Buck.....	3,009 0 0	190 0 0
Simpson.....	1,942 10 0	137 16 1
Todd.....	1,818 0 0	189 0 0

For a villa to be erected for Mr. J. S. Rivolta, at Manor Park, Blackheath. Mr. J. H. Blake, architect. Quantities by Mr. C. Foster:—		
Sharphington & Cole.....	£2,131 0 0	
Elliot.....	1,985 0 0	
Walker.....	1,982 0 0	
Rowe.....	1,979 0 0	
Sawyer.....	1,934 0 0	
Todd.....	1,899 0 0	
Sewell & Son.....	1,791 0 0	
Smith.....	1,650 0 0	
Perry, junior (accepted).....	1,648 0 0	

For the Balclava-road, Bermondsey:—Paving the footpaths with Rockhill flags and Aberdeen edge curbs, forming channels with Aberdeen granite cubes, and forming and covering the road to a depth of 4 inches with gravel. Mr. Balls, surveyor:—		
Lugg.....	£384 0 0	
Bevers.....	349 0 0	
Booth.....	317 10 0	
Reddin (accepted).....	288 15 0	

Accepted Tenders for a Free Methodist chapel and schools, Newcastle-upon-Tyne. Mr. Gibson Kyle, architect. Quantities supplied by architect.

Mason's and Bricklayer's Work.		
Kyle.....	£1,050 3 4	
Carpenter's and Joiner's Work.		
Wilson & Berry.....	£399 5 0	
Plasterer's Work.		
Charlton.....	£121 0 0	
Slater's Work.		
Kyle.....	£107 0 0	
Heating Apparatus, Railing, Gates, Stones, &c.		
Walker & Emley.....	£128 8 0	
Plumber's Work.		
Kyle.....	£57 10 9	
Painter's Work.		
Miller.....	£105 1 0	

For repairing 6, Pier-road, Rosherville, for Mr. W. R. Falconer. Mr. W. P. Griffith, architect:—		
Devereux.....	£103 0 0	
Brice.....	102 14 0	
Brice.....	93 18 0	

For rebuilding Mr. N. A. Caley's premises, London-street, Norwich, under the direction of Mr. Barry, architect:—		
Brooks.....	£2,681 0 0	
Ling & Balls.....	2,061 0 0	
Foyson.....	2,385 0 0	
Browne & Bailey.....	2,310 0 0	
For Lacey (accepted).....	2,320 0 0	

For villa residence at Frith. Mr. Herbert Ford, architect:—		
Elliot.....	£1,286 0 0	
Sewell.....	1,043 0 0	
Todd, Brothers.....	936 0 0	
Blotfield.....	909 0 0	
Ginger.....	891 0 0	
Bulls & Gumbrell.....	797 0 0	
Pew & Wallis.....	792 0 0	
Duncan.....	725 0 0	
Donnelly (too late).....	910 0 0	

For two houses at Kensington. Mr. Salter, architect. Quantities supplied by Messrs. Currie & Bradlow:—		
Adams & Bradlow.....	£1,590 6 8	
Pawsey.....	1,680 0 0	
Sewell & Smith.....	1,637 0 0	
Welch & Gale.....	1,687 0 0	
Turner.....	1,599 0 0	
Price and Gutch.....	1,577 0 0	
James & Ashton.....	1,545 0 0	
Smith.....	1,540 0 0	
Todd, Brothers.....	1,465 0 0	
Walker.....	1,442 0 0	
Elliot.....	1,440 0 0	
Adams & Son.....	1,435 0 0	
Stevenson.....	1,379 0 0	
Whelan.....	1,373 0 0	
Minty.....	1,300 10 6	
Fawcett.....	1,275 0 0	
Pugh & Wallace.....	1,243 0 0	
Whelan and Harding.....	1,198 0 0	
Bragg.....	1,150 0 0	
Marshall.....	1,093 0 0	

TO CORRESPONDENTS.

Cleaning off Paint.—"Having a large job of cleaning paint off old oak carving and panelling, will you be so good as to give me your best advice? When a postcard I can write my query, I recollect we have used something from the glass-works. I think we called it stush: I know it used to clear all before it. Perhaps you or some of your correspondents will give me the name. I find a receipt: American putty and sanding. It is not as good as what I have used from the glass-works." Several suggestions on this subject will be found in earlier volumes of the *Builder*.

C. D.—J. R. P.—W. C.—W. & Son.—R. P. B.—A. H. & Co.—P. B.—W. C.—J. W. W.—J. S. H. P. C.—A. Architect.—P. E. C. (our correspondent is apparently not liable. But we cannot speak positively on *ex parte* statement).—H. L. C.—W. B.—C. L. (proper ventilation in the right case).—E. F. (we have not seen the tract).—H. M.—G. E. B.—G. G.—G. T. R.—Another Competitor.—Birkenhead.—A. W. S. T.—C. L.—A. E. W.—G. W. (it would depend on terms of the agreement).—G. F. T.—R. B.—L. R.—Jones.—M. R. H. (reply to Dr. M. & H. Humeon street, Bishopscote, B. next week).—Another London Architect.—Clerk of Works in the Country.—Amica.—A. J. B.—Beetles (various prescriptions have been given in early numbers, but we cannot refer).

Post-office Orders and Remittances should be made payable to Mr. Morris R. Coleman.

Advertisements cannot be received for the current week's issue, later than FIVE o'clock, p.m., on Thursday.

NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the Builder," No. 1, York-street, Covent-garden. All other Communications should be addressed to the "Editor," and not to the "Publisher."

ADVERTISEMENTS.

MR. WILLIAM ELLISON,
ARCHITECT AND CONSULTING SURVEYOR,
OFFICES,
13, FENCHURCH-BUILDINGS, FENCHURCH-STREET, E.C.

TO ARCHITECTS AND SURVEYORS.
PARTNERSHIP.—The Advertiser, a Young ARCHITECT, who has been in some of the best London offices, and has some connected in the Midland Counties, is desirous of joining one well-established in his profession. Address, by letter, to J. N. Office of "The Builder."

VACANCY now occurs in the OFFICES of an ARCHITECT in good practice, for a respectable PUPIL, who can reside with the family, if required. Premium moderate. Address, F. S. A. Post-office, Newcastle-upon-Tyne.

DRAFTSMAN WANTED, in a manufacturing establishment at the West-end, acquainted with the styles of design, able to sketch freely and effectively, and of good artistic requirements. State previous occupation, age, and salary expected, and sketch specimen sketches not finished drawings addressed to K. O. Office of "The Builder."

WANTED, in the OFFICE of an ARCHITECT, a LAD of good education, who can write a clear and distinct hand, understands arithmetic, can trace drawings, and make himself generally useful. Address, in own handwriting, stating salary required, with references, to ARCHITECT, care of Mr. Lock News-Agent, 52, Upper North place, Gray's-inn-road, W.C.

WANTED, a CABINET-MAKER, a general Hand.—Apply to JAMES BRICKWELL, Hertford.

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WANTED, in MAY next, a WOOD CARVER, competent to undertake the duties of Foreman of Carvers and large cabinet-making establishment in Scotland. He must be qualified to make sketches and to design, and it will be a recommendation if he has previously filled a similar situation. Liberal salary will be given. Apply, by letter, to the care of Messrs. Parlaton, Cowan & Co., 314, Oxford-street, London, W.

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The Builder.

VOL. XIX.—No. 981.

Railway Appliances and the Public Health.



ALTHOUGH travel has ceased to be the formidable business that it was to our ancestors, it is still a matter that disturbs the even tenor of our way. It frequently entails upon us unusually early rising and a hurried breakfast; and always a certain discomposure, arising from fear of leaving anything, that should have been remembered, unsaid or behind; and from a desire to be in time. This is commencing a journey in the least complicated manner. If there are ladies and children to be escorted,

more serious difficulties have to be surmounted, and the traveller's frame of mind becomes proportionately unstrung.

Perhaps railway arrangements are more trying to the British temper than those of any other institution; for it is noticeable that in many cases all the social graces appear to be discarded the moment a Briton, whether he be of high or low degree, becomes a railway passenger. First-class seats himself, wrapped in a gloomy reserve; and, oblivious of the rest of his race, is visibly intent upon obtaining a whole carriage to himself. Second-class enters his compartment with a broad stare, throws himself into a corner, and concentrates his attention upon the nearest window. If this be open, he closes it; if it be closed, he opens it. Third-class comes in slowly, edgewise, with a bundle; looks all round, and spits upon the floor. All these are unconscious of the cares of luggage. If first-class have any, his valet is responsible for its simultaneous arrival with themselves at the point of destination; or the porters have pounced upon it, and expectantly informed him that it is "all right." Second-class packs his own luggage into a square black shiny bag, neatly fastened up with a strap, and provided with handles, and never relinquishes a hold of it till he is able to deposit it between his knees below his seat, which he does as soon as he has altered the temperature of the carriage to his mind. Third-class, masculine gender, never has any luggage: it is an incubus peculiar to the female mind. Dames, as railway passengers, whether first, second, or third class, sink all the obligations of life in a vigilant care of their luggage. They eye porters, guards, and passengers with one general suspicion; and not until the train is in motion can they believe that they will depart without detecting some nefarious attempt upon trunk or bandbox. Infants, infirmity, old age,—conditions that in ordinary life call forth our tenderest consideration,—are looked upon as interfering nuisances. All are alike utterly selfish. In omnibus travelling, when a lady or an infirm person appears at the door, several hands are held out to assist the intruder in effecting an entrance; but no such courtesy is practised by

railway travellers. Of course there are exceptions, but as a general rule, every one for himself, and *saute qui peut*, form the by-laws of the passengers. In this way, every one is conscious of a departure from his usual habits, and of a consequent disturbance of his general health. It behoves, then, the directors of railway companies to bear this abnormal state of their passengers in mind; and to provide, as best they may, by contrivances and conveniences, a mitigation of the discomforts and disorders of travel. For many years it was judged impossible, and injudicious even if it were possible, to furnish the engine-drivers with any protection from wind and weather; and, just so, it has hitherto been deemed expedient to make second and third class travelling as uncomfortable as possible. But the engine-drivers have since been furnished with a screen from the wind, which is pierced for two large spectacles; and on the railways which diverge from Carlisle they have been further cared for by the provision of a covered hood with sides, which consideration has been attended with beneficial results. It may be of service to inquire how far the same progressive system might be applied to the benefit of the public.

In the first place, let us consider the arrangements at booking-offices and stations at some of our large towns. At Sheffield, the door into the Midland booking-office is exactly opposite the door on to the platform, and midway in this channel of traffic is the pay place; so what with passengers rushing about, and others mobbing the tiny gap for tickets, and the porters wheeling luggage in and out, there is a bewildering confusion. At Lancaster there is the same arrangement, with an additional complication rendered by the same pay-place being used for the issue of tickets for first, second, and third-class passengers, and for the common passage for both arrival and departure. The scanty accommodation, only equal to that of a village station, is still more apparent upon the platform, whence passengers have to cross the rails in the uncovered station, and dodge between up and down trains arriving at the same time, whilst a luggage-train is hissing and wandering about the lines between them. The narrow escapes at this station have been marvellous. Before quitting it, we may add that the urinals are bad here, as there is no front slate division, or trough, but merely a small channel in the pavement, and water dribbling from a pipe; the smell is very offensive; and the pavement always wet. Neither are the closets what they should be; and all are badly lighted both by day and night. We are forced to speak plainly.

At Normanton, where the night mail passengers, travelling both to the north and south, are turned out to change, and detained two hours in the middle of the night, the station accommodation is, and has been, we know from experience, for years of the most contemptible and temporary character. The platforms are so narrow that, in the bustle of the interchange of mails and luggage, it is difficult to keep whole shins; and the utter want of provision for the comfort of passengers is most provoking. It is a matter of surprise that the public have submitted for so many years to such scornful neglect as that met with at this vilest of junctions.

Where the iron station of the East Lancashire joins the wooden shed of the North Union Railway at Preston, the entrance for departures to such important places as London, Birmingham, Liverpool, or Manchester, is actually through and in a coke shed; and the whole station and waiting-rooms are pervaded with fine coke dust to a very grimy extent. The wooden roof of the station is so low that a porter arranging luggage on the top of the carriages has to dodge between the tie-beams, and is in imminent danger of losing his head, by the jerks of coupling of carriages, or should the engine-driver cause the train to make the least movement. The book-stalls at the departure side for Carlisle are very much in the way. These useful adjuncts are placed where the platform

is narrowest, and close to the booking-office loungers about them impede the free passage of luggage and passengers, and make confusion worse confounded. Here again the closets are in a most filthy and discreditable state—black with coke ash and cobwebs, without light and without water. These accommodations should be one of the first considerations of railway management: they should be thoroughly lighted, both in the day time and at night; well ventilated; and kept scrupulously clean. The excitement and worry of travelling, and the change of air and irregularity of diet, are frequently the cause of diarrhoeal tendency; and every possible convenience should be consequently provided for men, women, and children. The accommodation of this kind at the central Newcastle station may be well commended for an example, the building being extremely lofty, and well ventilated, and the apparatus self-acting. Chloride of lime is freely used as a purifying agent, being sprinkled over the backs and sides of the slate compartments, and on a portion of the pavement. The closets here, however, are insufficiently lighted by day.

At the handsome station of Carlisle—so well ordered in many respects, with its wide roomy platforms, drinking-fountain and filter, handsome Gothic banqueting hall, refreshment-rooms, and waiting-rooms, with printed directions on the doors to each, that none but first-class passengers should use the first-class room; none but the second-class passengers the second-class rooms; and, with framed notices, to beware of pickpockets, and that the company will "not be responsible for luggage left on the platforms or in waiting-rooms,"—the urinals have the splashy channels on the pavements, and nothing but a useless, dangerous, spiked iron-bar, where the running water in a trough should be; and the doors to the closets are without any privacy, opposite to these, and the whole are badly lighted with borrowed light. At Derby, at Berwick, and at Windermere, these conveniences are all dirty, worn out, and ill-devised. At the Snow-hill station of the Great Western Railway, at Birmingham, the great temporary wooden shed has not yet been superseded by the permanent structure that two or three years ago was thought likely to eclipse its mighty rival, the North Western in New-street; and the temporary urinals on the upside have all these years been but temporarily divided from the parcels or left-luggage office, by a thin plank; and the clerks, oppressed by the terrible stench, have been heard to express a hearty wish for a visit from a nuisance inspector or a board of health. The new station at Darlington, for many years likewise of a temporary character, on the other hand deserves great praise. It has been entirely rebuilt, with the great and useful feature of an enormous platform, admitting of free motion, and from which the various offices and rooms are easily discerned: indeed, all the accommodations are of a satisfactory description.

Next let us consider the classification of passengers. Felons in custody of policemen, and madmen in charge of keepers, are commonly conveyed by second and third-class carriages: however undesirable as fellow-passengers, they are not necessarily in an unsanitary condition; but the case is different with regard to reapers. For instance, a whole tribe of Irish reapers, every individual of whom was armed with a murderous-looking sickle, was recently crammed into a carriage on the Great Western line, in which were two other occupants, a young lady who might have been a timid governess travelling to her situation, and a well-dressed middle-aged man. The clothes these Irishmen wore had probably never been taken off during the whole harvest season, as reapers are given to sleeping in outhouses; and every man on entering gave utterance to a fendish, Ojibbeway howl, and brought out his pipe and smoked. Again, on the Lancaster and Preston line, as the train nears Preston, the car-

riages gradually fill with the working classes,—decently behaved folk. Only the other day two foul mouthed, foul-smelling navigators were introduced into a carriage full of respectable third-class passengers: they had not been seated many minutes before one of them,—but we must omit the detail. Country clergymen, with small livings, sometimes are necessitated to travel third class; but there is no just reason why they should be cooped up in a small space with a shepherd and his musky-smelling collie dog, or with a game-keeper carrying to a country seat two young badgers in a hamper. These instances point to the want of a compartment in third-class carriages, set apart for such rough customers. Take another case,—in second-class carriages. After travelling all night from the North, and paying a fifty or sixty shilling fare, the door of the compartment is opened in the chilly dawn, and a lot of working men, in their working clothes, are thrust in, in greater numbers than there are seats for. This is a common practice by the night-mail on the North Western, and may be looked for as a matter of course on nearing London early on Monday mornings. Being so usual an occurrence, there is less excuse for the absence of proper provision for both parties. It is as unsanitary for the artisans to be crammed into a small compartment in which a couple of travellers have been shut up all night, as it is for the occupants of it, who have paid a second-class fare, and naturally expect some degree of comfort, to be thus roused and chilled, and then stifled.

Another annoyance, in a second-class carriage, that might be avoided, is the transit of railway officials (probably timekeepers), who let themselves in and out with keys at every station. A carriage full of passengers was thus disturbed in the course of a ride from Newcastle to Carlisle about twenty-one times; and, as there is no fast or through train on this line, there is no option at present but to put up with similar inconveniences. First-class carriages are by no means exempt from more serious horrors; but these fall generally upon unprotected ladies.

The seats of second- and third-class carriages might be made generally much more comfortable: those of the second-class on the Newcastle and Carlisle line, and a few on the Great Northern and North Eastern, may be excepted from this suggestion, as they are already comfortably cushioned both on the seats and at the backs. But this exception proves the practicability of the suggestion, as do the carriages on foreign railways. Consider the biting cold of a winter's journey, with nothing but a thin plank between the passengers and an atmosphere several degrees below zero. Consider, too, the punishment of being jolted, tossed, and churned upon hard boards, in second-class carriages of express mail trains, particularly in the dead of the night, as in the ride from Leicester to Chesterfield, when there is no stoppage: the speed is that of fifty miles an hour, the last carriage lightly laden, and there is no break-van! This same frightful oscillation is also noticeable upon other lines, and is attributed by the stricken passengers to imperfect springs or imperfect screwing up of the same.

Some carriages are still without ventilation. It is hardly necessary to say that every carriage should be properly ventilated, quite independently of the likes or dislikes of individuals to effect this object by means of the windows. This sanitary necessity should be arranged so as not to inconvenience any occupant, but to be a benefit to all; when the windows could be left to the management of caprice with less injurious results.

The warming of carriages is a subject that we may confidently expect will be speedily taken into consideration; as a scheme has been broached which proposes to heat all the carriages in a train with the waste steam from the engine. This clever and economical adaptation, as we recently mentioned, has been tried experimentally by the London and North Western at Wolverton, with

satisfactory results. The warming of waiting-rooms requires a word. In most of these the fire-places are flush with the wall, as in ordinary house rooms, so that but a very limited number of persons can approach them at a time; but at Oxenholme, and a few other places, open fire-place stoves project into the room beyond the chimney-breast, and are surrounded by stone fenders about six feet long and wide, upon which a great many persons can warm their feet at once. Fire-brick backs, sides, and hearths give out additional heat; and this, therefore, is an excellent arrangement that might be extensively developed with great advantage.

The conveyance of fish trains by the night mails can scarcely be considered a salubrious arrangement for the passengers; but if they were always attached to the end of the passenger carriages the evil would not be of much account except in hot weather. But flashing past the telegraphic posts at rapid speed on the North Eastern railway, and dreaming of contingent accidents, the companionship of live lobsters and crabs, coods, herrings, and haddocks, with a fishy smell pervading all the carriages, appears an additional disagreeable.

The want of communication between the guards, passengers, and engine-driver is an acknowledged piece of gross neglect; and it is to be hoped that among the railway appliances the forthcoming International Exhibition may call forth, this very important particular may be developed. The mere exhibition of such contrivances will be of service, as it will show the public that man's ingenuity does not stop short at this stage, and that it is solely owing to railway parsimony that life is frequently lost and still more frequently jeopardized. Extra care is, perhaps, most required in excursion trains. On the Great Western, a short time since, roused by a piercing scream of the engine whistle, the passengers looked out of window and saw that the engine was ploughing up stone and gravel in an extraordinary manner. The train was brought to a stand still, and a large iron bar disentangled from the wheels of the engine; having been caught up from the line, across which it had been probably placed wilfully. After a rapid survey of the engine, the driver started off again at full speed, regardless of consequences; only alive to the fact that it was an excursion train, in the way of ordinary traffic, and must be got out of the road at all risks. Had the bar caught in the wheels of a passenger-carriage or of the guard's van, a casualty might have occurred, as neither passenger nor guard could have communicated with the engine-driver: as it was, the screams of the engine-whistle made the guards at both ends of the train put on the brakes, and the train was thus timely brought to a stand still. As we frequently see rewards posted up for the discovery of persons placing impediments on the line, we may assume that this diabolical trick is not an uncommon one.

Excursion trains require considerably more attention. In the first place, the trains that are sometimes forty carriages long are made up of superannuated vehicles that are too old and shabby for the regular traffic, with a blind trust in chance that the said carriages will be able to bear the journey in safety; and not enough supervision is exercised by the guards in the matter of the comfort of the orderly passengers. An excursion-train from Newcastle to London occupies eighteen hours: the compartments are crammed, and smoking is tacitly allowed. In one compartment of a carriage in a recent return trip from London sat eight people and two children. Two tall strong north countrymen out of the number began, directly the train started, to eat and drink and smoke, and smoke and eat and drink, which varied performances they carried on without interval for the whole eighteen hours. A female passenger, the postmistress of a large town, was made so terribly ill by the smoke, and her modesty so outraged by the consequences of her illness, that she

wept for shame. A closer scrutiny should be exercised as to the practice of smoking among the passengers.

The gourd-like growth of the railway system requires a corresponding attention to sanitary appliances and conditions;—covered stations, so that passengers should not get damp and wet-footed on entering, changing, or quitting carriages; waiting-rooms, made warm and comfortable in the winter, and clean and cool in the summer; roomy and conveniently-disposed booking offices and platforms; well-ventilated carriages, properly cushioned, and more liberally supplied with daylight by means of a freer use of plate glass at the sides and angles of the carriages; and well warmed in cold weather, and well lighted at night with something more efficient than the old-fashioned oil lamp-lights now in use that are frequently extinguished on the road; a well-organized communication with the guard and of the guard and driver; good self-acting closets at every station, made very light and kept scrupulously clean; contrivances to do away with, or deaden, as much of the noise as possible, as well as of the oscillation and jerking of the carriages; and an efficient system of breaks and signals not likely to be continually out of order. Not the least social benefit that we might expect from the International Exhibition would be such introductions based upon our thirty years of railway experiences as would insure the comfort, safety, and health of the public on railways.

ON THE MODE IN WHICH LIGHT WAS INTRODUCED INTO GREEK TEMPLES.*

In the year 1849 I had occasion, while writing an essay on the "True Principles of Beauty in Art," to examine into the modes by which light was admitted to Greek temples; and on the very threshold of the inquiry I became absolutely convinced that the usual theory of supposing that it was done by a hatchway or hole in the roof could not be a true or correct representation of what was done by the Greeks.

So far as I knew then, or now know, the North American and North Asiatic savages are the only people who adopt this mode. They do make holes in the roofs of their wigwams, by which the smoke goes out and the rain comes in; but it was inconceivable to me that a people so ingenious and so refined as the Greeks should have found no better mode, while every other people on the face of the globe (except these savages) have done so. It appeared still more incredible that they should have taken the trouble to place chryselephantine statues in these practically roofless buildings, and most improbable that, after six centuries of exposure, Pausanias should find these delicate fabrics nearly, if not quite, as perfect as when they came from the atelier of Phidias. These things appeared to me impossible; and, as I have not that thorough contempt for Greek art which is professed by Mr. Ruskin and others of that school, I cannot bring myself to so low an estimate of the Greeks, or of their artistic capabilities, as to suppose that they alone, of all the nations of the earth, could not put a water-proof roof on their buildings.

In this opinion, however, I stood alone. Authors who were never tired of inditing eloquent paragraphs about the beauty of Greek art, were contented practically to rank the Greeks themselves among the lowest of savages; and insisted that the rudest and simplest mode—merely cutting a hole in the roof—was all this unfortunate people could devise for letting light and air into their temples.

Not being able to subscribe to this low estimate of a people whom I really admired, I set myself to examine such remains as might throw light on the subject. I soon found that most of the temples—all the larger ones—had double rows of columns in their cellars, which, frequently at least, were not wanted for roofing purposes; and that many still retained staircases leading to something under and not on the roofs. It could not be to galleries, for the remains proved that such never existed. Still I felt convinced they were not put there without a good and sufficient motive; and on examining further it became clear to me that these pillars could only be connected with the mode of lighting; and, on further looking into

* Read by Mr. James Fergusson at the Royal Institute of British Architects, as elsewhere stated.

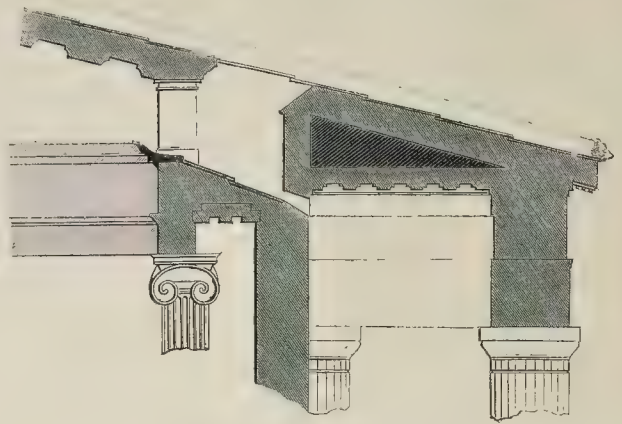
in convincing anybody, we may fairly assume that the materials do not exist for any definite conclusion from this source.

Let us now, therefore, turn to the second part of our subject, and see what light existing remains to be thrown on this "vexata questio."

I believe I am correct in saying that until the publication of Professor Cockerell's beautiful book on the Temples of Egina and Bassæ, no actual remains were known to exist which formed any essential part of the openings in the roofs of Greek temples. He and his companions, however, found on the floor of the temples two stones at Egina and one at Bassæ, which certainly did belong to such openings; but no indications as to their position in the roof. To Mr. Falkener's mind these are conclusive: "These examples alone," he says, "are sufficient to silence all future objections." With all due deference I would suggest that they are just as useful and necessary for my "counter-sinkings" as for his hatchways: in fact, though they prove, which almost everyone admits, that the light was introduced through the roof, they prove nothing more; and I can employ the stones just as well as he can.*

But though these stones will not help us to a solution of the difficulty, there are other peculiarities brought to light by the learned professor's researches, which may do something towards it. We find, for instance, that the cell of the Eginetan temple was only 21 feet 3½ inches wide from wall to wall, and 42 feet 10 inches in length,—the size, in fact, of a first-class drawing-room; yet this apartment was crowded with two rows of columns, two stories in height, which reduced the central aisle to about 10 feet, and the side aisles to 2 feet 7 inches. They were not wanted to support galleries, for there were none; nor for beauty, for the two tiers of columns, standing on each other's heads, with only an architrave between, was not beautiful. It was not that the roof required support, for we find the Greeks at Athens carrying a roof over 32 feet clear space without difficulty, and in the Propylæa carrying a flat stone roof over spaces of nearly 19 feet in the clear. A wooden trussed roof of 21 feet span could thus hardly require contraction to 10 feet. It was not to support the "hatchway," for cutting one-half out of the roof would lighten it, and it would therefore require less support. Indeed, looking at it from every point of view, I can conceive no motive for such an arrangement, unless it were intended to support an opæion or clerestory, or some analogous mode of lighting. You cannot have a clerestory either in Gothic or Grecian architecture without such a range of pillars; and I do not know of such a range existing, in so small a room at least, without carrying some such arrangement for lighting.

If we turn to the Temple of Bassæ, we find the same phenomena. Nothing can be more remarkable,—it may be said clumsy, if merely intended as ornaments,—than the mode in which the internal columns are first detached from the walls, and then re-attached by the buttresses at the back. The angle columns especially are awkward and anomalous, unless it was intended that their axis was to correspond with some external arrangement. The same is true of the pillars next the entrance, which are singularly awkwardly placed; and again, why was it necessary that the distance from centre to centre of the internal columns should be identical with that of the external? and that those in the interior should be placed exactly intermediate between those of the exterior? These things were no accident. Yet all this fitting and contrivance were thrown away if the mode of lighting was merely a hatchway in the roof, placed unsymmetrically anywhere, as shown in Professor Cockerell's drawings. It seems to me impossible to account for all this contrivance and misplaced ingenuity, unless the position of the interior columns could be seen from the outside of the building; and, so far as I know, this could only be done by some such arrangement as I have suggested. If we adopt it, we see at once that the angular position of the last column and the juxtaposition of the first to the doorway were requisite to afford a real or apparent abutment at either end of the opæion; that the three intermediate columns having buttresses were carried up to the roof, and could be seen outside, and consequently must be placed symmetrically, either be-



Sketch-Section of Opæion, Temple of Bassæ.

tween or opposite the external columns. In short, everything that looks so puzzling, and the reason for which Mr. Cockerell admits he cannot conjecture, becomes at once clear and intelligible, and no other suggestion has yet been offered which accounts for any one of them.

There is still a third peculiarity of Greek temples, which, so far as I know, can only be explained by the theory of an opæion or clerestory. Almost all the larger Greek temples had permanent staircases, like that of the Temple of Neptune at Paestum, placed either on one or both sides of the principal entrance. These did not lead to galleries, for there were none: they could not be wanted for access to the outside of the roof; nor, indeed, can I conceive any other use for them than what I have suggested. Without an opæion, they appear to me inexplicable.

Before leaving this branch of my subject, I may mention here that further thought, and more especially the publication of Professor Cockerell's book, which for the first time has put us into possession of correct details of the temples he describes, have enabled me to correct some details, and to improve to a considerable extent the diagrams I originally published.

I should now be inclined to class Greek temples into three distinct groups:—

1. Small temples without any interior columns. These were lighted either from the front or by windows, or it may be, for anything known, by a hole in the roof. We have no facts, so any one may theorize as he pleases.

2. The smaller peristylar temples, such as those at Egina and Bassæ. Their opæions I would call "triglyphal," and I fancy had neither shutters nor curtains, and consequently these temples required no permanent staircases to the roof, and had no roof galleries. Looking at the section, it will be seen first that there is no room for the latter between the top of the order and the roof; but, on the other hand, it is clear that no rain could under any circumstances beat in through the openings, and no sunshine ever reach within 10 feet of the floor or penetrate the temple at all, except for a very short time after sunrise, or before sunset; while, on the other hand, an ample supply of light would in that climate be admitted to make the interior cheerful, and to allow every object to be seen clearly.

3. The third class includes the Parthenon, the Temple of Jupiter at Elis, the great temple at Paestum, and most of the Sicilian temples. These seem all to have had opæions of such dimensions as to require shutters or curtains, and consequently permanent staircases to the galleries of the roof. But, it may also be mentioned, that several of the smaller Sicilian temples, such as that of Esculapius, at Agrigentum, though only distyle in antis, had a stone staircase on either side of the doorway, leading to something that certainly was not an hypæthron, and may have been an opæion.

In attempting to estimate the probabilities of the case, the best mode will be to examine, in the first place, what was the practice of those nations who built temples before the Greeks, but with whom they were at the same time in communication. The only people who have left us sufficient remains to make us certain of what they did were the Egyptians; and it may be stated broadly, as an

indisputable fact, that all the temples which the Egyptians built before the time when the Greeks took to building, were, without one single exception, lighted by a clerestory, or opæion.

It is quite true some of them, such as those at Luxor and Medinet Haboo, are so ruined that the opæion does not now exist; but all their arrangements are so similar to those that have clerestories, that it is impossible to doubt but that they also were so lighted. On the other hand, the Great Temple at Carnac has a clerestory that might be envied by any Gothic cathedral in existence. The Rhamesseum has also a beautiful one; so has the Temple of Thothmes III.; and so, also, have the two temples called the Greater and Lesser Southern Temples, at Carnac. The temples built during the domination of the Greeks and Romans were not so lighted; but that has no bearing on the subject of our present inquiry. It is sufficient for us to know that all the Pharaonic temples,—all those built before the year 1000 B.C.,—have this arrangement. No one, I presume, will be so Irish as to suppose that what was built afterwards influenced what was erected before; though in Mr. Falkener's book, and elsewhere, this is done through inadvertence.

But it may be asked, did the Greeks know of this practice of the Egyptians? Here, again, the answer seems to be on the surface. I believe no antiquary will now dispute that the Greeks borrowed the shaft, at least, of the Doric order, from the banks of the Nile. The proto-Doric examples found there are too numerous and too similar to admit of dispute on this point. But there is one peculiarity which it is interesting to note here. It is that the proto-Doric found above the Cataracts can only be considered as distant relations of Greek examples. Those found at Thebes are cousins-german,—those at Beni-Hassan are brothers; and, if we could continue the series to Memphis, I feel convinced we should find the Doric itself, scarcely differing from those we are so familiar with in Greece. I am inclined to this opinion, not only from the increasing similarity as we descend the Nile, but because, if I am right, that the real original of the Doric form was a brick or rubble pier, it would be in the delta that its prototype would be found, and not among the monolithic examples of Thebes or Nubia.

But this need not now be insisted upon. The Beni-Hassan example is sufficient to all present purposes, and, fortunately, we are not left to conjecture as to whether the Greeks knew of it or not; for we have in "Herodotus" an account of the temple built by the associated Greeks at Naucratis, in the reign of Amasis; and we know further that the very Eginetans, who built the temple to Jupiter Panhellénus, built one in Egypt to the same god about 560 B.C., and, therefore, as far as we can judge from the architecture, before the date of their native example.

That the Greeks, therefore, knew of it, can hardly be doubted. But before leaving Egypt it may be as well to inquire why the Egyptians adopted this mode of introducing light into their temples and halls, instead of the hole-in-the-roof plan, which our friends would try and persuade us was so much preferable. It is clear that any argument that can be adduced in favour of the latter in Greece applies with at least ten times the force on the banks of the Nile. No rain falls

* It is to be regretted that the Eginetan stones were not brought home; for, owing to their different depths, one being 8½ inches high, the other 2½, it is not easy to see how they could be used together on any system. There are also peculiarities in their shape which are very puzzling; but, as these have no bearing on the present subject, it is not necessary to enter upon them here.

there,—at Thebes scarcely twice in a year; their statues were of granite or basalt, and a shower would not injure them; and the paintings inside were the same as those outside, and having stood uninjured through upwards of two thousand years' exposure to the atmosphere, were not likely to excite much anxiety from any temporary dampness. There was no difficulty of construction, all that was required was to leave out certain stones of the roof, and it was done. It could be no deformity, for, the roof being always flat, it could not be seen outside. Why, then, did they not adopt it? The answer appears to me inevitable,—that it was a clumsy, barbarous expedient, which they were far too clever and too artistic ever to think of adopting.

Nothing can, to my mind, be well clearer than the fact that when the Greeks borrowed the Doric order from the Egyptians, they remodelled the entablature so as to suit and harmonize with the wooden structure of their roofs; and at the same time they modified the Egyptian mode of lighting in exactly the same manner, and to the same extent; and, if any one will try to reproduce the flat stone trabeate form of the Egyptian roof with the trussed wooden frames which the Greeks found it necessary to adopt, I shall feel surprised if he comes at a conclusion differing from that shown in the diagrams on the wall.

Being, therefore, familiar with this Egyptian mode of lighting buildings, why should not the Greeks adopt it? Mechanically there was absolutely no difficulty. As a convenient arrangement, the experience of the whole world, in all ages, proves that openings in a vertical wall are preferable to holes in the roof; and, artistically, I feel quite sure that any one who will think twice on the subject will agree with me that it is infinitely preferable.

Externally, I feel convinced that a break in the ridge of the roof,—a great gap or hole,—would have been an intolerable deformity; and so it has been felt to be by all modern restorers, who have invariably filled it up. On the other hand, the opening in the sides would have relieved the monotony of the roof, without disturbing the lines.

But it is more with reference to the interior, and the lighting of the works of art which the temples contained, that it must be judged. Volumes have been written, and Mr. Falkener occupies a considerable space in his book, in describing the charming effect of high lights and hypæthral openings on statues. But all this is wholly beside the mark. He, and those who agree with him, are speaking of white marble statues, of life size, or slightly larger; and these do depend wholly for their light and shade, for their expression and accentuation, on having a light above them, falling at some peculiar angle; but with these we have nothing to do here. What these Grecian temples contained were colossal chryselephantine coloured statues, which consequently did not depend on light at a particular angle for their effect; and, if they did, would not have got it by the ordinary hatchway arrangement.

If the Minerva of the Parthenon or the Jupiter at Elis had been statues of life-size, and of white marble, I am not prepared to deny that they might have been effectively lighted by a hole in the roof, provided the hole was filled with ground glass, or had always a blind before it; but I am convinced that the wandering sunlight that would otherwise have come through would have been absolutely fatal. In the early morning it would have fallen on the figure, at noon on the north wall, in the evening fall in the eyes of the unfortunate votary who came to pay his devotion. Greece has a sunny climate, and a different brilliant effect every half-hour is scarcely the "singleness of effect" a sculptor would desire. But when we come to talk of a statue 50 feet high in a temple the roof of which is only 5 feet higher, and propose to light that statue by an opening in the roof 20 or 30 feet in front of it, we get into an almost inconceivable difficulty. Besides the wandering light just spoken of, the feet of the statue would always be brilliantly lighted, the legs fairly, the body would be in shade, and the head—the part on which the Greek artists lavished all their care—would always have been in deep shadow; in fact, never visible. Is it probable that this should be so?

I have not the least doubt in my own mind that if all the conditions of the problem were put before any sculptor, or any one accustomed to think how sculpture should be lighted, that he would arrive at the same conclusion that I have done. He must bear in mind that the flesh parts of the statue were of ivory and coloured, the eyes precious stones, the hair gold or coloured, the figure

of wood, draped with cloth covered with gold and other ornaments, and the whole thing a mass of bright and gorgeous colouring; he must also bear in mind that the statue almost touched the roof of the apartment in which it was placed. I cannot conceive that there is any one but would say that what was wanted for such an object was a diffused steady light, sufficiently high not to be in the spectator's eye, and at such a height as to light the upper and not the lower parts of the figure.

It is hardly necessary to allude to what is said by Mr. Falkener and others about the necessity of a single high light for pictures, with which these temples are supposed to have been adorned. They are reasoning regarding modern oil paintings, with their shining surface of varnish. The Greeks did not paint in oils, and did not varnish their pictures; so all this reasoning is inapplicable. In fresco or encaustic painting, what is wanted is as much light as can be obtained, and as diffused.

Lastly, with regard to the architecture, a skylight or opening in a flat ceiling throws the whole of the rest of the roof into shadow, and is as disagreeable an arrangement for architectural effect as well can be imagined, and I feel perfectly certain no Greek would tolerate it for one minute. But this defect, as well as all those of lighting the paintings and the numerous works of art, as well as the great statues, are remedied at once by the adoption of the *opæion* or *clestory*.

Before leaving the subject, it may be well to allude to one or two minor points which are of no real importance, but, if not answered, may be magnified into serious objections.

It is assumed that the *peplum*, so often mentioned in the account of these temples, was nothing more than a curtain or blind to keep out the wet. In all the dictionaries and books of antiquities that I have consulted, "*peplum*" is translated *shawl*, and certainly was sometimes, if not always, an article of dress. My conviction always was, and I must confess, still is, that the *pepla* found in temples were robes which were on certain occasions used to drape the statues. But, if it be contended that this was not so, it must, at least, be admitted that they were always most elaborately and richly embroidered, being covered with figures of men and animals, and in the richest materials. Such an elaborate and expensive piece of workmanship certainly never would have been used to keep out the wet and the weather. If they had been so used, Pausanias certainly would not have found them, after 600 years, hardly the worse for wear. They must, in fact, have been preserved with the same care as the embroidered *pepla* of our Medieval cathedrals; and, if I mistake not, were similar both in form and use.

The *parapetasma* was a curtain that was hung in front of the effigy of the deity, and it is perfectly consistent with what we know of the form of Grecian worship, to suppose that the great effigy was not always exposed to the gaze of every one that entered the temple, at all times and all hours; but was concealed behind a curtain except on high days of festival, or when some one could pay for having the curtain withdrawn; but in order to enlist the *parapetasma* in favour of the "*sub divo*" theory, it is necessary to point to some passages where it is mentioned that it was used and useful for that purpose, or some allusion that would justify the assumption that it was so. I am not aware of any.

The last objection I shall allude to is one pointed out by Mr. Falkener, who says that the Parthenon is "*displuviatum*," like the houses at Pompeii and elsewhere; and, consequently, must have been "*sine tecto et sub divo*," like the courts of those houses. So far as I know, the impluvium of those houses was generally 1 foot or 18 inches deep; and would, therefore, contain the rain which the roofs were made to drain into it. Mr. Falkener states the impluvium at Athens to be 3 inches deep; on what authority I do not know. Mr. Penrose makes it from '125 to '127, or just half that extent, and this makes all the difference: 3 inches is a step; the foot would rest across a rising of one inch and a half. Perhaps it would be more correct to say, "*disanginiatum*," if I may be allowed to invent such a horrid word. If sacrifices took place in the temples—and there seems no reason to doubt that they did—a ledge of this sort would be needed to prevent the blood spreading everywhere. But the correct explanation probably is, that this sinking is just what we should look for from Pausanias's description. He tells us, that the site of the temple at Elis was so moist, that they were in the habit of pouring oil on the pavement in front of the statue, to absorb the moisture; but, on the contrary, at Athens, where the site was high and rocky, they poured

water on the pavement in front of the statue, lest the ivory should be injured by the dryness of the place. From this we learn, in the first place, the extreme delicacy of these statues, and the care that was required to keep them from going to pieces; and in the next the extreme improbability, not to say impossibility of their allowing the rain to pour in at times when the atmosphere was surcharged with moisture, or the sun to blaze in during the hot winds which prevail in Greece. In fact, the power they had, by the precautions mentioned by Pausanias, of regulating the hygrometric state of the temple, is to my mind sufficient to prove that their temples were not "*sine tecto et sub divo*," as our learned friend would have us believe.

The proposition, therefore, which I have to submit for discussion is reduced within very narrow limits. I assume, in the first place,—what I fancy no one now will dispute,—that the light of day was admitted into Greek temples. We know it was not admitted by windows in the walls, and we may take it for granted that it could not be admitted in sufficient quantities through the doorway. Being therefore admitted through the roof, the question is, was it admitted through a horizontal hatchway, or through a vertical *clestory*? You have to choose, in fact, between an *hypæthron* and an *opæion*. I do not know one argument for the former. I hope I have adduced a few in favour of the latter. Still I may be mistaken, though twelve years' reflection seldom leaves a man in full possession of any hallucination he may have indulged in at the earlier period. But it is for you to decide, and I shall be glad to hear what can be said against the views I have had the pleasure of laying before you.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE ordinary meeting of members was held on Monday evening last, at the House in Conduit-street. The chair was taken by Professor Donaldson, vice-president.

The minutes of the last meeting having been read and confirmed, and several donations announced by the honorary secretaries,

Mr. James Fergusson read a paper "*On the Mode in which Light was introduced into a Greek Temple.*" (This will be found in another part of our impression.)

At the conclusion,—

The Chairman observed that, as the subject was not only difficult, but interesting, and had long been a stumbling block to architects, he hoped that some of the gentlemen present (than whom none were more competent), would give their opinions upon the able and carefully prepared paper which they had just heard read.

Professor Cockerell said he was not sufficiently acquainted with the views for which Mr. Fergusson contended, to be able to follow him; as, although the latter gentleman had done him the honour to ask him some questions on the subject, the arguments which he had adduced that night were new to him. Hearing them for the first time, he confessed they had staggered him. He was not acquainted with the Egyptian temples to which Mr. Fergusson had called attention, but he thought there was a good deal of matter for reflection in his suggestion; and, should they turn out to be feasible, much credit would be due to him for throwing light upon a theory which did not appear to have any exemplars to support it; but which, nevertheless, might be based upon truth. He had himself, in the course of his researches, found stones and fragments, such as copings, &c., which appeared to him to favour the *hypæthron* theory; but he had not been able to trace any to satisfy his mind that the temples were lighted from the roof. He admired, as he was sure they all did, the learning and application which Mr. Fergusson had brought to bear upon the subject; but he confessed he would have been better pleased had that gentleman been able to adduce any fragments, paintings, or other proofs, such as existed with reference to the Pompeian temples, to show how the architects of the Greek temples introduced their light. As at present advised, he was not able to say more than to express his acknowledgments to Mr. Fergusson, for the very able and learned disquisition which he had prepared with so much care and delivered in so lucid and interesting a manner.

Mr. Fergusson observed that Professor Cockerell had spoken to finding stones and other fragments which he thought calculated to favour the *hypæthron* theory; but he (Mr. Fergusson) was prepared to contend that such discoveries

were equally applicable to the theory which he had endeavoured to set up.

Mr. Penrose said he could not pretend to have paid any special attention to the subject; although, at the same time, the theory urged by Mr. Fergusson was not entirely new to him; as ten years ago he had been led, by a perusal of "The Principles of Beauty and Art," to look into the subject. The theory there expounded was, in his opinion, the only plausible one put forth. He had been struck by hearing that Mr. Fergusson claimed an equal right to the fragments discovered as throwing light upon his peculiar theory as well as upon that usually received as the most worthy of attention.

Mr. Bell observed that he had considered the subject with great attention, amusement, and, he hoped, advantage. He did not speak as an architect—for he possessed no architectural knowledge—but as a sculptor; and he had no doubt that the statues in the Greek temples were made of materials which would not bear exposure to the weather. A statue, for instance, made of a thin veneer of ivory, on a core of wood, could not last any time unless there was a substantial roof to shield it from rain and tempest. He quite agreed with Mr. Fergusson in what he had said about the distinction between coloured and plain statues. A statue which was of white marble would, for instance, require the light from above; but if it were coloured it would not. He would like to know whether Mr. Fergusson had ever prepared any model to guide him in his conclusions. Wilkie, the painter, and other artists, used to make a box containing little figures, modelled to represent the groups they intended to paint, and the light in which they were intended to be depicted. Now, if a little model of a temple were made with the light introduced in the manner for which Mr. Fergusson contended, small statues might be placed in it, and the effect could be seen. It would also serve to show whether coloured statues could be well lighted up, as he supposed such statues were in the temples of Greece. There could be no doubt but that there was a desire on the part of the Greeks that their statues should have a good light; and it would therefore be satisfactory to know whether Mr. Fergusson had put the mode of light for which he contended to the particular test suggested.

Mr. Fergusson replied that he had not done so, because the subject had not been sufficiently taken up by the public to warrant the experiment. He feared, however, that the small model suggested by Mr. Bell would not give the effect required; as, in order to make the experiment satisfactory, it would be necessary that the head of the operator should be in the same light as the temple.

Mr. Bell.—But it might give some idea.

Mr. Fergusson.—Yes; but it would not be a fair test.

Mr. Lloyd said he was to some extent familiar with the question, in consequence of having read Mr. Fergusson's book when it first came out. At that time he was very much captivated with his theory, but in the interval that had since elapsed he confessed he found himself veering rather in the other direction; but, now that he had heard Mr. Fergusson and had seen his illustrations, he felt inclined to veer round again and to adopt his view; as he must say that he had made out an extremely strong case, and one which he (Mr. Lloyd) confessed he was quite incompetent to argue against. With regard to the model suggested by Mr. Bell, he thought that, in order to do justice to the experiment, it would be necessary to try it in a room of dimensions equal to those of the temple itself, and also to have the sun of Greece to try it by, which was not a matter of very easy accomplishment. Those who had travelled in Italy could not have failed to have been struck with the effect which a very small window had in lighting a room, so clear and so diffuse was the light from an Italian sky. This circumstance made him think that, if the opening were carried the whole length of a colonnade, there would be too much and not too little light in the building. In Egypt they had no windows, but they had a vertical sun, and the object of the roof was to keep out the hot sun, and not to exclude rain. The objection to the direct light of the sun would not be so great in Greece as in Egypt, for in the former very little vertical sun would come through an opening in the roof. With respect to the relation between the interior and external columns in the Temple of Bassæ, as shown in the ground plan exhibited by Mr. Fergusson, he was of opinion that they must look further for the solution than the suggestion made by that gentleman; and that the spacing was either accidental or the result of a general arrangement of the proportions of the

building. With regard to the paper just read, it seemed to him that it did not exactly correspond with the title; for it was found that the hypæthron was, after all, an *opæion* or clerestory. If this could be established, it would be a very valuable piece of information. He was of opinion that monumental evidence existed on the subject beyond that which had been cited. Many were, in fact, doing that which a celebrated novelist had lately been charged with describing; namely, trying a man in his absence and convicting him. They were dealing with conjecture only; but, if they could get any additional monumental proofs, however indirect, they might be taken *quantum valeat*. There were many representations remaining of the true hypæthron, for instance, at the ruins of Balbec, where there were elaborate roofs divided into fanciful compartments, and in the centre an opening, with the sky and figures looking through. These he thought were representations of the actual roof. He did not think it could be successfully contended as an objection to the opening in the roof theory that the aperture would be clumsy, and that the sides of the opening would present a disagreeable appearance, because, in the first instance, the opening might be so constructed that very little room would be left between the top of the beam and the roof; and, secondly, because the Greek architects were too skilful not to have got over any such difficulty. The difficulty with which they had to contend was how to let in light and at the same time keep out the weather. But he believed they were quite ingenious enough to keep their roofs thoroughly water-tight, although he could not suggest the manner in which they accomplished that desideratum.

Mr. Ashpitel observed, that it seemed to him the question was simply this, whether the large places of worship used by the Greeks were roofed or not, or whether there was a place like the cloister of our own cathedrals, which could be used by the priests in bad weather. Bad weather was, however, a matter of such extremely rare occurrence in Greece, that he thought it might be left out of consideration altogether. Moreover, there was abundant evidence to show that even in Italy, where the climate was not so invariably serene, the statues were exposed in the open air. At Florence, for instance, the statue of Michelangelo stood in the open air for centuries uninjured, and there were many other examples in the various cities of Italy. In considering the subject to which Mr. Fergusson had invited discussion, it might be all very well to come with a preconceived notion; but we had the testimony of Vitruvius, that the middle of the temple was *sub divo*, and *sine tecto*. Now, what is the meaning of the first phrase. Fortunately, we have a direct explanation of this word in Varro ("De Lingua Latina," v. 66). He is speaking of the God so much revered by Latins, the Deus Fidius, and he tells us in his temples, "*ejus perforatum tectum, ut ed videatur divom, id est, colum,*"—his roof was perforated, that by that means the *divom* might be seen,—that is, the sky. But Vitruvius goes further, and says it is also "*sine tecto*," without roof. There can be no other translation of this phrase. To take another example, Ovid tells us (Fasti, ii. 667), that when it was necessary to enlarge the Temple of Jupiter Capitolinus at Rome, which we all know was a covered temple, the statue of the god Terminus stood in the way. It would have been "*nefastum*" to have moved this god, and also to sacrifice to him unless under the open air, and therefore the temple was built over the statue, and a hole left in the roof, that those conditions should be fulfilled. The words are,—

"—Se supra, ne quid nisi sidera cernat,
Exiguum templi tecta foramen habet."

Servius gives the same account, and uses the same words, "*sub divo*." Now, in the restoration before us, there is a roof, and the light is admitted sideways, so that the building cannot be said to be under the sky, nor could the stars be seen over head,—*supra*. Were these authors right, and did they know what they were talking of? He thought their testimony too strong to be affected by any conjectures, however ingenious they might be. But if that was not enough, he would ask what is the meaning of the word hypæthron? Is it not derived from *ὑπο* and *αἶθρον*, "under the sky?" Gentlemen would remember the magnificent soliloquy of Prometheus at the beginning of the noble tragedy of Æschylus, where he apostrophizes "the godlike sky, the swift-winged winds, the laughing ocean, the river-floods, the earth—the mother of us all," and the word used to express the sky is *αἶθρον*. It almost seemed to him that to say an hypæthral temple was covered

with a roof, was to say "out of doors" meant "in-doors," so strong did the testimony seem. But he might go further, and would cite the description of the Temple of Juno at Samos, as given by Strabo. He says,—"Without (*χωρίς*) [probably under the portico], it contained many pictures; in the chapels (*ναῖοι*) are there also pictures; and in the hypæthron (*ὑπαίθρον*) are many statues." And in another passage, describing the Temple of Jupiter Soter, he says the colonnades (*στοῖβια*) contain pictures; the hypæthron, statues. But now he would advert to the allusion made by a gentleman to the chryselephantine statues. These, of course, would require protection from the weather. We learn from several passages in Pausanias that they were made of wood, and covered with thin plates of ivory where the flesh was intended to be shown, and of gold where there was drapery. Now, it was clear the heat would injure the ivory, and the rain would cause the wood to swell, and the sun to shrink it, and this must clearly injure the statue. It is true that these chryselephantine statues were protected by veils and curtains; but these would not keep off the almost tropical rains which sometimes fall in Greece; and he (Mr. Ashpitel) would call the attention of the chairman to the fact, that their late lamented friend Canina, a name he could never mention without the sincerest regret, nor could the meeting receive such mention without the deepest respect,—Canina, in his restoration of the Parthenon, had believed there was a sort of baldacchino, or tabernacle, over the statue of Minerva for such protection. In his restoration of the Temple of Jupiter at Elis, where there was a chryselephantine statue of the god, in a sitting position, of gigas-tic proportions, the same author had believed that a sort of shed-roof had been placed across the end of the temple, for the purpose of similar shelter. He must now venture to say a few words in defence of his friend Mr. Falkener, whose book was an earnest assertion of the love the Greeks had for ideal beauty, and their unrivalled excellence in its production. That gentleman had devoted his life and all his energies to the investigation of the subject, with a singleness of purpose and constant persistency, which must command the respect of all, whether lovers of Classic or Medieval art, or—as he (Mr. Ashpitel) thought they ought to be—of both. Now, in searching for certain facts, Mr. Falkener finds three ancient medals, each representing the deity of some temple placed under an arch. He cannot believe that, however imperfectly a medal can represent large buildings, such a thing as an arch would be depicted, if it never existed; and he therefore proposes a restoration of the Parthenon, combining an hypæthron with an arched ceiling over part thereof, to protect the chryselephantine statue. Now, surely here are new facts to which our attention is invited; and surely, however we may differ with Mr. Falkener—and he (the speaker) did so on many points,—surely he was entitled to be spoken of with respect for adding other facts to our knowledge of the subject. But, after all, even to our northern ideas, is there anything so very absurd in our notions of a building the middle of which is surrounded by a colonnade, and yet which is open to the air? Is not the Pantheon at Rome an example to the present day of an open roof? He had often seen the rain fall in on the pavement. Were not the cloisters of our cathedrals colonnades open in the centre? And, to come to a more familiar instance, is not a place crowded daily with people, that "place where merchants most do congregate," our Royal Exchange, a positive hypæthral building to the present hour? But it has been said that Vitruvius tells us the hypæthral temples were decastyle; that is, they had ten columns in the pronaos and posticum, and that, therefore, the Parthenon could not be hypæthral, as that building is octastyle, and has only eight columns in front. Now, the author does say so; but he also states there are no such temples at Rome, where he lived and wrote; and then he goes on to say, "Sed Athenis octastyles, in templo Jovis." Now this cannot allude to that of Jupiter alone, as that was decastyle; and the probability is, that the reading of Canina must be accepted, who supposes the word "et" to have been left out; in which case the meaning of Vitruvius would be, that at Athens there is the hypæthral temple to Jupiter Olympius, and another, an octastyle temple, most probably the Parthenon itself. There seemed abundant evidence to disprove Mr. Falkener's theory. Had there been no other but that of Vitruvius to show these temples were *sub divo* and *sine tecto*, he should have thought the matter settled. But, however they might

differ from Mr. Fergusson as to his theory, the best thanks of the Institute were due to him for the ability with which he had treated of a very difficult subject, and the very able and ingenious conjecture he had thrown out; as well as for the careful and learned manner in which he had supported his theory. However they might differ with him as to any theory, they were sure of an able and interesting paper at all times from Mr. Fergusson. He, therefore, moved that the thanks of the Institute be given to that gentleman for it, and felt sure it would be cordially responded to.

Mr. Cockerell, jun., said it had been urged in favour of Mr. Fergusson's theory that statues which were *sub divo* would be necessarily exposed to injury; but he would ask whether there was any proof that such statues were exposed to the weather? They might have been set further back; and in that case the light would fall upon the pediment, and would be reflected upwards, as in the case of the frieze of the Parthenon.

Mr. Ashpitel said there was no light like the light of heaven.

Mr. Cockerell.—But some of the most beautiful pieces of sculpture never could have had the light of heaven, but only a reflected light, as in the frieze of the Parthenon.

Mr. Bell said that as a sculptor he felt bound to say that the frieze of the Parthenon was sculptured so that the light might be reflected from below. His own impression was that Phidias, being well aware of the light in which the frieze would be shown, had adapted his relief accordingly (which was different from many others) for that peculiar light. A light reflected from below was, however, the worst light which could be got for a statue in the round, and the best was a light from above, at an angle of 45°. If, on the contrary, the statue were painted, it would look very well in a light coming in from two sides. This, however, would not do for a plain statue. A statue veneered with ivory would, he thought, be curled up or destroyed by the heat of the sun, if adequate protection were not provided for it. Ivory on a core of wood would also be liable to warp by the draught and wind. He was still of opinion that it would be very satisfactory if an experiment could be made with a model.

Mr. T. H. Lewis, in seconding the vote of thanks to Mr. Fergusson, observed that those who knew the heat of the sun in Greece could readily imagine that some protection would be necessary for such statues as that in ivory in the Parthenon. The heat was in fact so intense, that it was impossible for travellers to move about when the sun was at its meridian. On the occasion of his visit to Athens, he had been struck by the whiteness of the marble in its raw state. At Athens, the palace of the king was built of the purest Parian, and the reflection of the sun upon the white surface was almost intolerable to the eye. Any statue, therefore, cut out of marble in the crude state, would require very little light indeed.

Mr. Papworth protested against both theories—that of the hypæthron, and that for which Mr. Fergusson contended. He believed that, in that portion of the temple devoted to the deity, no light whatever was admitted either by clerestory or opening in roof. No one was, he fancied, admitted into the shrine but some very favourite worshipper—Alexander, for instance—and he did not believe that any but the *élite* were suffered to approach it, except the priests. The humble worshippers, or the congregation generally, were in the great square in front; and from thence they dimly saw, looming through the reflected light, the august image they were adoring. In the hypæthral temple, he conceived, there was a kind of cloister light, and that on occasions of great ceremony the high contracting powers were alone allowed to approach the shrine. He disagreed with all that had been said on either side.

The Chairman said he did not wish the discussion to close without saying a very few words. He thought they were all much indebted to Mr. Fergusson for endeavouring to cut the Gordian knot, and find a solution of a very obscure and complicated question. He was sorry, however, that he could not agree with him in the very ingenious theory which he had set up. There were several authorities to refer to, all of which he considered tended in an opposite direction. There were the buildings themselves, the ancient writers, medals, fragments, and pavement. Although there were several medals showing roofs, not one showed any sign of the hypæthron, or even small vertical openings. The ancient writers were, however, the authorities upon whom he was disposed to place most reliance; and he for one confessed that he could not get over the expression of Vitruvius, "*medio sub divo et sine tecto*." His own impres-

sion was that, whereas the climate of Greece would admit invariably of the construction of hypæthral temples, that of Rome would not. He had always been of opinion that the part immediately over the statue was roofed, and even in that case there would be abundant light upon the statue. To corroborate this, there was the expression of Strabo, to the effect that, if the god had risen, he would have knocked his head through the roof—a circumstance which could not have occurred if there had been no roof. The word "temple," he thought, was intended to refer, not to the shrine only, but to every part of the building which was within the sacred precincts. With regard to the covering of Egyptian temples, he agreed with those who thought that the object was to protect the worshippers from the extreme heat of the sun in that country. If they were to examine the Greek churches of the present day, they would find that they were lighted rather by lamps than by the narrow openings described as windows. He could, therefore, well imagine that the shrines of the ancient Greek temples had no light, except from the doorway or grated aperture above the door itself. He was sorry that Mr. Falkener was not present that evening to hear what had been said of him, and to give them the benefit of his research upon the subject. The Chairman concluded by putting the motion, which was carried *nem. con.*

Mr. Fergusson, in acknowledging the compliment, briefly referred to some of the arguments adduced by previous speakers; and contended that it was impossible for a medal to show the opening in the roof of a temple. It seemed to him that Mr. Ashpitel was mistaken as to what Vitruvius had said, which was, that a hypæthral temple was decaestyle and diphteral. He was of opinion that the word "hypæthral" was used with reference to a court-yard, and not to a temple. He hoped, however, that gentlemen would, at their leisure, consider the subject, because he was persuaded that no valid objection had been urged against his theory.

The following gentlemen were, on ballot, elected fellows of the Institute:—Mr. Edward G. Bruton, associate, of Oxford; and Mr. William Jeffrey Hopkins, of Worcester.

THE MOVEMENT FOR THE IMPROVEMENT OF COTTAGES FOR WORKMEN AND AGRICULTURAL LABOURERS.

At agricultural meetings throughout England, and at assemblages of members of Parliament and constituencies in the rural districts, there has for some time past been shown pleasing evidence of the attention which is beginning to be directed to the improvement in the dwellings of field labourers and villagers. From all parts we hear of men of all shades of political opinion expressing a laudable desire for the social and intellectual advancement of the peasantry, and acknowledging that it is by an alteration of the home accommodation that this is mainly to be effected in the first instance.

To those who have examined with care the dwellings of the labouring classes in large towns, and in many agricultural districts of England, this has for years been so evident that it is surprising the vast consequence of this question should have been so generally overlooked so long. But there have been and still are difficulties to encounter. Amongst these may be mentioned the peculiar prejudices of several of those in high positions, and of considerable masses of the poorer classes themselves. The law of parish settlement has also proved a stumbling-block, and been the cause of so much expense to some estates, that it has been considered a matter of policy rather to get rid of the houses of labourers than to erect new ones suitable to their use. Notwithstanding all this, and more, which might be mentioned, it seems clear that it is a duty of the owners of large estates on which labour is extensively employed to provide dwellings suitable for the use of human beings in which morality and decency may be cultivated, and the health of both children and adults rendered comparatively safe. This has, however, been neglected, and the consequence is evident. Pauperism has increased, owing to the sudden death or sickness of parents, or the profligacy of youthful portions of the population, who have been reared in such a way that nothing better could have been expected.

At Darlton, in Scotland, close by the picturesque ruins of the castle of that name, there is a beautiful village which was reared by the proprietors of the surrounding property. Each cottage is of

convenient size, built in such a substantial manner, with the stone of the country, that, with proper repairs, they may stand for several centuries. These have been built for some years, and might be better in their internal arrangements. Attached to each is a garden of considerable size. Nearly all these, at the time of our visit, were gay with flowers and stocked with useful vegetables and fruit: some houses were smothered with roses; and it was singular to notice the difference between this and some of the villages in the adjoining district. Bare and bleak they looked, and without attempt being made at planting a greenery; the thatch broken and neglected; refuse lying in heaps in stagnant water; the masonry rough; doors and windows small; the floors often unpaved and below the level of the adjoining surface. The general arrangement of these houses consists of two rooms;—the front, which is mostly used as a sitting-room, and in which cooking and other operations are carried forward, with sometimes a bed in it; and an inner apartment, which is fitted with beds in box-shaped places along the walls. In some parts of Scotland, even at the present day, artists, or others who wish to enjoy the picturesque beauty of the scenery in places called inns, have no choice except accommodation of this kind amongst the members of the family. Notwithstanding the training and good education which are common in the majority of Scottish families, statistics show a large excess of illegitimate births, and other evils, which are doubtless in part to be attributed to the general ill arrangement of the dwellings. Crossing the borders, in the wide domains of the Duke of Northumberland, much improvement has been made; and also in a few of the pit villages. The fault, however, in most cases, is, that only the same provision is made in all instances; so that, while those who have but small families, or none, are not so ill off; those with numerous children have quite unsuitable accommodation. Amongst the colliers, it is a custom for the boys to remain at home until they marry; and it is necessary that there should be at least three separate rooms in each cottage intended for the use of families. From much experience of the requirements of this class of workers, and those connected with the different departments of lead and iron mining, we would urge that baths—which might be conveniently situated—would be most valuable, and serve to some extent to preserve the decency of the homes: these need not be costly; for generally both warm and cold water are close at hand. It would also be worth while to consider if arrangements of this kind could not be made in some appurtenance of the cottages. Those who are acquainted with the present management will appreciate the value of this suggestion.

Along Tyne-side, and in the county of Durham, for the most part, the cottages occupied by country mechanics, and persons who have families, contain rooms of considerable size; are substantially built with freestone; and are covered either with blue slates or flag-stone. Some are two stories high, and are mostly occupied by three or four families. The house in which George Stephenson, the engineer, was born, near Wylam, is of this description. A staircase runs up from the door, which is in the centre, with two rooms on each side. Four, if not more, families live there.

In the direction of Cumberland, and in that county itself, the cottage accommodation is, on the whole, worse. In a wild district, an informant mentions that he was driven by stormy weather to seek shelter in a road-side house: in such state of repair was the thatched roof, that it was necessary to employ umbrellas and other means for the purpose of endeavouring to prevent the water from running on the beds. It is not wonderful, therefore, that the aged mistress of this "habitation" should often offer up a prayer for "the Lord to send fair weather to sleep in." Throughout those districts it is not usual to attempt the decoration of the exterior of the cottages by means of flowers; and the same may be said respecting a large part of Yorkshire; although there are exceptions in other divisions.

In several of the southern counties of England, take Hertfordshire for instance, the cottages are most inconveniently small; the doorways are often not more than from 4 feet 10 inches to 5 feet in height, and the apartments are not larger than the cabins of the old-fashioned second-rate Tyne coal-ships, which may be still seen in the Thames. The cock-lofts of these houses, reached by temporary ladders, in which children sleep, are still smaller. In some instances, taking the whole cubic space of one of these cottages, it is far less than that in the caravans of the wandering

showmen. The number of persons who sometimes occupy these ill-contrived dwelling-places is extraordinary. Nowonder, then,—even if we leave out of account the bad drainage, the polluted water, and other imperfect sanitary conditions,—that life is short and health bad, in even pleasant and otherwise wholesome neighbourhoods. We cannot just now enter into details; but it is an indisputable fact that quite as evil conditions may be found in rural districts, in a different external shape, as are to be met with in the back regions of Drury-lane or Gray's Inn-lane.

Throughout the length and breadth of the land, in the mining villages, along the margin of the coast, in the vicinity of great works, and in the agricultural districts of England and Scotland, there is need of great change. It is therefore most gratifying to find that a good spirit is abroad; but, in order to effect a sure amount of benefit, it is necessary that those who have the power of providing a remedy should, with their own eyes, intelligently and kindly examine, in their own localities, the state of the homes of their dependants, and compare them with what they ought to be. There is good time for this between now and Christmas.

At a recent meeting in Staffordshire, including many large employers of labour, amongst other matters, the improvement of the homes of the men was ably advocated, and especial attention was given to the serious evil of the drinking habits of numbers of the industrious classes; and good seems to have been done, as in the abandonment of the plan of paying wages at public-houses, and the abolishing of the intolerable "Butty" system. All these efforts are most praiseworthy; and, while acknowledging the terrible extent and mischief of drunkenness, we have a firm opinion that this and other vices would be much modified by providing suitable homes for the industrious part of the community.

In connection with this subject we may add that the Association for Promoting Improvement in the Dwellings and Domestic Condition of Agricultural Labourers in Scotland have published their seventh report,* which contains, as usual, plans and information, at a nominal price.

VILLAGE HOSPITALS.

CRANLEY.

SURGICAL experience has sufficiently proved that many operations can be performed in a small country hospital, which could not with safety have been attempted in the foul air of a crowded London hospital. And, moreover, many surgical cases occur in villages and hamlets which have no chance of being sent to metropolitan or other large town hospitals, even though they could be better or more successfully treated there than nearer home. Village hospitals, therefore, are a great desideratum; and, indeed, it would be well in many cases were patients sent to such hospitals even from those in town,—at least, where experience had proved that good surgeons were to be found; and that there are many good surgeons and physicians in villages, we do not doubt, notwithstanding what has been recently urged to the contrary. Besides, even where the surgical aid was not equal, better air and less crowding would more than compensate in many cases for other shortcomings or defects. There is one rather serious hindrance, however, to the extension of village hospitals; and that is the strong professional jealousy so prevalent in small places. Could country surgeons be made to see how much to their mutual advantage it would be to combine, in order to show that as hospital surgeons they are not inferior to their city brethren, much good might be done, and town patients, we do believe, would often be sent to country hospitals for more safe if not more skilful treatment.

These reflections have been suggested by a report, now before us, on "The Cranley Village Hospital," established in 1859, and under the professional superintendence of Mr. A. Napper. This small hospital contains only half a dozen beds, and is attended by two nurses. The number of cases treated in it last year was twenty-three, and as many in the year previous. Many of these cases were of a character that could not have been properly treated in ordinary cottages, and the distance of the London hospitals, as well as the unfavourable influence of change of atmosphere, and the poverty of the patients, rendered removal to London entirely out of the question. Much suffering, it appears, has been alleviated, and not

a few lives saved already by the Cranley Village Hospital. It has our best wishes for its continued success; and we trust it may be the precursor of village hospitals in many parts of the country.

THE ARTS OF CONSTRUCTION, KING'S COLLEGE, LONDON.

WE are glad to hear that the council have appointed Mr. Robert Kerr Professor of the Arts of Construction at King's College, vacant by the death of the late Professor Hosking. The selection, we are told, was moreover made in so flattering a manner as to render the honour doubly gratifying. We cordially congratulate Professor Kerr on his appointment, and anticipate from it great advantage to the movement in favour of extended professional education.

SOCIETY OF ARTS.

THE first ordinary meeting of the hundred and eighth session was held on Wednesday last. Sir Thomas Phillips, F.G.S., chairman of the council, presided, and delivered an address, in the course of which he said that as the International Exhibition buildings were susceptible of much decoration, it was thought desirable to originate a subscription for the purpose of making experiments in the employment of mosaics on the external walls of the front in Cromwell-road. The subscription was begun by Earl Granville; and, should the mosaics be successful, they would give to the buildings a character new in this country, especially suitable to the climate, and hardly to be found on any buildings north of the Alps.

At the close of his address, the chairman presented the medals awarded by the council at the close of the session to the following gentlemen:—

To Dr. Edward Smith, F.R.S., for his two papers, "Recent Experimental Inquiries into the Nature and Action of Alcohols as Food," and "On the Uses of Tea in the Healthy System." The Society's silver medal.

To A. E. Ibbister, for his paper "On the Hudson's Bay Territories; their Trade, Productions, and Resources; with Suggestions for the Establishment and Economical Administration of a Crown Colony on the Red River and Saskatchewan." The Society's silver medal.

To Alexander Redgrave, for his paper "On the Progress of the Textile Manufactures of Great Britain." The Society's silver medal.

To Dr. Milligan, for his paper "On Tasmania, its Character, Products, and Resources." The Society's silver medal.

To Charles Ledger, for "The Introduction of the Alpaca into the Australian Colonies." The Society's silver medal.

To F. Joubert, for "The Application of Photography to the production of Images on Glass, which can be burnt in." The Society's silver medal.

GLASGOW ARCHITECTURAL ASSOCIATION.

THE gold and silver medals presented to the Association by Mr. James Smith, for competition among the members, for the best and second best designs for a villa, have been awarded; the gold medal to Mr. Robert Goodwin, Elmhurst-place, draughtsman, in Messrs. A. & G. Thomson's office; and the silver medal to Mr. J. Moir Smith, Hope-street, draughtsman, in the office of Mr. James Smith. The medals are the work of Mr. D. C. Rait, Buchanan-street.

LIVERPOOL ARCHITECTURAL SOCIETY.

AT the fourth meeting of this Society for the present season, Mr. Stubbs, vice-president, occupying the chair, Mr. Horner alluded in feeling terms to the loss which the Society had experienced in the death of their valued member, Mr. John Hay, a gentleman whose energy and clear judgment had been of much service to the Society. He proposed that a letter of condolence be sent to Mrs. Hay, expressive of the sympathy they felt for her under the sad bereavement she had experienced. The proposition of Mr. Horner was agreed to unanimously. It was understood to have been a suggestion from the late Mr. Hay, at a banquet given by Mr. William Jackson on the completion of his Manor House, at Cloughton, which led to the formation of the Architectural Society. There was no paper read on this evening, the business being confined to miscellaneous communications. Some specimens of stone were exhibited from Berwig Quarry, Miners, near Wrexham: a description was also read showing the quantity and quality of the stone and the uses to which it was being applied. Mr. William Wood's patent girder for extinguishing fires was shown and explained. Mr. Grant exhibited and explained his patent hoisting apparatus. Some general conversation followed on various topics, after which the meeting separated.

CHANNEL RAILWAYS.

SCHEMES for crossing the Channel by railway are multiplying. We have this week two more to add to the number of those already recorded in the *Builder*. The one is that of Mr. James F. Smith, architect and engineer, Leicester. Mr. Smith proposes that the railway be carried through a wrought-iron tube, at a level about six fathoms below the surface of the sea. It is computed that the space of water displaced by the tube, supposing its length 23 miles, would be about 2,347,840 cubic yards, or 1,821,600 tons weight; consequently, deducting the weight of the tube and ballast, about 800,000 tons, there remains 1,021,600 tons required to make the tube of the specific gravity of sea-water, or upwards of 25 tons per lineal yard for the entire length of the tube; and it is proposed to distribute this weight along the bottom of the sea, to which chains are to be attached, and secured to the tube by adjusting rods, so that it may be kept level its entire length; and further, in cases where practicable, and the rock hard enough, "Lewisies" may be made in the rocky bed of the sea, and so connect the tube with the immovable bottom. Besides these chain weights, every 50 feet apart, diagonal strain and tie chains are to be employed to connect the tube to weights, or by "Lewisies," as the case may be, to prevent any disturbance of the tube by tidal waves, or under current, "if any." Mr. Smith speaks of "the gentle action of tidal waves or under current;" but can the rush of the tidal wave through the British Channel be safely considered as a "gentle action?" At the depth indicated, he considers that "the tube may be supposed to lie in quiescent water. But further [he adds], and for the removal of all doubts, it is proposed to build on each side the tube, every mile apart, immense piers of masonry connected together with wrought-iron rods above and below the tube."

It is proposed to carry out the works simultaneously on either shore; the tube to be built in lengths of 100 feet; and, after proved, to be floated to their position, made of the specific gravity of water by weights, and the water prevented from entering the ends by removable iron plates.

There are two cases or shells, inclosing the "roadway," the inner one consisting of wrought-iron plates, 1 inch thick, riveted to T and angle iron, and the outer one of two like plates, or 2 inches in thickness, of wrought metal, enveloping the whole; so, that in case a train got off the line of rails and tore away the inside shell, the tube would still be sound, and comparatively uninjured.

It is proposed to descend from the level of the country, at each end to the tube, by a corkscrew tunnel, with an easy gradient. Ventilation would be accomplished either by currents of air, or by floating ventilators. The cost, Mr. Smith calculates, would probably not exceed ten millions and a half sterling.

The next scheme is one proposed by Mr. Robert Climie, of Glasgow, engineer. This undertaking, remarks our correspondent, would embrace two large towers or mounds, solidly founded, and built of stone and lime, bolted with iron, having strong iron posts or pillars, carried up through the buildings.

The towers would be erected at proper distances from each shore, so as the *Great Eastern* steamer or other large vessel could come alongside, and railway carriages run on and off to lines of rails placed on the deck. The spaces between the shores and the towers would either be filled up by embankments, or partly by bridging and banking. On the tops of the embankments and bridges, lines of rails would be laid, corresponding to the other lines laid on the vessels; and the rails on the towers would be raised by mechanical means, according to the states of the tide, to the level of the rails placed on the deck; by which passengers could cross and recross the Channel without requiring to leave the carriages.

Both shores and portions of the towers would be occupied as warehouses, workshops, &c., which would become railway cities. The shore embankments would form harbours of refuge, and the steamers could be fitted up as floating hotels.

Our correspondent reminds us that a railway somewhat similar to the one here proposed is in operation on the Forth and Tay ferries. This scheme, of course, would still be of the nature of a ferry; but the object sought to be realized by it is the crossing and recrossing of railway carriages in trains, as they reach the ferry by rail.

* Office, 33, North Frederick-street, Edinburgh.

THE METROPOLITAN ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.

HEATING AND VENTILATING.

At the last meeting of the Metropolitan Association of Medical Officers of Health, at Richmond-terrace, Whitehall, on Saturday, the 18th instant, Mr. W. Weatherly Phipson, C.E., read a paper entitled "Notice on Dr. Van Hecke's System of Warming and Ventilation."

The author, comparing the Van Hecke system, which has been described in our pages, with those already employed, arrives at the conclusion, already formulated by Dr. Pettanköfer, of Berlin, and Drs. Maximilien Vernois and Grassi, of Paris, that Dr. Van Hecke's system of warming and ventilation is the only one which realises efficient ventilation and uniform warming, with economy in outlay and in maintenance.

"The system Van Hecke," says Dr. Pettanköfer, in his recently-published remarks on warming and ventilation, "has completely upset all our ventilation traditions."

Mr. Phipson shows that this result has been attained by the application of scientific principles and mathematical calculations, by means of which the supply of air and the heat are completely under control. The author explained the whole detail of the system, illustrating it by plans of the Chambers of Representatives of the Hague (Holland), the Hospital Necker of Paris, the Asile Impériale du Vesinet, and several other buildings warmed and ventilated upon the Van Hecke principle; bringing forward, at the same time, abstracts of reports from the French, Dutch, and Bavarian Governments relative to the system in question. The latter is extremely simple. The fresh air is propelled along an air channel by means of a fan, patented by Dr. Van Hecke, into an air chamber containing a warming apparatus, where it is warmed and moistened, and whence it is distributed over the building. An anemometer and dynamometer placed before the fan indicate at any moment the exact amount of air supplied to the building. The amount in hospitals is 2,200 cubic feet (minimum) per hour per bed, but it is capable of being doubled. This quantity of air is supplied without any perceptible draught, and the thermometers in the wards indicate a constant temperature of 60° Fahrenheit. In summer the air is cooled as it is warmed in winter. The vitiated air escapes through flues, each having free access to the external air.

The author, in his description of the warming apparatus, shows that it utilises the heat of the waste smoke. The warm baths and vapour baths are also supplied by the waste steam of the small engine which works the fan.

To economise heat in winter, the vitiated air escapes from that part of the room at which the temperature is always lowest. The heating chambers vary in number according to the requirements of the building. Inclosed in each is the warming apparatus, consisting of a cast iron cockle, from the summit of which depart a series of sheet iron smoke-flues, which, circulating four times round the cockle, in shape of a square, conduct the smoke to a chimney in the wall. To this is added a vessel for moistening the air.

An animated and interesting discussion ensued, in which Mr. Chadwick, Dr. Sanderson, Dr. Thomson, Dr. Greenhow, &c., took part.

Mr. Phipson was congratulated upon having called the attention of the members to the system. After a discourse by Dr. Sanderson, and an address from the president, the thanks of the evening were voted to Mr. Phipson for his paper.

THE SEWAGE FOR THE SOIL.

For some years we have occasionally pointed attention to the deodorizing power of earth and clay as a hopeful element in the solving of the great sewage problem; and, in a like spirit, have done justice even to the much-abused mud of rivers, such as the Thames itself. Within the last two or three years a "dry closet" has been patented, an account of which, as we saw it at Glasgow, we have also given. It now appears that, apart from other sanitary reformers, the Rev. Henry Moule, M.A., vicar of Fordington, Dorset, has accidentally rediscovered the deodorizing power of earth (of which, however, every gamekeeper who rubs his hands with earth, after defiling them with rotting game, must be aware, as are also farmers and gardeners who use night soil as manure); and the same rev. gentleman has also invented and patented a "dry closet," in which earth is mixed with night soil, which it completely deodorizes, even though the same earth be used five or six times over, after being dried at each time; thus yielding, as he finds, a most potent manure.

One method by means of which he dries such earth, and also uses up greasy slops, &c., is curious. He has invented and patented a "vapour-fod stove and grate," on the principle, now well known, that water applied to red-hot carbon (as in forming the illuminative gas at Nerbonne, for example) is decomposed, and, in fact, feeds the fire, so as to constitute, as he finds, a considerable saving of fuel. The compost of which we have spoken may, he says, be dried in such stoves, without giving forth the least offensive smell, and without the virtues of the manure being at all affected.

Mr. Moule has written and published several pamphlets,* with the view of urging his discoveries on the public notice; and he maintains the perfect possibility, as well as advantages, of applying these discoveries to the solution of the sewage problem in towns, and even in the metropolis.

In a communication to us, the Rev. Mr. Moule thus urges his views:—

"Referring to Dr. McCormac's statement (*Builder*, p. 751), that the soil is a sure and safe deodorizer, &c., and to your own hope, expressed p. 715, 'that the right mode of efficiently and profitably returning the sewage to the earth will presently be made clear,' I beg to state, for the benefit of your readers, that, in the system developed in the two pamphlets which I send by this same post, the soil and the sewage are returned to the earth, not only with profit and efficiency, but by a mode easy, simple, and inoffensive.

The public are slow to believe in the truth of the principle and in the efficiency of the system; but both are being daily verified by experience. Take the following instances:—

For three years I have had no cesspool on my premises: all offensive matter has been removed daily.

A clergyman and his wife have for nearly a twelvemonth used one of the patent earth closets. It has been placed in a room 6 feet square, and within 10 feet of the parlour door, yet never has there been any offence perceived.

Again, an engineer officer who, under orders from the War-office, has tried these patent closets, showed me two months ago the complete success of his application of the system. The contents of a box which had been used for two days by sixteen men were emptied on the floor of a shed, and nothing offensive even then was to be seen or smelt. The mass was then passed through a pug-mill which had been erected for the purpose, and in less than ten minutes it came out a mass of inoffensive earth.

The vice-chairman of the Board of Guardians at Bradford-on-Avon tells me that my system (Manure for the Million) is in full operation in the union workhouse school, and with complete success. Where all was noxious pungency before, all is now sweet and wholesome.

Lastly, a gardener in Weymouth is so satisfied with the system, and with the valuable manure which is thus manufactured, that he offers to any who will adopt the plan that he will supply and remove the earth necessary for the purpose free of all charge.

May I call your attention to the statistics in 'National Health and Wealth,' and beg you to press them upon your readers?"

In reference to the last paragraph, we have only to remark that the value of night soil is far too well known to every attentive reader of the *Builder* to require much further elucidation.

THE POST OFFICE.

HINT FOR THE SAFE REMITTANCE OF MONEY FROM ABROAD BY WORKMEN.

THE extensive misappropriation of letters is becoming a very serious consideration. Bankers' and merchants' letters, and post-office parcels, which contained bills and other valuable securities, have been stolen by wholesale. One batch of these important despatches was not long since delayed for several hours, a matter of vast consequence when we consider that much difficulty in business is certain to be caused by these derangements, and that even the credit of firms and individuals may be severely damaged. In spite of a diligent system of detective, espial, and other means of prevention, letters containing money, &c., both notes and specie, are often pilfered. Numerous cases are brought before the notice of the police magistrates; but, doubtless, far more never meet the public notice. The authorities of the Post-office are constantly warning persons of the risk of sending coin, jewelry, &c., in letters; very properly mentioning the great temptation which this is to letter sorters and carriers (even to others). The system of post-office orders is cheap and convenient; but the safety of this is much lessened by persons putting in the same letter the money-order and the advice. The money-order and the advice of the name of the sender should, if possible, never be sent by the same postal delivery.

Large sums of money, in amounts of 7l., 8l., 10l., 15l., and upwards, are sent from workmen and others engaged in the railways and other works in India, to wives and friends at home. This is often forwarded by the ordinary post, in letters enclosing bank-notes, &c. The risk of this is

National Health and Wealth; instead of the Disease, Nuisance, Expense, and Waste, caused by Cesspools and Water Drains. London: Bradburn & Evans.—Manure for the Million: an Address to the Cottage Gardeners of England. Self-supporting Boarding-schools for the Industrious Classes, and Garden Culture. Dorset Chronicle Office, Dorchester.

obvious. In Australia and other colonies the same plan is also much used. Notwithstanding, this or any sum, large or small, may, with almost certain safety, be sent through the bankers; and it may be useful to mention the method of this to one section of our readers; for it is not generally known to those to whom it would be of advantage that money, for a small payment, can be forwarded by colonial and foreign bankers, who give the name of their London or other banking agent. Advice is then sent to the person who is to receive the remittance of the name of the banker who is appointed to pay it. On this letter being presented at the bank, together with the address, signature, or mark, of the person who has received it, a letter is sent by post to the person who should receive the money; who, on calling at the bank, presenting it, and making the right signature or mark, will at once receive payment. This may at a first glance seem to be a rather roundabout method. It is, however, not so much so in practice, and almost gives assurance that the money will get into the right hands. A method similar to this is extensively in use, but is not sufficiently known to those to whom the safe arrival of an expected remittance from a distant land may be a matter of the most vital importance.

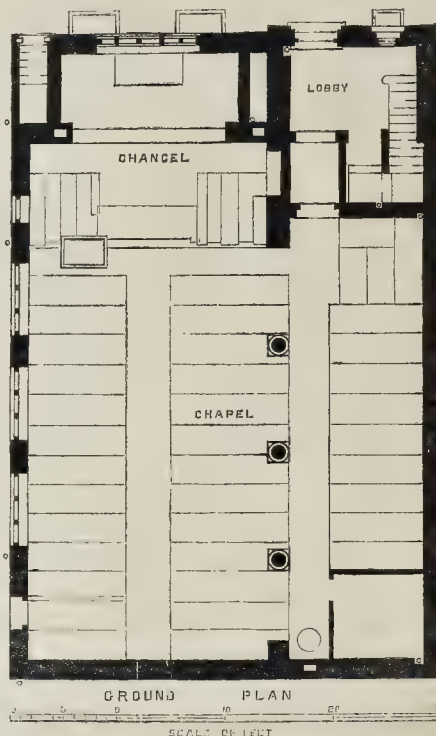
In connection with the arrangements at home for the safe conveyance through the post-office of the representative value of so many millions sterling weekly, it is clear that our present arrangements are insufficient for the sure delivery of valuable letters. The system of registering letters is expensive, and not certain: besides, registered letters have been lost as well as others. Suppose that the carriage of coin through the post-office should be declared illegal, and put out of use? The honesty of those who are engaged in receiving, sorting, and delivering the letters must be a chief means of preserving the reputation and usefulness of our post-office system. In order to ensure this, the men should be adequately paid, and there should be inducements for right attention and good conduct offered by the payment of sufficient wages, a gradual increase, and a fair hope of promotion for long and faithful services. In the mean time, those who have money, &c., to forward by post, should give no reason for complaint by putting temptations in the way. The great majority of the men engaged in the post-office are a hard-worked, civil, and respectable body. They deserve our consideration, and feel disgraced by the acts which have been committed by unworthy members.

For a long time the great body of the letter-carriers have made complaint that the wages are insufficient, and that the system of promotion is not rightly made. There are other grievances. Many letter-carriers are paid not more than 18s. a week. What is this sum, even in the most moderate way, to enable a man to pay for lodgings and other necessities in London? But supernumerary postmen have wages as low as 10s. a week. In the suburban districts, persons busy with other employments at one time of the day are delivering letters at another. We have seen a man some hours travelling with such articles as ox-tails, and at others delivering letters. We do not make any general charge against the supernumerary postmen; but, in such an important matter as the delivery of letters, we should have a certainty of both the fitness and distinct responsibility of those employed.

We have had an opportunity, from personal observation, of witnessing the vast operations which are carried forward in St. Martin's-le-Grand alone; and being aware of the wonderful and extensive machinery by which this great public institution is carried forward, and of the large army in the metropolis and throughout not only the British islands, but also parts abroad, who are required. In such an extensive establishment it must be expected that there will occasionally be delinquents; but the number of these lately has been so great as to show that there must be something really wrong, and which calls loudly for remedy.

The doubtful advantage of the use of supernumerary assistance should be considered: wages of the permanent men should be made sufficient, and encouragement given to those thus employed to take an interest in it, so that they may not be willing, for a temporary gain, to run the risk of losing character and a comfortable situation.

At the present time the revenue paid to the Government from the post-office is enormous, and is constantly increasing. The matter of revenue should not be so much considered as public utility. A commission, some time since, was engaged in inquiring into the condition of the postmen. In this instance, we fear that the interest of those



THE BEDFORDBURY MISSION HOUSE.

employed was not fairly represented; at any rate, not much satisfaction seems to have been the consequence. Great dissatisfaction still exists amongst several of the oldest and most respectable of the men, and loud complaints are made against the present uncertain chance of promotion; and the consideration of the present insecurity shows that it will be necessary, unless something effectual be done, that the next Parliament should take the subject in hand, and an inquiry be made by persons who would consider the matter from a general point of view.

CHAPEL AND SCHOOL IN BEDFORDBURY, COVENT GARDEN.

BEDFORDBURY is a narrow street running out of New-street, Covent Garden, to Chandos-street, and was built about 1637. On the west side of this, a compound edifice, part chapel, part school, has been erected; and on Thursday, the 14th, was opened (not consecrated) with an afternoon service, the Bishop of London preaching. It is in some respects an experiment, and we hope it will turn out a successful one.*

The site of the building (about 60 feet by 40 feet) abutting on one side on the adjoining houses, and closely surrounded by buildings on all the others, offered considerable difficulties to be dealt with in the plan and arrangements. The architect was desired to erect both a chapel and a school on the same site; the limited area, therefore, made it necessary to place one over the other. It appeared absolutely essential that the school, which would be crowded for some hours every day, should have

plenty of light and ventilation; and, if possible, a free current of air all round. It was considered, too, that while it would be of great importance that a chapel in such a situation should be on the ground-floor, and that the entrance should offer the most easy and inviting access to the interior, the fact of the children having to mount a flight of steps to the schoolroom, being nothing new, would not be likely to interfere with the usefulness of the school. These considerations led to the arrangement which has been adopted, and which at first sight certainly seems objectionable; viz.,—placing the school-room over the chapel. It was the choice of two evils, and this appeared the lesser.

The building is entered from Bedfordbury, through a small gabled tower which stands at the south-east angle. The doorway has an arched head, the tympanum being filled with sculpture representing "The Good Shepherd." The chapel consists of a nave and south aisle, a small chancel raised two steps, and a sacristy one step higher. The material employed, inside and out, is brick, relieved with bands of red. The nave is divided from the aisle by a brick arcade, carried on Bath stone columns with curved capitals. The arch to the sacristy, which is necessarily of low proportion on account of the flat ceiling of the chapel, is carried on small columns of slate with carved capitals and corbels. The sacristy is plastered to a height of 6 feet, and decorated in a somewhat novel manner in *graffito*. There is a credence table and a reredos, in stone, alabaster, and marble, by Mr. Earp, who executed all the carving. The east window, of five lights, is filled with stained glass, by Heaton & Butler. The other windows have square mullions and plate tracery, and are filled with rough plate-glass (not in quarries). Light is admitted, too, by dormers in the south aisle. The ceiling is boarded, and separated into compartments by the girders, which carry the floor of the school-room, and is further subdivided into panels by chamfered ribs. The chapel is warmed by one

of Gurney's Gill stoves, placed in a heating chamber in the basement, the warm air entering through the risers of the chancel steps. A second door leads out of the chapel, at the north-west angle, into Hop-gardens. The tower before mentioned contains, besides the stairs to the school-room, two small living-rooms, and lavatories, &c., for the boys, in the basement, and for the girls in the upper story.

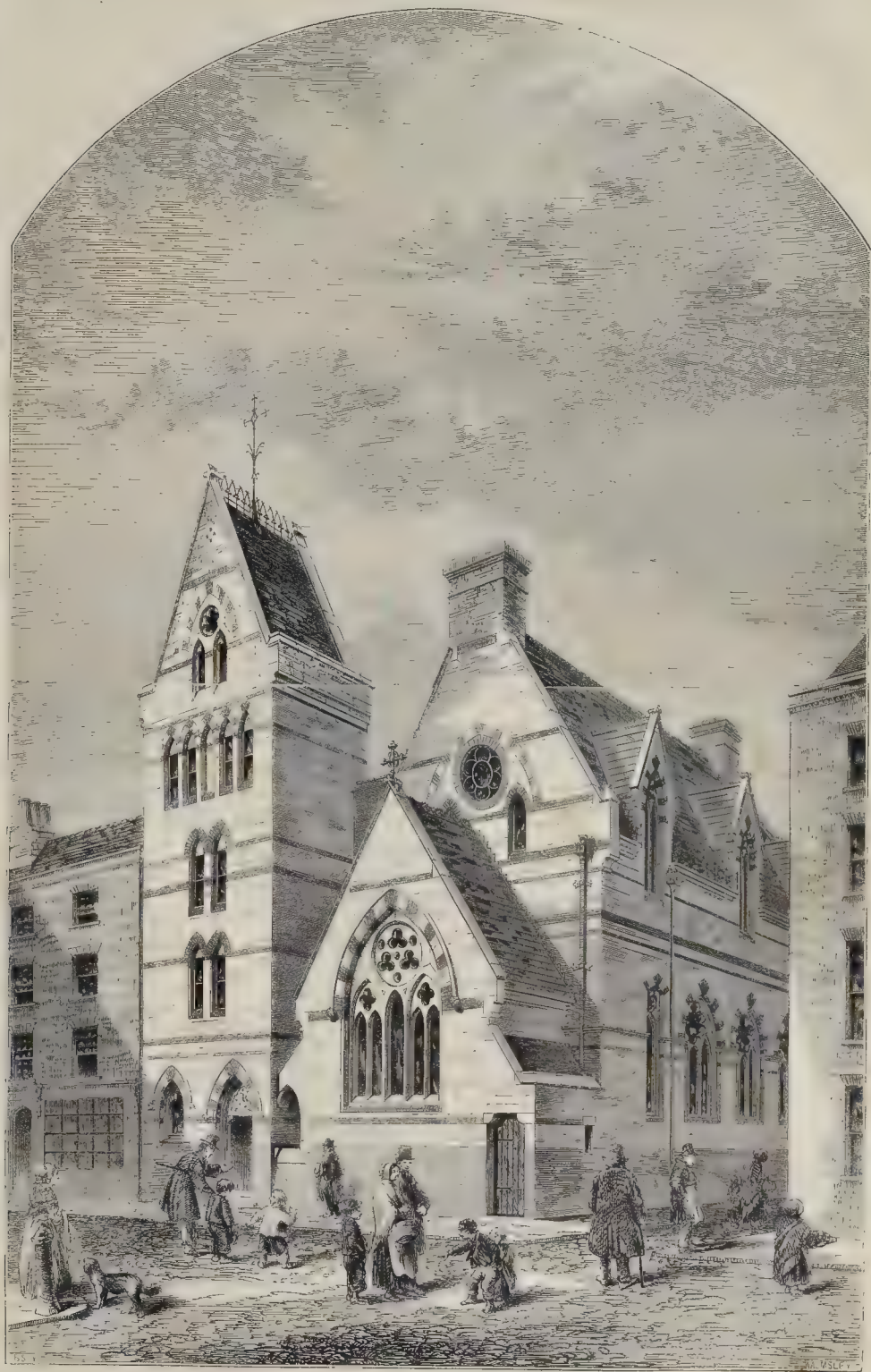
The school-room stands over the nave and chancel of the chapel, thus leaving the south aisle and the sacristy free with nothing over them. By this arrangement a free space of air is given all round the school, and a convenient light and well-ventilated room is obtained, 50 feet by 22 feet, and 17 feet high to the ceiling, at the collar level. The curved braces of the trusses of the roof are shown as well as the purlins, and the roof is ceiled between. All the woodwork in the school is painted dark chocolate and Indian red. The whole of the glass for the building, with the exception of the east window, was given by Mr. Palmer.

A harmonium has been presented to the chapel by Lady Overstone.

Amongst the principal subscribers are—The Queen and Prince Albert, 250*l.*; Chancellor of the Exchequer, 50*l.*; Lord Overstone, 100*l.*; Mr. H. and Lady Mary Hoare, 220*l.*; Messrs. Countess, 300*l.*; the Rev. H. Swaby, 300*l.*; Incorporated Church Building Society, 100*l.*; Diocesan ditto, 250*l.*; Messrs. Drummond, 200*l.*; Messrs. Combe, De-la-field, & Co., 200*l.*; Messrs. Ransom & Bouverie, 100*l.*; Messrs. Cox & Co., 100*l.*; Rev. W. G. Humphry, vicar of St. Martin's, 100*l.*; the Bishop of London, 20*l.*

The whole building, exclusive of the site, has cost 2,300*l.*, and was erected from the designs and under the superintendence of Mr. A. W. Blomfield, architect. The chapel accommodates 240 persons. The builders were Messrs. Child, Son, & Martin. No district is assigned to the chapel: it will be served from the parish church, —St. Martin's-in-the-Fields.

* On the evening of the 15th, by the desire of some of the committee, a supper was given to twenty of the men who had been employed on the work. Mr. Henry Hoare, the Rev. H. Swaby, Mr. Marshall (churchwarden), Mr. Palmer and Mr. Latchford (members of the committee), and the architect, sat down with them, at eight o'clock, to a capital supper. With various toasts, and some good songs, the evening passed off very pleasantly, and both employers and employed parted mutually pleased with the entertainment.



THE BEDFORDBURY MISSION HOUSE, ST. MARTIN'S-IN-THE-FIELDS.—MR. ARTHUR W. BLOMFIELD ARCHITECT.

THE GREAT NORTHERN CEMETERY, COLNEY HATCH.

THE works of this cemetery, the property of a company, are approaching completion. They have a station of their own on the Great Northern Railway, in York-road, King's-cross, where is a reception-room, where the bodies of persons belonging to families in straitened circumstances may be deposited until the appointed day of sepulture. By this accommodation, the dead may be at once removed from among the living. The time occupied in the transit from the York-road station to Colney Hatch is about fifteen minutes. At the latter station a siding of nearly a mile in length is made to the private cemetery station of the company, but parallel with the main line. There are two Dissenters' chapels, one forming a portion of the station buildings, and the other adjoining, but detached. The plan of this latter chapel is a cross. The Episcopal chapel is in the Early English style. It is built of stone. The tower and its broad spire rise to a height of 150 feet from the ground to the summit of the iron finial. The body of the chapel is about 90 feet long by 25 feet wide, and it is sufficiently commodious to seat about 120 persons. It has been thought that at some future time this building may be used for the solemnization of the ordinary church-service for the convenience of this growing neighbourhood. The buildings and grounds were designed and superintended by Mr. E. A. Spurr, architect to the company; and the drainage was arranged by Mr. H. P. Hakewill, the manager. The whole area of the land is about 160 acres.

FALL OF A FLOOR, ISLE OF DOGS.

FOUR persons have lost their lives by the falling of a floor at the premises of Messrs. Nicholas, Graham, and Armstrong, proprietors of the Cumberland oil-mills, Isle of Dogs, opposite Greenwich Hospital. At the inquest, Charles Dowdy said that he was a pressman. He saw the floor give way, and heard a double crash. The floor struck the iron girders, and the whole fell with the seed, which almost covered him. He, with difficulty, squeezed himself out of the seed, which was then up to his waist.—By the Deputy Coroner. I cannot say how many tons of seed were in the warehouse. I have seen the warehouse full of seed up to the ceiling, but I believe there had been a great deal more in the place formerly. John Raby, the foreman to the firm, said there were, at the time of the accident, about 145 tons of linseed upon the premises, which had been built about five years. I cannot account for the accident: they had had more weight upon the floor than there was when the accident occurred. The building was erected by contract, and the length was 50 feet by 40 feet.

At an adjourned meeting, Mr. J. H. Good, district surveyor, said he had inspected the premises, but only to see they were erected according to the Act: he had no control over the amount of weight such buildings were to contain. He was satisfied with the foundations and other internal parts of the building as being completed fully in accordance with the Building Act.

Mr. J. Edmondson, a surveyor, had inspected the premises on Saturday last, and found they were erected in a very sound and substantial manner. He thought the cornels might have been affected by the temperature, and so become brittle; but though they had only to support three tons, they had been found to sustain five tons by the Messrs. Cubitt.

Mr. Rogers, one of the firm of Messrs. Cubitt & Co., said that the specification for the building was 5,837l. His first inquiry was as to what the building was to bear. Mr. Graham informed him that the building was to be used for an oil-mill, and gave him general information as to the space to be occupied by the building, the number of stories required, and the weight the floors had to bear. He was informed that each floor would have to support two sacks of linseed in height over the whole surface of the floor. He calculated the weight which would be on each floor, and provided, as he considered, sufficient strength, allowing a margin to the extent of half as much more as the floors would have to carry. Witness prepared the drawings, and there was no architect employed on this occasion. The cost would be about 300l. If one had been engaged, but architects were not always engaged.

By the Deputy Coroner.—The dispensation of the services of the architect was not to save expense. The adoption of the cornels was preferable to the

use of pillars, and also the old system of constructing such places. Could not account for the accident. The cause was not clear, but it might be ascribed to several reasons. The building was erected in a substantial manner, and the cornels were able to carry three times the weight the firm was directed to provide for.

The inquiry was, at this stage of the proceedings, again adjourned until Wednesday morning next.

FALL OF A BRIDGE ON THE GREAT NORTHERN RAILWAY.

THE fall of a bridge on the Great Northern Railway, but for providential circumstances and the vigilance of the engine-driver, must have resulted in the most disastrous results to more than one passenger train upon the line. It appears that, on Thursday night, the Edinburgh express train left the King's-cross Station at 9-15 p.m., for the north; and, at its usual rapid pace, running through without stopping till past Huntingdon. A little beyond it had to pass over a brick bridge on what is called the Wood Watram Bank, that carries the main line over a stream that intersects it between Holme and Huntingdon, at which point the engine-driver, one of the most experienced men upon the road, providentially noticed, as the train swept over the bridge, an unusual oscillation of the locomotive and a sinking of the permanent way, of which, on arriving at Peterborough, hard by, he instantly gave notice. The station-master and staff immediately repaired to the spot, and found that, owing to the recent heavy rains and floods that had occurred in the district, the abutments of the bridge had sunk from the level of the line, and that a considerable portion of the road had also got loose and out of level. The next up train to town from the north was stopped on the other side of the bridge: the passengers got out and walked round: the empty train was drawn over the bridge, which was sufficiently strong to sustain it; and the passengers arrived safely at King's-cross. In the meantime, as a matter of course, the up and down traffic was entirely stopped. The telegraph at Peterborough was set to work, and information forwarded to Mr. Seymour Clarke, the manager of the line; Mr. Leith, the traffic superintendent; and Mr. Johnson, the engineer, who arrived by special engine at the spot, and gave all requisite instructions. The through traffic on Friday and Saturday was to a great extent suspended, passengers for the north being recommended to take the trains by the London and North-Western and Midland; but, on Saturday afternoon and during Sunday, the road having been put in order, the traffic was resumed, the passengers alighting on the London side of the bridge, and walking round it to the train prepared for their reception on the other side. From the survey made by the officers of the company, it is considered that a new bridge will have to be built, unless engineering arrangements can be made for making the existing structure available for the conduct of the traffic, which appears to be very doubtful. The bridge has been in existence about eight or ten years, and the occurrence is the first of its kind that has happened on the Great Northern Railway.

ITALY.

At the last meeting of the Society of Antiquaries, at Newcastle, a letter from Dr. Bruce was read, which contained the following remarks:—

"The day after my arrival here found me on my way to Pompeii. * * I at once understood the peculiar construction of the Pompeian houses. The restored house in the Crystal Palace gives you an idea of coldness and gloom. At Pompeii, itself, smarting as I did at the end of October under the heat and glare of the sun, I could understand how precious an open roof, and shady corner, and dripping fountains, would be in July. * * It has been an ill-built city. The walls of the houses are like those of London. The masonry of our Wall is much superior to most of that at Pompeii. The buildings consist of tiles, lava, volcanic tufa, and organic tufa, or what we would call petrified moss. It is astonishing how largely this organic tufa, which we are familiar with in the Roman buildings in the North of England, enters into the composition of its buildings. The walls of the city have been originally made of pieces of lava, not much larger than a good-sized flat. It has, however, been repaired at two subsequent periods with large-sized and well-squared blocks of organic tufa and travertine. The fountains in Pompeii

are numerous, each being provided with a cistern, something like that at the north gate of Borovcov. I measured the runs in the streets. From the centre of the one to the centre of the other is 4 feet 7 inches. I measured one street, which was 7 feet 3 inches wide, and another, which was 6 feet 4 inches. We must not be surprised that the streets in our stations are so narrow. I studied the public baths with care: they are very complete and interesting. The place where the coppers were placed is clearly marked; and you can trace the water in its course, and follow the hot air from the furnaces, under the floors, and up the sides of the rooms. * * I think I now thoroughly understand the meaning of the fir-cone ornament which is so frequently met with in Roman camps. My drawings will explain it. One day we went to Puzzuoli (the ancient Puteoli), where the Apostle Paul landed for Malta on his way to Rome. We trod upon the very stones of the Roman way which he traversed. The amphitheatre here is very complete, especially in the underground arrangements. The Temple of Neptune, where Pompey sacrificed before the battle of Actium, is still to be seen. The Temple of Serapis is a beautiful ruin: it has been submerged by the sinking of the coast, and again raised by volcanic action. The pillars, washed by the sea level, and eaten by the pholas below this line, prove this. I have photographic views which clearly exhibit this striking fact."

STAINED GLASS.

St. Philip's, Earl's-court. The memorial window to the late Lord Holland has been erected in St. Philip's Church, Earl's-court, Kensington. The principal subjects illustrated are, Our Saviour blessing Little Children, occupying the greater part of the three centre lights, surrounded by a series of smaller subjects illustrating the nine beatitudes; viz.—

- No. 1. (Blessed are the poor in spirit)—The Angels appearing to the Shepherds.
2. (— they that mourn)—The Woman at the Tomb.
3. (— the meek)—The Pharisee and Publican.
4. (— hunger and thirst after righteousness)—The Adoration of the Magi.
5. (— the merciful)—The Good Samaritan.
6. (— pure in heart)—The Annunciation.
7. (— peace makers)—Figure of St. John.
8. (— when persecuted)—St. John the Baptist beheaded.
9. (— when men revile)—Figure of St. Peter.

The window was designed and executed by Messrs. Heaton & Butler, of London; and the wall decorations were by Messrs. Harland & Fisher, also of London.

Christ Church Abbey Church.—A window is in preparation by Messrs. Lavers & Barrard for the great window, at the west end of Christ Church Abbey Church, Hampshire. The subject is the *Te Deum*.

CHURCH-BUILDING NEWS.

Davilish.—A small Wesleyan chapel has been opened at Davilish, South Devon. It is built with the local limestone; roof open, of deal, stained and varnished, as likewise the fittings. The narrowness of the frontage necessitated the T shape. The pulpit is at the meeting of the arms. There is a gallery at the front end, with vestry under. Messrs. Richardson & Reeves were the builders; and Mr. Edward Appleton, of Torquay, the architect.

St. George's (Shropshire).—The chief stone of a memorial church to the late Duke of Sutherland, K.G., has been laid in the district of St. George's (formerly Pain's-lane), in Shropshire. Mr. Street, architect, was selected to make the plans of the church, which will be built in the new portion of the present burial-ground (and at the rear of the old church), which was given by the late Duke of Sutherland; and Mr. Horsman, builder, Wolverhampton, was selected as the contractor. The church is designed to accommodate 700 persons. It is to be rectangular in form, with a chancel of 40 feet by 20 feet; the nave with side aisles and clerestory, 90 feet by 60 feet. At present a tower, about 40 feet high, will be erected at one end; but, if funds can be obtained, it is intended to raise upon it a spire, 150 feet high. The style of the building will be Early English. The cost, without the spire, will be 4,000l.; but,

with that addition, about 5,000*l*. On the south of the church the tablet, to record the memory of the late duke, is to be placed.

Whitchurch.—The church of St. Nicholas, Whitechurch, has been restored. The edifice, which is of Norman architecture, of the early part of the twelfth century, has been nearly re-built, at a cost of about 800*l*.; but no additional accommodation has been made, the church being already sufficient for the wants of the parish. The edifice was in a very dilapidated condition. The restorations have been conducted under the superintendence of Mr. Street, architect; Mr. Hughes, builder, of Bristol, being the contractor.

Farnworth (Bolton).—The new Wesleyan chapel recently erected in Vicarage-road, Farnworth, has been opened for Divine worship. The style of the building is Grecian, with a Corinthian interior, and the building is capable of seating upwards of 1,200 persons. It is from designs by Mr. Simpson, of Leeds, who has superintended the erection of the building. It has been built by Messrs. S. & W. Cope, of Farnworth; the pointing and plastering by Mr. Smith, of Oldham. The cost of the building will be about 4,000*l*.

Bradford.—The various works connected with St. Thomas's Church have been let, and the building is now started, on a site (which has been given by Mr. F. S. Powell) close to the Ragged School, Cropper-lane. The style of the building is Geometrical; and the plan consists of a nave, chancel, north and south aisles, together with organ chapel, vestry, and the tower and south porch. It is only proposed at present to carry the tower as high as the first stage; but, when the designs are fully completed, it will be crowned with a lofty spire. The design is of simple ecclesiastical character, with two-light, four-light, and six-light tracery windows; and with stone dressings, quoins, and internal piers, arches, and other finishings. The roofs are of open timber, stained and varnished; and accommodation is provided for 700 worshippers. The estimated cost, including endowment, is 5,000*l*., towards which 1,200*l*. is yet required. The works are under the direction of Messrs. Lockwood, Mawson, & Mawson, architects, Leeds.

York.—The church of St. Mary Bishophill Junior has been re-opened. In the interior of the church, the old square pews, which were only capable of accommodating 180 persons, have been removed; and, in accordance with a plan by Messrs. Atkinson, architects, sittings have been obtained for 360. A west window has been substituted for a doorway which led into the churchyard. The tower has been fitted with seats for the accommodation of children; the floor gradually rising so as to command a view of the church. The floor level has been raised 10 inches, and the whole concreted, and the floors and aisles laid upon sleeper walls, so as to secure freedom from dampness. The wooden windows of the south aisle, and its modern brick porch, have been taken away; the aisle has been completely restored; and a stone porch and three varied Decorated windows have been erected, from designs by Messrs. Atkinson. The chancel has been completely restored in accordance with the original work, except that an open timber roof has been substituted for the flat ceilings of the chancel and aisle. Mr. Ewan Christian, the architect of the commissioners, superintended the restoration of the chancel, except as to the internal fittings and seats. The whole of the work has been executed by the various contractors. The mason work is by Mr. Keswick; Mr. Lawson was the joiner; and the windows were glazed by Messrs. Hodgson, in cathedral glass, with margins varied by blue or ruby colours. Mr. Poulter varnished the seats, preserving the appearance of the wood. The church is fitted with three star gas-lights, one in the tower, one in the chancel, and one in the body of the church, the plan being suggested by Mr. Braddock, of the York Gas Works. The east window has a richer border than the others: the central light contains a group, the subject being Christ receiving Children. The emblem at the crown of the window was given by Mr. Hodgson, who executed the whole. The expense of the restoration amounts to upwards of 800*l*., and the subscriptions raised reached between 600*l*. and 700*l*., leaving a debt of 150*l*.

South Shields.—The foundation stone of a new church has been laid near to the Tyne Docks, South Shields, for a new district. The edifice, which is designated St. Mary's, is endowed by the Dean and Chapter of Durham; who, on disposing of the land to the North-Eastern Railway Company for the purposes of the Tyne Docks, devoted 5,000*l*. of the purchase-money as an endowment fund. The Dean and Chapter of Durham started the subscription list with a donation of 1,000*l*.

Mr. Dobson, architect, Newcastle, was requested to prepare plans for a church so constructed as to hold 700 people, or thereabouts, and to be capable of increase at a comparatively trifling outlay by the addition of side galleries. The plans, when approved, were entrusted to Mr. Joseph Elliott, builder, North Shields, to whom the contract for the various works was let for 3,250*l*. The site is at the junction of two principal roads, leading to the Docks and the New Town adjoining, and the ground has been presented by Mr. J. Williamson. The building, which is in the Gothic style of architecture, was commenced in May last, and it is now nearly ready for being covered in. It consists of a nave 84 feet by 25 feet, terminating with a chancel, or altar recess, 18 feet 6 inches by 22 feet, having open timber roofs, the apex of which will be 52 feet from the ground. There will be a north aisle 66 feet by 12 feet, and a south aisle 79 feet by 12 feet, both having open timber roof, the apex of which will be 40 feet from the ground, together with a vestry at the east end of the south aisle. The church will be the largest in South Shields except St. Hilda's. When finished it will contain sittings for 528 adults on the ground floor, and for 136 children in the gallery, making a total of 664 sittings, 400 of which are to be entirely free. The present plans leave the tower to be finished at a future time. The subscriptions amount at the present time to 2,525*l*., and it is calculated that 4,000*l*. will be required.

Invergordon.—The new "Free Church" here has been opened. It stands in the centre of the town, about 60 yards to the rear, on the north side of the principal public thoroughfare, and on the right of the road leading off to the castle. The most prominent object is the spire, which is upwards of 140 feet high. The whole building is in the Early Decorated style, and comprises a nave, 76 feet long and 36 feet broad, and transepts near the end, 18 feet deep. The principal door of the church (beneath the steeple, and facing the public street), is deeply set in carved arches. Above it is a traceried window; and, on the third stage, the clock and belfry-openings. Surmounting the tower is a broach spire, with spire-light and gilt vane. The sides of the church present a light and marked outline, with gabled windows at the nave, and buttresses supporting the transepts. The inside of the building presents a plain appearance. The roof is made of large pine beams, varnished, stretching across each other from end to end, and resting on stone corbels. The height is 45 feet. The pulpit (or rather platform) is placed at the extreme end of the church, opposite the principal entrance, and is about 4 feet above the level of the floor, and about 20 feet in width, with a raised desk in the centre. There are numerous ornamented windows on all sides of the building. The architects were Messrs. Ross & Joass, of Inverness; and the mason work has been carried on, since the death of the original contractor, by Mr. James Wilson, and the other departments are by Messrs. Ross, Tain.

PROVINCIAL NEWS.

Norwich.—The building described, by an error in printing, on the 16th instant, as the new "Town" hall, is the new "Corn" Hall, or Corn Exchange.

Colchester.—The Central National Schools, erected at a cost of 3,500*l*., have been opened. The structure is in the Gothic style, composed of red brick, with Caen stone windows, copings and weatherings; and comprises three school-rooms and four class-rooms, besides the porches. The central room is for the boys of the Blue Coat School: the other rooms are,—one to be used for girls, and the other for smaller girls. The buildings were designed by Mr. H. W. Hayward, and have been erected under the superintendence of the architect and a building committee; the contractors being Messrs. Rayner & Runnacles, of Halstead.

Ashbourne.—Ashbourne Hall has been recently purchased by Mr. R. H. Frank, of Liverpool, and is now undergoing extensive alterations; an entire new wing being added to it, and other important alterations being made. The workmen, to the number of upwards of sixty, have been entertained at a supper, given by Mr. Frank at the Green Man hotel. Mr. Wilson, the architect, was in the chair. Besides the additions to the hall, according to the *Derby Advertiser*, other extensive buildings are being erected, embracing six first-class loose boxes, stabling for six or eight horses, coach-houses for six large carriages, with all conveniences; the whole range being two stories high, and embracing all recent improvements. The whole of these works are being executed from

designs by, and under the immediate superintendence of, Mr. Benjamin Wilson, architect. Mr. E. Thompson, of Derby, is the builder.

Bristol.—A new public hall for this city is to be erected by a company in connection with the proprietors of the old hall. It is proposed to accommodate 3,000 persons, or more than twice the number at the Broadmead-rooms. The prospectus estimates the cost of the proposed erection, including the purchase of the site, at 12,000*l*., which it is intended to raise in 1,200 shares of 10*l*. each.

WOLVERHAMPTON.

The Sanitary Question.—Every one, we dare say, has heard, in one form or another, of the law action as to an old pair of bellows, the defendant's pleas in which were, 1. There were no bellows to mend; 2. The bellows were mended. We cannot help being reminded of this celebrated case by the Rev. J. H. Iles's defence against our sanitary "action," *in re* Wolverhampton. Referring, at a mayoral meeting, to the church and churchyard; and in particular to a certain pigsty, that "a writer in a paper called the *Builder*" had stigmatized and "attacked;" the rev. gentleman's pleas are, in effect, 1. There is no such pigsty; 2. "Next year a handsome building," in the shape of an infants' school, is to take the place of "that pigsty," which, by some singular jugglery, assumes the shape, in the mean time, of an "old school house," with about 160 infants, which the reverend gentleman somewhat irreverently considers may be the "small pigs" that occupied the pigsty. In all good humour, we only say that, so long as our strictures lead to such improvements, we care little for the inconsistencies of the pleaders, either for pigsties, or for old tumble-down school-houses equivalent to pigsties, and requiring removal. That our photograph of the rubbish-yards, back lanes, and tumble-down cottages, into which the Rev. Mr. Iles admits that we must have been "peering," has moved the Wolverhampton people by the truthfulness of the portrait, seems pretty evident; and we are glad to observe, from the local *Chronicle*, that, at a meeting of the Town Council, held last week, the sewerage committee presented an important report with reference to a new plan for carrying into effect a comprehensive system of sewerage in the borough, at a cost of 35,000*l*.

Blakenhall Church Schools.—The new day schools, recently erected in connection with the Church of St. Luke, have been opened. The erection had been entrusted to Mr. Cockerill, from designs by Mr. E. Banks. The principal portion of the building is in the form of a cross; and this forms the room for the boys and girls of advanced years; the boys being divided from the girls by a wooden partition, which may be removed as occasion may require. A wing at the lower end of the building forms a room for infants; the total number of children which the establishment is calculated to accommodate being about 500. The cost of the erection is about 1,200*l*.; and this will be defrayed partly by the gift of the Rev. W. Dalton, the founder, partly by Government grant, and the rest by public subscription.

NEW ADELPHI THEATRE.

"THE OCTOBER" is a remarkable drama, full of striking effects, and exceedingly well played. It may not run quite so long as the "Colleen Bawn" did, but will nevertheless fill the house for many, many weeks to come, and other houses too. There is the same air of reality about it in the getting up that was observable in its predecessor. *Pete* is an old body slave: it is not Mr. Jamison acting a slave. *Wahnotes* is one of Catlin's real Indians (not Mr. R. Phillips); *Picayune Paul* must be a quadroon boy; and as to *Salem Scudder*, though the bill identifies him with Mr. Boucicault, we are not to be taken in; his country and calling are quite evident. *McClosky*, the villain of the piece, is played with becoming ferocity and malevolence by Mr. Emery; and Mrs. Boucicault winningly makes herself so touchingly felt, that the town is half disposed to be angry with the author, because, in order to complete the moral he would draw, she does not remain alive at the close to become the happy wife of George Peyton and the mistress of Terreboune;—the laws of Louisiana, which forbid the marriage of a white man with any woman having the smallest trace of black blood in her veins, notwithstanding. The scenery, although not strikingly attractive, is solid, fitting, and effective; especially the first scene, "The Plantation of Terreboune, in the

Attakapas," and "The Cane Brake," in the fifth instant, showing sunrise over the Attakapas, executed, we believe, from a picture by Mr. Cropsey, the American landscape-painter.

A SANITARY HINT FOR THE PORTUGUESE.

THE *Medical Times* suggests that the new King of Portugal should send over to England for medical men to examine and report on the causes of fever, putrid sore throat, &c., in Lisbon, from which so many severe losses have recently taken place in the Royal Family. We do not object to the inspection by medical men, if this is to be followed by a report, plans, and estimates of sewerage, drainage, and a good supply of pure water, by some sanitary engineer of known ability in this department of civil engineering. It is quite time for the devising and executing of proper sanitary works in the capitals of Europe, and it is of the utmost importance that the work should fall into competent hands. We can show some completed works in England which will bear examination, as having stood the test of time. A commission of Portuguese medical men and engineers may gain useful information on sanitary works in England, and we think that we can promise such commission every facility and assistance in their inquiries that they can desire. Engineers from America and from Berlin have received such assistance and information, which they have duly acknowledged.

ARCHITECTURAL EXAMINATIONS AND THE INSTITUTE OF BRITISH ARCHITECTS.

On carefully reading the observations made by the several members of the Institute, there can be but one opinion as regards the observations of Mr. Cockerell, that the course taken by the Institute "was by far the best step they could take, and which was the only one indeed likely to obtain for the profession the full confidence of the public." It is one that many a young man entering an architect's office would have reason to be grateful and thankful for. How seldom is it that, when a youth enters an office, any care or interest is shown or taken to point out to him the course he should pursue, or the works he should study to obtain that information, which should be his guiding star through life, should he follow the profession? The curriculum and list of works recommended to candidates are very full and valuable as suggestions; but, in order that a youth should not be disheartened at what might be required in his examination, the list might perhaps be revised so as to cull the most useful works for his study; and on passing his examination what objection could there be to present him with a printed diploma from the Institute, which would not only certify that he had passed a creditable examination, but would serve him as a testimonial in after life?

W.

CLERKS OF WORKS: THEIR DUTIES AND POSITION.

SIR,—I think all experienced architects must hold the same opinions in reference to the clerk of works as entertained by "London Architect" in his letter in the *Builder* of the 2nd instant; and I doubt not but many of your professional readers can testify as to the existence of such men. The authority of the architect should be felt in his absence as when he is present; and, in proportion as he impresses this, so in proportion will his views and the interest of his client be realized. And in whom should this authority be vested but in the clerk of works? The clerk of works should be to the architect on the works, what his chief assistant is to him in the office; and the man who is not worthy of such confidence should not be called a clerk of works.

The efficient clerk of works should, without prejudice, be able to dictate in every trade connected with a building; and I hesitate not to state that there are many who are capable of doing this. The man whose knowledge is limited to one trade cannot be called a clerk of works, although there are too many of that amount of knowledge who style themselves such. The opportunities of acquiring that general information are not within the reach of all; and, if such opportunities are not at command in early life, he can never become an efficient clerk of works. There is no royal road to the obtaining of such knowledge: it is only to be obtained by careful observation and constant application.

The author of the letter styling himself "Also

a London Architect" in the *Builder* of the 9th instant, who would place his clerk of works on a level with the average of builders' foremen, might find in the end, and perhaps when too late, that all the matters of difficulty which he speaks of, as expecting to be referred to himself, might have been settled between his clerk of works and the builder's foreman, as matters of trivial importance. The clerk of works should stand second to none on the works but the architect; and, unless he has the ability to use such authority impartially, he is not a fitting person for the office; and without such power, he cannot execute the duties of his office satisfactorily to himself or his employers. This I state from experience.*

A. B. W.

It has been with no little amount of interest that I have read the correspondence on the above question, and trust that before the same shall cease the subject will receive the fullest ventilation. It is a subject deserving the careful consideration of all architects, and requires a firm determination on the part of such men as myself and your correspondent of last week, "M. M.," to not only protest against the miserable amount of stipend, but the injustice and inconsistency of employing foremen of joiners and masons as clerks of works; men whose previous subordination to contractors and builders alone unites them for the office. Besides this, can it be believed that a man who has served his time to one particular trade only is as competent as a person who not only has had considerable office practice, but has made it his study to become practically acquainted with every description of artisans' work. And yet these knights of the bench and banker appear to have a kind of hold upon our architects.

In conclusion, I beg to call upon your correspondent, "M. M.,"—whose case is so very similar to my own, and whose letter I cannot but admire for the tone of confidence and self-respect with which it is framed, and all others so unfortunately situated,—to stand boldly forward, and, by your goodness, through the medium of the *Builder*, to make known our grievances to the architects en masse, who, I cannot but believe, will give the matter their kind consideration; and let us hope soon to see the office of clerk of works raised to its proper standard.

FIAT JUSTITIA.

FORM, COLOUR, AND SOUND.

In reference to Mr. Robinson's letter, I beg to state that I think the work by Dr. Henzelman, the Hungarian, published in Paris, is written with the special purpose of comparing the fine arts; at any rate, works in this line are common in Germany. What of Hegel's "Aesthetic?" With reference to the history of Music, I would simply call attention to the fact that it has been subject to the same changes in the mind of man as architecture, painting, and sculpture. Greek music was associated with the dance, and had a dance rhythm: the early Christian left out dance rhythm, and introduced the style of Gregorian chant without dance rhythm: this is characteristic of the Romanesque vigour and strength of construction. Palestrina added harmony to this: then arose the Italian opera, and the return of dance rhythm, with its absence of harmony, quite in accordance with the Renaissance of Roman epicureanism; and gradually we come to Roccoco bravura, which, is like mouldings and crockets, something that takes away from the massiveness; and the modern Italian opera is nothing but a waltz with an orchestral accompaniment of the big guitar style. In Germany rhythm was also revived, such as it had been continued all along in the national dance, and with harmony produced the sublime symphony of Beethoven. Wagner comes in this century, and puts dramatic music in order, as the other arts have been revived.

A. W.

THE EPIDEMIC AT DARWEN.

No sooner does the *Builder* visit a town and issue its notes thereon than there is expressed astonishment at his statements of truth: they are set down as exaggerations—he loves the magnification of nausea of every form—dwelling upon isolated cases, &c. &c. Then start up several champions in the field (not of cloth of gold, but of dirt) as defenders of the faith in things as they are, and assert that they are not so bad as they might be—or at least that there are other places, if anything, worse than the town or place specially

* This note must serve to represent three others to the same effect.

referred to. Now the Darwen epidemic is really a case in point for sanitary reformers. There is such a decided immediate connection between cause and effect as cannot easily be got over by the opponents of sanitary measures, stubborn though those opponents be.

So soon as the epidemic began its deadly work at Darwen, alarm spread, and the Local Board of Health appointed a committee of its members, resident inhabitants, to inquire into the causes. Now we may take an outline sketch of what they have reported, and it may be inferred that it is a fair and not overdrawn picture of their own condition; and how like to it is the condition of many places the *Builder* has recently pictured in such truthful detail!

The committee, in their report, say that they find the deaths are going on at the rate of forty-five in the thousand; but, after deducting the cases of typhus and gastro fever, the ordinary deaths are twenty-eight per thousand. Defective house drainage, contents of privies percolating walls of dwellings, contamination of the water supplied for domestic use, pigsties in close connection with dwellings, and, we may add, the overcrowding of three or four families into one small house, are the causes.

Now for the effects:—"In Duckworth-street there are dilapidated privies in a filthy state, and defective drainage, and in one house, three cases of fever; in Vale-street, one cottage without sink-stone or drainage, all slops thrown into the street, no yard or privy, and in this house two cases of fever; and so the catalogue of ill goes on. An eye-witness says that he himself visited 800 cases of fever. In one dwelling four of the inmates were prostrate; and on a table in a corner lay the dead body of a fifth,—a mournful picture, truly.

More could be said; but surely there is no room for an attempt at extenuation of circumstances like the above, which are but a repetition of what you have so ably described; and it would be well if Sheffield and the other places you have reported upon would, like the Darwen men, admit the causes which sweep hundreds to the grave who else might be the sinews of our country, and strive to remove these causes.

It is a poor man's battle, and must be fought out and wrought out by the pure philanthropist.

Blackburn.

J. B.

LARGE COOKING APPARATUS, REGENT-STREET.

At Mr. Kuhn's, in Hanover-street, a cooking apparatus has been put up in the centre of the kitchen. It is 10 feet long, 4 feet wide, and 3 feet high. The fire is placed at one end, and beyond it are fitted two large and powerful roasters and two large ovens, the united cubical contents of which are about 56 feet. Over the fire-roasters and oven is placed a hot-plate of 40 feet area; and at a distance of 2 feet above the hot plate is a strong rack for holding and heating dishes and plates. Above the hot plate is a hood, the full length and width of the apparatus, for the purpose of collecting the heat and steam from the hot plate and cooking utensils. These are conducted away through a pipe to a distant shaft. The cooks are protected from the hot plate by a bold copper rail. Two boilers form the back and sides of the fire,—one of them having a large hot-water cistern; the other supplying steam to a steam-chest. Within half an hour of lighting the fire, the apparatus, it is stated, is in perfect working order; and cutlets, &c., are cooked to perfection in the roasters in eight minutes. Mr. Kuhn says he could cook dinners by means of this apparatus for 3,000 persons in one day.

DRY ROT.

THE case of dry rot, quoted in the *Builder* of the 2nd November, seems to be an obstinate and almost exceptional one. In every case of dry rot that has come under my notice, I have traced its origin to an insufficiency of proper ventilation; and, although air-bricks have been inserted in this case, it is doubtful if they have not been too sparingly used. Concrete, if of the proper material and properly executed, is a good preventive in damp situations; but, when used for such purposes, it frequently may be found that both material and workmanship are slighted. Broken bricks are sometimes used instead of clean gravel or ballast, and the former will absorb what concrete is supposed to resist. Allow me to suggest that the floors be taken up, and a layer of asphalt, which will cost about 2s. 6d. per super. yard, be spread over the whole surface and carefully jointed to external walls. Reconstruct the sleeper wall

on the asphalt, taking care that the walls are freely perforated. If the aisles are paved, I should recommend that say 4-inch drain pipes be laid transversely at intervals under same, communicating with floors on either side of aisles and directly opposite the air-bricks in external wall. By this process a free current of air will be provided and allowed to play freely throughout the whole space. If new joists are necessary, and are dry and well seasoned previously to being laid, I am induced to think that a good coat of tar would act favourably in resisting dry rot. This would also apply to the underside of floor boards.

AMICUS.

AFTER reading the recent communications respecting dry rot in your publication, I wish to say I have had a similar case to the one last named. It is about four years since I built four houses, the basement on the front having boarded floors, properly ventilated with air bricks.

The rot showed itself first by everything in the room being covered with dust of a reddish colour; rising, as was supposed, from betwixt the boards. After taking the boards up, the sleepers, walls, joists, and underside of boards were found to be completely grown over with fungus; the ground underneath being perfectly dry.

I beg to suggest, sir, the probability of the wood being tainted previously to using.

JONES.

PAYMENT TO ARCHITECTS.

SIR,—Apologies of the proposed scale of professional charges brought forward by the Northern Architectural Association, I would beg to call your attention to a circular just issued in connection with an intended chapel and school at Plymouth.

A chapel and schools are required to be built, at a cost of about 5,000*l.*, and for the competitive designs for these, two premiums are offered, viz. 50*l.* and 30*l.*, with the condition that the successful competitor should be employed to furnish the working drawings and specification, the committee will graciously allow him a sum not exceeding 50*l.* in addition to his premium.

Here we have a new phase of the professional remuneration question. The fees for the work done, according to the proposed scale, would amount to nearly 200*l.* if an estimate is needed. Yet a building committee in a town of such standing as Plymouth can have the conscience publicly to invite professional men to take a risk, and, if successful, be deprived of half their legitimate fees. Really, one feels almost tempted to advise such committees in future to head their circulars with a line or two of the old song,—

"Will you walk into my parlour,
Said the spider to the fly," &c., &c.

Cases like this will open the eyes of the profession to the urgent necessity of making a firm and vigorous stand against such invasions of their rights. Undesirable as combinations generally are, yet an evil such as this demands some decisive and energetic remedy, a remedy which will only be found in the universal adoption of some fixed standard of professional charges.

No professional man is so ill paid as an architect: the fees of our medical men are paid gladly; our lawyers' charges are settled without demur; yet, when it comes to the architect's turn, he—who ought, in consideration of the amount of wear and tear of brain, of heavy office and other expenses, to receive the highest scale of remuneration—is considered well paid if he gets the lowest; and thus, from a want of a thorough understanding on this point among the profession generally, the architect is left quite at the mercy of unscrupulous building committees and mercenary clients.

W. A. R.

LEEDS PARISH CHURCH.

SIR,—In my letter complaining of the desecration of one of my works, I did not name any party; but I thank Mr. E. M. Barry for his explanation, whereby he shows that he would not have made any alteration without consulting me therein, which I accept as an apology; indeed, I should never have attributed to him so glaring an absurdity as the "Tudor" window, designed by some architect in Leeds who is evidently no archaeologist.

After a lapse of twenty years I was not aware that a living architect should feel no interest in a completed work when committed to the "conservation" of churchwardens, who, by the bye, are noted for their beautifying of churches, though mostly in defiance of taste, judgment, or the most remote sense of propriety: "ne sutor ultra crepidam."

R. DENNIS CHANTRELL.

HULL TOWN HALL COMPETITION.

SIR,—Will you allow me, through the medium of your paper, to ask what the Hull people are doing about their proposed new town-hall? On the 31st of May last I forwarded, in answer to their advertisement, a set of drawings for the proposed building; and from that day to this have heard nothing of them,—at least, nothing definite. It is true, a month or two since, a local paper offered its sincere congratulations to a local man on having gained the "first premium for the new town hall," and also good-naturedly patted on the back another "quondam" some good reason for obtaining the "second prize;" but for mature by the quashing of the verdict of the disinterested "council of six." Next the competitors were informed that Mr. Tite had been, and decide as to their several judgment on the drawings, and in common courtesy to the competitors, some statement as to what is doing should be published in one of the recognized professional papers.

A COMPETITOR.

BILLS OF QUANTITIES AND EXTRAS.

IMPORTANT TO CONTRACTORS AND ARCHITECTS.

Neill v. Leatham, administratrix of Mr. C. A. Leatham, deceased. Tried at the Court of Queen's Bench. Mr. Mellish (Q.C.) appeared for the plaintiff, and Mr. Manisty (Q.C.) for the defendant.

Mr. Mellish stated that this was a special case stated by an arbitrator (Mr. James, of Lincoln's Inn, London, architect) on a building contract, under which he had awarded a balance of 1,430*l.* 17*s.* 2*d.* due to the plaintiff. The plaintiff, Mr. Neill, is a contractor for buildings and other works, and was formerly resident in the county of Durham, but is now at Bradford, in Yorkshire. Mr. Leatham was a gentleman of fortune, who desired to erect a mansion house at Gunnersgate, near Middleborough, and for that purpose employed Messrs Pritchett & Sons, of Darlington, architects, who, by his authority, invited tenders for the works, and prepared the necessary plans, specifications, and drawings, and also a certain paper called "Bills of Quantities, for the erection of a mansion for C. A. Leatham, Esq., at Gunnersgate." The following bill of quantities has been made out with the greatest possible care, but is not guaranteed correct. Signed Pritchett & Sons, architects.

These bills of quantities having been submitted to all parties tendering and to be paid for by the successful contractor, were seen by the plaintiff, who, relying upon their accuracy, tendered for the works at 5,000*l.*, and afterwards signed a contract for that amount in which the plaintiff executed the work; but, in so doing, it turned out that the "quantities" stated by the architects were 25 per cent. below what the plaintiff was bound under his contract to provide, and did provide, in building the mansion; so that, instead of making any profit, he sustained a heavy loss, while Mr. Leatham got the benefit of a mansion one-fourth larger in all its dimensions than had been represented by his architects, and on which the plaintiff had been induced to enter into his contract.

The arbitrator stated in his award that "the error was not intentional; but, in fact, due care had not been taken on the part of the architects in preparing the 'quantities,' nor on the part of the plaintiff in not seeing that the bill executed the contract." The arbitrator then stated as follows:—"The plaintiff claimed to be allowed for that difference in value, on the ground that so large a difference between the described and actual quantities was not covered by the defendants' guarantee of accuracy. The defendant denied any liability in that respect. Upon these facts I was of opinion that the plaintiff was entitled to be paid the sum in dispute, amounting to 1,221*l.*, and I allowed it, and it forms a part of the amount whereon the said sum of 1,430*l.* 17*s.* 2*d.* is found as a balance." The defendant, who lives at Darlington, and is the widow and administratrix of the deceased, denied liability for the error, and she also had required the arbitrator to submit that as a legal question to the Court.

It further appeared that in the course of the work certain extras amounting to about 250*l.* were done by the plaintiff upon the verbal orders of the architects, accompanied by certain drawings signed by the architects as instructions to the plaintiff to do such extra works. The arbitrator stated in his award that such signed drawings "were treated by the parties and acted upon by the plaintiff as written orders," according to the contract, which had stipulated that no extras would be paid for except such as were ordered in writing by Mr. Leatham or his architects. The arbitrator proceeded to state that "the work itself was proper to be done; and when done it was approved of by the architects and by the deceased," and he awarded the 250*l.* to the plaintiff, subject to the legal question raised by the defendant, whether the signed plans formed written orders within the terms of the contract. The arbitrator had also found and awarded that work of the value of 144*l.* 9*s.* 9*d.* had been done on verbal orders by the architects, and work to the value of 21*l.* 19*s.* had been done without orders; but the arbitrator found that these extra works were necessary, and when done were approved and accepted by the deceased and by his architects; but defendant insisting that the deceased was not legally liable to pay for any of these, she was also submitted by the arbitrator to the decision of the Court; the architects having given written notice that the clause in the contract requiring that all extras must be ordered in writing would be strictly enforced. The arbitrator concluded his award by stating that "the plaintiff did not obtain any order or certificate in writing from the architects as to any part of the balance found due by me in point of fact all the works in question were done and completed to their satisfaction, and such satisfaction was by them expressed to the plaintiff, and to the deceased, who adopted such works."

The arbitrator having awarded these several sums in favour of the plaintiff, subject to the opinion of the Court on the legal questions raised by the defendant, the arbitrator had proceeded further to award, in pursuance of that, whatever might be the opinion of the Court on such questions of law, the defendants should pay all the costs of the reference and award.

The defendant had obtained a rule to set aside the award as unjust in conscience cases if the plaintiff should be held by the Court not to be legally entitled to the several sums awarded by the arbitrator.

Mr. Mellish having argued the right of the plaintiff to recover in respect of the 223*l.* deficient in quantities, notwithstanding the express contract to do the work for 5,000*l.*, on the ground that the quantities formed part of the contract itself, and the discrepancy was too great to be covered by the saving words;

The Lord Chief Justice intimated that the plaintiff had improvidently assumed, because of the statement on the head of the bill of quantities, that those quantities were properly ascertained, and had acted upon it, and had made his contract. I do not know, he added, how to construe it. It may be a very hard case, but I do not know how the plaintiff can get out of it.

Mr. Justice Blackburn.—It is a representation preliminary to a contract, afterwards reduced into writing, not part of the contract itself.

Mr. Mellish next argued the plaintiff's right to the 250*l.* for work ordered by drawings, on the ground that the drawings executed by the architects were signed by the architects, and that the plaintiff had acted upon the instructions to meet the words of the contract, and he sought the opinion of the Court for the guidance of the arbitrator for whose certificate the plaintiff might yet have to apply.

The Court were of opinion that, as the drawings would be understood by a builder as an instruction to him, tell-

ing him what to do, they were sufficient written instructions within the terms of the contract. The architect, however, had not certified these so as to entitle the plaintiff to yet to recover.

Upon the two items of 144*l.* found to have been done on verbal orders, and as to the 21*l.* done without orders, the Court decided that, although the defendant had adopted and got the benefit of the work; yet, on the strict terms of the contract, the plaintiff was unable to recover.

The Lord Chief Justice.—It must be done to the entire satisfaction of the architects, and then you want the written certificate besides: you have the satisfaction, but not the certificate.

Mr. Mellish.—The result will be that the plaintiff is not to be paid for his alterations or his additional quantities.

The Lord Chief Justice.—It is very hard indeed.

Mr. Manisty, for the defendant.—The arbitrator awarded a final balance of 1,430*l.* 17*s.* 2*d.* That includes the 1,221*l.* The error and alterations were an unfortunate thing for us, for we never should have made a contract for more money than we intended to expend in building. No doubt it is unfortunate for them as well, but they have their remedy at this moment, against the architect, for they employed him to take the quantities, and paid him for doing it; therefore I feel no difficulty about that, for they will get their money from him.

The Lord Chief Justice.—Do you mean from the architect?

Mr. Manisty.—Certainly, my lord. He was their agent: the bill of quantities was made out, and they paid him for it. The man who made the mistake must bear the loss.

The Lord Chief Justice.—Except that you have had the benefit of the work.

Mr. Manisty.—Your lordship would not like to make a contract for 5,000*l.*, and then be told you are to pay more.

The Lord Chief Justice.—If I employ an architect, and he misleads a man, telling him he will have a legitimate profit when it turns out to be a great loss, the case bears a different aspect.

The Court then proceeded to the consideration of the question of costs of the reference and award, which had been ordered by the arbitrator to be paid by the defendant, who was the result of the case on the legal points, and were stated to be very heavy.

The Lord Chief Justice.—An arbitrator may say, I am obliged upon legal grounds to make an award in favour of the defendant, but I look upon the defence as so unrighteous and iniquitous, that I exercise my power, and award the costs to be paid by the defendant.

Mr. Manisty.—I do not think another man would have done it. I can hardly conceive any human being who knows anything of the principles of law and justice who would say, although there is no cause of action, yet you shall pay an enormous sum for costs.

The Lord Chief Justice.—I do not agree with you. If an arbitrator says that on purely technical grounds he is obliged to decide in your favour, and yet your resistance to the claim is iniquitous, he may be quite right in ordering you to pay the costs.

Mr. Justice Blackburn.—The practical result is, that the technical matter,—the want of the architect's certificate,—makes it that the plaintiff cannot legally recover anything. Whether in point of fair dealing and equity he should recover anything was not the question with the arbitrator, who was to exercise his discretion as to costs.

Mr. Manisty.—By the contract these extras were to be valued by the architect, and not by an arbitrator.

The Lord Chief Justice.—You have established the arbitrator as the judge between you, and you have left the matter to him as to who should pay the costs of the reference, and he has decided. There is nothing illegal in that. I am strongly against you both on the law and on the facts.

Mr. Justice Wightman and Mr. Justice Blackburn having also strongly expressed their opinions in unison with that of the Lord Chief Justice, the rule for setting aside the award was discharged, and the arbitrator left to bear all the costs of the reference and award.

Books Received.

Revue Générale de l'Architecture. 8, Place St. Michel, Paris. London: Barthès & Lowell, Great Marlborough-street. Nos. 4, 5, 6, 7.

ALL who are interested, or are likely to be interested, in the construction and arrangement of theatres, should obtain the four numbers noted above, of the "Revue Générale," even if they do not become permanent subscribers to the work, which is the better course. Our readers are aware of the recent competition of designs for the proposed new opera-house in Paris, on which occasion seventy competitors submitted 171 *projets*. We gave particulars of some of the designs, and such remarks as grew out of the subject. To illustrate these designs, Mr. Daly has issued twenty-three sheets of plans and external views, each containing two or more drawings, with descriptive references. All the rewarded designs are not included, but will probably be given hereafter.

The authors of the five designs to which the offered premiums were awarded, Messrs. Gignat, Crépinet & Botrel, Garnaud, Duc, and Charles Garnier, again competed; and Mr. Garnier was named unanimously for the commission. It is to be regretted that the designs submitted for the ultimate competition were not exhibited to the public, nor did the jury publish any report upon them. A very complete programme, however, on the various points to be attended to in designing an opera-house was drawn up by them, and is printed in the "Revue." An introductory article is also given. In the course of the latter it is stated that the stage of the Boston opera-house is so well arranged, that the business of it can be managed

Miscellaneous.

With the aid of twenty-five workmen; whereas, the stage of the Paris opera-house requires 100. It is to be regretted that details of that theatre have not been published. In Paris, as we have before now said, the machinery of the stage is by no means so good as that of Germany.

In again bearing hearty testimony to the value of Mr. Daly's work, we have pleasure in mentioning that on the occasion of the last birth-day of the Emperor, when, according to custom, various recompenses and decorations were awarded, Mr. Daly, on the proposition of the Minister of Public Instruction, was made Chevalier of the Legion of Honour.

Account of the Church of St. Mary, Stone, near Dartford. By G. E. STREET, F.S.A. London: J. Russell Smith. 1861.

STONE CHURCH is well known as offering fine examples of Early English work: casts of the well-known beautiful foliage in the spandrels of the arcade round the chancel are to be found in our museums. The church had been allowed to fall to a bad state, and all will rejoice to learn that steps have been taken, and are being taken, to sustain and restore it to its original condition. The work before us is a reprint from the "Archæologia Cantiana," and is sold for the benefit of the Stone Church Restoration Fund. Mr. Street has brought together such few notices of the church as exist, and given a detailed architectural description of the fabric, with some very good engraved illustrations. Mr. Street thinks the church could have hardly been commenced before an accession to the see of Bishop Laurence de St. Martin, who was bishop from 1251 to 1274. The nave was usually been planned ten years earlier than the first of these,—"we should be willing to accept at ourselves, but are not at all disposed to conund for it. Our author has little doubt that the architect of Stone Church and the architect of Westminster Abbey were the same man, and the chief portion of the latter building was erected during the episcopate of Laurence de St. Martin. Part of the evidence in favour of this belief says the same general system of proportion is served in the minster and the village church.

In both, the width from the aisle walls to the centre of the columns is equal to half the width of the nave. At Westminster the height is given by three equilateral triangles, whose base-line is the width across the nave from centre to centre of the columns; and two of these triangles give the height for the springing of the groining, the third the height of the groining to its apex. At Stone, if we erect triangles on the same base-line, the first to the top of the capitals of the nave arcade; the second, within very little, the height of the top of the nave; and the third may very well be supposed to have marked the height of the ridge of the timber roof. The top of the bays in the nave of Stone is equal to the breadth of half the width of the nave; and the width of the chancel is equal to the diagonal from the centre of one column to the centre of the nave or aisle opposite the next column; whilst the height of the chancel is given by two triangles, similar to those in the nave, whose base is the width from centre to centre of the pining shafts."

The wall arched in the two buildings is nearly identical.

VARIORUM.

"A MANUAL OF Structural Botany, for the Use of Classes, Schools, and Private Students. By C. COOKE. With upwards of 200 Illustrations. Ruffie. Hardwicke, Piccadilly." This little manual is certainly one of the most instructive in all compass we have ever seen. It was prepared by Mr. Cooke, of the Twickenham Ecological Museum, to supply the want of a cheap manual to place in the hands of students in the natural classes established for operatives in conjunction with the Department of Science and Art; an excellent one it seems to be: the illustrations profuse and highly instructive.—"Elementary Treatise on Physics, Experimental and Applied." Professor A. GANOT. Translated and edited in the ninth edition, with the author's sanction. E. Atkinson, Ph.D., F.C.S., lecturer on chemistry and physics at Cheltenham College. London: Baillière. Parts I. and II. To any inimitably disposed, it would not be difficult to amaze a work such as this, by pointing out an error or two, of more or less serious importance, as representative, by implication, of the general characteristics of the whole work; but a treatise on physics which has withstood the criticism of 16 editions cannot be a bad one in the original; a translation by a college lecturer on physics is out to be a good one, as we dare say this will not be when fairly before the public in completed form. The work is finely printed, and is illustrated by many very superior engravings.

BUILDING FOR THE BLIND FEMALES OF IRELAND.—It appears there is a larger proportion of blind in Ireland than in any other country of Europe except Norway. They number more than 8,000! One-half are females. Some Protestant friends have now determined to establish in Dublin a first-class national, industrial, and Christian asylum, as "a school for the young and refuge for the old," capable of enlargement, but to open with room for from seventy-five to one hundred inmates. The Lord Lieutenant and the Archbishop of Dublin laid the foundation stones of asylum and chapel in June, 1860, and aid is being sought that the whole may be opened in May, 1862. About one-third of the required total sum has been given, and one-third of the building is erected.

A STORM BURSTING ON THE VATICAN.—A letter from Rome, in the *Monde*, says:—"During the terrible storm which burst over this city, two evenings back, a waterpout in the form of a cone, wide and luminous at the upper part, traversed the gardens and the vineyards near the San Spirito gate, and fell on the Vatican. The eighty lightning conductors which protect that residence first received the discharge; after which the point of the cone was seen to whirl round in the great court of St. Damaso, on which the fresco paintings of Raffaele open. Immediately the large glazed doors and the immense windows of the gallery were blown in and smashed to pieces. From the detonations and frightful noise, which made the palace tremble to its foundations, some persons felt persuaded that a mine must have exploded beneath the Pope's apartment. The large Genoese slates, more than a third of an inch in thickness, which cover the Belvedere, flew about like so many feathers. Fortunately none of Raffaele's pictures were injured. The arsenal suffered but slightly."

LEEDS MECHANICS' INSTITUTION SOCIETY.—The annual meeting of the members and friends of the Leeds Mechanics' Institution and Literary Society has been held in the Town-hall, under the presidency of Lord Stanley, M.P. The hall was well filled, and the proceedings were commenced by Mr. John Hope Shaw, president of the institution, who made a favourable statement as to the position and prospects of the society. Among the resolutions passed was the following:—"That this meeting regards it as a subject for congratulation that, notwithstanding the general depression of trade, consequent on the unsettled state of trade on the continent of America, the subscription list to the funds for the erection of a new Mechanics' Institution and Schools of Art and Science has reached the sum of 7,500*l.*; and pledges itself to use the necessary exertions to raise the remaining sum, 2,500*l.*, still required, in order to commence the erection of the new building as early as possible." The chairman presented to Mr. Walter Smith, head master of the Leeds School of Art, a painting executed by one of the pupils, and subscribed for by the students generally; his lordship remarking that the work did very great credit to the school.

LORD CAITHNESS'S PAVEMENT WORKS.—The extensive quarries which have been opened, and the pavement works, railways, and harbour erected by Lord Caithness on the estate of Burroghill, says the *John O'Grass's Journal*, are well worthy of a visit. The quarries were opened in 1856. Roads have been formed; quarries opened; substantial, neat, and comfortable cottages erected; a large and increasing pavement trade established; an excellent and commodious harbour constructed; machinery driven by steam erected for sawing, polishing, and scuffing the flags as they are taken out of the quarries; and railways laid down, on which the trucks for transporting the flags and for carrying away the rubbish are drawn by horses. His lordship, who is possessed of great engineering abilities, has had the machinery employed in the preparation of the material made to his own designs. Some of the flags raised are of very large size. The far-famed steam carriage has been pressed into the service; it may now be seen tugging away most vigorously at a huge quarry pump, and lifting its four thousand gallons of water as easily and economically as it formerly accomplished its seventeen miles an hour. About a sixpence worth of coal is sufficient for nearly ten hours' work, during which time it will lift from a depth of thirty feet and discharge over ten cubic feet, or 62½ gallons of water per minute, or 37,500 gallons in the ten hours. There is also in course of erection an apparatus for raising the stones from the bottom of the quarry to the trucks above, which is to be worked by the same engine.

WALL PAINTINGS.—According to the *Literary Gazette*, the painter Leys has received a commission to execute, in a hall of the Hôtel de Ville at Antwerp, a series of wall paintings, for which he is to receive 200,000 francs. We are anxious to see the same thing done oftener in England.

RAILWAY MATTERS.—A survey of the proposed line between East Grinstead and Tunbridge Wells is now being made, for the purpose of preparing the plans, &c., to lay before Parliament. With the exception of the immediate vicinity of East Grinstead, there will, we believe, be no cuttings of any extent. This line will not only be of great local importance, but supply the only missing link required to connect the Mid-Sussex Railway with the lines in East Kent and North East Sussex.

WINCHESTER: THE REMOVAL OF THE COUNTY HOSPITAL.—The second meeting of the members of the special committee of governors appointed some time since to take into consideration the sanitary condition of the hospital, its extension on the present site, or its removal elsewhere, was held last week, at the committee-room of the institution. The reports of the medical men attached to the hospital were laid before the committee and discussed. Nothing decisive was done, and it seems that much difference of opinion existed as to what course should be adopted. An adjournment was ultimately agreed to for three weeks.

THE USES OF DRAWING.—At the Wakefield Mechanics' Institute lately, Mr. Walter Smith, of Leeds, delivered a lecture "On the Uses of Drawing." At the close of it he said,—"Some people have an objection to teach children in public schools any sort of drawing, on the plea that it is an accomplishment, and working men have no need of it; but this is ridiculous, for the best thing that can happen to the trade or manufacturer of a district is for all the children in all the schools to be taught to draw. As a means of expression, drawing is a universal tongue; and, as a cultivator of taste, I think you will allow that drawing is a valuable means. And now I will anticipate a question that will arise in the minds of many working men in this room. Many of you are this moment thinking that you never had a taste for drawing, and that therefore you could not learn if you began now. To this I will say, don't believe it. I will give you my verdict, and ask you to take it for what it is worth and no more. I have been engaged in teaching for five years, and during that time I have taught about 4,000 individuals of both sexes, and every rank and age. It has been my fortune or misfortune to have been a pioneer in every appointment I have yet held, so that I have always had raw material, and not picked raw material, to work upon. Yet in all my experience I have never found one individual who could not learn to draw."

PLAYGROUNDS, AND THE STREETS: ENLISTING THE LADIES.—The *Queen* says,—"There are two matters of genuine public interest, both of which have been a good deal written about of late years—first of all, we believe, in the *Builder*—and both of which would have, we should imagine, some interest for women, though neither of them has attracted so much of their attention as might have been expected. There is nothing new to be said about them, in the way of stating their claims upon public attention, but we may take the opportunity afforded by recent discussions, and able discussions, of one of the topics in question in the *City Press*, and by a practical movement with reference to the other on the part of the Earl of Derby, somewhere in the provinces, within the last week or two, to refer to them for the purpose of inviting the co-operation of ladies of culture and energy, in forwarding two agreeable and useful designs. The first—for which there is an association formed, though one does not hear much of it—is the formation of play-grounds for children in great towns: the second is the planting of trees, for both sanitary and ornamental reasons, in our streets. The playground movement does not go on with half the spirit that is desirable, and the tree movement is, as yet, only a movement on paper. It is not, of course, to be expected that ladies, being convinced that 'something green' in popular places is an excellent thing for keeping the air sweet, should rush out, here and there, spade in one hand and sapling in the other, and scatter little oaks and lindens about the thoroughfares. Besides, the Board of Works will not let them. But it does seem hard that, with a surplus young-ladyhood of many, many thousands, we have neither enthusiasts for the young who will urge on the setting-out of playgrounds, Naiads to look after our drinking-fountains, nor Dryads to look after our bit of wholesome verdure."

GAS IN SPAIN.—The Spanish *crédit mobilier*, of which the capital is 24,000,000 francs, have invested about 7,000,000 francs in gas works at Madrid, which are so remunerative as to assure the payment of the interest on the whole capital of the *crédit mobilier*.—*Journal de l'Eclairage au Gaz.*

BRITISH ARCHEOLOGICAL ASSOCIATION.—At the meeting to be held on Wednesday, Nov. 27, Mr. T. Wright will read a paper on "Recent Discoveries on the Site of the Friars at Ludlow," and make report on "Discoveries in the Cemetery at Wroxeter;" the Rev. E. Kell a paper on "The late Excavations at Netley Abbey;" and Mr. Syer Cuming on "Roman Antiquities in Devon."

GREAT WESTERN RAILWAY AND LONDON GAS. We learn from a correspondent that the Paddington railway station is now supplied with gas from works which have been put into operation during the last two years at Wormwood Scrubs, Kensal-green, built on some waste land at the side of the line. The land was given by the railway company on condition that the Paddington station and hotel should be supplied with gas at the rate of 2s. 10d. per 1,000 cubic feet. Mr. Gooch, locomotive superintendent, has charge of these gas works. Walcott's patent gas retort bed has been put up there, built in the space, it is stated, which previously only contained the power to generate one third the gas which can now be made.

PROTECTION TO INVENTORS IN COMING EXHIBITION.—A correspondent writes,—"I have just been reading with a fluctuating pulse the communication which appears in the *Builder* respecting the probable benefit that might be conferred on the poorer class of inventors by enabling them to show their improvements at the forthcoming International Exhibition, without danger of injury from the plagiarism of other parties; and now send for your perusal the manuscript of a trade circular which I lately prepared in regard to my own position, as proof of both the value and urgency of some such thing being done. There is, in at least my own case, the best evidence for some such relaxation of the patent laws as suggested for the time being; while no doubt a large number of others in a similar situation are to be found lurking about in their like hopelessness in the three united kingdoms, all wishing it were otherwise in regard to the year 1862, but wholly despairing of any such change.—J. D. D.

INSTITUTION OF MECHANICAL ENGINEERS.—On Thursday in week before last, the general meeting of the members of this Institution was held at the Society's Rooms, Newhall-street, Birmingham, Mr. Sampson Lloyd presiding. Mr. C. De Bierge, of Manchester, read a paper descriptive of a rivet-making machine, which makes the rivets by a continuous motion. The next paper was "On an Application of Giffard's Injector as an Elevator for the Drainage of Pit Workings," by Mr. C. W. Wardle, of Leeds. The third, by Mr. C. P. Stewart, of Manchester, was a "Description of Sellers's Screwing Machine," in which the screw thread is cut at a single operation, and the finished bolt is realized by the withdrawal of the dies; the machine being driven continuously in one direction, without reversing or stopping. One of the machines was exhibited in working order, together with specimens of the different sets of dies used in it, and of the bolts screwed.

COMPENSATION BY THE METROPOLITAN BOARD OF WORKS.—An inquiry was held at the Swan Inn, Stratford, last week, before Mr. T. M. Gepp, Under Sheriff, and a special jury, for the purpose of assessing the compensation to be paid by the Metropolitan Board of Works to Mr. James Bowman, for the damage sustained by him in consequence of the taking by the Board, under the compulsory powers of their Act and for the construction of the main drainage sewer, of a portion of the garden belonging to Mr. Bowman, at Plaistow, and of the severance of such portion from the other part of his premises. Mr. J. H. Lloyd, Q.C., appeared for the claimant, and Mr. Montagu Chambers, Q.C., for the Board. On behalf of the claimant several local surveyors were called, who proved that the recent great increase in the population of Plaistow and the neighbourhood, and the construction of the Victoria Docks, had created a great demand for house accommodation; and consequently the land taken by the Board had become very eligible for building purposes; and also that the construction of the sewer had deteriorated the value of the land retained by the claimant, considered as a building site. No witnesses were called on behalf of the Board, but Mr. Chambers addressed the jury in reduction of damages. The jury ultimately found a verdict for the claimant for 700l.

EXPLOSION OF A BOILER AT SARREGUEMINES. On the 17th ult. a boiler explosion, caused, it appears, by incrustation, occurred at Sarreguemines. Four were killed. The bodies of two were found 200 mètres from the factory. The adjoining convent and sous-prefecture were unroofed.

LAMB AND FLAG RAGGED SCHOOLS, CLERKENWELL.—The new building erected for these schools, in Lamb-court, Clerkenwell (of which we spoke when it was an intention only), has been opened for use. It contains three school-rooms. Mr. W. P. Griffith was the architect.

DRINKING FOUNTAINS AT THE CRYSTAL PALACE. At the suggestion of the National Temperance League, who called attention (as we did) to the total want of drinking-fountains in the grounds outside the palace, and to the fact that the fountains inside the building were not only too few in number, but placed in positions not easily accessible to visitors; the directors took the subject into consideration, and have sent a letter to the committee of the League, thanking them for the suggestions offered, and stating that they will be carried out as far as possible.

THE DESIRED ROAD ACROSS HYDE-PARK.—We are glad to hear that a public meeting will be held at the Vestry-hall, Paddington, on Tuesday next, for the purpose of considering the expediency of having a road or subway across Hyde-park, connecting Paddington and Baywater with Brompton and South Kensington. We still incline strongly to Miss Martin's proposed subway, published in the *Builder*; and have reason to believe that her Majesty's Chief Commissioner prefers it to any above-ground road. The model and plan will, doubtless, be at the meeting, and should be carefully considered.

FIRE AT A CHURCH.—St. Matthew's, Oakley-square, St. Pancras, has suffered damage from fire. Some of the neighbours had their attention directed to dense masses of smoke pouring forth from the under part of the aisles. Alarm was given; and, by dint of great exertions on the part of the firemen, the flames were ultimately extinguished, but not until considerable damage was done to the edifice, including the floorings, joinings, and the porch. The outbreak was, as usual, caused by the over-heating of the furnace used for warming the church. This is, doubtless, only the first of a regular series of such casualties as the winter sets in.

THE AREA IN FRONT OF ST. PAUL'S.—Correspondents are reviving our long-ago urged improvement, the removal of the railings around St. Paul's Cathedral. One signing himself "A Citizen" writes: "As it is desirable we should have our house in order in the coming year, will you allow me to ask the Dean and Chapter of St. Paul's Cathedral, through your columns, whether it is possible a decision can be arrived at regarding the disposition of the area at the west front of that building? Can we not have the iron railing, on which so much good paint is annually expended, cleared away and sold, to defray cost of removal, before our visitors of 1862 arrive? The authorities have been calling very freely on the public to assist them with the internal decorations: let them show some liberality with their external possessions."

TELEGRAPHIC PROGRESS.—The United Kingdom Telegraph Company have opened their lines between London, Birmingham, Manchester, and Liverpool, to the public, at the reduced and uniform charge of a shilling for twenty words, making the same charge between any of the stations. The former rate for telegrams of the same number of words from London to Manchester or Liverpool was four shillings.—The completion of the Pacific Telegraph, by which the Atlantic and Pacific slopes are joined, is announced in a despatch from San Francisco, dated October 26th:—"The completion of the last link of the American Telegraph connects Cape Race with the Golden Horn, traversing nearly 5,000 miles with one continuous wire, and bringing these two points within two hours' telegraphic time of each other. The next westward extension of the line will be by the way of Behring's Straits to the mouth of the Amoor River, to which point the Russian Government is already constructing a line commencing at Moscow. San Francisco is now at one end of the longest telegraphic line in the world—70 degrees of longitude—St. John's (Newfoundland) being in 52 deg. 43 min. long. west Greenwich, while San Francisco is in 122 degrees. The news which starts from Newfoundland at four o'clock in the afternoon will reach the Pacific coast about half an hour before noon of the same day, and the news which San Francisco sends at mid-day will reach the Newfoundlanders at half-past four p.m.

ANTIQUITIES IN FRANCE.—The château of Saint Germain is to be converted into a museum of Gallic and Gallo-Roman antiquities. Singular it is that France does not yet possess any museum where relics of ancient Gaul are collected, so as to afford means of studying the primitive state of that interesting country. The innumerable quantity of arms, utensils, vases, figures, and coins discovered of late years, and the finding of several Celtic inscriptions, render such a museum almost indispensable.

TENDERS.

For new viney, painter's and other works, at Higham Lodge, Walthamstow, for Mr. T. H. Toms. Mr. Thomas Burton, architect:—

For new Viney.

Lewis	£227 0 0
Ramsey	198 10 0
Nind	184 10 0
Sargeant	180 0 0
Deasley	149 17 9

Painter's and other Works.

Nind	120 16 0
Heaps	116 0 0
Turner	112 0 0
Ramsey	99 0 0
Lewis	95 12 6
Deasley	70 9 7

For New Bank premises, Newcastle-on-Tyne. Mr. J. E. Watson, architect.

Accepted Tenders.

Gibson, mason, joiner, and carpenter's work	£5,304 0 0
Beck, glazing	112 0 0
Graham & Son, plumbers	217 0 0
Aitken, plastering	264 0 0
Lawson & Son, painting and glazing	339 10 0
Barnett, coloured glass windows	144 14 0

For County Court, and other offices adjoining, in Winckley-street, Preston. Messrs. Myres & Vevers, Preston, architects.

Pomplunson	£1,003 0 0
Pitchie	990 0 0
Aughton	997 10 6
Bamber	997 0 0
Coward	973 0 0
Thompson	955 0 0
Cooper & Tullis	942 0 0
Couthurst, Junior (accepted) ..	935 0 0

For building detached villas at Windsor. Mr. Henry McCalla, architect.

Roberts	£1,400 0 0
J. & C. W. Todd	1,332 0 0
Dabbs (accepted)	1,665 0 0

For building two pairs of semi-detached villas near Hampton Court. Henry McCalla, architect.

Sewell & Co.	£2,740 0 0
London Building Company	2,409 0 0
Wheatley	2,300 0 0
Hatten	2,057 0 0
Richards	1,797 0 0
J. & C. W. Todd	1,688 0 0
Pugh & Wallis (accepted)	1,383 0 0
Stevenson	1,275 0 0

For two houses and shops, situate in Commercial-road, Landport, for Messrs. S. & B. Curtis. Messrs. Houghton & Son, Portsea, architects.

Burbridge	£1,150 0 0
Light	1,125 0 0
Bilton & Co.	1,017 0 0
Backhurst (accepted)	995 0 0

For roads on Messrs. Curtis's estate, situate in Landport. Messrs. Houghton & Son, surveyors, Portsea.

Phillips	£804 0 0
Clarke	586 0 0
Hawkins	580 0 0
Light	505 0 0
Pharoah	504 0 0
Bottomley	457 0 0
Eades (accepted)	389 0 0

For roads and fencing on the estate of Mr. Serjeant Gaselee, situate at Buckland, Portsea. Messrs. Houghton & Son, surveyors, Portsea.

Roads.		Fencing.
Phillips	£960 0 0	£106 10 0
Light	725 0 0	85 0 0
Bottomley	708 0 0	71 3 0
Eades	685 0 0	100 0 0
Pharoah	637 0 0	143 5 0
Miall	615 0 0	83 15 0
Stavies	578 0 0	117 17 0
Clarke	564 0 0	119 12 0
Hawkins	588 0 0	

For building a villa at Tonbridge Wells, for Mr. J. K. King. Mr. Wm. Bond, architect.

Wren	£380 0 0
Mercer & Camfield	512 0 0
Perigo (accepted)	499 10 0

For building a new club-room at the Camden Hotel, Tonbridge Wells. Mr. Wm. Bond, architect.

Punnett	£336 0 0
Perigo	308 10 0
Perigo (accepted)	294 0 0

For building a chapel at St. Mary, Newington, Worcester. Mr. Henry Jarvis, architect.

Cravley	£990 0 0
Cook	891 0 0
Kent	874 0 0
Tarrant	856 0 0
.....	839 0 0
Sawyer	795 0 0
Hammond	788 0 0
Henshaw	784 0 0
Coleman	768 0 0
Wilkins & Bottom	719 0 0
Glenn	690 0 0

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 N.B. Columns, &c. Veneered for the Trade.
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 "March 10th, 1852.—In reply to your letter received, this morning, respecting the Gutta Percha Tubing for Pump Service, this morning, with much satisfaction, it answers perfectly. Many builders and other persons have lately examined it, and there is not the least apparent difference since the first laying down, now several years, and I am informed that it is to be adopted generally in the houses that are being erected here."
 N.B. From this testimonial it will be seen that the CORROSION WATER of the ISLE of WIGHT has no effect on Gutta Percha Tubing.

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The Builder.

VOL. XIX.—No. 982.

National Stock-taking.—Mr. Smiles's "Lives of the Engineers."



It is by no means unprofitable, now and then, to take account of our private affairs; and the same course is especially useful in enabling us to judge of the progress of the nation by a comparison of the present with the past. In personal matters this is valuable; for, if it be shown that we are going backward, such information should cause us to use renewed exertions; and, provided the contrary be the case, it is a reward for past struggles, to experience those feelings of satisfaction which decided progress in well-doing vividly excites.

A glance at the past history of our land should encourage Englishmen to persevere; for, on looking

back, we notice the slow but sure progress of this nation; and observe, from the most indistinct glimmerings of civilization, a constant advance.

For the purpose of making our present stock-taking as clear as possible, in a very limited space, it will be best to collect our materials into separate lots; commencing with literature: and, in order to show our progress in this, we must refer to times when stocks and stones—in the Druids' days—were indicative of ideas; when a kind of learning was transmitted orally amongst certain classes,—learning which was not preserved by characteristic letters or figures. Then, from foreign lands, we imported (and it is worth while to note that, from the most remote times, the English seem to have had a faculty for importing useful materials) a rude kind of literature, represented by characters,—for the chief part, books in stone. Next the Romans came, with their knowledge, and established the use of their bold style of lettering. The Anglo-Saxons used a somewhat similar, but more ornamental fashion; and, in time, certain famed men of this race, in their cells at Lindisfarne and Jarrow, wrote books, some of which exist at the present day. Then the Normans descended, skilled in a small and elegant description of handwriting, which served eventually to minister to refinement, when incorporated with the bold but somewhat rude Anglo-Saxon lettering.

During the Middle Ages, in addition to our own illuminated and other books, we were enriched by many splendid volumes, brought from abroad; and libraries began to be established in some of our religious institutions.

The business of the illumination of books was brought to an end by the invention of printing in Germany; and, soon after that, English printing began to be remarkable for its beauty, distinctness, and comparative cheapness. Meanwhile, as many of these events were transpiring, men of mark successively figured in our land: Chaucer, Spenser, Shakspeare, and other smaller stars, one after another, shone on the literary horizon.

Constantly, and in a most wonderful manner, our national stock of this valuable description increased in value. Bacon, Newton, and a host too numerous to mention, increased our scientific knowledge. Theological writers were numerous. John

Bunyan, Daniel de Foe, and, in more recent years, Byron, Scott, Wordsworth, and various others, have added to our books of poetry and fiction. Nor have the historians been idle: Honest John Stowe, Camden, Strype, and others, up to our own days, have investigated facts, and written most earnestly. During all this course of our prosperity, in several important points of view, we have not been idle in importing the most curious manuscripts, books, and works of art from beyond the sea; and one consequence of our exertions is, that we have, in the British Museum, the most valuable library in the world.

In the houses of our nobility, gentry, merchants, professors of science; in the rooms of learned and artistic societies; and in many towns and villages throughout the land, we have costly libraries, stored with volumes of curiosity, anecdote, and instruction. Besides this long list, we must not forget to mention our newspapers and other periodical literature; cheap books for the multitude, steam printing-presses, and other things, which show that, as regards the present position and future prospects of literary progress, Master Bull is in a very thriving condition. And it is satisfactory to know that, besides the growing abundance of articles of this description for home consumption, he drives a very excellent trade in this way with most parts of Europe, America, and other distant parts of the world.

So now to the flour and bread supply, which is of even more importance to the multitude than books; although the latter, by conveying instruction, increase the production of the necessities of life. In order to compare our present position with our past in this particular, it is worth while to think of those primitive days when a rude hollow stone, which admitted of another stone being turned in the concavity by hard manual labour, constituted the only mill used for grinding corn. The growth of this article was often quite inadequate even for our then very small population. We have, therefore, frequent accounts of famine and pestilence. In course of time, better machines were invented; and it is thought that, from those who travelled over Europe to the East on the Crusades, we learnt the art of making windmills, and mills moved by water power. Several of the latter became valuable portions of the possessions of the ancient religious houses in England.

Windmills, which have been useful for many centuries, have now almost entirely disappeared. Of the large number which were formerly in the suburbs of London, scarcely half a dozen remain. The number of watermills is also fast declining; and instead, we have now great mills, bigger than the castles of the old barons, worked by steam; and, as regards supplies, we have corn from Egypt, from the Baltic, and from many other countries; while, at home, by means of improved cultivation, by reclaiming waste lands, we have a largely increased quantity of corn for each; so that, notwithstanding the great growth of our population, so far as human foresight can determine, there seems to be but little fear of those dreadful famines which were formerly prevalent.

In these days of the electric telegraph and railways, Mr. Bull may well feel content and proud by the contrast with the old condition, when the roads in England were almost as bad as those in the country of the Kaffirs, or in other new colonies; when pack-horses with difficulty conveyed their loads of merchandise throughout the land; when the wandering minstrel was the chief agent for the diffusion of news; and when it was necessary for parties of travellers to arm themselves as completely as, not long since, caravans did in passing through the deserts of Arabia. The towns were unpaved, unlighted, and undrained; the woods and forests swarmed with thieves; and men about to take a journey from the north country to York were wont to make their wills.

The pack-horses, running posts, mounted and

swift messengers, stage-waggons, post-chaises, stage-coaches, royal mails, &c., have all, in their turn, been the harbingers of railroads. The beacon fires upon the hills and castles, the fiery cross, and other signals, also prepared the way for the clumsy telegraph of the days of Bonaparte and George III.; and this, in its turn, ushered in the most wonderful of all inventions, which enables us, at lightning speed, and by lightning power indeed, to exchange ideas with those dwelling in the most distant parts of the earth.

In about a century, the constantly increasing application of steam machinery has multiplied the power of man to an extent which it is difficult to calculate. It moves great ships and mighty hammers: it raises almost countless millions of tons weight of minerals from the bowels of the earth: it moves innumerable spinning jennies: it makes the throstles twirl: it speeds the locomotive at a greater rate than the swiftest race-horse; and the thousand other uses to which it is put form an important feature on the credit side of the national ledger. The population of Great Britain shows a very fair growth; and the increase of wealth during the last fifty years has been enormous. Small and unimportant towns have been changed into great and prosperous cities. The growth of the suburbs of the metropolis has been enormous: in the west, endless rows of palace-like dwellings have been reared. In the business quarters the aspect has of late been completely changed: dwarfed dingy-looking buildings have given way to others of improved proportions; and, in the City, ornamental stone has almost entirely taken the place of the old brick-work; and the dull, plain, heavy appearance of the shops exchanged for a dazzling splendour and excessive decoration. The advance of commerce has also been satisfactory: our ships have grown in size and numbers; and now, from our great rivers and ports, go immense fleets of vessels, freighted to all parts of the world.

There are many other items which might be placed to our credit account; but there are on the other side of the ledger items of loss to which we may take an opportunity of hereafter referring.

What we have said shows that England is a new country, not an old one (we have asserted this often before),—and is budding, not decaying.

Mr. Smiles, in his very interesting and valuable work on the "Lives of the Engineers,"* just now published, shows strikingly this modernness of England in all that relates to skilled industry:—

"Our first lessons in mechanical and civil engineering were principally obtained from Dutchmen, who supplied us with our first wind-mills, water-mills, and pumping-engines. Holland even sent us the necessary labourers to execute our first great works of drainage. The Great Level of the Fens was drained by Vermuyden; and another Dutchman, Freestone, was employed to reclaim the marsh near Wells, in Norfolk. Canvey Island, near the mouth of the Thames, was embarked by Joas Croppenburg and his company of Dutch workmen. When a new haven was required at Yarmouth, Joas Johnson, the Dutch engineer, was employed to plan and construct the works; and when a serious breach occurred in the banks of the Witham, at Boston, Matthew Hake was sent for from Gravelines in Flanders; and he brought with him not only the mechanics but the manufactured iron required for the art. The art of bridge-building had sunk so low in England about the middle of the last century, that we were under the necessity of employing the Swiss engineer Labeyle to build Westminster Bridge.

In short, we depended for our engineering, even more than we did for our pictures and our music, upon foreigners. At a time when Holland had completed its magnificent system of water communication, and when France, Germany, and even Russia had opened up important lines of inland navigation, England had not cut a single canal, whilst our roads were about the worst in Europe. It was not until the year 1766 that Brindley began his first canal for the Duke of Bridgewater."

A century has made an immense change, and we now send engineers to all parts of the world. Canals, turnpike roads, bridges, and railways have opened up the resources of the country; docks and harbours accommodate and protect our commerce; lighthouses warn and beckon; and a system of locomotion, of marvellous character, has been per-

* *Lives of the Engineers*, with an Account of their Principal Works, comprising also a History of Inland Communication in Britain. By Samuel Smiles. With portraits and numerous illustrations. Vols. I. and II. London: John Murray, Albemarle-street. 1861.

fect. The task set himself by Mr. Smiles is to show how and by whom these works have been effected; and he has discharged it so far as he has gone (the two volumes published not completing the work) in an admirable manner. The first volume comprises Early Works of Embanking and Draining; with Memoirs of Cornelius Vermuyden, the Dutch engineer, and Captain Perry's works at Dagenham Reach, of which some account was given in one of our earlier volumes: the Life of Sir Hugh Myddelton: Early Roads and Modes of Travelling, including a notice of blind John Metcalf, the road-maker: Bridges, Harbours, and Ferries, with Memoir of William Edwards, the bridge builder; and a Life of James Brindley and his works, occupying 170 pages. We shall have to return to the book, but must quote an odd anecdote or two of Brindley, as a witness on Canal Bills before Parliament:—

"When asked, on one occasion, to produce a drawing of an intended bridge, he replied that he had no plan of it on paper, but he would illustrate it by a model. He went out and bought a large cheese, which he brought into the room and cut into two equal parts, saying, 'Here is my model.' The two halves of the cheese represented the semicircular arches of his bridge; and by laying over them some long rectangular object he could thus readily communicate to the committee the position of the river flowing underneath and the canal passing over it. On another occasion, when giving his evidence, he spoke so frequently about 'pudding,' describing its uses and advantages, that some of the members expressed a desire to know what this extraordinary mixture was that could be applied to so many and important purposes. Preferring a practical illustration to a verbal description, Brindley caused a mass of clay to be brought into the committee-room, and, moulding it in its rammed state into the form of a trough, he poured into it some water, which speedily ran through and disappeared. He then worked the clay up with water to imitate the process of puddling, and again forming it into a trough, filled it with water, which was now held in without a particle of leakage. 'Thus it is,' said Brindley, 'that I form a water-tight trunk to carry water over rivers and valleys, wherever they cross the path of the canal.' On another occasion, when Brindley was giving evidence before a committee of the House of Peers as to the lockage of his proposed canal, one of their lordships asked him, 'But what is a lock?' on which the engineer took a piece of chalk from his pocket and proceeded to explain it by means of a diagram which he drew upon the floor, and made the matter clear at once."

The second volume is divided between John Smeaton, the engineer of the Eddystone lighthouse; John Rennie, of London Bridge; and Thomas Telford, of the Menai Suspension Bridge. The account of Telford's conduct when the safety of the bridge was made certain is characteristic. Its failure had been predicted; and, like Brindley's Barton viaduct, it had been freely spoken of as "a castle in the air."

"Telford had, it is true, most carefully tested every point by repeated experiment, and so conclusively proved the sufficiency of the iron chains to bear the immense weight they would have to support, that he was thoroughly convinced as to the soundness of his principles of construction, and satisfied that, if rightly manufactured and properly put together, the chains would hold together and the piers would sustain them. Still, there was necessarily an element of uncertainty in the undertaking. It was the largest structure of the kind that had ever been attempted. There was the contingency of a flaw in the iron; some possible scamping in its manufacture; some little point which, in the multiplicity of details to be attended to, he might have overlooked, or which his subordinates might have neglected. It was, indeed, impossible but that he should feel intensely anxious as to the result of the day's operations. Mr. Telford afterwards stated to a friend, only a few months before his death, that for some time previous to the opening of the bridge, his anxiety was so extreme that he could scarcely sleep, and that a continuance of that condition must have very soon completely undermined his health. We are not, therefore, surprised to learn that, when his friends rushed to congratulate him on the result of the first day's experiment, which decisively proved the strength and solidity of the bridge, they should have found the engineer upon his knees, engaged in prayer. A vast load had been taken off his mind; the perilous enterprise of the day had been accomplished without loss of life, and his spontaneous act was thankfulness and gratitude."

The drawings by Mr. Percival Skelton (an excellent and graceful artist, as Mr. Smiles justly calls him) have been made in nearly every case on the spot, for the express purpose of the work; and those by Mr. R. P. Leitch and Mr. Wimpey are mostly after original sketches supplied by distant correspondents. They greatly increase the interest and beauty of these interesting volumes.

A NEW YELLOW PIGMENT.—We hear of a new and important yellow pigment introduced under the name of aureolin. It is said to possess the invaluable and long sought for combination of qualities—brilliance, permanency, and transparency.

ON THE NATURE AND VELOCITY OF LIGHT.

THE sun is the fountain of light; and all artificial light, however produced, came primarily from the sun. Every solid and liquid substance of which the earth is composed originally absorbed light from the sun's rays; and therefore contains the constituent properties of light, some more and some less in quantity; so that the earth is a great storehouse of light. We therefore never need to be at a loss for light; for if one substance may be extracted and we may possibly be able to extract it, and store it for use, directly from the sun itself.

The brilliancy and intensity of the sun's light far exceed that of any artificial light yet produced. The brightest artificial light when projected on the sun's disc appears as a black spot. This proves that, however brilliant the artificial light may appear to us, it is weak in comparison to the strength and splendour of the sun's light. The most powerful artificial lights are the *lime light* and the *electric light*. The former is produced from a ball of lime mounted in the place of the flame of a lamp, and kept in slow motion by machinery. The lime is rendered incandescent by oxy-hydrogen gas projected upon it through a blow-pipe, and so gives out a most intense light; but the electric light far exceeds it in brilliancy. This is produced by passing a galvanic current through two sticks of charcoal placed vertically, with pointed ends nearly in contact. The pointed ends are made incandescent by connection with the poles of a voltaic battery, and the light emitted used to be the most intense and brilliant ever produced, until Faraday increased its power by the invention of the magneto-electric light, which nearly approaches the solar light in brilliancy.

All substances in nature emit light, and are divided into self-luminous and non-luminous bodies. The sun, the fixed stars, and all substances in a state of ignition, are self-luminous. The moon, the planets, and all substances which are not on fire, are non-luminous. But non-luminous bodies are rendered luminous and visible when they receive light from luminous bodies. Thus, the moon and the planets become luminous and visible when the sun shines upon them; and they then perform the office of self-luminous bodies by reflecting the light they receive. In like manner all substances are made luminous, and reflect light when they are lit up, either directly by a self-luminous body, or indirectly by the reflected light from a non-luminous body. The intensity of direct light, however, is very small when compared with the direct light from a self-luminous body.

The sun sends off his light to the utmost boundary of his universe; supplying the planets, their satellites, and the comets, with light and heat, and thus rendering them luminous and visible.

When the sun is absent from us, when no star is seen in the heavens, and no luminous point is visible on the earth, then the world around us is steeped in gloom, and the beauty of creation is obliterated by the dreadful darkness. What a chaos the world would be, and how soon beauty and life would fade and vanish if it remained in this state! But at the dawn of light the gloomy pall which darkness spreads over nature gradually disperses: the radiant beams of the rising sun flood the sky with light, illuminate the earth, tip the clouds with golden and crimson colours, clothe the earth with verdure, paint the hills and the fields with the richest hues, awake the birds to melody, and mankind to life and activity.

"Hail, holy light!"

According to the theory of the illustrious Newton, light consists in the emission from luminous bodies of extremely minute particles of matter, projected into and moving through space in all directions, and in straight lines, with amazing velocity.

According to the Huygenian theory, light consists in the excitation, by luminous bodies, of a regular undulatory motion in the highly attenuated ethereal medium which is supposed to pervade the universe.

In the latter system, the primitive impulsion by the luminous body is supposed to impart a vibratory motion to the continuous particles of ether, which, on account of their extremely elastic nature, propagate their vibrations to other adjoining particles, which again communicate their vibrations to others; and so the waves or undulations mingle and commingle, like the waves of water and of sound, throughout the universally

diffused ethereal fluid. The undulatory theory, first originated by Huygens, affords such facilities for explaining electrical and other phenomena, and coincides so remarkably with facts, that, chiefly through the researches of the late Dr. Thomas Young, it is now received by the most distinguished men of science as the true physical theory, the same as gravitation.

The undulations propagated through ether excite in the nerves of the eye the sensation of light in the same manner that the vibrations in the atmosphere excite in the nerves of the ear the sensation of sound. Thus light is an influence capable of entering the eye and of affecting it with the sense of vision; and of all our senses the sense of light is the most perfect. By its action on the nerves of the eye we are enabled to view, and so become acquainted with, the forms and colours of surrounding nature.

The ancients were of opinion that light was propagated from a luminous body to a distance instantaneously. This was also the opinion of the moderns until about the end of the sixteenth, or the beginning of the seventeenth century. In 1620, Bacon published his immortal work, the *Novum Organum*, "which," Lord Campbell says, "had engaged his thoughts for thirty years, and which he had twelve times transcribed with his own hand." In the second book of this work he suggests that light must occupy a certain interval of time in its propagation. He says: "It produces in me a doubt whether the face of the serene and starry heavens be seen at the instant it really exists, or not till some time later; and whether there be not, with respect to the heavenly bodies, a true time and an apparent time, no less than a true place and an apparent place, as astronomers say, on account of parallax. For it seems incredible that the species or rays of the celestial bodies can pass through the immense interval between them and us in an instant, or that they do not even require some considerable portion of time." The opinion then began to be entertained that light has motion—that it does not pass from one point to another instantaneously, but in a certain "portion of time." Various determinations of its velocity continued to be obtained by astronomers until 1675, when its actual velocity was discovered by Roemer, a Danish astronomer, from viewing the eclipses of Jupiter's satellites. Exactly the same result was subsequently obtained by the discovery of the aberration of the fixed stars by Bradley, which confirmed and left no doubt of the truth of the Danish astronomer's statement. These two discoveries are reckoned among the finest and most brilliant achievements of modern astronomy.

The eclipse of the first satellite of Jupiter is observed 16 minutes 26 seconds later when the planet is in conjunction than when it is in opposition. That is, when the planet is farthest from the earth, and the satellite enters into immersion, or eclipse, the extinction of its ray takes that time longer to cross the diameter of the earth's orbit, which is 190 millions of miles, than it does when it is nearest to us. From this fact it results that light travels the half of this distance, or 95 millions of miles, the space between the sun and the earth, in 8 minutes 13 seconds. Thus light darts with the prodigious speed of 192,000 miles per second. This velocity far exceeds every other in nature. The velocity of the electric current, according to Wheatstone, is propagated at the astounding speed of 286,000 miles per second. But this has not been confirmed. Messrs. Fizeau and Gouinelle, from experiments made by them in France, found it to be 110,000 miles per second. The next greatest speed is that of the planets in their orbits. Of these Mercury is the swiftest, its velocity being 30 miles per second. The ratio of this velocity to that of light is as 1 to 6,400. Brinkley and Struve have determined the velocity of light to be equal to 191,515 miles per second, which is $\frac{1}{10}$ part less than the above quantity; and Sir John Herschel says that this determination is to be preferred.

In a clear atmosphere the light of a small taper may be seen, by the naked eye, at the distance of four miles. Consider for a moment the extent of surface that that little taper illuminates. What is the extent? If the taper were on the earth, or on the sea, the area illuminated by it would be a hemisphere of eight miles diameter plus the zone of the dip of the horizon, which may be left out of this calculation. The area, therefore, is

$$= \frac{4^2 \times 3.1416 \times 4}{2} = 100.53 \text{ square miles; yet the}$$

eye is only a mere point in this enormous surface. Moreover, the diffusion of the light from the taper, and the illumination of every point in this

area, from a state of darkness to light, takes place almost instantaneously—in a twinkling.

The enormous velocity of light is beyond our comprehension. It is more than a million times the speed of a cannon-ball, which would take seventeen years to fly from the earth to the sun with the greatest velocity at which it could be propelled; yet, light traverses the same distance in less than 8½ minutes. The swiftest bird would be three weeks flying round the earth,—nearly 25,000 miles; yet light travels the same distance in one-eighth of a second,—in the twinkling of an eye. It has been demonstrated that the light from the nearest fixed stars takes five years, while the light from the most remote stars takes two millions of years, to traverse the spaces between their orbs and our own.

The velocity of light is entirely independent of the source from whence it proceeds. However it originates, its velocity is uniform. Whether it comes from the fixed stars, the sun, or the planets, still its velocity through space is found to be always one and the same. This proves that the density of the ethereal medium, by which it is propagated, is equal throughout the region between the upper boundary of our atmosphere and the fixed stars. When, however, it enters the earth's atmosphere, its velocity suffers a slight progressive retardation, owing to the increasing density of the atmospheric medium down to the earth.

A ray of light may be defined as an infinite portion of a stream of light, and a pencil of light as a small stream composed of a collection of rays. A ray of light is so fine, that it is millions of times finer than the finest line we can draw; indeed, it is so fine that, like a mathematical line, it is not perceptible to the senses.

From the surface of luminous bodies, and from the surface of non-luminous bodies illuminated by them, rays of light are emitted equally in every direction, and in straight lines. Also every ray carries with it the exact image of the object from which it emanates. This is proved from the fact that the sun and the fixed stars, and all non-luminous bodies that receive light from luminous bodies, are equally seen from every point of observation.

If the sun's light be admitted through a small hole into a dark room, and received on to a white screen, it will show a small round luminous spot. That spot will be the exact image of the face of the sun. In like manner, if any luminous body be held behind the hole, its exact figure will be seen on the screen; or if a pin-hole in a card be held before the flame of a candle, the figure of the flame will be seen depicted on a sheet of white paper if placed at a distance from the candle. Again, if a white screen be placed in a dark room, a few feet back from a small hole made in a door or a shutter, an exact picture of external objects in motion and at rest, with their colour, will be observed on the screen. But the picture in each case will appear inverted. This is easily explained. Each ray proceeds from the object in a straight line and converges to the hole. Here all the rays meet and cross each other, but do not obliterate the image that each carries. Then each ray continues its straight course as before, and diverges to the screen. Thus the ray from the top of the object descends, as it were, and makes its mark at the bottom of the picture, while the ray from the bottom ascends, and marks its point at the top. Hence the relative positions of the several rays are inverted.

The magnitude of the image in each case will vary according to the distance of the screen from the hole. The greater the distance the greater will be the image, because of the divergence of the rays; also the smaller the hole the more distinct, but the less bright, and the larger the hole the more bright but the less distinct the picture will be. The image produced from direct light will be more brilliant than that produced from indirect light: in other words, the image of a luminous body will be more brilliant than that of a body illuminated from another.

TERRIBLE DISASTER IN EDINBURGH.

EDINBURGH has just been the scene of a horrible catastrophe. One of those gigantic tenements in the High-street,—that grand old street which connects the Palace of Holyrood with the castle,—has fallen, and in its fall has buried the bodies of its ill-fated inhabitants. Up to the period at which we write, twenty-nine lives have been lost, fourteen persons have escaped with injuries more or less severe, and ten or twelve are missing.

The accounts which have been published of this

terrible calamity cannot be read without exciting every sentiment of pity and compassion for the poor sufferers; and, we must add, a feeling of indignation. Had an earthquake fallen on the land, a storm, a pestilence, a fire, a flood,—in one word, a phenomenon such as the philosophy of our jurisprudence can only describe as a visitation of God,—then it would be the duty of the Edinburgh citizens to submit to the terrific disaster with resignation. But such was not the case. The night was calm and frosty, and the clear moon-light shone full on the appalling scene. At one o'clock on the morning of Sunday, without one note of warning, this house of seven floors fell into the street, with a tremendous crash, leaving a yawning chasm, with its dark and ghastly shadows standing in bold relief to the moonlight.

And now arose a scene of appalling horror, such as we have not the heart to recal, nor the language to describe. The dead and wounded victims were slowly and painfully dug out of the ruins by the men of the fire-brigade, who were summoned to the spot. Portions of limbs, separated from the parent trunks, were here and there conspicuous among the loose stones and timber. One child was found alive between the dead bodies of its father and mother; a foot or an arm projecting from the debris, gave an indication to the diggers of the direction in which they ought to work. One little boy, who, by such means, was discovered under a beam that had to be sawn through before he was extricated, told the fire-men, very gallantly, to "heave away, for he was a dead yet." Respect for the dead had to give way to respect for the living; and, at sunset, on Sunday evening, partly from the still impending danger of the operations, and partly from the conviction that no more bodies could be recovered in life, the worn-out excavators had to suspend their labours.

The house whose sudden fall occasioned such a fearful loss of life is supposed to have been nearly 300 years old. The timbers were decayed and rotten, particularly the joisting. To all external appearance, indeed, it seemed more substantial than many of the old houses beside it; for, by one of those modern refinements in shop alteration, the original plaster front had, to some extent, been replaced by a front of ashlar. But its general rickety condition had long been palpable.

It is stated that on the previous day (Saturday) Mr. Cairns, grocer, observed that the plaster had scaled off the tops of some pillars which supported the roof of his shop; and on examination he discovered a small rent or crack in the arch of the adjoining close. No alarm was felt at this circumstance; but Mr. Watherston, builder, was sent for, to examine it and make such repairs as were thought necessary. Mr. Watherston set some men to prop the roof over the close, and proceeded to examine the doors in some of the upper stories, to ascertain if any sinking or twisting of the floor had occurred, which would prevent their opening and shutting easily. Nothing, we believe, was found to indicate that any change had taken place at that time; and the roof of the close having been temporarily propped, Mr. Watherston left, after promising to send men to shore it up on Monday morning.

We are not going to indulge in lugubrious reflections on the cause of this unspeakable calamity; but we cannot help thinking that much blame clearly rests with the municipal authorities. As far as we can understand, there is a Lord Dean of Guild, who has ample powers, under the Edinburgh Police Bill, to pull down all such ruinous tenements on a valuation by men of skill. Could the Dean of Guild have been ignorant of the disgraceful condition of this dilapidated tenement? If so, was not this culpable ignorance? We do not know the duties of the city architect so well as to speak with confidence. We will suppose that the conservation of old buildings does not come within the boundary line of his duties. But there exists in Edinburgh another official, the superintendent of streets and buildings, who, it should seem, must have some jurisdiction in the matter. Are his duties also confined to the care of new streets and new buildings? It is highly probable, we suspect, that there may be a division of labour between him and the Lord Dean. But if such be the case, the sooner the powers of the one and the duties of the other are conjoined the better. Between two stools, says the old saw, we fall to the ground. There is nothing so effective as undivided responsibility. There is no difference in principle between a railway-guard neglecting his duty and a municipal officer neglecting his duty; and a railway-guard is bound to report when the axle of a carriage is in a dangerous state. If such an occurrence were unprecedented

in Edinburgh, we might have less grounds for complaint; but we are sorry to say that this is the third flagrant instance of such a fatal disaster within the last five years.

In our recent articles on the sanitary condition of Edinburgh we spoke in what our contemporaries considered too severe terms of the Edinburgh Town Council; but here is another illustration of our argument. To live in that beautiful city seems like going to sea in a crazy vessel: the risk is imminent.

VIGNETTES.

CAPITAL letters in ancient manuscripts were called by the old writers *vitellus*, or *vignettes*, in consequence of their being frequently ornamented with flourishes, in the manner of vine branches or shoots. Subsequently, the word was used to signify any large ornament at the top of a page. In the seventeenth century, all kinds of printers' ornaments—such as flowers, and head or tail pieces—were generally termed vignettes; and, more recently, the word has been used to express copper-plate engravings or woodcuts not enclosed within a definite border. Rabelais uses the word to denote certain ornaments of goldsmiths' work on the scabbard of a sword; and our countryman, Lydgate, thus employs it in his "Boke of Troye," to denote the sculptured foliage at the sides of a window:—

"And yf I shulde reheren by and by
The corne knotes by craft of masonry,
The fere embowing with verges right as lyes,
And the housyng full of bacheliers,
The ryche coryngs, the lusty tablements,
Fyn the running in casements."

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday, the 22nd instant, at the house in Conduit-street. Mr. Blomfield, the president, occupied the chair.

The following gentlemen were on ballot elected members of the association:—Mr. T. M. Davies, Mr. George Browne, and Mr. P. B. Hayward.

On the motion of Mr. A. Smith, seconded by Mr. Lewis, the recommendation of the committee, thanking the Northern Architectural Association for their courtesy in communicating their rules with respect to professional charges, but declining to offer any opinion on the same, was adopted.

The president called attention to the circumstance that the list of subscribers to the Pugin memorial fund was about to be closed, and read a list of subscriptions from members of the association.

A discussion then ensued on the study of geometry in connection with architecture, in which Mr. Paraire, Mr. Blashill, Mr. Harris, Mr. Lewis, Mr. Bunker, and other gentlemen took part, illustrating their views by the use of diagrams.

At the conclusion, a vote of thanks was passed to Mr. Paraire for having introduced the subject.

ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION.

READERS will have noticed an advertisement of a new Architectural Photographic Association, and may perhaps desire to know the position of affairs. The results of the year 1860 were far from satisfactory, owing to some extent to the general belief in the dissolution of the Society; and the committee hoped, from the satisfaction which was expressed by subscribers of that year, that the operations of 1861 would have set matters right. On the contrary, however, the number of subscribers still decreased; so that the expenses, though reduced to the minimum, exceeded the profits, calculated on a larger number; and it became necessary to dispose of the collection of photographs and other property to meet the liabilities incurred. The committee were, therefore, obliged to decline to take upon themselves any longer the responsibility of the management; and powers were accordingly obtained, at a special general meeting, to wind up the affairs of the Association. At the same time certain of them agreed to form a new Association, quite distinct from the old one, and which in its method of operation should very nearly resemble the Arundel Society. Their plan is to procure negatives of fine architectural works, both abroad and in this country, not otherwise obtainable, and to issue proofs of these to the subscribers (of one guinea annually). The exhibition would thus be given up; for, as the number of pictures each year would not be very great, copies would be sent to the Architectural Exhibition, and also to local exhibi-

tions in the principal provincial towns; while the committee would know beforehand the exact amount they would have to spend; and, as the number of prints issued would increase as the number of the subscribers, an inducement would be held out to them to make exertions to obtain other members. It is proposed that the works issued shall be of a strictly professional character. Subscribers are invited to propose subjects, of which the committee will make choice.

DOINGS IN PAISLEY ABBEY.

A CORRESPONDENT complains of the course which is being pursued in the restoration of Paisley Abbey, Scotland:—"In the space between the under and the upper windows of the magnificent west gable, in the inside of the abbey, there was a rosary with six roses in bold relief, sculptured on a stone. The escutcheon is in shape of a cinquefoil, and had a rose in each leaf and one in the centre. The rose is the flower of flowers, and is symbolic of reason and silence, a most appropriate emblem for a sacred edifice. The mode adopted to restore that symbolic character (tell it not in the Barmy of Renfrew: proclaim it not in the streets of Paisley) was a total destruction of the centre or chief rose, and substituting and painting the unmeaning initials of one of the firms employed and paid to make the restorations. That act of Vandalism, I suspect, has been done under the rose in one sense, and above the rose in another sense. The proverbial expression 'under the rose' is derived from the confessional; confession being always made under the symbolism of the rose. The chief or main entrance to the abbey is by the door in the west gable, which was under the rose; and all persons entering the sacred edifice, in olden times, at once made confession, and that confession was consequently under the rose. I am afraid if such an act of Vandalism be countenanced by the committee, they will not obtain any further subscriptions for such a mode of restoration as the destruction of a sculpture as old as the abbey itself, and containing the symbolic character of Reason and Silence, and the substitution in its place of a painter's sign of 1861—an emblem of vanity and impertinence."

SYMBOLICAL CORBELS.

At Norton Malreward Church, near Bristol, now being renovated, there are thirty-six corbels outside. These have engraven upon them various emblems suitable to "the house of prayer for all nations." Since some may wish to fill up corbels in other modern churches, and find difficulty in choosing subjects, the following are subjoined by the designer of the Litany Pattern:—

1. A circle (symbolical of Him who is without beginning and without end), containing within, the symbol of redemption, viz., the cross of the Holy Ghost, implying the ever-blessed Trinity, to whom we cry for mercy, Father, Redeemer, and sacred Dove.
2. Serpent on a pole, cross-shaped; "From all evil and mischief, &c., good Lord, deliver us," being signified.
3. The seven-branched candlestick—the Church universal.
4. Victoria crown, with two wreaths (as on a shilling); V.R. in the centre; date, 1861, beneath.
5. Mitre—bishops.
6. Open Bible (with "Fear God,"—Rev. xiv. 7, graven),—priests.
7. Chalice—deacons.
8. Ducal coronet; Lords of the council.
9. Griffin,..... } All the nobility.
(Being partly eagle, partly lion. The griffin has a general significance in coat armour).
9. Magistrates are represented by even scales of justice; wings of protecting Providence above the scales.
10. Plough; scythe; spade—farmers.
11. Sheaf and sickle—labourers.
12. Two swords crossed, with bugle and warrior's arms, and arrow in hand, above and below—army.
13. Union Jack and anchor—navy.
14. Physicians—serpent enveloping a club held by hand, and dart of death broken by physician's hand.
15. Pen and scroll; "Know thyself," inscribed thereon—authors—press.
16. Index-finger pointing to great A, and ladder with seven steps placed against one branch of tree—schoolmaster, implying the tutor is the ladder by which youth reaches the fruits and flowers of literature. Little can be known; the whole tree is not compassed in school-days.
17. Classic lamp, with seven-branched candle-

stick on the bowl thereof, implying secular and Biblical learning must go together—student.

18. Beehive—community.
19. Rector's arms, Rev. W. P. Wait
20. J. W. Daubeny
21. Daniel Cave
22. Robert Baker
23. Sir Greville Smyth, Bart.
24. Two hands joined, and dove with olive-branch—Unity, Peace, Concord; bundle of faggots.
25. Harp—Judah.
- 26.—Elephant—our Indian possessions, backed by two plantains, and marked at bottom, V. R. I.
- 27.

N
W — E
S

All nations.
(Have mercy on all nations.)

28. Heart with flame—a heart to love and dread Thee.
 29. A wheel—Travellers by land.
 30. Mariner's compass—Travellers by water.
 31. Quiver with arrows—woman with child.
 32. Olive plants and distaff—young children; boys, girls.
 33. Portcullis—prisoners and captives.
 34. Cornucopia—kindly fruits of earth.
 35. Palm-branch and crown—everlasting life.
 36. Triangle and circle within—Trinity.
- The carver is Mr. Henry Swales. The church has a Norman arch of much beauty. Subscriptions are greatly needed to complete the reparation of the building.

DRAINAGE FOR SHREWSBURY.

A CORRESPONDENT from the North says,—"I observe, in a recent Shrewsbury paper, that the town council have resolved to abandon the market question for the present, and properly commence a complete system of sewerage, as advised by the Builder. But here there is the old case again, of a splendid opportunity to be lost, unless you step in. The council, in spite of opposition, seem determined to adopt the scheme of their own surveyor;—a man who must already be fully employed looking to the interests of the corporation above ground, and cannot have had much experience in the drainage of large towns. His scheme and estimate is of the most costly character, and is to resolve itself into a question of one or two outfalls into the river.

Having thus persuaded the Shrewsbury people to set about drainage, I hope you will step in and point to the opportunity offered to do something well. A proper sanitary engineer should certainly be employed, and all the latest approved appliances be brought to bear; and, above all, the old plan of discharging the sewage matter to waste and befoul the river (in this case the beautiful Severn) certainly should not be adopted.

If all the sewage of Shrewsbury be thrown into the Severn, there is no mistake but Bridgenorth and Bristol (towns lower down on the Severn) will have the "benefit" of such an arrangement.

VENTILATION OF MINES.

OUR readers do not require to be told of the necessity that exists for improved ventilation in our mines and the importance we attach to any good steps in that direction. The Cardiff Times gives an account of an experiment made at the colliery works of Messrs. Nixon, Taylor, & Co., Mountain Ash, with a gigantic ventilating apparatus, upon a somewhat similar principle to that of Struvé.

The machine consists of two large wrought-iron rectangular pistons, 30 feet by 22 feet, enclosed in a wood air-chamber, with a stroke of 7 feet in length. These immense pistons work horizontally, by direct motion, and are supported and guided by means of four small wheels, which run on a railway laid underneath; rendering the motion exceedingly smooth and easy. Each of these pistons weighs thirteen tons, and they are worked by a steam-engine of 150 horse-power, with a 36-inch cylinder and a 6-feet stroke. For the purpose of securing a steady, uniform motion, two large fly-wheels, of an aggregate weight of thirty tons, are employed, and the immense machinery works with a smoothness and ease which cannot be surpassed.

The whole of the experiments could not be successfully carried out, as the air of the pit had not been "laid on." The machine, however, was set in motion, and took its air from the top of the pit, and the following results were arrived at. It was found that the machine produces at every

double stroke the enormous amount of 18,480 cubic feet of air. We saw it driven up to 12½ strokes per minute, which gives a volume of 230,000 feet. This, however, can be greatly increased, so that it will be seen what an immense quantity of air can be exhausted in a space of a single minute. Each of the cylinders, as we have stated, works in strongly-cased wooden chambers, the lower half of which contains 336 intake valves, and the upper portion the same number of outlet valves. In other words, the lower set of valves take in the air, and the upper ones discharge it. The area of each valve is 16 inches by 24 inches, and is covered with lids, with a beat of an inch. The width of the chambers is 30 feet, depth 22 feet, and the length 11 feet.

SOME NOTES ON LONDON FLOWERS AND GREENERY.

THE season of flowers and rich foliage has, for this year, passed away. The flower-shows of not only the higher classes, but those amongst the artisans and others in our town suburbs, the inhabitants of rural villages, &c., are over; and it is satisfactory to learn that, upon the whole, matters in every way have progressed; and that amongst the working part of our population there has in many districts been a considerable increase in the number of societies for the culture of flowers. In many parts of the northern and other suburbs, there are very fair pieces of garden ground, both at the back and occasionally the front of the houses.

Along the banks of the North London and other railways, near London, plots of ground are offered to the men who are employed; and by this means not only the appearance is improved, but useful vegetables and very fair flowers are produced.

In some directions, at very short distances from town, to which the railway fares are little, plots of land have been divided into gardens, which are readily let; and it is a most agreeable sight in the summer evenings and on holidays to see workmen and often their families in the fresh air, caring for, or in other ways enjoying themselves in, those pleasant and often beautifully-kept gardens. A friendly feeling is created amongst those who are thus engaged, and much time and money are kept in this way from the public-house.

In many towns which have become thickly built upon in the centre, suburban gardens are much in use amongst both shopkeepers and mechanics. These are often attended to by boys after school hours, and by the elder branches of families, when they can spare time. The money profits of these gardens may not be very great, but they are very beneficial in other ways. In the metropolis large numbers of City clerks, and persons who have no great amount of salary in Government and other offices, fix their homes in Camberwell, Kennington, or in places further away from the City's smoke and din. In many instances this is done for the sake of the little bit of garden space, which is a source of both amusement and delight: none more keenly relish the beauties of the country, and trees and flowers, than your regular Londoners. Circumstances often limit their experience in this; but, since the introduction of railways and other convenient and rapid means of transit, we find those who can manage it, extending their pleasure excursions to distant parts along the coast instead of Gravesend, and to Windsor Forest and such like spots instead of Greenwich-hill.

Notwithstanding this strong inclination for flowers and greenery, there is, as might be expected, in the metropolis and our large towns, a lack of education in garden management, not only of small pieces of ground, but even in the more limited care of plants in balconies and windows. The natural difficulties are great, for the smoke and impure atmosphere are no less injurious to vegetation than to human life; and a skilful gardener who had been accustomed to the management of flowers in such a situation as Hatfield or Blenheim, would find himself, for a time, much puzzled if the management of some open space within two miles around St. Paul's were confided to him. Mr. Broome, in a little book on the culture of town flowers, &c., remarks that twenty-five years ago, when fresh from the country, he was little prepared for the difference which exists between the growth of plants in the country and in large towns; those which in the good air grew almost spontaneously, would, notwithstanding the pains bestowed upon them, barely arrive at maturity in the smoky atmosphere of the latter. Great diligence and perseverance will, however, do much, as may be seen by the improved produce of the

Temple Gardens, and some other plots within the metropolitan boundary. As we pass through the City, it is extraordinary to witness, in seemingly most unlikely places, various plants in a most healthy condition: in better situations they are withered and neglected. This is chiefly the result of skilful management and much attention. Although now, as we have remarked, flowers have for a time passed away, it is time for those who wish to succeed afterwards to make preparation: it may be therefore useful to give a list of the flowers and plants which experience has shown will grow within half a mile of our metropolitan cathedral.

Besides chrysanthemums, there are other hardy flowers which will thrive in the London smoke and in most of the squares and small gardens in large towns. As winter flowers, the Christmas rose and snowdrops bloom well. Then come the crocus and tulips, the primrose, Virginian stock, both purple and white, the wall-flower (the darkest varieties are the best), the gladioli, the daffodil, and narcissus; after these the white candytuft, the yellow alyssum, the Iris germanica, and the rocket. Daisies and heartsease flower a long time, to add to the gaiety and variety of the town gardens. The calceolaria, intermediate stocks, scarlet geraniums, the ageratum Mexicanum, the dark clove carnation, which is very hardy and flowers beautifully, the sweet William, lupinus polyphyllus, scabiosa, antirrhinum, polyanthus, foxglove, and lily of the valley do well. The foxglove, if in a shady place, in summer flowers tolerably well; but both this and the mimulus, a famous town flower, require attention in watering. The same may be said of the double rocket. Of course the cultivation of all these flowering plants requires much care and management. With regard to this Mr. Broome gives instructions respecting manuring, planting, &c., founded on the experience of more than a century of a century spent in contending with the difficulties of London gardening. Without, therefore, going into further particulars, we will mention the names of other flowers which will live in our smoke-clouded atmosphere:—Common pinks; the willow herb, a very showy, common flower; mignonette; Michaelmas daisy; double sunflower; sea lavender, &c. The common English fern thrives in shady places, by watering every day in hot dry weather. Hollyhocks flower so ill that they are scarcely worth trying. Dahlias, with careful watering and thinning, do better; and in the autumn the chrysanthemums form a great ornament to the London gardens.

As regards shrubs and deciduous plants, few of them do well. The lilac blooms very scantily; but serves for a green screen in summer. The japonica answers in sheltered places. The euonymus, except after very severe winters, retains its foliage amongst the smoke. The box, holly, and privet thrive for two or three years. Rhododendrons, the hibiscus rose, the daphne mezereum, both pink and white, do very well. Amongst forest trees nothing suits so well as the Oriental plane, in consequence of its shedding its bark every year, by this means getting rid of the soot. The elm and thorn flourish, but the Lombardy poplar better; and the Irish ivy makes a good cover for a wall; but the lime tree grows very badly in London.

The turf seems to thrive in parts of London. In the Temple Gardens, where, on summer evenings, hundreds of children and others walk and play, the turf looks so trampled upon and withered that it seems as if it would not again flourish; but when the season is over, with breaking the bare places about 3 inches deep, a slight covering of fine mould, sowing with mixed lawn grass, and rolling, it looks in a few weeks as green as ever. The above remarks apply to a radius of about a mile round St. Paul's; but with each mile's additional radius vegetation gradually improves; and trees and flowers will grow tolerably which would not live in the heart of the City.

Notwithstanding the beauty of the general aspect of the London squares, the skilful arrangement and picturesque appearance of the trees,—take for instance, Tavistock and Bedford squares—it is clear that very great improvements may be made; particularly in the spring, summer, and autumn, display of flowers, and flowering plants; and, in the winter, of a variety of evergreens. This would be attended with some expense; but we think that if the advantages and pleasure which would result from this were taken properly into consideration, and a spirit of rivalry raised between the beauty of one square and another, there would be found no difficulty on this point.

In the centres of several of the squares there are

arbores, most of which have no pretension to ornament: others are decidedly ugly. The foliage in the summer partly conceals this; but in the winter the objectionable style of these is evident. Mr. Broome suggests, that glass is cheap enough now; and the cost of a light, ornamental framework would be but a trifle amongst the rich inhabitants of some of our squares; and, no doubt, conservatories of good design would be both graceful and useful features in the London squares. A hot-water apparatus, heated with coke, would cause no nuisance by way of smoke. The cost of this would be very trifling, and more than paid by the opportunity, which would be thus afforded by these conservatories, of propagating plants through the winter, which might be used in the exterior decoration of the grounds in summer.

Some of the statues in the London squares, such as those of the Duke of Bedford and Lord George Bentinck, are great ornaments.

The offering of prizes for the growth of flowers, in the houses of the industrious and poorer classes, has been found to answer an excellent purpose; and, as we have before hinted, the establishment of a system of offering prizes to the gardeners of the squares in the metropolis, for their best general keeping, and for specimens of the finest flowers and shrubs, would be attended with gratifying effects.

SANITARY PROGRESS IN EDINBURGH.

THE necessity of doing something for the sanitary improvement of the closes and courts about the old town of Edinburgh, not long since examined and described in the *Builder*, is pressing itself on the notice of the city clergy. A memorial, signed by the principal clergy of the districts of Greyfriars, St. Giles's, Tron, Trinity, and others, has been presented to the town council, in which the memorialists state—

"That, in most of the wynds and closes where, as is well known, the houses are many stories in height, and densely peopled, the inhabitants, however busy, aged, or feeble, have no means of obtaining the necessary article of water, save from the public wells; and that at an expenditure of time and labour which prevents their providing it in such quantity as is essential to the maintenance of health, cleanliness, and self-respect; thus rendering these localities the seats and centres of disease and immorality, in their most dangerous and loathsome forms.

That these evils are greatly aggravated by the absence of water-closets, or similar conveniences of any kind, in these tenements; a circumstance which, notwithstanding the operation of the scavenger, keeps the closes in a state of filth equally revolting to feeling, and destructive to health and morals; and which renders all efforts to elevate the character and condition of their poor inhabitants comparatively fruitless.

That, in the opinion of your memorialists, these evils, so disgraceful to a Christian city, can only be effectually remedied by such a legislative enactment as shall compel proprietors to provide every flat of such tenements with a supply of water, and the conveniences which health and decency require; and as it is well known that property of this description referred to yields a greatly larger return than that of a superior kind, and that it is matter of experience that even an increase of rent is secured by the addition of such arrangements, the obligation to furnish them could not be considered a hardship."

The council at once took the memorial into consideration; and remitted it to the Lord Provost's committee, with power to confer with the Lord Advocate as to the desirability of introducing a Bill into Parliament on the subject.

DRAINAGE OF LAND ACT OF 1861.

It may be remembered that a paper was read, of which we at the time gave extracts, at the Institution of Civil Engineers, in the session of 1859-60, by Mr. Grantham, entitled "Arterial Drainage and Outfalls," which, besides, laying down the principles, in an engineering point of view, advocated a public measure being legalized for general drainage; and it underwent some discussion. In the ensuing session of Parliament, the Right Hon. Sir G. C. Lewis announced that an Outfall Bill was being prepared for introduction to Parliament; but it was found that there was not sufficient time to devote to it that session, and it was therefore postponed. During the Smithfield Cattle Show last December, a public meeting was held in London, to consider the question of a general Outfall Bill, and a committee was appointed to confer with the Government: the committee as a deputation waited upon Sir G. C. Lewis, then Home Secretary, to urge the matter upon the attention of the Government, and a Bill was prepared by the Home Office, in which Mr. Bailey Denton and Mr. Grantham were consulted; and it was brought in, and passed both Houses of Parliament. Since it has become law, some applications for the use of it have been made. Mr. Grantham has been appointed an inspector, and the powers will be very shortly brought into operation: as the necessity for

such powers are much required, it is hoped that they will be successfully adopted, and that all the benefits anticipated by those who have recourse to it will be the result.

TASTE IN DESIGN.

IT is a great distinction between true and merely imitative or adaptive art, that those who are gifted with the former principles impart to the most ordinary objects an appearance of elegance, refinement, and harmony. A little observation will show that it is the want of knowledge of those rules, and a better kind of art education, which cause us to see so many matters produced, particularly those of every-day use, which are very unsatisfactory.

No doubt, the art manufactures of Britain have improved vastly since George II.'s reign. Even within the last twenty years the progress has been considerable, notwithstanding one can scarcely look at the breakfast or dinner table, or in the rooms of dwellings, into shop windows or manufactories, without being annoyed at some instances of unfitness or want of consistency in the design of objects which are displayed. Take, for instance, the body and the handle of a teapot which have been copied from a classic vase of some purity of form: the spout is, however, of the true English



style of our art, of, say, a century or so ago. It has the effect, like music out of tune, of producing unpleasant feelings. The lid is also out of keeping, and does not agree with the other outlines. In looking at this example of an appropriate design, which reminds us in some measure of the African chiefs who assume an old English cocked hat and a long-tailed coat coat with the native attire and adornments, we cannot but regret that the use of tea had not been introduced amongst the famous old Greeks, in order that we might have had the advantage of their skill in devising how the spout of a teapot might be fashioned.

In the examination of several manufactures of pottery and other goods there is to be noted an affected imitation of the antique. When, however, it is necessary to devise some portion which is needed in the present day, in many cases the difference is as manifest as the comparison is unfavourable to us.

Take, for instance, the oil lamps which were in use amongst the poorest classes of both Greece and Rome, and contrast them with some which may be still seen in the houses of the peasantry in part of the United Kingdom. Here is one.



A hundred other matters might be mentioned, but we have said enough to hint that we need to have introduced into our manufactures a feeling for art founded upon geometrical principles, and the study of the beauties of nature combined with practical views.

It would be well worth while for those who have the Government direction of art-education to offer liberal annual prizes for the best designs, both as regards colour and form, for tea, breakfast, dinner services, &c.; and our best artists, both painters and sculptors, might do much in advancing this movement. Michelangelo, engaged in the highest departments of painting and sculpture, would also turn his attention to matters of seemingly lesser note. Holbein made designs for personal ornaments and pieces of plate; and Benvenuto Cellini and Albert Dürer practised several departments of art. We want something of the same spirit in England amongst the artists of the present day.

THE DISCOVERIES AT CYRENE.

An officer on board one of her Majesty's vessels in the Mediterranean has given the *Scotsman* some particulars of a visit to Cyrene, where many interesting discoveries have been recently made, the results of which will soon be visible in the British Museum. He says,—"Suddenly, and on following a curve of the road, we found the whole face of the mountain side on our left covered either with huge sarcophagi, or the entrances to subterranean chambers for the dead. On our right also, where the ground slopes down to the rich plains of marl below, the debris of demolished tombs, with shrubs and parched herbage, covered the surface. We spent some time in the examination of this city of the dead, and we saw much that was instructive and curious. The entrances to the caverns were in most cases plain but low doorways, flanked by the simple Doric column, and surmounted occasionally by lions' heads: niches also, outside, were common. Within were recesses of every form and size for the reception of the dead, and all cut out of the solid rock.

From this vast assemblage of sepulchres the road still curves to the southward, and finally turns again to the eastward, where we found the encampment of our men a little below the position of the ancient Cyrene. On one side of the ravine were to be seen the tents of our men, and on the opposite slopes were the remains of caverns occupied by Lieutenant Smith, of the Engineers, the youthful discoverer of the antiquities which we were appointed to remove, and by our carpenters, headed by Mr. Denison, of the British Museum, who were engaged in preparing cases for the reception of the marbles. We reached our destination at 3.30 p.m.; and, having exchanged some greetings with old and new friends, I extended my walk some 500 yards, to the ground indicated to me as the site of the buried city. A few marble monolith columns within the area of a temple, partly exposed, and each broken; a granite column; two or three damaged statues; ground recently disturbed, and many honey-combed blocks of limestone scattered over the surface, formed the only prominent features of this remarkable spot. Yet, beneath this apparently barren surface, at a depth sometimes of 10 feet, there were discovered some of the most exquisite examples of Grecian sculpture. On my return, I repaired to the residence of Mr. Smith; who, since the month of December last, has lived in a cave hewn out of the solid rock. Under his bed, and about the cave, were deposited most of the smaller and more friable products of his excavations. A sleeping infant, with two or three poppies, from which the petals had been plucked, in his tiny hand, and several beautifully chiselled female heads, with the hair arranged à l'Impératrice, were among these remarkable remains. I accepted Mr. Smith's invitation to occupy a vacant corner in the cave with the view of escaping from the greater exposure to the night air which a tent ensured.

About six p.m., a sudden émeute among the Arabs in the neighbourhood of the fountain of Apollo, below our position (opposite to which stood the temple of the same name, the source of Mr. Smith's most valuable relic, the statue of the god to whom the temple was dedicated), roused every occupant of our tents; and it was quickly reported that the impatience with which the Arabs bore our too liberal use of their treasured fountain had now changed into resistance.

I spent the day in visiting the ruins of the ancient Apollonia, once the sea fort of Cyrene, and now called Marsa Sousa. No human agency could have effected such complete demolition as the ruins of this city present. The soil has done much to entomb the remains of Cyrene, but here the huge blocks of stone lie exposed, and in such confusion as one may imagine to have been the result of an earthquake. At the western extremity of the surrounding walls, parts of which still remain to exhibit the wonderful masonry of these remote ages, there are to be seen some fine marble columns, with their Doric capitals, prostrate and broken, within the boundary of the temple. From this elevated point I commanded a view of the entire circuit of the wall, within which there lay the blocks of stone honeycombed by age, and utterly swept away from their former positions. It was a curious feature of this remarkable scene of destruction that the only remnant of architecture to be seen in this general view was the simple arch, upwards of twenty of which structures, composed of six or seven stones only on each side of the

keystone, appeared above the general wreck. There are several islands near the main land, each of which seems to have been quarried for the city; and on them are to be seen enormous masses of stone, either detached, or in process of separation from their beds, when the labour of the workman was arrested for ever.

EMPLOYMENT FOR EDUCATED FEMALES.

An establishment, under the sanction of the Society for Promoting the Employment of Women, in connection with the National Association for the Promotion of Social Science, has been open for the last twelve months, at 12, Portugal-street, Lincoln's-inn, W.C. This is a law-copying office, in which it is endeavoured to remove some of the difficulties surrounding educated and independent women seeking remunerative employment. There are many businesses into which their services are unfit to be introduced with propriety; but we cannot see any objection which exists to law-copying and writing. In general, as a source of female labour. We found on inquiry that there are a considerable number of respectable females, some of them young, who are able to earn an amount of income, corresponding with skill and rapidity, in copying legal and other documents. Some could gain from 10s. to 12s., and 15s. a-week; others more than this. One lady, who was clever in producing very beautiful writing for lithographic purposes, can gain from 35s. to 40s. a-week. At this place are offered strict attention to business, punctuality in returning papers, and careful execution of work, at the usual charges. Already a few of the leading firms in London have expressed satisfaction; and this encourages a hope that eventually the establishment may obtain the more general confidence of the profession. It is not, however, only to the men of the law that the offer of this kind of work would seem to be available. We saw some specifications suitable to architects, builders, and others. Inventors and patentees might also usefully furnish employment of this kind. Already some of our chief publishers, who require to send a large number of periodical publications through the post-office, find it to be economical to have the envelopes and covers directed here. The cost of addressing envelopes is, we believe, 5s. per 1,000. Public institutions, and certain companies and societies, who are required to make large and regular issues of circulars, would find it of advantage to aid this undertaking. The number of female students in the Reading-room of the British Museum continues to increase; and it may be noticed that several of the ladies are engaged in transcribing portions of manuscript seemingly for the use of those whose time is too much occupied to give a long attendance in the Museum.

SUGGESTIONS AS TO DECIMAL CURRENCY.

There appears at the present time to be so favourable an opportunity for the introduction of decimal currency, that I am induced to offer the following suggestion, in the hope that it may lead to the accomplishment of this desirable system, and may induce a discussion tending to perfect its details. The project has at various times been warmly advocated by scientific and practical authorities; but the difficulties in the way of its adoption have been hitherto feared to be insurmountable.

I hope to show that the time has now arrived when this system may be introduced with advantage; but, as the explanation of my views may appear, at first sight, to complicate the question, I request those who enter on it to consider it with patience and care.

Every one who carries copper money must be rejoiced at the convenience afforded by the withdrawal of the old copper pieces, and the substitution of the new bronze coins of not half the weight; but it appears to me that the latter cannot be intrinsically so valuable as the former, and that we have therefore a claim for compensation. I am not about to discuss the exact weight of copper or zinc to which we may be entitled: all I ask is a small advance, which shall effect the introduction of the decimal system.

The allowance I propose is that we should have twelve and a-half pence to the shilling. This would give twenty-five pence or one hundred farthings to the florin, and one thousand farthings to the pound sterling: we need no more as the commencement of decimal currency. A new coin of the value of ten farthings would greatly facilitate all money transactions as soon as it could be executed,

though for the present it might be dispensed with; but there would be no insuperable difficulty in recalling threepenny and fourpenny pieces, those sources of constant confusion, and substituting a piece which might be called a ten, or some other good English name.

Were the change now suggested to be brought into operation, we should no longer require to bring farthings into pence, pence into shillings, and shillings into pounds; and yet the actual alteration of the coins would be trifling: the pound sterling would remain the integer; and florins, tens, and farthings would be calculated decimally, instead of the old plan of shillings, pence, and farthings. The shilling and sixpence would remain in circulation, the former counting as fifty farthings, the latter as twenty-five; the penny still as four farthings, and the halfpenny as two. The halfcrown might also remain, though it was supposed that they would be withdrawn when the florin was ready to take its place.

Doubtless in this alteration, as in any other, there would be difficulties in the first trial: who has not felt the same with foreign decimal coinage? but soon the confusion has vanished, and we can hardly believe it had ever caused trouble; and the same result would follow our adoption of the plan: much time would be saved, and many errors avoided.

As the florin coinage was avowedly introduced as the commencement of the decimal system, the Government would not in all probability oppose any obstacle in the way of its perfection; but, when the scheme is fully prepared, they would give every facility for its adoption.

The Great Exhibition of 1862 is too near to admit the hope of carrying the system fully into execution in time for the opening; but it would be a very fit occasion for a commencement, as the facility of decimal calculation would be a great boon to our foreign guests.

In conclusion, allow me to say that there is reason to believe that the new method might be acquired in a very short time; but, to those who adhere to the old system, I would say there is nothing to prevent them from persevering in their course: at the same time, it would not be asking them too much to submit to the hardship of having 12½ pence to the shilling in consideration of the public convenience.

ARTHUR J. BAKER.

VERNE FORT, PORTLAND.

AMONGST the most important of the various works recently undertaken in connection with our national defences must be mentioned the citadel of Portland. The formidable character of its ditch, nearly 80 feet deep and 100 feet wide, and cut out of the solid rock for a length of three-quarters of a mile, has attracted many a visitor during the past summer; and the casemated barracks, now rapidly approaching completion, are not of less importance. The works in connection with this fort have been in progress for the last five or six years; but, as they were in the hands of convicts for some time, very little progress was made until within the last two years, when a large portion was let, under contract, to Messrs. Jay & Co., of London, contractors. This contract embraced fifty barrack-rooms, 44 feet by 20 feet, and intended to accommodate twenty men each; and, being intended to be covered over with earth, are necessarily of massive description. The walls are 4 feet thick, of ashlar masonry, and are covered by arches of 20 feet span in four 9-inch courses. The whole work is built with blue lias mortar. On Thursday, the 21st instant, the last course of bricks of the casemated barracks arches was laid with all due form by Captain Stothard and Lieut. Wynne, Royal Engineers, and Messrs. Shirras and Gray, the civil officers of the Royal Engineer Department.

A HEART MONUMENT IN EWYAS HAROLD CHURCH.

THE monument in the chancel of this church has been opened. This monument consists of a recessed arch in the north wall. The effigy beneath represents a young lady of noble birth, holding in her hands over the upper part of the chest the sculptured representation of a casket, such as was used for containing the heart of a deceased person, and occasionally buried at a distance from the body. On removing the mortar from the surface of the wall there was discovered under the upper part of the effigy the smooth face of a well-cut stone of considerable size. Again the slabs were removed, and under that portion of the second slab on which the head and chest rested (and which

was not moved on the first occasion) there was exposed to the eyes of the spectators a smooth squared stone, and in this stone a circular hole, which proved to contain the remains of what were once a human heart, a metal casket that contained it, and a few shreds of some textile fabric. The cyst stone is about 2 feet long and 6 inches thick, smoothed on all sides except at the back, which is rough. The circular hole or cyst is $5\frac{1}{2}$ inches in diameter, and rather nearer the front edge and east end of the stone. It terminates in a rounded bottom, something like a humming-top, and probably corresponding with the size of the casket. The fragments of this were so corroded and broken, crumbling under the fingers, that it was difficult to designate the metal (probably silver or *latten*), or the shape, probably the same as the sculpture on the effigy. The whole was carefully examined, and several pieces of textile fabric of different kinds of fineness were discovered, besides portions of a substance resembling the crystallizable part of fat, and dust of various colours. A few fragments were preserved to send to the Archaeological Society, and the rest was carefully restored to its long resting-place, the effigy replaced, and the monument restored to its original state. It should be stated that on the under surface of the slab, resting on the cyst stone, and just over the cyst itself, was the delineation of a heart, apparently in white paint. The effigy is 4 feet 8 inches long, lying with the head to the west, and is supposed to be of the age of Edward II., from 1307 to 1327.

IRISH BUILDING NEWS.

VERY extensive additions are about to be made to the constabulary depot, Phoenix Park, according to the designs of Mr. J. H. Owen, architect to the Board of Works. The existing buildings are disposed principally in two long blocks, at right angles to each other. The additions will extend each block, and will return, so as with a small extent of boundary wall to complete a rectangle, the area of which will be about thirteen acres. The new buildings will cover about 400 squares, and will embrace quarters for commandant and adjutant, medical officer and barrack-master, officers' mess and quarters, sergeants' mess, school and dormitories, and two ranges of stabling. The Board permitted the builders who propose competing for the works to elect a surveyor to act as their representative in taking out the quantities, in connection with one of the Board's officers; and, at a meeting of the builders, held for this purpose, Mr. William Doolin was unanimously elected from amongst a large number of candidates. Mr. Doolin and Mr. Franklin, the officer acting on behalf of the Board, are at present engaged in taking out the quantities, a considerable portion of which is already completed.

The new R.C. Church of St. Michael, Tipperary, has lately been consecrated. The plan is a rectangle, consisting of nave, side aisles, chancel, porch, and sacristy. In the south-west angle stands a tower and spire, 165 feet high to the cross. The church is 140 feet long, and 65 feet wide in the clear. The nave is divided from the side aisles by arcades of seven arches each. The chancel, aisles, and passages are paved with encaustic tiles. The windows throughout are of stained glass.

THE SANITARY CONDITION OF DERBY.

At a dinner to the late mayor, a speech was delivered by Mr. Bass, M.P., in course of which he said, he was happy to find, from a return furnished him by the clerk to the Local Board of Health, that the sanitary condition of the town, owing to the improvements made during the last few years, was very satisfactory. That, he continued, is a most important fact; for, when we find that the King of Portugal died in his royal palace, amidst all its costly elegance and state, of typhus fever, we may well rejoice that in Derby the health of the inhabitants is so well cared for, and that the members of the Corporation and Board of Health are not unmindful of the duties which they are called upon to perform.

In order to show what has been done to afford ground for this congratulation, we may here state that the Bedford authorities lately obtained from those of Derby replies to certain queries on sanitary subjects, which we shall now give in a condensed form. The area of the borough of Derby is about 200 acres: the population is 50,000; and the number of houses 10,000. The main drainage works done during the last eight years, by various contractors, from plans and under the superintendence of the borough surveyor, Mr. T. C.

Thorburn, extend to nearly thirty miles; and, in all, including street improvements, &c., there has been expended a sum of 23,255*l.* on such works. The money was borrowed for terms not exceeding thirty years, and at rates of interest not exceeding four and a half per cent. The average general district rate levied for several years past has been only 1*s.* 6*d.* in the pound. The works have been done with a view to further extension in most parts of the town, and carried out as parts of a comprehensive scheme of street drainage. The Local Board have not carried out any general scheme of house drainage, but have left this pretty much to be executed by the owners themselves (where there were no complaints), and many of these owners have availed themselves of the sewers provided at the public expense.

And now, as to the result of these sanitary labours. The death rate, in the year 1841, was 27*·*85 in 1,000; in 1847, 28*·*12 in 1,000; and in 1848, 30*·*12 in 1,000; whereas now it is only about 21 in 1,000.

Were this, we may add, but one solitary instance of the beneficial results of sanitary improvements, it might be alleged to have been merely an accidental coincidence; but the same result, as will appear from our columns, for years past, has been again and again realized, in precisely the same way, according to the extent of the improvements effected.

YORK.

FINAL SETTLEMENT OF THE LENDAL BRIDGE QUESTION.

THE York City Council have at length unanimously decided that the proposed girder-bridge shall be altogether abandoned; and that a cast-iron bridge, as designed by Mr. Page, shall be erected in its stead. The additional expenditure, it appears, will not exceed 5,500*l.*; whilst the bridge itself, according to the local *Herald*, "will be a model of stability, lightness, and elegance combined." The estimate of 5,500*l.* has been obtained from the following calculations:—

Alteration of approaches on Lendal side	£472 0
New iron bridge	6,070 0
Railing to approaches to ditto	350 2
Extension of bridge under roadway	40 0
Wing wall on city waiside	127 10
Filling in with ballast	100 0
Wall on Tanner's Moat side	280 0
Backing to present foundations	350 0
Engineering and contingencies	730 10
Deduct:—	£6,600 0
Amount still due on contract for girder-bridge	£2,000 0
Old materials	500 0
Saving of Masonry	500 0
	£1,500 0

According to the plan which the council have adopted, the new bridge will be erected 8 feet nearer the Waterworks Tower than the girder-bridge; but there will still be a space of 10 feet 3 inches between the bridge and the tower; thus providing for the continuance of a carriage-road down Lendal Hill, and retaining the present approach to the Esplanade.

Arrangements, we understand, have been made with Mr. Page, who will take the whole responsibility of the work upon himself; and there is every reason to believe that the bridge will be completed by the 1st of May.

The whole cost of the work will be about 30,000*l.*, and the annual revenue raised from tolls, it is expected, will amount to 1,200*l.* or 1,400*l.*

ENTERTAINMENTS.

"*Mathews at Home*" in *Her Majesty's Concert-room*.—Mr. Charles Mathews belongs to the architects; and, now that he is "at Home" with Mrs. Charles Mathews, he makes this clear; and, in so doing, gives an additional reason why we should cheer them on in their new course, and invite our readers to go and hear and see them for themselves. His father had been "drawing houses," as he says, all his life, and he thought his son might do the same in another way. So the said son was sent to the elder Pugin; and, in due time, had a fine opportunity to visit Italy, through the friendship of Lord Blessington, and to see all its wonders under good auspices. Afterwards going to work in earnest, he obtained the appointment of district surveyor of Bow and Bethnal-green, which he worked for three years; the fees amounting to some 40*l.* a year. "Shade of Vitruvius," he exclaims, "is this architecture?" The difficulty he found, moreover, in obtaining these fees, is ludicrously illustrated, but not exaggerated; and Mrs. Mathews personates an irate landress called

on for a fee, whom many a district surveyor has met with. As architect to an Iron Mining Company, he erected some buildings; and, more wonderful still, as he thinks, they are still standing. Here his endeavours in that direction ceased. Architecture wouldn't pay; and the drawing-board was left for other boards, which enabled him to carry out his designs more quickly. All the after events of his life are touched on and illustrated,—as well with the brush of Mr. O'Connor from Mr. Mathews's sketches, as by rapid personations by himself and Mrs. Mathews, who most materially and gracefully aids the success of the evening. One of the best of the *tableaux* is the representation of an act-drop for Lord Normanby's *Teatro San Clemente*, designed and originally partly painted by our entertainer. Mrs. Mathews's best personations are "A lady's maid under difficulties," and "Jemima Cox, a Yankee gal," of extreme type; and very excellent these are. Mr. Mathews does not omit reference to his financial troubles; and this, although told with careful taste, and in a tone not of vaunt, but warning, is the part we would have shortened: it tends to depress the audience. The remainder of the entertainment displays his varied acquirements and powers in a remarkable manner, as actor, singer, dancer, and linguist; and will give a pleasant evening to thousands.

NEWSTEAD ABBEY.

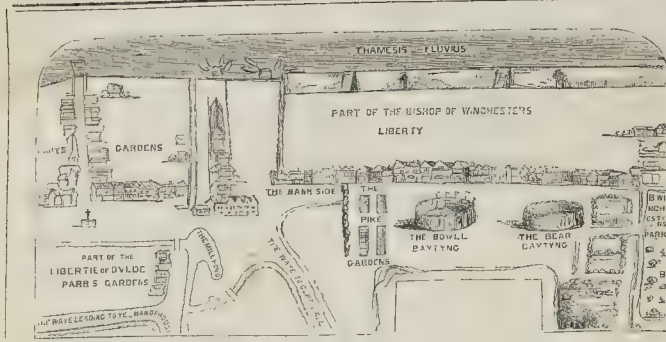
EXTENSIVE works have been going on here during the summer for Mr. F. Webb. According to the *Sheffield Independent*, the Abbey has been lighted with gas and heated with hot water apparatus, and the interior renovated under the direction of Mr. M. G. Hadfield. The new stables and offices, an extensive pile of buildings, containing stalls for twenty horses, and carried out so as to harmonize with the abbey, are about to be built, the contract having been taken by Messrs. Craven Brothers, of Sheffield, and the works are to be commenced at once. Mr. Hadfield has also instructions to prepare designs for the new gate-house and entrance on the high road, near the well-known Hut on Sherwood Forest.

PROPOSED NEW ROAD THROUGH HYDE PARK.

ON Tuesday a public meeting was held in the Vestry Hall, Paddington, to consider the expediency of having a subway through Hyde Park, to connect Paddington and Hayswater with Brompton and South Kensington. Lieutenant-Colonel Wortley presided. The chairman announced that he had had an interview with Mr. Cowper, the First Commissioner of Works, and that gentleman bid him mention to the meeting that he saw no objection to a road or subway proposed by Miss Martin, daughter of the late Mr. Martin, the artist. Mr. Cowper saw no objection to a subway to pass under the middle walk from Lancaster Gate to the Coalbrook Dale Gates. He had had a level of the property taken, and found that there was no engineering difficulty. He had pointed out to Mr. Cowper that it would be a great advantage, because the present road down Park-lane was not sufficient to accommodate the traffic in that direction. In respect of providing the required road, Mr. Cowper seemed disposed to meet him and those who acted with him; and he had been informed since his interview that at present he was even more disposed to assist them than he was at the time when that interview took place.

Mr. Roche, in proposing the first resolution, recommended the meeting not to insist on any particular project. It would be more respectful to the First Commissioner to leave that an open question for the present. He thought that there could be no doubt of the necessity for a new road. It was required at that moment, and would be much more necessary during the Great Exhibition next year. The speaker concluded by proposing a resolution to the effect that, having regard to the increase of western London of late years, and the formation of large, populous, and wealthy districts on the north and south sides of Hyde-park and Kensington-gardens, which districts were at present separated from each other, and had their traffic impeded by want of a direct communication, that meeting was of opinion that a public road had become an object of urgent necessity; and should, if possible, be made before the opening of the Exhibition.

The resolution was carried by a large majority. Mr. D'Alinger proposed a resolution for a deputation to Mr. Cowper, which was carried.



Bankside in Olden Time.

CHANGES IN BANKSIDE, SOUTHWARK, AND LAMBETH.

MANY changes have occurred within the last few years along the "Bankside," in Lambeth parish: great improvements are going on now, and others still more important may be expected when the Main Drainage and embankment plans have been completed, rendering that which was within the memory of some few living a dreary and, in parts, impassable marsh, dry and wholesome. The increased bridge and railway accommodation will also confer benefits. Not a quarter of a century ago there were matters of antiquarian interest which have during that time been removed from this district. The venerable and picturesque west entrance of St. Saviour's, and the nave, with its curious Norman details, have given place to a less slightly pile; and not far off, westward, the remains of the palace of the bishops of Winchester, with the exception of an oriel window, which at times may be seen with much difficulty, have been removed. On this site have been reared warehouses and steam-mills of great size and strength.

In Queen Elizabeth's days, Lambeth Church and the Palace at Lambeth might be seen from the approaches on the south of London Bridge. There were the bear-gardens, Shakspere's theatre, and other places of amusement. A well-known view of London at that time shows the open nature of the land, which is now covered by a dense population. A century or so after the time above referred to, we have a plan which shows that but few houses were built between the old bridge and Lambeth marsh. The engraved copy shows that on the extreme east of the picture are the Bishop of Winchester's park and gardens, thickly planted with trees (the palace stood nearer to St. Saviour's). Here, from the park westward, one side of the scarcely defined roadway, next to the Thames, was lined with a single row of what would to us seem now old-fashioned houses. Along the margin of the park are a ditch and what seems to have been a small farm-building, and inclosed grounds, trees, &c. Then, on a space of considerable size, environed partly by a ditch and four square pools of water, called the "Pike-gardens," stand two circular buildings, open at the top, one marked in the plan, "The Bowll Bayting," and the other "The Bear Bayting."

Through the hedge which is at the west side of the Pike Gardens there is a sort of stile, and then a ditch, which, in a circular sweep, comes northward. Another ditch, in a serpent-like form, in part lines a road, which is marked as leading to "Capt Hall." This communicates with a water-course leading to the "mill-pond." Near are two or three small buildings. Another ditch incloses a piece of open land, which is called "Part of the Liberty of Ouldo Parris Gardens:" to the south, a ditch forms one side of a road, which is lettered, "The way leading to ye manor-house."

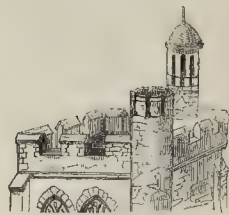
Here is a wide roadway going to Lambeth, with houses on one side, and a row leading to a ferry-boat landing, on the Thames side. Several boats are waiting for customers. There are ditches and footpaths towards the water. There is an open space here, which is also called "Pary's Gardens." The spelling is different from that already referred to. In what may be called a main road, which intersects the two portions of the gardens, is a cross. One part, on the north-east portion of the picture, has not been mentioned. This consists of a large inclosure,

entirely unoccupied, with a wall along the river-line. This is called "part of the Bishop of Winchester's Liberty." It is difficult even now, with use of maps, plans, &c., to find the exact position of the spots shown in this little engraved plan, but to some extent the watercourses have been formed, in many instances, into inconvenient streets. As we have before often mentioned, a correct plan of the sewerage of London thirty or forty years ago would have great interest, and point out, in a remarkable way, the skeleton construction, or ground-work, of this vast city.

Although so much has already been done, it is clear that a chief part of Bankside and the now important parish of Lambeth is in a state of transition. Year after year the land will rise above the level of the water, and the locality become more suitable for healthy dwelling and for the purposes of various descriptions of industry. It would show in a most striking manner the advance of this metropolis, if we could state the increased value of even the property shown in the plan which adjoins this article. On the Bishop of Winchester's Liberty, and along this boundary of the Thames to Lambeth Palace, are now wharfs; coal, stone, wood, and many other materials, crowd the once unprofitable land; shot and other factories—some for the purpose of providing materials for building decorations; glass-works; and matters too numerous in brief space to mention, give employment to thousands. The main thoroughfares are swarming with life; omnibuses, cabs, and carriages move along what was not long ago a swamp; railway and other bridges are in course of erection. However, from St. Saviour's, passing by the approaches of Southwark, Blackfriars, Waterloo, Hungerford, and Westminster Bridges, until the wayfarer reaches Lambeth Palace, there is scarcely a vestige of old date left. Some parts of houses, roofs, &c., may be to some extent, notwithstanding their disguised date, detected as having been built at the time of the first publication of our print.

Although this now important portion of the metropolis has been so much increased in money worth, as yet there is but little improvement architecturally to please the eye. It is therefore in a certain way a relief to reach the walls, trees, and buildings inclosed within the venerable and kindly Archbishop of Canterbury's precinct,—the grey walls of the Lollards' prison, the canopied niche, the dark red walls, the library, guard-room, the gateway, the gardens, and other places, which have many important historical and other associations to those who care for those matters,—the ancient portraits of many archbishops. Other portions of this metropolis inclosure well deserve a visit. We will, however, at present look towards the ancient church and the landing-place which in old times crossed close by here, before the old Westminster Bridge was built. The church, in good repair, is a pleasing suggestion of the London of other days. In the churchyard there are the tombs of the Tradescants, which are so well known as not to require particular notice. Admiral Bligh, who first transported the bread-fruit from Otaheite to the West Indies, and who was a brave and intelligent commander, and other worthies, lie buried here, and have suitable monuments. Under the walls of this church a scene which affords an example of the uncertainty of even the highest conditions, took place in connection with the unhappy queen of James II., who, flying with her

infant prince from the ruin hanging over her, after crossing the Thames from the abdicated palace of Whitehall, took shelter between the quaint walls of this church for a considerable time on the inclement night of December 6th, 1688. Here she waited in the pelting storm until a coach could be got from some inn, which conveyed her to Gravesend, whence she sailed, and bade eternal adieu to England. Before viewing the interior, it may be worth while to remark that according to Dr. Ducarel, a beacon was formerly placed on the top of the tower; but it has been said that the short distance it is from the palace, where the valuable library and many manuscripts are preserved, renders this improbable. Lambard, in his "Perambulation in Kent," states that the eastern beacon nearest to London was on Shooter's-hill; and that in Middlesex was upon Hampstead-hill; but in Hollar's "View of London from Lambeth," circa 1666, the beacon is plainly to be seen: and here it is.



On entering the church, which is of goodly proportions, and with its numerous monuments and other fittings, has a quaint and not unpleasant appearance, to most visitors the stained-glass window, representing a pedlar, is an object of interest. This is, however, really not of any such antiquity as has been generally supposed. Respecting this stained glass, which is at the bottom of the middle compartment of the south-west window of Lambeth Church, it is the portrait of a man with a package strapped upon his shoulder, a staff in his hand, and a dog walking by his side.

It was renewed at the commencement of last century, as is shown by the following entry in the parish books:—

"1703, March 6th.—Paid Mr. Price for a new glass pedlar, 2l."

Although there does not seem evidence to show it, this may be the rebus of the name of some person of the name of Chapman, as the figure of the pedlar carved on the seat of Swaffham Church, Suffolk, was intended to represent the name of John Chapman, who had been a benefactor in connection with the repairs of the church. There are other entries in the books of this parish which are worthy of notice, inasmuch as they show the difference in the times, and the change in the value of workmen's wages and materials. As regards the pulpit, for instance, in 1522 it was deemed expedient to erect a new one, and on inspection it was considered that the old one was not worth more than 8d., and a new one was erected at a cost of 20s. It was not, however, until 1616, that Archbishop Abbot, at his own charges, erected another pulpit, which cost 157. This was placed against the south-east portion of the nave. The churchwardens, about 1579, ordered an hour-glass to be provided for the pulpit. One Yorke made a stand for the "hower," for 1s. 4d. A second was provided in 1615, no doubt for the use of the new pulpit, when 6s. 8d. was paid for the iron of the hour-glass stand. The hour-glass and stand which formerly formed an appendage to most pulpits, has been removed from Lambeth and most other churches. One still remains in the church of St. Alban, Wood-street, in the City. There have been differences of opinion, some saying that, in the Commonwealth times, the hour-glasses were not approved of. On the grave-stones of the Covenanters, in parts of Scotland, and in old Dissenting burial-places, the hour-glass is much used as one of the emblems of mortality. It is probable, that, as the use of clocks became common, the hour-glasses were discontinued.*

Of the monuments in the church we have before now spoken.

* It seems, from the churchwardens' account, that there was a clock at Lambeth church as far back as 1585, for, in the parish books it is agreed that Holloway shall have 11s. for oyle, for the clock and bells, and for candle to the clock: and in 1599, Lewis Smalle, for keeping the clock, was ordered 12s. In 1605, to Smalle, for keeping the clock, 16s. In 1632, 8s. was paid for a new clock.

WHIPPINGHAM CHURCH, ISLE OF WIGHT.—MR. A. J. HUMBERT, ARCHT.



WHIPPINGHAM CHURCH, ISLE OF WIGHT.

THIS church, now in course of completion, has a claim of its own for attention. The parish of Whippingham is situate in the northern part of the Isle of Wight, extending along the banks of the River Medina from East Cowes to Newport, the chief town in the island. The early history of the foundation is somewhat obscure; but it is known that a church was erected here in the twelfth century, dedicated to Mildred, a Saxon princess, conspicuous in the annals of the seventh century. It was one of the six churches given by William Fitz-Osborne to the Abbey of Lyra, in Normandy.

Osborne, the favourite marine residence of her Majesty and the Prince Consort, is in the parish of Whippingham, as may be well known to many of our readers. The Queen, when residing there, is in the habit of attending divine service at the parish church. In the year 1854, the accommodation for the royal family being quite inadequate, north and south chancel aisles were added for her Majesty's exclusive use; the chancel being at the same time rebuilt in the transition style of architecture prevalent towards the close of the twelfth century.

The church had been restored and enlarged to meet the requirements of the increasing population in the year 1804, under the direction of Mr. Nash, then residing at East Cowes Castle, the funds being mainly provided by the sale of Faculty pews. The previous arrangement of the edifice was then completely changed. North and south transepts, with galleries, were added, and the works carried out must have bordered closely upon an entire re-construction, as no vestige of the former church, either externally or internally, remained. Owing to faulty construction upon an imperfect foundation, no great time elapsed before serious symptoms of dilapidation became manifest. Large fissures occurred: the walls bulged considerably in places; and the roof, spreading, thrust them out of the perpendicular.

Under these circumstances, in the latter part of the year 1858, two architects, Mr. Dashwood, of Ryde, and Mr. Humbert, of Fitzroy-square, London (who had been intrusted with the charge of the works previously carried out for her Majesty's accommodation), were called upon to report upon the subject. They concurred as to the inexpediency of attempting a restoration, and advised that the church should be entirely rebuilt. This course, after considerable discussion, was finally adopted; and it was further determined that the general arrangement of the then existing plan should be retained in the new structure, the large Faculty pews remaining in the same relative positions. The galleries in the transepts were, however, to be omitted; and, in order to obtain the extra area upon the floor of the church, the nave was to be extended to the west, and the tower erected at the junction of the arms of the cross. Mr. Humbert prepared designs, embodying three views, which have been applied. The old church was pulled down in March, 1860. The foundation-stone of the present structure was laid by her Majesty on the 29th of May following, assisted by his Royal Highness the Prince Consort, and other members of the Royal Family.

Externally, the principal features, as will be seen by reference to our engraving, are the chancel and aisles, the tower and transepts, the nave and bell-cot, and the south porch.

The church is constructed of stone from the island, with quoins and dressings of Box ground stone. Considerable care had to be taken with the foundations, which, in some cases, are as much as 16 or 17 feet below the surface of the ground.

The lantern and bell-cot are of English oak. The spire over them, and the four smaller spires on the tower are covered with green Bangor slates, and the several roofs with plain tiles.

The circular-headed doorway, in the south chancel aisle, shown in the engraving, is the Queen's Entrance. The Royal arms will be placed over this doorway, and it is in contemplation to add a shallow Norman open porch resting on columns.

The main entrance to the church is by the south porch, over the inner doorway of which there will be a marble tablet, with an inscription recording the present and former erections of the church, &c., supported by two angels, carved in stone, designed and executed by Mr. J. Thomas. On the north side of the nave, opposite the porch, there is a door leading into a lobby, which forms an entrance to the vestry and the organ gallery.

There are three small windows in the north wall of the nave over the vestry and lobby roof.

Internally the principal feature is the central tower, which is open to the church, as high as the roof of the octagon lantern. It is carried upon pointed arches, with angle shafts, having carved capitals and plain arch mouldings. The chancel arch (smaller and lower than the others) is somewhat deeply recessed. Four figures carved in stone, in the angles of the tower above the arcading, carry the main timbers of the tower roof, which diverge thence to the eight angles of the roof above; supporting small vaulting shafts in the angles of the lantern, which carry the ribs and wooden groined ceiling. Open timber roofs, boarded, are used throughout: they will be slightly stained and varnished. Some portions of the boarding will be coloured.

The walls are faced with stucco; and, below the roof-plates, and in other parts following the principal lines of the building, ornamental incised work is being introduced. An organ gallery is erected at the west end of the nave; and the organ, built about six years back by Mr. Willis, of London, is now being reconstructed to meet the increased size of the building.

The pulpit, reading-desk, pews, and other fittings, are of oak.

The principal internal dimensions are;—nave, 22 feet wide; transepts, 19 feet wide; chancel, 12 feet wide; chancel aisles, 10 feet wide each; total length, 98 feet; breadth across the transepts, 50 feet; nave roof, 35 feet high; chancel roof, 29 feet; lower, lower diameter, 19 feet, upper, 17 feet; roof of lantern, 63 feet in height.

The tower is externally 24 feet square, and about 90 feet in height to the top of the vane.

The church, exclusive of the chancel and aisles, is calculated to hold about 250 persons, the population of the parish, as taken in 1850, being 436.

It is being rebuilt chiefly at the expense of her Majesty and his Royal Highness the Prince Consort, who take a deep interest in the progress of the works. The gentry living in the neighbourhood also contribute handsomely.

Mr. George Smith, of Pimlico, is the builder. The stone carving is by Messrs. Emery & Suffolk; the ornamental incised plastering by Mr. Worrall; the warming apparatus by Messrs. Price & Co.; the iron work by Mr. Potter. Mr. Thomas Stevens is the clerk of the works.

The windows throughout are to be filled with stained glass, furnished by Messrs. Hardman, of Birmingham; the subjects of the triple east window being the Crucifixion, the Resurrection, and the Ascension of our Lord. In the chancel aisles, armorial bearings and heraldic devices will be introduced; and in the remainder of the windows Scriptural subjects in medallions (such as the Light of the World, the True Vine, the Good Shepherd, the emblems of the Four Evangelists, &c.), and work in "grisaille," will be employed.

An open-timber lich gate, constructed of East Indian teak upon a stone foundation, will be placed at the entrance to the churchyard.

CHURCH-BUILDING NEWS.

Sleaford (Lincolnshire).—Ruskington Church has been reopened. The edifice, which is in the Gothic style, and dedicated to All Saints, has been restored under the direction of Messrs. Kirk & Parry, architects, Sleaford; the contractors being Messrs. S. & W. Pattinson, of Ruskington. The chancel has not yet been restored.

Stowmarket.—The new chapel at Stowmarket for the Independents has been opened. The building is in the Decorated style. The interior dimensions are 62 feet from east to west, by 46 feet from north to south; with north and south transepts, 63 feet long by 21 feet wide. The edifice is divided transversely by three arches of carved timberwork forming the roof; the centre arch being 29 feet wide and 48 feet high to the apex of the ridge, and the side arches spanning the galleries, which extend round three sides and into the transepts; the fronts being formed of moulded woodwork, filled in with open cast-iron panels. Cast-iron columns of ornamental design, from the foundry of Messrs. Turner, of Ipswich, carry the galleries, and extend upwards to receive the arched principals of the roof. The ceiling is formed of wrought timber and boarding, stained and varnished. At the west end of the chapel are the school buildings, consisting of, on the ground story, infant school, 36 feet by 21 feet, and 14 feet high, to be used also for week-day service, with four class-rooms adjoining, and minister's vestry: above these is a school-room, 60 feet by 26 feet, open to the ridge, and communicating with the galleries in the transepts: a room is attached for the preparation of refreshments on public occasions. The exterior has its

principal front to the street. The entrance to the ground story is through an open porch, with stone archway 15 feet high by 11 feet wide. On either side is the entrance to the gallery stairs, having corresponding arches of stone, moulded and finished with carved crocketed canopies. Between the gables of the staircases on the apex of the roof is a central spirelet of timber, 67 feet high to the top of the vane, which acts as a ventilator to receive the foul air. To the west is the gable of the front transept, in which is a four-light decorated window over the gallery, and two two-light windows below. Further west is the entrance to the schools, formed in a wide buttress from the angle of the transept; and beyond is the school gable with large three-light window to the upper room, and two lower windows to the class-rooms. This is designed in a simpler and less decorated style. The materials are Kentish rag stone facings and Caen stone details, with slated roofs and ornamental ridges of brick-earth. The windows are glazed in lead quarries, with crimson borders, executed by Mr. Stearn, of Ipswich. The chapel will contain 1,054 sittings—560 on the ground-floor, 328 in the galleries, and 166 children,—all in open benches of stained deal, with carved traceried panels in the bench ends. The contract was taken by Mr. H. B. Smith, builder, for 3,333*l.* Mr. F. Barnes, of Ipswich, was the architect. The stonemasons' work was executed by Mr. Ireland, of Ipswich.

Low Leyton (Tower Hamlets).—St. Patrick's Roman Catholic Cemetery, at Low Leyton, has been consecrated. The cemetery is situate in Union-lane, closely adjoining the Low Leyton station of the Eastern Counties Railway. It covers an area of something like twelve acres of gently rising ground, with gravel subsoil, the whole being drained to a depth of 12 feet, and surrounded by an oak fence. The entrance to the grounds is from Union-lane, by panelled iron gates of ecclesiastical design, harmonizing with the character of the erections in the rear, and with that of the institution itself. The group of buildings which adjoins the gateway is of Gothic architecture. It consists of a sexton's lodge, with a covered porchway and cloister for monumental inscriptions and tablets, leading into the transept of the chapel, and by a staircase to the catacombs beneath. The chapel itself is 70 feet long, and 25 feet wide. At its western extremity is a rose window, surmounting a group of lancet windows, whilst the eastern end is occupied by the altar, standing in an apse, which as well as the chancel is vaulted under the wood roof, the nave having a plain open roof, with stained timber. The altar has a front of alabaster, with bosses of serpentine, stems, and Irish green marbles, arranged in cruciform ornamentation. On the north side of the chapel is a porch, arched at the sides, with shafts of red stone, and affording a means of exit to the grounds. These are intersected by broad gravelled paths, laid out in the form of the cross; and at the central and most elevated point is a conspicuous ornamental monument, consisting of a base, a shaft of coloured stone, and foliated capital carrying a large plain cross of Calvary worked in polished grey granite. The roof of the chapel is surmounted by a "Holy Rood," the figures being nearly life-size and painted. This portion of the work was executed by Mr. T. Phyllips. Mr. W. Hill, of London, is the contractor for the works, which have all been designed by, and executed under the supervision of, Messrs. Willson & Nicholl, of London, architects.

Little Barford (Beds.).—The church (St. John's) in this village, which is a chapel under Adderbury, has recently undergone considerable alterations and repairs, under the direction of Mr. Street, architect. The north, south, and east walls have been taken down and rebuilt, and the tower has been removed from its former position, within the square of the nave at the south-west corner, to the outside, forming a porch topped with a broach. The old Norman doorway and the windows have been reset. The roof is new, of a good pitch, and on arched timbers. The seats are open benches, as at Deddington, and of stained deal. The pulpit has its base of stone, the upper part being of carved oak, and open. The masonry of the interior walls is bare, and the floor covered with small encaustic tiles. The church is, as it were, re-arranged. The old porch was between the two southern windows, by which arrangement the congregation was divided. The tower, of the date of Archbishop Laud, was inside the church, the bell-ropes hanging in view. The chief points in the alterations are, as regards the exterior, the new tower and broach, the cross over the chancel arch, and the restoration of the old windows; and in the interior, the roof and pulpit; The

masonry was executed by Messrs. Franklin & Hopcraft, of Deddington, builders. Cost, 500*l*.

Canterbury.—St. Mildred's Church is to be reopened, after its restoration, on Friday, the 29th, and Saturday the 30th inst. The Very Rev. the Dean of Canterbury, Dr. Alford, preaches on the Friday; and the Very Rev. the Dean of Chichester, Dr. Hook, on the Saturday.

Sandown Bay (Isle of Wight).—The accommodation of Christ Church, Sandown, is about to be considerably augmented by the erection of a new north aisle and other works, in accordance with designs prepared by Mr. Woodman, of Brighton, the architect of the original building. Additional sittings will be provided for upwards of 200 persons. The works have been contracted for by Mr. Deboyne, of the Isle of Wight, builder, at 850*l*, and will be proceeded with forthwith. The funds have been aided by grants from the Incorporated and Diocesan Church Building Societies; but there is still a considerable deficiency, and the incumbent and churchwardens appeal, not only to the residents, but to the visitors of this part of the island, for pecuniary help.

Yeovil.—The ancient chantry or crypt of St. John's Church is advancing towards completion as vestry accommodation. If funds are forthcoming, the work of restoration will be continued. The Town Council have liberally voted two sums of 50*l*. each, for the purpose of commencing the improvement of the churchyard and its approaches.

Bradford.—The Primitive Methodist chapel in Manchester-road, burnt down at the beginning of the year, is about to be rebuilt. The contracts for the necessary works have been let as follows:—Masons, Pyrah & Wray; joiner, Thos. Taylor; plasterer, J. Duckworth; slaters, Hill & Sutcliffe; plumber, J. Scholefield. The joint contracts amount to about 1,200*l*.—At Little Horton Green, in the borough of Bradford, the foundation-stone of a new church has been laid. Though included in the scheme of the Bradford Ten Church Building Society, it will be erected and endowed solely by Mr. F. S. Powell, of Horton Hall. The cost of the building is estimated at about 10,000*l*, exclusive of fence, walling, and other incidental expenses. The church will be in the Gothic style of architecture, from designs by Messrs. Mallinson & Healey, of Bradford. It will afford accommodation for 1,000 on the ground-floor.

Newcastle-upon-Tyne.—Christchurch, Shieldfield, has been consecrated. The plan of the edifice comprises nave and chancel, with north and south aisles to each, a vestry under a distinct gable at the north-east corner, and a tower, crowned with a spire, at the south-west corner; as well as a north-west porch. The last is triangular in plan, to suit the obliquity of the street; which, under the desire to make all the space available, has had some influence on the plan of the west end of the building. The style is Geometrical. The nave is divided from the aisles and chancel by clustered piers and moulded stone arches. The arch of the chancel is adorned with corbel shafts of coloured stone and marble. The roofs are of good pitch, divided into bays by moulded principals, with arched braces, stained and varnished. The church is lighted by traceried windows; those on the north and south of three lights, that to the west of five lights, and to the east of four lights each. These have been filled with stained diaper glass, designed to obstruct the view of adjoining houses. The church is seated throughout with open stall seats. The capitals in the nave and the corbel shafts of the chancel are ornamented with foliage of various kinds, carved in stone by Mr. Patterson, of Newcastle. The church has been built by Mr. James Robson, from the designs of Mr. A. B. Higham, of this town, architect.

Lumley.—A new church and burial-ground have been consecrated at Lumley by the Bishop of Durham. The church has been much needed for many years past; and has been erected, according to the *Newcastle Covenant*, chiefly through the exertions of the Rev. J. Dodd. The cost of the church, including boundary wall, &c., is about 1,300*l*. It is of the Decorated period of Gothic architecture, and consists of tower and spire, north porch, nave, chancel, and vestry. It is fitted up with open seats, and has an open timber roof; the whole of the woodwork being stained and varnished in imitation of oak. The church is heated by hot-water apparatus, provided by Messrs. Walker & Emley, of Newcastle. Mr. J. Lowes, of Durham, did the mason and joiner work; Mr. Beck the slating; Mr. Bailey the plumbing; and Mr. G. Cooper the decoration work; the whole being done under the superintendence of Mr. Thompson, architect, Newcastle.

STAINED GLASS.

Lincoln Cathedral.—A memorial window has been put up in the nave by the Revs. A. and F. Sutton. The window contains twelve subjects from the life of Joshua, and is the companion window to that recently put up, containing scenes from the life of Moses; the two being a memorial to the late Sir Richard Sutton, Bart., and Lady Sutton. Beneath the window is a small mural tablet in brass, with the inscription.

Wood Enderby Church (Horncastle).—Four stained glass windows, the gift of Sir Henry and Lady Dymoke, of Scriveley Court, have recently been inserted in this church. Three of these windows are of Early Decorated style. Each has a circular opening in the tracery; and they are filled with richly-coloured stained glass, the work of Lady Dymoke, an amateur painter in this art, under the instructions of Messrs. T. Baillie & Co., of London. Each of the principal lights contains a ribbon on a white ground with gold edges, and lined alternately with ruby and blue, and on them are written various texts. These are worked into a background composed of Early Decorated quaries, with oak leaves, similar in design to Merton College, Oxford; and a line of coloured glass surrounds each light. On the round openings of the tracery are the monograms I.H.S., X.P.C., and a broken chalice on a book, with wine spilling, being the emblem of St. Benedict, the patron saint of the church. The fourth window is that of the east chancel, and is also decorated. It consists of three lights and three quatrefoils in the tracery. The centre light shows our Saviour after His resurrection appearing to Mary Magdalene: the figure stands in a halo of glory in a *vesica piscis* form, with the left hand pointing to Mary. (John, xx. 17). On the right-hand light is the figure of Mary Magdalene, kneeling to our Lord, and resting her hand on the "pot of ointment;" and on the left an angel clothed in white, sitting at the entrance of the empty sepulchre. This window also derives interest from the ornamental portion of it, in rich foliage, being in a great proportion the work of Lady Dymoke. The design and figures are the work of Messrs. Baillie.

St. Ives Church.—This edifice has recently been enriched by a stained window, put in at the west end (immediately opposite the memorial window to Mr. B. A. Greene), to the memory of Mr. Thomas Earl, for many years the landlord of the Unicorn hotel, and put up by his widow and children. The subject introduced is taken from the 25th chapter of St. Matthew, and illustrates our Saviour's parable of the foolish virgins. Immediately below the figures is the text, "Watch therefore, for ye know neither the day nor the hour when the Son of Man cometh." In the quatrefoil at the top of the window are the two letters, "T. E.," and on a brass plate below the window is the inscription. The window is by Mr. Wallis, of Newcastle.

St. Mary's, Minster-Thanel.—The three lancet windows at the east end of the chancel in this church have been recently filled with stained glass, in keeping with the date of the architecture of that portion of the building. On a background, with borders, are twelve panels containing subjects from Holy writ, placed in the following order, beginning at the base of the lancet on the north side and proceeding upwards:—1. The Nativity of our Lord; 2. The Baptism; 3. The Marriage of Cana, our Lord's first miracle; 4. The Transfiguration. In the centre light:—5. The Raising of the Daughter of Jairus, with the following underwritten,—"She is not dead, but sleepeth;" 6. The Good Shepherd; 7. The Last Supper; 8. The Crucifixion; and, in the point above, the "Agnus Dei." In the third lancet on the south side:—9. The Resurrection of our Lord; 10. Our Saviour and the Disciples journeying to Emmaus; 11. The Ascension; 12. The Descent of the Holy Spirit. The design and execution of these windows were entrusted to Mr. Willement, of London.

St. James's, Gravesend.—A window on the south side of St. James's Church has been recently filled with stained glass, presented by the Rev. H. Hutchinson Swinny, Principal of Cuddesdon College, Oxford, as a memorial to several of his deceased relatives. The two lower openings of the window are occupied by a representation of our Lord in front of the tomb of Lazarus; the sisters Martha and Mary kneeling at the feet of their Saviour, who points to heaven. Above, on a scroll, is inscribed, "I am the resurrection and the life." Within the quatrefoil opening in the head is the "Agnus Dei," encircled by the crown of thorns; the points of a foliated cross showing behind. Mr. Willement, of London, was the artist.

Glasgow Cathedral.—The following windows have reached the cathedral in safety:—No. 34, presented by Sir Archibald Campbell, Bart.; 35 and 36, by the Messrs. Alexander; 37, by the late Earl of Eglinton and Winton; and 38, a memorial window, dedicated to his memory; 39, presented by Mr. Robert Hutcheson; 40, by the Messrs. Jamieson; 41, by Mr. Napier, of Shandon, and his son, Mr. John Napier, Saughfield; and 42, by the representatives of the late Mr. Laurie, of Laurieston, who have dedicated it to his memory and to that of other members of his family. Many donors of windows have been removed by death since the movement first commenced. The Earl of Eglinton was a member of the committee. Of the two windows selected by him for presentation, one retains its original inscription commemorating his gift: the other is dedicated to his memory. Mr. James Laurie took a deep interest in the scheme, and was one of the earliest contributors: he has been removed by death also; and, as in other cases, relatives have esteemed it a duty to carry out the donor's wishes. These windows will completely fill the Lady chapel. The subjects are "The Twelve Apostles." We understand that such rapid progress is making with the Government window that, unless prevented by ice in the Elbe, it may be expected in January next.

PROVINCIAL NEWS.

Rochester and Chatham.—The approach to the bridge on the city side is to be completed; which will necessitate the demolition of a portion of the ancient Crown Hotel, together with the City Arms Tavern, and adjoining buildings. A large hotel is to be erected on the site of the present Crown Inn. The committee formed to erect a drinking-fountain on a site in the Military-road, presented by the Government, have decided on two separate contracts for the work; one to include the lower portion, and the other the ornamental part. The contractor for the base is Mr. Wilkins; and the other part of the fountain, which will be of an ornamental character, will be executed by a London firm.

Winchester.—The following tenders for the erection of a gas-meter testing-room have been sent in, viz.:—Mr. G. Gover, 63*l*.; Mr. Steele, 63*l*.; Mr. E. Carter, 56*l*.; Mr. G. Fielder, 58*l*.; Mr. Langman, 70*l*. 10*s*.; Mr. J. Brown, 69*l*. The tender of Mr. E. Carter was accepted by the gas committee.

Tipton.—The new schools lately erected at Tipton have been formally opened. The erection is of a plain character, and the material used is red and blue brick. The building is in the form of the letter H, and is 138 feet 6 inches long, by 22 feet, with a projecting wing at each end 55 feet by 18 feet. The visitors' entrances are in the wings, through small passages laid with tessellated pavement. Over the centre of the roof is an ornamental clock-turret, 60 or 70 feet high. In the interior the floor is boarded, and the lower portion of the walls is built of white glazed brick, surmounted by a tessellated border. The height is 17 feet, and lighting is provided for by thirty-four windows. The boys' and girls' schools, which can be thrown into one, can accommodate together about 500 children. There are also class and cloak rooms and lavatories. The building is covered in with slates, with ornamental ridge-tiles. The height from the floor to the wall-plate is 15 feet. The principal beams are exposed, and varnished. The estimated cost was from 1,800*l*. to 2,000*l*.

Northallerton.—The foundation stone has been laid for extensive alterations and additions to Pepper Hall, near Northallerton, the seat of Mr. Henry Hood, formerly the family seat of the late Lord Alvanley, which title is now extinct. The present proprietor proposes to restore and beautify the old mansion from the designs prepared by Messrs. Dobson & Chorley, of Leeds. The architects propose to dispense with all the servants' offices, which have hitherto been on the cellar floor level, and make them into wine and beer cellars, and build new offices at the north end of the present mansion. The external dimensions of the new wing will be 129 feet by 140 feet, and this put to the west front of the present building will make a frontage of 230 feet. The house will contain upwards of 100 rooms when completed. The supply of water for the house and stables will be in the clock tower, 100 feet high, pumped up by an engine. The whole of the external walls will be of red and white pressed bricks alternately, with stone dressings. The estimated cost of the fabric is 14,000*l*, exclusive of the internal decorations, door and window furniture, grates and marble chimney-pieces. The whole of the

works will be superintended by Mr. William Freeman, of Ripley, as clerk of works. The principal contractors for the estimated works are as follows, viz.:—Brick and stone work, Messrs. Longley, Brothers, Leeds; carpenter and joiner's ditto, Mr. John Hall Thorp, Leeds; plumber and glazier's ditto, Messrs. William Russell & Son, Darlington; plasterer's ditto, Messrs. James Wilson & Son, Leeds; slater's ditto, Messrs. John H. Cattley & Son, York.

FONTS.

On paying a visit a few months since to the grand old church of St. Margaret's, Ipswich, I noticed on one of the panels of the font the words, "sal et saliva;" in allusion, probably, to the salt and spittle formerly used in the administration of this sacrament by our Church before she reformed herself, and which had further reference, I suppose, to Matt. v. 13; Luke xiv. 34; and Mark vii. 38; viii. 23; as applied to the newly-baptised.

I should be glad to know if there are any other examples of this in England.

There is a handsome font at Melton, Suffolk, nearly a mile from Ufford (the font cover of this latter church is one of the glories of the county), which has the seven sacraments of the unreformed church, and other designs, well carved, but mutilated. This font has been this year (for the first time, I was told), stifled beneath a veil of paint, and the whole church clothed in a thick great coat of whitewash. The paint on the font was scarcely dry when I saw it.

I believe there are some people (so-called lovers of simplicity) who would whitewash the skies if they could reach them.

ARTHUR HENRY BROWN.

RAILWAY CARS IN AMERICA.

WITH reference to a statement sent us by "An American" on this subject (p. 725), a New York correspondent gives a very different account:—

"Your railway carriages," he says, "are just as far ahead of our abominable railway dens as a gentleman's private coach is superior to a City omnibus. The 'American' was doubtless an agent of Bissel's patent truck, which he took care to bring in prominently, and which is not so generally used as he states. I am not a railroad man, but I am a frequent traveller, and I never heard of it before. The trucks are common trucks, not patented, and the only guard against the breaking axles is *luck*, on which we Americans travel all our lives in all sorts of vehicles.

As to the cars: fancy a long cabin, 10 feet wide by perhaps 70 feet long,—long enough at any rate for thirty benches (two seats) on each side. The backs do fall each way, so that parties of four can face each other if desired. The roof of this cabin is hermetically sealed, and the only means of obtaining fresh air is to raise a window, and let it blow on your breast, admitting with the cold air dust and cinders. A narrow aisle runs the whole length of the car, with a door at either end, through which the conductor passes frequently the entire length of the train, collecting tickets after leaving each station; besides which boys are eternally dodging through, selling books, railroad guides, candy, peanuts, gum-drops, &c.; generally knocking off hats, and jostling against passengers as the train flies through the air.

Of course, every person having a ticket is entitled to any seat he chooses to take, and the consequence is, your neighbour on the same bench may be a dirty tipsy rowdy, while onions and whisky may be, and generally are, the ingredients of breaths before, behind, and around you.

The doors are kept banging incessantly by the conductor's frequent visits to see the tickets, by the book-boys, candy-boys, and peanut-boys, and by the passengers visiting different cars. The floor of the aisle is soon a mere puddle of tobacco spittle, while dirty boots and dirtier heads are seen resting on the velvet cushions or backs of the seats. In summer iced water is kept in large tin cans, with a tin mug chained fast; while in some trains boys carry the water in tin teakettles through the cars, filling tumblers and ruining silk dresses.

The 'dressing-rooms' are simply water-closets (without the water), which are always too filthy for decent people to use.

The sleeping-carriages are the same caverns with the seats removed, and three tiers of shelves substituted, which the absence of ventilation renders insufferable as soon as they are filled with dirty men, dirty boots, and dirty clothes.

Smoking-cars are provided, and present a com-

bination of cigar-stumps, tobacco quids, and pools of spittle, too disgusting for any but my own countrymen to contemplate, much less witnesses.

Between Philadelphia and New York—ninety miles' distance—tickets are called for, no less than twelve times; and then bang go the doors at each end; while the boy-traders follow with their eternal invitations to buy their dirty wares.

Stoves are fitted in the centre of the cars in winter; and, what with the heat from them, the effluvia from the bodies, the candies, peanuts, boots on the stoves, apple-skins, &c.; by the time a train is thirty minutes on the road the atmosphere is positively insufferable.

How often do I hear the longing for English railway carriages on our roads for those who are willing and able to pay for privacy; but it is contrary to the 'spirit of our institutions,' and therefore *defendu*. So much for the 'American's' story about our superior cars.

New York.

O. P. Q.

DRY ROT.

HAVING noticed in your publication of the 2nd and 23rd instant letter on the subject of "Dry Rot," I feel that it is desirable, through the medium of your paper, or otherwise, to report the important cases connected with this malady, the remedies resorted to, and the results arising from the applications adopted. Regretting, as all persons who read the communication in your 2nd of November number must do, the reappearance of the fungus, and its increase, instead of diminution, after the expenditure made there; I beg to report the following facts relative to the parish church of this town (Preston), which was infected to a very considerable extent, and restored under my directions about three years ago. Since that time periodical examinations have been made of the floor timbers and joists, and all the wood-work below the level of the floor. Up to three weeks ago, when the last examination was made, not the slightest trace of the fungus or dry rot appeared in any part; and the circulation of air under the level of the floor was found to be perfect throughout every space formed by the sleeper walls. The church was erected in 1853 on the site of the old building, in which a great number of interments had been made, but none subsequent to the re-erection. In the year 1859, when some gasmen were altering the pipes below the floor, it was found that parts of the timber were rotten; and on further examination it was discovered that dry-rot had made its appearance in nearly every part of the floor timbers. The floor was first removed in the places where the dry-rot had been detected. From these places it was traced step by step until it was ultimately found that no part of the whole interior of the building was free from it. The sleeper walls, the earth upon which they were built, and the rubbish below the level of the floor wherever pieces of wood appeared amongst it, were impregnated with the fungus, with its widely-expanded network of threads; and in some cases the fibres of the fungus had so increased in bulk, forming autostomosing strings an eighth of an inch and more in diameter.

The ventilation of the space below the floor of the church was imperfect: the spout water from the roof of the building was not effectually carried away, but suffered to sink into the earth and the foundations of the building.

Having step by step followed the evil to the removal of the entire covering of the floor, the first necessity was the carrying away the vitiated matter from the surface of the whole area of the church, by the removal of the sleeper walls, the damp impure soil, and rubbish, to the depth of eighteen inches; and next to seal over hermetically the entire surface with a layer of concrete, with a top layer of cement, making a total of seven inches in thickness.

Upon this solid barrier, against the evil from beneath, sleeper walls of new material were erected, and lime-washed, as well as the side walls of the church itself; and the joists, being first washed with corrosive sublimate, were so laid on and supported by the sleeper walls, as not in any case to touch the side walls of the church. Effective provision was also made for the free circulation of air, by exterior air grates in the main walls, and arrangement of spaces in the sleeper walls, and passages to the hot water pipe chambers, and flues made for warming and ventilation, so as to give below the floor a regular and constant circulation, and to supply the church during the winter with air passing the hot water pipes, and at all times with other appliances provided, aiding in the ventilation of the church.

The timber found to be infected by the dry rot was entirely removed from the building and sound

timber substituted; and all the joists and the underside of the flooring-boards were washed over with a solution of corrosive sublimate.

Drains of pipe-tiles were laid all round the church, level with its foundation, and covered with porous material to the level of the church-yard. Glazed pipe-tiles, with tight joints, were laid to take away the spout water.

I have had several other cases of dry rot to remove, none of which have, however, been of so serious a nature as the one above referred to; but in every case it has appeared manifest that the want of circulation of air has been the principal cause; yet the removal of damp ought not to be neglected.

Perhaps you will allow me to refer your readers to an account of an extraordinary instance of dry rot reported by Sir Thomas Dean in the *Builder*, 1849, vol. vii., No. 335, page 321.

JOHN J. MYLES.

CLERKS OF WORKS AND THEIR DUTIES.

SIR,—Whether this follows the greater number of letters sent to you on the above into the waste-paper basket or not, rests with you; but, in common fairness, I appeal to the Englishman's love of justice to give us a hearing. First, let me ask you "London Architects" to agree with me their duties, &c., then give us their united definite law of qualifications. Then, sir, some real benefit would be the result of the discussion. Your own advertisements each succeeding week testify plainly that the preference is given to a man who with vast experience possesses a good sound education, quick perception, close observation, faithfulness, and honesty,—to the man who really knows *what a bench and a banker are*, and how these works and all others should be done,—who can go up any high scaffold, and can climb over any rubbish, without fear of soiling his gloves or dusting his boots. A deep sense of the importance of this question might have caused me further than sound policy would allow, to go; but nearly twenty years' experience in this matter has given me an all-absorbing interest. Discuss it as you choose, the more the better; but do not let all the discussion be on one side.

G. S.

FIREPROOF BUILDING.

SIR, Experience has proved that when large masses of highly combustible matter, such as those which have lately exhibited disastrous examples in Tooley-street, are fully ignited, no structures of mere stone and iron can withstand the violence of the flames; nevertheless, I believe that buildings may be constructed which shall, under ordinary circumstances, be really "fireproof;" and, in extreme cases, far more so than any such as at present bear that doubtful name.

After nearly every great fire, we see testimonial letters published, stating that "the valuable books, &c.," have been preserved by fireproof safes; and I shall now attempt to show the practicability of applying the principles by which these admirable contrivances are made so secure, to the construction of warehouses and factories.

Mr. Price, in his work on safes and locks (1856), has entered fully into the subject, so far as it pertains to iron safes; and, after enumerating the various substances which have been used for non-conductors of heat, comes to the conclusion that "the best known and most effective chemical for such purposes is one of the cheapest; and in its preparation it merely requires grinding or crushing. This chemical is alum. Professor Turner says,—"It crystallizes readily, and the crystals contain about 50 per cent. of water of crystallization. On being exposed to heat, they froth up remarkably, and part with all the water." This, then, is the chemical I use, thoroughly mixed with the sawdust of pine-wood. As soon as the outer case (of a safe) becomes sufficiently heated, the alum dissolves, and liberates its water of crystallization in the shape of steam or vapour, which is absorbed by the sawdust, and thus becomes a wet fire-resisting and non-conducting medium; and the surplus steam finds its way through the joints and angles of the linings or chambers, and saturates the contents of such safes; the whole being kept at the temperature of boiling water, 212 degrees Fahrenheit. In such an atmosphere books and papers will neither singe nor burn."

Now, I believe this principle may without difficulty be applied to large buildings. Let the usual cast-iron pillars be made of rather greater diameter than the proportion now adopted. Substitute wrought-iron hollow cellular beams, joists, and wall-plates, for cast-iron girders and wood. Instead of brick and concrete, let the floors be formed of hollow stone-wall arches, in blocks, similar to the arches now so largely manufactured in Lambeth and elsewhere for culverting, only made of a fire-resisting clay, which I am informed, by an extensive manufacturer, can easily be done. Let all these hollow pillars, beams, joists, wall-plates, and arches, be filled, during the process of construction, with the cheap and simple compound before described, which for convenience of use might be pressed beforehand into blocks of convenient size and form; and let double iron doors be no longer trusted.

I believe that by these means a large per-centage of the present average of fires would be deprived of the destructive powers of which we now so often depend on the results. The size and strength of the beams, &c., are matters for the calculation of the architect and builder; but I think a form of joist for supporting the floor-arches might be cheaply "rolled out," and only require riveting to a base-plate. Blocks of 36 inches by 18 inches would perhaps be the best; and I think circular pillars of equal size preferable to any other cellular arrangement for the arches.

Buildings upon this principle, if merely interposed between the more dangerous class of warehouses, would give increased safety to our dock and wharf risks, and they would be a complete security in the case of large libraries, picture galleries, factories, and warehouses of great cubical contents, such as the Up-town warehouses, wherein large quantities of first-class goods are stored. I think that within five miles of the Royal Exchange such articles as saltpetre, jute, turpentine, naphtha, tar, niter-matches, &c., should be stored in places specially set apart for this purpose.

SAMUEL EYRE.

METROPOLITAN BOARD OF WORKS.

At the usual meeting of this Board, held on the 22nd, Mr. Robinson, pursuant to notice, moved that no person be henceforth appointed to the office of district surveyor by this Board unless he shall consent to reside in a central part of the district placed under his charge.

Mr. Legg seconded the motion, which, after a brief discussion, was negatived.

Mr. Legg, pursuant to notice, moved that, as the northern high-level sewer has, for a considerable period, been reported as complete, the engineer do report to the Board the total actual cost of the same; and, if in excess of the contract price and estimate, the causes that have rendered such increased expenditure necessary.

The motion was seconded and carried.

Mr. Phillips, pursuant to notice, moved that it be referred to the New Streets Committee to ascertain as nearly as practicable, the probable total cost of the Covent-garden approach, taking into account the probable produce of the several plots of ground at present unlet, and to report the result of such inquiry to the Board.

The motion was ultimately carried in the terms in which it was moved.

A report was brought up from the committee on the Covent-garden approach, recommending that the roadway of the Southwalk and Westminster communication be paved with granite instead of being macadamised, at an estimated extra expense of £8751, and that the resolution of the Board of the 10th July last, 1861, be varied accordingly. The committee also recommended that the subway, sewer, and vaults be extended to the Southwalk-bridge-road, and the roadway paved with granite; and that the works be executed by Messrs. Bowers, at 2½ per cent below the present contract price, the probable cost being about £9,000.

Mr. Hare moved the adoption of the committee's recommendation.

Mr. Doulton seconded the motion, which was carried.

DECISIONS UNDER METROPOLITAN BUILDING ACT.

Opening in Party Wall.—Low Building against a higher. Last week, Mr. Charles Aldin, one of the builders at South Kensington, attended before Mr. Dayman (Hammersmith Police-court) to hear judgment in a case of importance to the building trade.

The proceedings were instituted by Mr. T. L. Donaldson, the district surveyor of South Kensington, against Mr. Aldin, for erecting a certain building without separating it from an adjoining building either by an external or party wall, contrary to the rules of the Building Act. The buildings in question are stables, a portion of which had been erected against a wall in which there were windows above. It was contended by Mr. Donaldson that, as the wall was a party-wall, the Act allowed of no apertures, and that the defendant should have built up another wall to the height of the new building. The defendant submitted that it would involve a great expense, and blocking up the opening would render the building useless, on account of the deprivation of light. Mr. Dayman took time to consider the point, and adjourned the summons.

The parties again attended, when Mr. Dayman said that the more he considered the question the more he was inclined to believe Mr. Donaldson's view of the case was correct. It seemed to him that the policy of the Act was that there should be no apertures in a party wall, except under specified particular circumstances.

Mr. Aldin said the decision would go to shut up sixty windows, as he had other buildings similarly constructed. Mr. Dayman said he could not help it. If there were 6,000 windows the decision would be the same.

Mr. Aldin suggested whether he could apply to the Metropolitan Board.

Mr. Dayman thought he had better, as they possessed larger powers, and they appeared to use them very fairly.

Mr. Donaldson said he did not press for any penalty, his object being to obtain his worship's opinion. It was the more necessary that this should not be any openings in party walls on account of the many destructive fires that had recently taken place.

Mr. Dayman then decided against the irregularity, and ordered the payment of the 2s. for the summons.

COMPENSATION CASE.

Boueneau v. Metropolitan Railway Company.—At Marlborough street, the directors of the Metropolitan Railway were recently summoned before Mr. Tyrwhitt for causing damage to the premises of Mr. Boueneau, marble merchant, 48 and 49, Warren-street, Fitzroy-square.

Mr. Sharpe appeared for the complainant, and Mr. Holloway for the Company.

Mr. Sharpe said the proceedings took their rise from the Railway Clause Consolidation Act and the Lands Compensation Act. The 6th sec. of the 8th Vic., c. 50, set forth that the promoters of railway undertakings were required to make compensation for land taken by them for railway purposes, and also, where injury was inflicted in consequence of the construction of the railway, that full compensation should be made to the owner. The 2nd sec. of the 8th Vic. pointed out the way that this compensation should be determined. If there was no special agreement, and if the damage did not exceed the value of the respective parties could not agree on the sum, the matter was to be settled by two justices of the peace. The sum claimed was 40s., and this therefore brought the case within magisterial jurisdiction.

Mr. Adolphe Boueneau said he carried on business at 48, Warren-street, of which house he had a lease. He had also purchased the ground-lease of No. 49. On the 15th May he observed the walls of the place cracking. The Metropolitan Railway Company were then excavating their railway before his galleries. The injury continued extending for some time until three of the walls were cracked and the crying stone discoloured. Had called in a surveyor to see the damage. In consequence of the cracks, and the walls having been thrown out of the perpendicular, it would be necessary to have certain repairs done, and also to remove the marble in the gallery. This latter business would cost about 80s.

Mr. Lockyer, architect and surveyor, said he was called in by the complainant to look at the building. The damages were 2s. demanded. The estimate for repairs prepared by Mr. Matthews, builder, was fair and reasonable. The estimate only included neces-

sary repairs. The slipping of the ground no doubt caused the cracks, and occasioned the subsidence of the walls.

Mr. Baker, district surveyor, had seen the cracks in the walls. His views completely coincided with those of Mr. Lockyer. He had him-self made an estimate of the necessary repairs, and made the amount 33s. The claim for moving and covering up the marbles was too moderate in his estimation. The ground had slipped away from the houses and from under the houses for a considerable distance in the New-road. The buildings had not caused the slipping of the ground by their weight, for some of the ground of the gardens before houses 50 feet from the road had suffered.

Mr. Holloway declined to call his witnesses. Mr. Tyrwhitt said, in great undertakings like a railway, it must be expected that claims for damage would fairly arise. The case of damage had been proved, and he must give the amount claimed, 40s.

Mr. Sharpe applied for costs on the most liberal scale, owing to the fact that the law precluded the complainant from bringing his action in a superior court.

Mr. Tyrwhitt said he thought the question of costs ought to be settled by the respective professional gentlemen. He could not of himself decide the amount of costs.

Mr. Holloway argued against giving large costs. The company had been dragged into court upon what he most hold was untenable ground, for he had a right to assume that the sinking of the soil was owing to the heavy weights placed by the complainant upon it. Another point which he raised was, that the heavy buildings erected by the complainant were illegally erected, taking into view the 7th Geo. IV., cap. 142. The learned gentleman here read the clause, the effect of which was, that no new buildings were to be erected on a new foundation.

Mr. Tyrwhitt said the Act in question was a public Act, and ought to have been taken into account. His opinion was that the complainant had better give up the costs, and take his judgment for the damage claimed.

Mr. Baker was called to prove whether the galleries had been erected on old garden walls or on new foundations. His evidence was, that the new erections stood upon old foundations, the site of the old walls being on the same foundation.

Mr. Holloway contended there must be some new foundations for the new buildings.

Mr. Tyrwhitt said the objection had somewhat taken him by surprise, but he could not bring himself to think that the Act of Parliament intended to prevent such erections as those which had been proved in this case. He could not say that the walls were built on a new foundation. Then, with respect to costs, he thought there could be no difficulty between respectable men. His suggestion was, that each party should pay their own costs, or agree on a sum; and for that purpose he would adjourn the case generally for a week.

A BUILDER'S CHARGE FOR PLANS RECOVERED.

Holmes v. Swann.—In this case, tried in the Birmingham County Court, plaintiff, for whom Mr. James Mottram, barrister (instructed by Mr. F. Elkington), appeared, is a builder, in the Lichfield-road, and defendant, who retained Mr. East (firm of East & Parry), is a publican, in Great Hampton-row. The action was brought to recover a sum of 24s. 15s., as professional charges for making plans and estimates for buildings which the defendant was about to erect in Aston Park. It formed part of the arrangements between the parties, that if the plaintiff had the job to erect the premises, then he was not to make any charge for the plans, &c. Ultimately the work was given to another builder; hence the action for the professional services of the plaintiff, at 2½ per cent on the outlay. The principal objection made as to Mr. Holmes's plans was that 54 feet of the building land was left unoccupied, thus reducing the size of the houses. Something was also said as to the high and narrow nature of the plans; and it was added that the defendant had never received the whole of the drawings pertaining to the proposed buildings. After, however, hearing the evidence and the remarks of the advocates, his Honour the Deputy Judge gave the plaintiff a verdict for 21s. 6s., and the costs.

PATENTS CONNECTED WITH BUILDING.*

IMPROVEMENTS IN THE MANUFACTURE OF ARTIFICIAL STONE AND CEMENT OR PLASTER, AND IN TREATING TIMBER FOR THE PURPOSE OF PRESERVING THE SAME. *F. Ranome, Ipswich.* Dated 9th April, 1861.—For the purpose of manufacturing artificial stone the patentee mixes broken or powdered chalk with the silicates of soda, or other alkali, and he moulds the compound into blocks or shapes. Afterwards, when the blocks or shapes are dry and hard, he washes over the surface with a solution of chloride of calcium, or other soluble salt of an alkaline earth, or with a solution of chloride of aluminium or iron, in order to ensure, as far as possible, the conversion of the soluble silicate into an insoluble silicate of lime, or other alkaline earth, or of aluminium or iron. In treating wood for the purpose of preserving the same, he applies to it a solution of silicate of soda, or other alkali, by preference forcing the said solution into the pores of the wood; and afterwards he applies a solution of chloride of calcium, or other soluble salt of an alkaline earth, or chloride of aluminium or iron; by preference forcing the same into the pores of the wood as before.

DOWELS. *W. E. Rogers, Gray's Inn-road, London.* Dated 10th April, 1861.—The object of this invention is to facilitate the construction of wooden framing for doors and other like carpenters' work. To this end the patentee proposes to

employ metal holdfasts or dowels; which, being inserted into holes bored to receive them, will, by the application of pressure, enable him to produce firm butt joints at less cost, both of material and labour, than the ordinary joints are made. These dowels he constructs by preference from square or round rods of wrought iron, the angles or sides of which he jags, so as to form projecting teeth thereon. These teeth are for the purpose of taking a good hold of the wood when the dowel is thrust home, and thereby preventing its withdrawal; but they are so arranged as to offer the least possible obstruction to the insertion of the dowel consistent with their use.

DOOR-DRAUGHT STOP. *C. A. Wheeler, Swindon.*—The patentee's own words are,—It effectually excludes all draught, though the door may have been cut as much shorter than the opening (at the bottom) as the thickness of the carpet or any other substance it has to travel over. As common butt-hinges only are required, the expense of rising-hinges, and the additional cost of labour in fixing, and the disfigurement of the door by cutting away at the top, will be entirely obviated.

CONSTRUCTION OF CEILINGS, AND PARTITION AND OTHER WALLS. *W. E. Gedge, Wellington-street, Strand, London.*—A communication.—Dated 8th April, 1861.—This invention consists in substituting for the laths, iron wires, stretched and crossed, fixed to ring-screws, or other supports let into the surrounding walls and the joists which level the framing. The wires are usually fixed about 4 inches apart. The rust caused by the humidity of the freshly applied plaster of itself perfectly unites the two facings.

OVERLAPPING WALL FACING. *W. Walton, Old Charlton.* Dated 1st May, 1861.—This invention relates to the manufacture of a peculiar facing for walls, to be used in combination with ordinary bricks, and consists in forming the facing of the wall of blocks or pieces of terra-cotta, or any suitable material, made with a flat or even face, which corresponds to the face of the wall, and with a projection at the back thereof which extends into and forms part of the wall. The lower edge of the facing or front part is bevelled internally, and the upper edge is bevelled externally; but the lower edge is bevelled at a more acute angle than the exterior, so that one block or piece is placed perpendicularly upon another block, with a brick or bricks built in or laid upon its projecting portion; the space between the two bevelled edges, which is filled with mortar or cement, takes the shape of a wedge, of which only the narrowest part is exposed to the atmosphere.

Books Received.

Spiritual Concepts, extracted from the Writings of the Fathers, the old English Poets, and Illustrated by W. HARRY ROGERS. London: Griffith & Farran. 1862.

LED to it, probably, by his recent illustrations of Quarles, Mr. W. H. Rogers has, in the handsome book before us, essayed a higher task; and, for the first time, probably, in the history of emblem books, the compiler and the artist are the same individual. Another specialty of the work is that throughout the entire book, from beginning to end, one train of thought pervades. That is to say, that the "dictum," *no cross, no crown* (rendered on the title-page by the device of a crown and a cross interlaced) is worked out in a series of emblems, which commence with struggles, and gradually culminate into success.

The style of ornamentation selected is that of the period of our third Edward, but used with a freedom which refused to be bound down by the rules governing, or said to govern, Medieval metal-work, illuminations, glass-painting, or architectural design. All appear to have been pressed into the service, but only so far as he has thought fit to adopt them. The selections are appropriate, and many of the emblems ingenious and striking. For a large class the book will serve as an appropriate and suggestive present. It is handsomely bound, in a cover designed by the author.

BRITISH MUSEUM.—We regret to record the demise of Mr. John Wilson, whose appointment as resident clerk of the works was mentioned in November, 1859. He was previously principal foreman to Messrs. Baker, the contractors. He has been connected altogether with the British Museum twenty-two years, and was held in much esteem. It is believed that the vacancy has been filled up.

* From the Engineer's Lists, and other sources.

Miscellaneous.

THAMES TUNNEL.—During the week ending 23rd November, 23,474 passengers passed through the tunnel, and paid 93*l.* 12*s.* 10*d.* in tolls.

ENLARGING THE ADMIRALTY.—Formal notices have been issued by the Board of Works and Public Buildings of their intention to apply to Parliament next session for an Act enabling them to acquire the necessary space for enlarging the Admiralty at Whitehall. In the inquiry last session before the Commons' Select Committee on the Board of Admiralty, the principal witnesses agreed that, as in France, so here, the whole naval department should be concentrated within one building.

THE THAMES EMBANKMENT.—On Wednesday last week an influential deputation, representing several metropolitan parishes, waited upon Lord Palmerston to urge upon his lordship the desirability of constructing an embankment on the south side of the Thames. They considered that, if this were not done, the embankment which is projected on the north side of the river would tend to reflect the current to the other side, and increase the severity of the floods to which some districts are already subjected, and which are attended by a great destruction of property. They requested that a clause should be inserted in the Thames Embankment Bill, empowering the Metropolitan Board of Works to construct the necessary works. Lord Palmerston is reported to have expressed his entire willingness to accede to the application of the memorialists, and promised to communicate with Mr. Cowper on the subject.

RAILWAY MATTERS.—One of the Government inspectors has certified that the new railway bridge erected over the Severn is properly constructed in point of security. Workmen are removing from the arches the timber framing.

The official journal of Naples gives the list of persons employed on the construction of the Roman railways. There are 17,316 occupied on the line from Capua to Cerveteri, of whom 6,781 are women. In that country the women work very hard; they serve the masons, and earn 55 centimes a day. At the Naples station, and on the line from Capua to San Severino, there are 1,025 workmen employed. A railway locomotive is actually on the soil of the Punjab. Locomotives, tenders, &c., have been landed at Mooltan, and are on their road to Lahore. The problem as to the time of their arrival may be worked out by professional actuaries from the following data:—Distance from Mooltan to Lahore, 215 miles; number of feet in a mile, 5,280; average rate of progress of locomotives, &c., 50 feet per diem. The carriages travel of moveable rails, and are dragged by cooles.

THE WARMTH AND VENTILATION OF PLACES OF ASSEMBLY.—Many of the diseases which shorten life are owing to the over-heating, and sometimes to the under-heating, of our theatres, concert-rooms, and exhibitions, and the impure warm or the chilling cold air that pervade these resorts. This most injurious defect applies to day as well as to night assemblies, but especially to the latter. It is nothing new to state that persons frequently take a "cold" from the transition from an over-heated theatre or church, and thus contract disease which often leaves the sufferer only at the advent of death; the latter, in many cases, occurring after a lengthened period of ill-health. Rich and poor alike suffer from this non-regulation of warmth. The rich, however, can take precautions against the evil, if they please; but the follies of fashion hinder them, and they are careless in such matters. From the super-heated theatre, &c., they emerge in the full costume of light and gauzy clothing (we speak now of female garments) into the cold air of the streets; waiting, perhaps, for a quarter of an hour for their carriage: others are compelled to economize, and must do without the luxury of even a hired vehicle. When they went in to witness the play it was warm and fine; but our climate is a vicissitudinal one; and, when the enjoyment is at an end inside, they step out into a cold, rainy, or it may be foggy night, having no additional clothing or wrappers to protect them. What wonder, then, that they catch cold, which hangs closely to them ever after, and ends in death? Were the air within such places so regulated as never to exceed (so far as the artificial production is concerned) from 69 to 70 degrees of heat, the liability to take cold would be greatly reduced. At present such is the carelessness exhibited, that it is a matter of chance whether the temperature be as low as at the freezing point or as high as that of boiling water.—M. P.

THE PIER WORKS AT RYDE.—Messrs. Langdon, the contractors for performing the new work for the Old Pier Company, are carrying on the building of the quay, which is to form the base of the tramway. The quay or wharf is to run out about 60 feet, with a breakwater on the east some 200 feet further seaward, so as to form a quiet and safe place for the unshipping of cattle or merchandise. The public slip-way is to be improved by this company. A patent hydraulic crane, capable of lifting 10 tons, is to be placed on the quay. There is to be a suite of rooms for waiting and luggage purposes, together with a toll-house, and other conveniences, built with some pretensions to effect, but not sufficient in elevation to obstruct the sea view.

THE SCOTCH THISTLE.—A correspondent wishes for information as to which of the thistle tribe is the true Scotch thistle. This is really a puzzle. If we are to place any reliance on the figures which profusely ornament many of our old Scotch books, or take as true representatives of any natural plant those vile excrescences which the older Scotch architects have stuck up in every possible shape and form, as finials to doors and windows, gable heads and doorways,—a taste which some of the modern professors of the art seem so very anxious to copy,—or if we trust to the taste of sculptors in stone or engravings in metals,—we must conclude that the species from which one and all of these thistles have been taken are either now lost to the Flora of Scotland, or else that the representations are as great a piece of imaginative caricature as the animal with one horn that forms one of the supporters of the Scotch crown. Many different species have been dignified with the name of Scotch thistle. It is probable, say some authorities, that a common species such as *Carduus lanceolatus* is most deserving the name. Some have fixed on doubtful native species, such as *Silybum Marianum* and *Onopordum Acanthium*. Neither of these is, however, reconcilable with history. *S. Marianum* is appropriated by the Roman Catholic Church, who say the white marking on the foliage is commemorative of the milk of the Virgin Mary. *O. Acanthium* is not only, like the last, a doubtful original species to Scotland; but, like *C. lanceolatus*, of much too great a height; for one historian says that, after the landing of Queen Scots, she reviewed her troops; and, being fatigued, retired; and, on sitting down, was pricked by a thistle; from which circumstance she adopted it as the arms of her new country, with the motto, *Nemo me impune lacessit*. Another says, on the eve of an attack by the Danes, one of the enemy having trod on a thistle, cried out with pain, which gave intimation to the Scots of their near presence; and hence the thistle became dignified as the arms of the country. With these two exceptions, we meet with no other reference to a matter of equal importance, in an historical point of view, with that of the legends in connection with the Coronation Stone, which all historians have treated on with great minuteness. However, if any reliance may be placed on the authorities above given, it is quite clear that it must have been a low-growing species like *Chrysos acule*; for, whether we take into consideration the accident to the Queen, or the bare-footed Dane, or the conformation of the flower-head itself, it more closely resembles the representations we find on many of the sculptured stones than either of the others. Some have supposed it to be *Carduus acanthoides*; but this, as well as all the rest, is less formidably furnished with those strong spiny scales with which the receptacle of *Silybum Marianum* is so amply provided. This circumstance agrees with those sculptured representations found on the oldest parts of Stirling Castle, Linlithgow Palace, or Holyrood House, especially with one on the top of a garden doorway opposite the new fountain, in front of the entrance to the latter, which is more like the head of *Cynara Scolymus*, the globe artichoke, a native of the South of Europe, than any thistle in the world. Uncertain as we are regarding the species of our national emblem, or even of its being a native, we are no more so than the English are regarding the species of rose they have adopted. No doubt roses existed in Britain at the period it was introduced into the national escutcheon; therefore, it must have been borrowed from the French; who even, in their turn, cannot now tell what species of iris their *fleur de lis* is meant to represent. Nor are the Irish agreed as to whether their shamrock is derived from a series of Trifolium, or from *Oxalis Acetosella*. The ancient Britons, as the Welsh call themselves, have adopted the leek, *Allium porum*, a native of Switzerland.—*Scottish Farmer*.

RUGBY CEMETERY COMPETITION.—Sir: Last August, plans, &c., were to be received in competition for the above;—since which I have heard nothing about the decision or otherwise, nor of the drawings I sent to them. Surely the committee have not absconded with the plans and portfolios of some thirty or forty innocent and confiding architects?—A COMPETITOR.

LIMERICK WATER-WORKS.—On the county Clare side, about three quarters of a mile distant from Wellesley-bridge, a large tank or reservoir with massive stone exterior walls has been built, within which is an embankment with inner walls of some feet in thickness. From thirty to forty masons have been in constant employ, besides above 100 labourers. The work has been designed by Mr. Mylne, the Limerick Water Company's engineer, for the improvement and better regulation of the supply throughout the city, and to give additional security of supply in case of fire or of interruption from the present tanks.

ST. JAMES'S (R.C.) SCHOOLS, BENTINCK-MEWS, MARYLEBONE-LANE.—The first stone of this building was laid on the feast of All Saints. The site is on a square plot, fronting Bentinck-mews. The parish not covered by the new building are a playground and a court, approached by an independent entrance for girls and infants, from Marylebone-lane. The place is E shape, three floors in height, the school-rooms being of the L plan; the remainder includes stairs, lavatories, cloak-rooms, &c. The basement under this wing is of fire-proof construction. The boys' entrance is by an arched corridor: their school-room (the upper one) is 60 feet long by 24 feet wide, with additional space, 20 feet by 18 feet, at further end. The roof is open, with stained timbers, and covered with non-conducting material under slating. The windows are large, and without mullions. Beneath is the girls' school, of the same area and 15 feet in height. The accommodation is estimated at sufficient for upwards of 600 children. The staircases are of masonry. Space is economised by the arrangement of one winding over the other, within the same walls—the two being quite separate. The building is without architectural pretension. The architects are Messrs. Willson & Nicholl. The total cost will amount to about 5,200*l.* A sum approaching 3,800*l.* has been collected, almost entirely in the parish.

WOOD AND ITS PRESERVATION.—Cedar wood will last 1,000 years. The oil of cedar wood, mixed with oil of creosote and forced into timber by means of a pump, will be found highly preservative of all timber for ship-building and breakwaters. In very old buildings I have examined the timbers where they have been whitewashed, and found them in the highest state of preservation. Dr. Calvert is quite right about the durability of timber. In *olden days* they cut the timber in the winter season, when the sap was most out of it; but now, for the use of tanners, it is felled in summer; the result of which is, that it shrinks, chaps, and decays, much sooner than it otherwise would. The wood of the walnut-tree is very durable, and so is that of the horse-chestnut-tree. Many very ancient barns about Gravesend are built entirely of the last. In preparing wood for ship-building, &c., it is best to lay it in a "running stream" for a few days only, to extract the sap that remains in it, and then dry it in the sun or air, by which it neither chaps, casts, nor cleaves. The use of linseed-oil, tar, or such oleaginous matter, tends much to the preservation of wood. Hesiod prescribed "smoking" timber in order to preserve it:—

"Temoen in fumo poneres."

Virgil advised the same method:—

"Et suspensa focis expleret Robora fumus."

Others have advised the oil of smoke! [pyroligneous acid?] The solid stems of trees most subject to decay, are commonly found in the Irish "peat-hogs," in such excellent preservation, that they are esteemed equal to any timber for substantial buildings; the peat being highly antiseptic and preservative. Larix (which can be procured in blocks of any size from Dantzic), in my opinion, is the best kind of wood for breakwaters, harbours, &c. It is capable of resisting the weather for a length of time in those situations; e.g., the owners of some decoys in Lincolnshire, finding it necessary to stretch nets over the water by means of stakes fixed in the shallow sea, were put to a great expense for wood for their stakes. One of these was advised some years ago to try larix wood for this purpose. He accordingly put alternate stakes of larix and oak. At the end of some months, two sets of oak piles were found to be entirely wasted, the larix remaining firm and sound.—J. B.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—At the next ordinary general meeting, to be held on the 2nd December, the following paper will be read:—"On the Superintendents of English Buildings in the Middle Ages; Collections for an Historical Account of Masons, their Customs, Institutions," &c.; by Mr. Wyatt Papworth, Fellow.

DEATH IN THE FLOWERS.—An inquiry has been held by Mr. G. S. Brent touching the death of Matilda Scheurer, a good-looking girl of nineteen years of age, an artificial flower-maker, who was deprived of life by the deadly effects of poison imbibed into the system during her engagement in the manufacture of artificial flower leaves. It appeared that emerald green, chemically termed arsenite of copper, was used in the manufacture, and that death was produced by the inhalation of that poison while at work, producing acute inflammation of the mucous membrane of the stomach. The employer stated that he had ninety-eight girls in his establishment; and for the purpose of their preservation he had suggested the wearing of masks; but it was objected to by them as producing excessive heat. They, however, wore muslin over their mouths. Deceased had been ill before from the same cause. The jury returned a verdict to the effect that death was caused by arsenite of copper.

MONUMENTAL.—At a meeting of the subscribers to the fund for erecting a monument to the late Duke of Richmond, it has been resolved to place the statue in the Market square of Huntly. The height of the monument from the level of the prepared ground is to be 20 feet 6 inches, and the height of the statue 8 feet 3 inches. The pedestal is proposed to be of freestone, with four panels of polished granite introduced into the sides of it. The contract for the whole work will be 400*l*. The sculptor will be Mr. A. Brodie. Her Majesty has sat to Mr. Thomas Earle, of Vincent-street, Ovington-square, for a bust, modelled in the clay, for the purpose of assisting in the completion of a colossal statue, which has been commissioned by Mr. Z. C. Pearce, of Hull, for the centre of the People's Park, at that place, which was some time since presented to the inhabitants by this gentleman. The working men of Penzance have elected a committee and secretaries to procure subscriptions for a memorial of the late Sir Humphrey Davy. A monument has just been erected in the chancel of the parish church of Blockley, in commemoration of the late Right Hon. Lord Northwick. The design is "The Good Samaritan;" it is carved in white marble. In the background, the Priest and Levite are going on their journey: the mule of the Samaritan is grazing behind a tree, while its head just appears in sight.

THE INFERNAL DOINGS OF THE NOTORIOUS SHEFFIELD TRADES' UNIONISTS.—Another of those diabolical outrages which have so long made Sheffield a disgrace to this country has just occurred, to the severe injury of two poor women, but failing in its principal object, namely, to murder a workman and his wife and child in their beds by an "infernal machine" charged with gunpowder, and probably as usual with nails and other deadly missiles. It was cast through a window into a bedroom of the house in which they slept. The intended victims, however, slept in the room above; but the wife rushed down stairs and into the room below, where a poor old woman slept, and seized the rude grenade, a tin bottle with a lighted fusee. It exploded in her hands, set fire to her night-dress, and she was severely burnt; though, strange to say, without other injury; but she and her husband and child afterwards fell in escaping from the house, which was set on fire, as well as much damaged, by the force of the explosion. Are the terrors of trades' unions to be longer allowed, at Sheffield, thus contemptuously to override the terrors of the law? Even were it requisite to pass a special Act for the purpose, such a nest of vermin ought to be rooted out; and we have little hesitation in saying that the ringleaders of so detestable a conspiracy ought to be lashed through the streets of Sheffield and then strung up. Though a thousand pounds reward should be offered by Government and the local authorities, the villain who threw this particular missile, and his *instigators*, ought to be discovered, without fail. Even the scoundrel himself might be pardoned and rewarded were he to unmask these instigators, who must be at work not in such special instances as this alone, but systematically, and in order to keep up the reign of terror which is ruining Sheffield. We are glad to observe, since writing the above, that the actual perpetrator of the crime is believed to have been caught: in his possession was another "infernal machine." Could he not be made Queen's evidence against his employers?

NEW WESLEYAN SCHOOL, HANDSWORTH WOODHOUSE, SHEFFIELD.—The new school-room here has been opened. The building, which was erected under the superintendence of Mr. Wilson, of the firm of Wilson & Crossland, architects, is of stone. The school-room measures 36 feet by 25 feet, and is capable of accommodating 100 children. There is also a class-room, 13 feet by 11 feet, and a kitchen about the same size. Messrs. Hardcastle & Greenwood, of Woodhouse, were contractors for the masons' work; and Mr. Turner, also of Woodhouse, was contractor for the joiners' and other work. The entire cost of the building, including a part of the site, is, we understand, 403*l*.

EXHIBITION OF INDUSTRIAL AND DECORATIVE ART AT EDINBURGH.—This exhibition was formally opened on Wednesday week, when addresses were delivered by the Duke of Buccleuch, Dr. Lyon Playfair, Lord Elcho, M.P., the Lord Provost, and the Lord Advocate, M.P. The exhibition, which takes place in the east side of the Scottish National Gallery, has been got up by the exertions of a committee of the Hon. Board of Manufactures. The collection, both in point of value and illustrative character, is considered to be the finest of its kind that has yet been exhibited in Scotland.

ACCIDENTS.—Near the Bristol and Exeter Railway, at Taunton, some villa residences are in course of construction, deep excavations having been made, for the purpose of forming underground cellars. Two masons were engaged in building the walls of the cellars, when suddenly one of the sides gave way, and the unfortunate men were embedded in several feet of earth. The poor fellows were dug out, severely injured and insensible. For several months past a number of masons and other workmen have been employed erecting a bridge across the Knack, near the village of Ardoch, on the road leading from Crieff to Stirling. The building being nearly completed, two men were preparing to insert the key-stone, when the wooden centres gave way, and the whole materials, except the abutments, fell into the bed of the river, carrying the two workmen among the wood, stones, and lime. Both men were severely injured.

UNINFLAMMABLE MUSLINS, &c.—The frequent destruction of life arising from the combustibility of ladies' dresses, more especially in this crinoline era, has become a matter of very serious import. The climax of the evil was the recent burning of a whole bevy of ballet girls in America. The manager, it was said, was in no way to blame. But so long as he did not compel them to wear uninflamable dresses, we think he was to blame. We have at various times noted methods of rendering muslins, &c., incombustible, or at least uninflamable; and our purpose at present is simply to note, without making ourselves responsible for the efficacy of the proposed method, that a French chemist is said to have just discovered a mode of rendering muslin, lace, and all kinds of light stuffs, incombustible. It is merely necessary to mix with the starch used in making them up the half of its weight of carbonate of lime, commonly called Spanish chalk or Spanish white. The muslin or other stuff is then ironed as usual. The chalk thus added, it is said, in no respect injures either the appearance, the quality, or the whiteness of the stuff.

THE "LUNGS OF LONDON."—The *Medical Times and Gazette*, commenting on the ominous advertisement, "St. Giles-in-the-Fields Disused Burial Ground.—Notice is given that application will be made to Parliament in the next session for an Act to transfer and vest in the rector of the parish of St. Giles-in-the-Fields and his successors for ever, as an augmentation of the living of the said parish of St. Giles-in-the-Fields, certain property, lands, and hereditaments, purchased under the Act of the 43rd Geo. III., cap. 20, for the purpose of a cemetery, and situate in the same parish,"—says that "sanitary reformers will do well to keep their eyes on announcements like this: they are the forerunners of excavations and building operations. The bones once solemnly committed to their last resting-place will be rooted out by the pickaxe of the labourer, and houses will be built on the disturbed mephitic soil; and the breathing-space of this huge town curtailed. After St. Giles's, there will follow several other tempting spots. There is a large disused cemetery in the Uxbridge-road; another between Mount-street and North Audley-street; others in Marylebone; and the tempter will not be slow to insinuate 'how much good we shall be able to do with the money if we can but build one row of houses;'—just as if any 'good' was worth having, that was purchased by the violation of health, decency, and natural religion.

A CORN EXCHANGE FOR LEDBURY.—At a public meeting of the inhabitants, convened by the mayor, it has been resolved "That in consequence of the railway communication we now have, it is of the utmost importance to the trade of Ledbury that a corn exchange, and other markets, should be provided for the accommodation of all parties attending the Ledbury markets." A committee has accordingly been appointed to inquire and report as to a site, &c.

SUPPLY OF WATER TO WOODSTOCK.—The Duke of Marlborough, since his accession to the title, has given a supply of water to the poorer inhabitants of the town of Woodstock, at the insignificant charge of 1*s.* per quarter for each cottage. Stand pipes have been erected in the various lanes, and contiguous to all the cottages in Woodstock, where tenants can help themselves to whatever quantity they may require. The duke has also had erected a drinking-fountain opposite the Post-office.

POPULATION OF THE GLOBE.—A professor of the Berlin University has been making curious researches respecting the population of the globe. The following is the result:—"Population of Europe, 372,000,000; of Asia, 720,000,000; of America, 200,000,000; of Africa, 89,000,000; of Australia, 2,000,000—total population of the globe, 1,283,000,000. The average number of deaths per annum in certain places where records are kept is about one to every 40 inhabitants. At the present time the number of deaths in a year would be about 32,000,000, which is more than the entire present population of the United States. At this rate the average number of deaths per day is about 87,861, the average per hour 3,653, the average per minute 61. Thus at least every second a human life is ended. As the births considerably exceed the deaths, there are probably 70 or 80 human beings born per minute."—*Morning Journal* (Glasgow).

NEW MACHINERY FOR WORKING WOOD.—The invention by Thomas Greenwood, of Leeds, and Arthur Kinder, of Great George-street, Westminster, of "improvements in machinery for cutting or working in wood," relates, firstly, to machinery for cutting rebates in timber that has or has not been previously squared; secondly, for cutting mortises in timber; thirdly, for constructing, and arranging the bearings of band saws; and, lastly, for surfacing or smoothing the face of timber. The next improvement in mortising machines consists of an arrangement of mechanism for bringing down the cranked axis which works the cutters, so that at each succeeding stroke the cutter will penetrate to a greater depth until the chisel or cutter having arrived at the stop, its motion will be arrested, and the mortise will be finished to an even depth throughout. The next improvement relates to the standards for supporting the bearings of the upper pulley of a band or ribbon saw. The next improvement relates to machinery for smoothing or planing the surface of timber or wood. These inventions cannot well be described or understood without engravings, but an account of them will be found in a recent number of the *Engineer* journal.

TENDERS.

Tenders for a bridge across the North-Western Railway, at Great Malvern. Mr. E. W. Rimsie, architect:—

Wilson	£2,329 0 0
Oldham	2,219 10 0
M'Cann & Everall	2,060 0 0
Wood & Son	1,937 0 0
Perkins	1,825 0 0

For a station for North-Western Railway, at Great Malvern.—

Broadbent	£7,280 0 0
Perkins	6,000 0 0
Smart	5,816 0 0
Wood & Son	5,459 0 0
M'Cann & Everall	5,410 0 0

For building a public house, to be called the "Bishop Bonner," at the corner of Royston-street and Bonner's-lane, Bethnal-green, for Mr. Henry Whitaker. Mr. Charles Dunch, architect:—

Brown	£1,150 0 0
Hill & Co.	1,142 0 0
Watts	1,140 0 0
Hedges	1,130 0 0
Ennor	1,128 0 0
Blackburn	1,109 0 0
Perry	1,099 0 0
Wood, Brothers (accepted)	1,093 0 0

For building the house, No. 91, High-street, White-chapel, for Mr. C. Gatti. Messrs. Scurry & Wright, architects. Quantities supplied:—

J. & W. Sanders	£230 0 0
Patman & Fotheringham	802 0 0
Roberts	850 0 0
Woodruff	830 0 0
M'Ilwraith	797 0 0
Neears (accepted)	717 0 0

The Builder.

VOL. XIX.—No. 983.

Condition of our Towns.

A Cotton Factory Town: Preston.



THE cotton manufacturing districts represent their exigencies in architecture in an remarkable manner. The factories might be oblong packing-cases of brick and mortar, pierced with rows of oblong window openings; and shooting up from this tasteless block is a tall chimney-shaft. Grouped with these, like young factories not yet arrived at maturity, are rows and rows of habitations for the workers,—also oblong, also pierced with oblong windows, only on a smaller scale, and with the chimney-shaft not developed beyond the size of ordinary cottage chimneys. Nothing plainer could be conceived. The granaries in which Joseph stored the Egyptian corn could not have been built with greater

frugality; but, as the manufacturing of cotton into fabric is not with us an ancient occupation, these are all comparatively modern; and the veritable town, as it was of old, lies among them like a tangled skein of thread. Preston is one of the towns to which Henry II. granted a charter to the effect that the burgesses should appoint a guild merchant, who, with the burgesses, should enjoy "all liberties and free customs;" that is, that they might pass through the royal domains with their merchandise, buying and selling, free from all kinds of toll; and that in their own town they might exact, receive, and enjoy, as the case might be, the following penalties and privileges,—“all manner of security of peace, soc and sac, toll, infang-thief, outfang-thief, hang-wite, homesokyn, gryth-bryce, flight-wite, ford-wite, fore-stall, child-wyte, wapentake, lastage, stallage, shoowynde, hundred and aver-penny.” And interspersed with the modern commerce and traffic, there is yet much that is associated with these royal, pictorial, heraldic, and traditional times. Nevertheless, the great enlargement of the town and increase of the population are due to the modern business of cotton-spinning and weaving. It is these that have enriched the owners of land and capital alike. Directly a factory has been planted down, the land has been turned up for brick earth, a kiln started, bricks manufactured, and rows of poor houses built,—profits being obtained both from the manufacture of the bricks, and in the shape of rent subsequently. The wants of the operatives are few in their homes; and it is only common humanity on the part of the wealthy factory and landowners that these should be provided for. The workers cannot be expected to be refined or even decent, if the homes in which they are reared be destitute of decencies; nor can their children be expected to play anywhere but in the streets, if there be no yards to the houses, no public playgrounds, nor public parks. We will see for ourselves, presently, how these responsibilities are recognized.

Neither tradition, politeness, nor truthfulness can call upon us to admire the exit from the railway station from the departure side for London, Birmingham, Liverpool, Manchester, Wigan, and Bolton, by the first and second class booking-office entrance, which is in a coke-shed. It is grimy with coke-dust; all the painted work resembles stucco, as the surface of it is raised with particles of coke dust, which must have settled upon it before it was dry; and the sweepings of platform and offices—dust, scraps of paper, envelopes, and such litter—are lying on the road. For “the way out” there is a choice of two roads, one for vehicles to the right, in the direction of the goods department—the same road serving for passengers’ vehicles and the goods waggons, whereby it gets dreadfully cut up,—and another for pedestrians, up twenty-six wooden steps, which are under cover of the same coke-shed. At the top of the steps is a long gallery, with an inclined floor, looking, with its bare walls and flat ceiling, like the entrance to the gallery of a theatre. The plaster, which is grey with coke ash, is coming off the walls in patches, and not a time-table, nor a placard, relieves its long monotony. There is, however, a railing up the centre, which is apparently provided for a crush, or for division of classes, at excursion times, and which causes uncomfortable conjectures to arise as to the safety of a descent of twenty-six steps in the way of a crowd of the kind. The tubular gallery discharges the passengers into a carriage-road which is used alike for goods and passengers, is wretchedly paved, and never swept. A board declares that no rubbish is to be shot here; clothes are hanging out to dry; and the ruins of the gate-posts of the entrance gateway are lying about—great blocks of stone. On the boundary-wall, so that you may read as you hurry along, are posted placards, inscribed with pithy ejaculations bearing upon the incidents of the ward elections,—“Jolly doings in St. Peter’s ward! Beer and bribery for ever!! Remember Miller the just. No coalition between Gudgeon and Whitehead.” And beyond the ruined and neglected entrance is the advance guard of the town, a short street of beerhops. This street paced, we are in the main thoroughfare of the commercial part of the ancient borough of Preston,—Fishergate.

This is an irregular street about two miles long, which was one of the old roads, in the old town, to the market-place. The low, thatch-crowned houses with which it was once lined as it neared the market-place have disappeared, except in one solitary instance; and have been replaced from time to time by the shops, hotels, banks, and offices, needful to modern commerce. The Victoria Hotel is the first object noticeable in Fishergate; and then a large tenanted house next door to it, with centre and wings, looking as a haunted house might be expected to look of a November morning. On the other side of the road is a row of staid houses, with gardens fenced with iron railings in front of them that are one yard wide. These few feet of spongy soil thus pertinaciously tilled in front of town houses admit of rain soaking into the foundations: they can scarcely be considered to be ornamental, except perhaps for a week or two, when newly done up in the spring; and for the rest of the year are dismal and damp engendering. If these spaces were paved much damp would be done away with, and floral effects might be obtained in boxes on the window-sills. Then there is a vacant space on both sides of the road, with a few forlorn trees and a bridge over a grass-grown single iron tramway. This unbuilt piece of ground is occupied, as so many others now are, by a travelling photographic portrait-room—a smart caravan containing two if not more chambers. It is from this point of view that the peculiarities of the cotton district, as shown in the aspect of the town, are first discernible. Fishergate runs along a ridge; and, whenever there is a gap in the houses, a view of the factories in the surrounding hollows is obtained; and this is

the first glimpse on the road from the station. The factories are piled up story above story and group against group, the tall chimney-shafts keeping guard over all; and the squat houses of the operatives are spun out in rows around. A little way further on, at the corner of Charnley-street, there is a new Baptist chapel, which, with its tower of bold Venetian type, would be an ornament to any perspective. The style is Romanesque, with Moorish details. A great wheel window in the north end, surrounded by circles, with a miniature repetition of the same on either side of it, is remarkable for much effect with very little light—much stonework and little glass—but which arrangement is admissible on account of the site being a corner one; plenty of light can be obtained at the side. The clock, too, with its illuminated faces on the sides of the tower, is a real boon. The iron balustrade and stone parapets in front are carefully considered in relation to the style of the rest of the building. The front is set back from the line of houses—a disposition which not only shows the building to advantage, but improves the aspect of the street. This specimen of the highest class of architectural art is the more conspicuous by its neighbourhood of plain houses, and a contrast to the hideous box of a theatre on the opposite side of the road. A sewer pipe stuck on end, with a long stick standing upon it, indicates that something is going on in the rear of Wilfred Street—a row of neat-fronted houses; and turning down to see what it may be, we find 17 privies, 17 offal ash-pits, and 17 slop-drains, built up against the 17 neat-fronted houses in question. These harbours for filth have soiled and choked the ground till they could be borne no longer; and drain-pipes are being laid down. The men putting down the pipes, in the cuttings made for their reception, declared that this was the dirtiest place they had ever been in. Below the pebble pavement, which looked so smooth and regular, and extended from one end to the other, in the rear of this row of neatly-fronted houses, the soil for several feet was a mass of fetid corruption,—too thick to bale out, yet with not enough consistency to shovel up,—vile and filthy. This state of things is at the core of all similar cesspool arrangements:—the surrounding soil absorbs the moisture from privies and ashpits, and thence it percolates through houses, and streets, and alleys, till it finds a low level to form a pool; and, from this highly-charged soil, emanations arise that are conducive to the breeding of fever. In this particular instance there is a “public bake-house” close by, to make matters worse. Returning to Fishergate, we note the iron vase on the iron pedestal in front of the Theatre Royal, that is complementarily called a drinking-fountain; and the doctor’s red lamps that light up the miniature portico, and a desire to see more of art in Preston, induce us to make, in the evening, an examination of it within. To save recurrence, we may state here that the ceiling is divided into eight compartments, radiating from a sun-burner in the centre, with a figure disporting in each compartment. The boxes over the proscenium are hung with bed-curtains, and look quite as much like berths on board ship; and the decorations generally are in what might be called the paperhanging style. The form of the theatre is good; and, with artistic decorations, might be made attractive and effective. The scene-painting deserves a word, the landscapes being good enough to atone for the miserable interiors, where the paperhanger had evidently all his own way again. The audience, composed of factory operatives, occupied the pit and gallery, and brought their babies with them. The performance comprised the “Colleen Bawn” and the “Artful Dodger,” with a comic song between the acts; and when we add that Grisi was prospectively expected, it will be seen that there was but little to find fault with.

The pavements in Fishergate are especially commendable: where the pavement widens at

Mount-street it is 18 feet broad. The curbs at the crossings are rounded and gradually sloped, without the ordinary sudden step; and the crossings are made of large blocks, with a grove in the centre. At Chapel-street we strike off to view the huge one-span plain lofty brick room, which is used as St. Wilfred's Roman Catholic Chapel. Internally a theatrical effect is produced by the altar recess being kept dark, except where, by means of an invisible skylight, a stream of bright light falls upon the altar picture of the Crucifixion, with an awe-striking effect. The whole of the interior, the walls, the flat-coffered ceiling, the fronts of the galleries are covered with a Gruenerish stencilled decoration, interspersed with medallions, a manner which gets over the difficulty of decorating a plain flat surface, in a large galleried room, satisfactorily. Chapel-street leads to Winckley-square, the garden part of which is large and sloping to a hollow, in which vegetables are cultivated and clothes hung out to dry. This piece of utilitarianism is scarcely called for, and must be an eyesore to the handsome houses at the upper end of the square, including Nos. 20, 21, 22, and 23. At the corner of the square and Cross-street, the Philosophical buildings and Grammar School form a showy pile in the Late Domestic Perpendicular style in fashion some few years back; full of movement, with bold projections and recesses, buttresses and oriels, traceried window-heads and good carving. The octagon turrets to the entrance of the Grammar School are surmounted by Moorish tops, and the deeply-recessed doorway is as massive as the entrance to a castle. The Philosophical buildings of themselves would have formed but an inconsiderable group, but these assimilated with the Grammar Schools, a noble pile is gained. This is an instance of the great advantage of clustering public buildings together. In the playground of the Grammar School we were sorry to see that the four corners were converted into open urinals by the boys. In the street, too, open channels are running with soap-suds across the pebble pavement, and a general want of scavenger is apparent. An Italian villa occupies the opposite corner of Cross-street, and a statue of Sir Robert Peel stands within the railings of the square at this point; so that want of neatness in the road and footways, and the planting of vegetables in the square, are blemishes to a very good neighbourhood. Returning by Winckley-street, we pass the Coroner's and County Court offices, which are shabby, dirty, old buildings; and get back again into Fishergate, near to the cheerless-looking dispensary. After this Lune-street crosses at right angles, and owns a newly-enlarged grand Wesleyan Chapel, and the Corn Exchange, and Cloth Hall. This latter, however, is not a building that strangers need seek to see. It was built in 1832, and is as ugly as even the level of public caste at that time can account for; having pig shambles at one end, and fishmongers and shrimp dealers at the other. The approaches, in a neighbourhood of bonded warehouses and of a large timber-yard, are scandalously in want of scavenger, and all the doorposts are made use of as urinals. There is the triple accommodation of a public room for concerts in the same building, which holds about six hundred persons: it is a long, low room, divided into three compartments, with pink and green flat paper panels; and owing to the floor being level, but an indifferent view of the performers at the upper end of the room is obtained from the entrance; the whole establishment being but a sorry affair for a town like Preston.

Fishergate still stretches out bravely before us, with bonnet-shops, booksellers, and bootmakers, side by side with the palatial Preston Banking Company's premises—a costly, lofty, highly decorated, three-storied, Italian building—dwarfing its unpretending neighbours the chandler's, chemist's, hairdresser's, tailor's, and butcher's shops. Then the *Preston Pilot* office, in Clarke's stationer's shop; another stationer's at the side of

it; and the Lancaster Banking Company's offices, more modest and staid than those of the Preston Banking Company, yet equally tall and effective. On the other side more chemists, hairdressers, upholsterers, drapers, and glovers' shops; and here Butler's shop, full of Roman Catholic accessories, sculptured and pictorial crucifixes—ivory, ebony, brown wood, and bronze crucifixes of all imaginable sizes—by the side of the Kendal Bank. By the side of the Lancaster Bank is a very narrow street of very low houses, occupied by surveyors, land agents, valuers, a beadle, a sheriff's officer, a beer-shop, and a tailor; down which flakes of soot are flying and settling on the cracked, bad pavement, in which channels are made in communication with external wooden spouting to the houses. Beyond this, among the smart shops in Fishergate, stands a thatched house, with bulged plaster walls—the last vestige of old Preston in this bustling stream of modern traffic. Past the Shelley's Arms there is a very neat butcher's shop, formed of three round arches with iron grilles and plate glass sliding windows. Within, the table top is covered with marble. If the walls were lined with white tiles, instead of coloured a dirty sawn brown, this would be a model of a butcher's shop, and prove that shop-fronts for this business can be made architecturally tasteful and suitable. More shops—feather-shops, baby linen warehouses, watchmakers; more courts—dismal, dirty Platt's Court; light and well-paved Woodcock's Court, scented with an aromatic malt-ous odour. The offices of the *Preston Herald* Company (limited); the offices of the *Preston Chronicle* opposite; Thorp, Bayless, & Thorp's great drapery establishment, with a row of ventilating funnels behind the iron balustrade over the shop-front; a narrow alley with "James Leigh, brewer," at one corner of it, and a small butcher's shop at the other, and a full ash-pit seen in the midst thereof from the main road. Then Cannon-street, branching off, with Hogg's fruit and game shop at the corner, where pheasants and hares hang in festoons; partridges, pine apples, grouse, and grapes are grouped very artistically; then mat and matting shops, china shops, and the *Preston Guardian* office, at the corner of new Cock's yard—which yard leads to the new Cock Inn, and is used as one wide urinal, the miserable pebble pavement being full of hollows of slops. At last the Townhall narrows the road, just where Cheap-side leaves Fishergate at a right angle, and the market-place opens out in view. The Townhall is neither modern nor ancient; but is a dingy worn-out mansion. The entrance immediately faces an alley 3 or 4 feet wide, by the side of the "Legs of Man" inn, down which is a dirty perspective. Brewster and Burrowe's double shop is a noticeable feature from this point: it is a draper's shop below; and above, the first floor has been taken out and another shop front, displaying cabinet-maker's goods, placed in its stead. We are familiar with show-rooms over shops; but this is shop above shop. The rear of the Townhall is open to the market-place, and is ragged, tasteless, smoky, and dirty. Shop shutters are leaning against the ruined walls, as are temporary wooden urinals; and placards and posters are stuck upon every available space.

The market-place is a handsome roomy parallelogram, surrounded on two sides by good shops, inns, and hotel; by the Townhall on the third; and by a row of shops on the fourth side, which is broken up by alleys leading to the shambles in the rear of them. Hay seeds, hay, and straw, are scattered over the pebble pavements; and on the off market-days the great open space is occupied by a few odd vegetable stalls on trestles, with movable wooden canopies. As we look on, a rag fair is held—one man selling remnants of highly-coloured, painted and glazed calico, odd bits of cloth, fragments of white linen; another man selling every possible description of cheap haberdashery, reels of cotton, combs, pins, needles, &c.; and both spread their wares upon the ground. It

is impossible to be unimpressed with the capabilities of the site. If the Townhall were rebuilt; the row of shops with the butchers' shambles in their rear, with all the narrow courts intersecting this block of building, removed, and a meat market built instead; the block of houses on the north side of the market-place removed, and a general market built on its site; Preston would be able to boast of one of the finest market-places in the kingdom. We were glad to hear that the market committee were in consultation with Mr. G. G. Scott upon this subject. But the drainage and paving should not be overlooked in favour of more showy accommodation. The gutters in the market-place run with slops thrown out of the houses in the courts around; channels across the pavement in Clayton-court—channels from urinals in a passage to the Blue Anchor—channels in passage to Strait Shambles—all furnish tributaries to the stream down the market kennel. Wilcockson's-court does the same: Ginbow entry, leading to the Wheat-sheaf and White Hart, brings down the swimmings from exposed urinals and stable muck; and washings from the shambles are flowing down all the livelong day. Strait shamble, one of the passage ways in the block of shambles, may be taken as a type of the rest,—lines of close butchers' shops, running at right angles from the market, with a dark living-room in the rear of each, and a smaller and darker sleeping-room above. The washings from the blocks are finding channels down to the lowest level; losing on the way great part of their bulk, which is absorbed into the soil. And so we pick our way round to the principal façade of the shambles in Lancaster-row. This is recessed back: the upper part projects over the lower, and is supported on rude, monolithic, tapering pillars, of the perpendicular. The brickwork above is dirty white where it is not dirty black: the windows are very small, and filled with small panes; and the whole place has an uncouth and unclean appearance.

The post-office is near the shambles, and contrasts very favourably with them, being in a block of newly-erected lofty houses exactly opposite: it is roomy and convenient. Attached to the Stanley Arms, in the same block, is a notice-board, inscribed, "Police regulations. Make no wet." And yet at the end of the hotel there is an unprotected urinal; and, unprovided for by drainage, the urine flows across the pavement in a broad stream.

A long, old-fashioned, winding thoroughfare, called Friargate, straggles away down hill from the market-place. This is a long tortuous street, of second and third rate shops, to supply the wants of the dwellers in the innumerable courts and alleys with which it is intersected. In the main street scavenger does not appear to be thought of; and in the alleys and courts the laws of boards of health are set at defiance. The rear premises of both sides of Friargate, which is about a mile long, and, starting from the market-place, is in the centre of the town, are horrible masses of corruption and forcing pits for fever. In Fishwick's-yard there are three vile privies and a crammed offal-pit close to the wretched houses, which, with their broken paved and damp floors, are scarcely fit for human habitation: and the overflows from slops of another row of houses run down the yard. Four more dreadful pits at the end near a back lane are piled full, and leak across the alley into Friargate. These are the characteristics of all the courts and passages in the neighbourhood: some of them, such as Hardman's-yard, at the corner of the newly-painted Waterloo Inn, are whitened and made showy to look clean about the entrances; but step past the whitewash near the street, and you will find, as in this case, a monster midden pit, with privies at each end, open to the front of a whole row of houses whose inhabitants they serve. The clothes of the poor people are actually hanging to dry over this disgusting pit; and the pebble pavement

around is befouled by the children in the yard, for whom no provision whatever has been made. Peelings, slops, tea-leaves, are strewn about the yard. This pit, of awful dimensions, receives the whole of the refuse from the various families in the row; which lies there rotting for weeks and months, and is then disturbed and carried through into the main street. We noted at the lowest point next Friarsgate a shutter up to indicate a death. In Milling's-yard, a little farther on, matters were a little better, as there were gratings at intervals through which liquid refuse passed away; but at each of these there were collections of solid filth around, which could not get through, and yet were not swept away. The semi-circular apse end of St. George's Church, full of richly-painted glass, is within a dozen feet of the poor homes in this yard: clothes-lines are tied to the church-yard railings, and a quantity of clothes hangs fluttering, like banners, over the graves. The church-yard is, properly, closed. The church is but a travesty of Norman work,—the tower-porch, something between a porch and a tower, being in marvellously bad taste. There are plenty more yards on both sides of the road,—Taylor's-yard, Brown's-yard, Cradwell's-yard, with "lodgings for travellers;" and all the kennels are running with slops and mud. A space bounded by Chapel-yard is so cribbed and confined, that the rear premises of respectable shops and privies and ash-pits jostle each other in the smallest space that could by any stretch of imagination be called a yard; and over these the inhabitants have to hang their linen to dry. A passage before coming to Union-street has a marine store and rag and bone shop at one end and a candlemaker's at the other; and in Union-street flows a kennel full of moist filth, slops, and tea-leaves, which has a slow current into Friarsgate.

In the rear of Snow-hill there is another similar neighbourhood: oyster-shells are strewn about, and the ground is the common privy for children. Pawnbrokers and marine-store dealers flourish around.

High-street is a row of poor houses, about one-eighth of a mile long, with small back yards; and at the back of these a huge sewer positively discharges itself on to the surface, and forms a wide bog, the whole length of the row of houses. The solid filth from this overflows the outlets, and stops up the privies of the High-street residents; and to see an old woman raking in the filth to find the sewer was a pitiable spectacle. A man, standing by, remarked that it had been nearly as bad as that for nine years, to his knowledge—"never anything but a bog, even in summer,"—but that, since Peader & Lever had begun to boil tripe at the top of the street, and throw their boiling greasy water on to the sewage, it was daily getting worse. It must be observed that this is not a made ditch. The Board of Health—or, more correctly speaking, of Illness—has brought a sewer up to the high end of the street, and then discharged its contents, to make its own way. As the ground falls the sewage has made a course for itself; and the overflows from aged pigsties, middens, and pits, belonging to the houses in High-street, have run into it in tributary streams! The back windows of the houses overlook a large plot of ground in a transitory condition, known by tradition only, as the Orchard, which is partly built upon and partly used as a play-ground by the "roughs." A spacious Methodist free church and free schools are planted in the midst; while, in another part of it, a permanent wooden circus has been set up, which looks like a vast conical tumulus, or an aboriginal's hut. The rest of the Orchard is a surface of thick, black, hard mud, on which men are playing at "putting the stone" and "pitch and toss," and on which a tribe of pigs are sporting pork fashion. Great holes are worn in this muddy play-ground, and pools of offensive colour and odour finish the landscape. There is another route to be taken.

ON THE CONCRETE USED IN THE EXTENSION OF THE LONDON DOCKS.

The new works made by the London Dock Company consist of a new basin thrown into one with the old Shadwell basin, and two large locks 350 feet long and 60 broad, parallel with the former small ones; one to lock vessels up if necessary from the River Thames to the Basin, and the other for vessels proceeding to the Eastern Dock, the water level of which is usually kept above Trinity high-water mark by a pumping engine.

Borings of the ground occupied by the new works showed how advantageously concrete could be used in their construction. Below the first 8 feet of made ground and brick rubbish is a bed of brown clay some 6 or 7 feet thick; then a bed of peat, averaging 6 feet, but often much thicker, full of remains of beach, oak, hazel, and other trees. The lower part of this peat was full of veins and lumps of sesquiphosphate of iron, native Prussian blue. This made an excellent pigment when ground up with gum water, of a delicate small colour, which I used in tinting working drawings. Below the peat is a thin bed of clay, the bright blue colour of which was very likely due to this colouring matter in the overlying peat. Under the peat and clay is a thick bed of flint gravel, Thames ballast, which extended nearly over the whole area of the new works. In some places it was fine enough to form sharp clean sand for mortar, in other places coarse gravel well adapted for concrete. The chief material for concrete was therefore on the very site of the works ready for use, and the whole expense was saved likewise of barging it up to Battersea Park, where we were permitted to shoot out the excavations. Under the gravel, at an average depth of 30 feet below Trinity high-water, lies the solid London clay, into which, of course, most of the foundations had to be carried. The bed of sand and gravel was more than 12 feet thick at the two locks, but thinned out completely at the north wall of the basin. The ballast was in sufficient abundance to supply all the concrete required for foundations and counterforts, and to leave enough over to make it worth while using it for the dock walls themselves.

The subject naturally divides itself into two divisions—the manufacture and the application of the concrete.

The Manufacture.—The great mass of the concrete was made with naturally hydraulic lime, blue lias from Lyme Regis in Dorsetshire, which requires no artificial mixture with pozzolana or mino to render it capable of setting *permanently* under water. The word "concrete" in this paper implies, therefore, that made with blue lias lime, unless otherwise specified. The Dorsetshire lias was the only lime burned on the works: all lias from Warwickshire or Leicestershire was bought ready burned from the merchants. Lias requires much greater care in burning than richer limes, because any sudden or extra heat, which would do little harm to Dorking lime, greatly injures lias by forming a glass between the silica and the lime in the stone, instead of only driving off the water and carbonic acid. The combination between the silica and lime, to which lias owes its hydraulic properties, ought only to take place in the humid way—i.e., with the assistance of water, after the application of the lime as mortar or concrete. Lias comes from Lyme Regis in two different forms—the one with a clean conchoidal fracture, and the other of a shaley nature, approaching in appearance even to clay slate, but quite soft. The shaley lias, which contains so much clay as to have the properties of a cement, is not so desirable as the hard clean stone, because it carries less sand, and is therefore more expensive. The stone cost 4s. 3d. a ton when shipped at Lyme, but 10s. 9d. before it was stacked round the kiln at London, which is as much as the same stone costs delivered at the works of the New Graving Dock at Leith. Freight to London is always heavy, for there is no steady return freight like coal to be had. Notwithstanding the high price of the stone delivered at Shadwell, and having to pay freight on thousands of tons of water and carbonic acid, to be afterwards driven off by the heat of the kiln, the engineer in chief of the Dock Company, the late Mr. Rendel, determined to burn the limestone in London, as the extra cost would be a comparatively small item in such extensive works. It was very desirable to have the best possible lime where concrete was to play so important a part.

The total cost of the burnt lime amounted to 24s. per ton. When quite hot from the kiln, 26½ bushels of ground lime went to the ton; but after

keeping some time, a ton swelled to 30 bushels, which is what bought lias usually weighs. A bushel of lime, ground when fresh burnt, contains, therefore, one-seventh more lime than a bushel of stale lime; and a cubic yard of concrete, of specified proportions, is so much the better when made with fresh lime.

The lime was ground to a fine powder between two pairs of horizontal French burr millstones; the upper one revolving at a speed of 90 revolutions per minute. Each pair of stones was able to grind 3 tons of quick-lime per hour, at a total cost for grinding of 1d. per bushel when the consumption was 360 bushels per diem; less, if more lime was used. This is made up as follows:—Feeding and attending to the hopper and lift, ½d.; engine power, ½d.; measuring the lime into bags for the contractor, and recutting the stones, as the furrows became worn, the remaining ½d. A bushel of lime ground fresh from the kiln, weighed 84 lbs.; and at this weight the total cost was 11½d. In buying ground lime from a merchant, if the purchaser buys by weight, he pays for the water absorbed from the atmosphere: if he buys by measure, he pays for the expansion caused by that moisture: the fairest way for both parties would be to specify the bushel to be of a certain average weight,—say for lias from Lyme Regis, 80 lbs. This would allow for the lime not being quite fresh, but would prevent it from being too stale.

The grindstones were composed of burrs from the freshwater beds of the Paris basin, set in two radiated rings in cement, and backed up with plaster of Paris and mortar. The "skirts" or outside burrs were 5 inches thick; the central, or "high burrs," somewhat thicker, to allow for the "swallow," which is a slight depression in the centre of the upper stone, about 2 feet in diameter, and at most 3 inches deep. This acts as a kind of distributing reservoir for the lime as it falls from the hopper between the stones.

The face of the stones was divided into ten "quarterings" by "master furrows," each of them being tangential to an imaginary circle concentric with the stone, and called its "draft." The size of this regulated the quantity of lime passing through the stones in a given time. A radius of 5 inches was found to grind 90 bushels per hour of a sufficiently fine quality. The particles of lime, whirling round near the centre of the stone, by their centrifugal velocity pass towards the outside along the master furrow, being ground finer as they recede from the central depression. Each master furrow had two other distributing furrows leading out of it, parallel to the former master furrow. The furrows are shallow grooves, or rather nicks, about 1½ inch wide, with the cutting edge sharp, and the other bevelled.

The gravel found on the works was not always so free from clay as could be wished. It had often to be screened to reduce the quantity of sand to the proportions necessary to form a good mortar with the lime used. Concrete is really minute rubble work of pebbles set in mortar, more or less perfect according to the care taken in mixing the ingredients. In theoretically perfect concrete, the mortar should be made, first, to insure a perfect matrix for the pebbles to be embedded in; but this is not the usual practice in this country. The great mass of the concrete was composed of one measure of lias lime to six measures of gravel; both being measured by boxes, and not by guesswork. Sometimes, however, a layer of gravel was spread out, a foot thick, and then lime laid over it for a depth of two inches. This is not so good a way of measuring as by boxes, because the lime falls between the pebbles, and the concrete is richer in lime than the engineer intends, which is no advantage to the work, and is, of course, a loss to the contractor. When the ballast was moderately dry, 12 cubic yards of gravel and 2 cubic yards of lime made 11 cubic yards of concrete, mixed and deposited. The shrinkage from the dry materials was then 22 per cent; but if the ballast happened to be very dry, the shrinkage was more, and the same quantities made only 10 cubic yards.

A cubic yard of concrete requires about 38 gallons of water to bring the dry materials to the requisite state of fluidity. Of this quantity nearly 8 gallons enter into chemical combination with the oxide of calcium in the lias, and 30 gallons are either absorbed mechanically by the pores of the lime, retained by capillary attraction between the grains of sand, or lost by evaporation. After the concrete has been mixed and deposited, a gradual expansion takes place from the chemical action of the lime slaking; the less of this swelling, however, the better, as it disturbs the setting of the mortar round the pebbles, and causes fric-

bility in the concrete. Whenever concrete is made with quick lime (as it usually is) there must be a certain amount of friability from this cause; and therefore, when it is important to have no swelling, as in blocks of concrete which have to be lifted, recourse must be had to slaked lime, or else to cement, which contracts rather than expands in setting. In the one case the concrete is long in hardening, having more moisture in it than the lime can absorb; and in the use of cement more expense is incurred. Portland cement is, however, not so expensive as might at first appear from the cement being double the price of lime, because the proportion to the ballast may be considerably reduced.

Some experiments on the expansion of concrete prove to me that it varies a little with the season of the year. In hot summer weather the expansion of a cubic foot in twenty-four hours after mixing was as much as $\frac{1}{16}$ th of its bulk, usually $\frac{1}{32}$ th; but in frosty weather it rarely exceeded $\frac{1}{64}$ th. The force exerted in the expansion was always sufficient to burst the box in which the concrete had been deposited: the amount might even be measured by the distance the nails were drawn out. Whenever the expansion exceeded $\frac{1}{16}$ th of the bulk, I considered the concrete too rich in lime; that there was more than would, when slaked, fill up the interstices of the sand and flints, and coat each grain with a thin pellicle of lime. More than this is not required, for too thick a coating of lime causes weakness, and not strength.

The gravel and lime were mixed together on a platform of planks, and were turned over twice in the dry state, and twice with water, gradually added. The concrete was then wheeled in barrows, and shot into the required place from planks a few feet above. The idea that concrete should be thrown in from a great height is erroneous; for it then falls with too great force, and disturbs the setting mass below, causing unnecessary friability. This was particularly noticeable in the deep pits for the counterforts of the north wall of the basin, where the concrete had unavoidably to be thrown from a height of 30 feet. The force of the blow set the whole mass in motion for some feet down, even after setting had fairly commenced. Lias concrete sets slowly, and in this case it was impossible to wait long enough for each layer to become perfectly hard before depositing another, as the wall had to be built with the utmost expedition, as will be seen hereafter. Anything gained in density by a fall of more than 6 feet is more than counterbalanced by the disturbance to the mass below. The grand rule in concrete is, not to disturb it after setting has once commenced. Wherever it is necessary to shovel it into corners, or pack it between stones, it should be done at once, and the concrete not touched again. The swelling of the lime during slaking causes enough natural friability, without increasing it by after-disturbance.

By arrangement in the contract with Messrs. W. Cubitt & Co., the contractors for the greater portion of the permanent work, ground lias lime was sold to them for 10d. per bushel; and at this price the cost of making a cubic yard of concrete was as follows:—

	s.	d.
33 bushels of lime, at 10d. ..	3	12
Loading, waste, and bags for do. ..	0	3
Getting gravel	0	6
Wheeling do. (say 5 runs) ..	0	4
Screening and selecting do. ..	0	3
Mixing and depositing	1	1
Platforms	0	12

Total cost per cubic yard = 5 8

As the quantity of gravel fit for concrete was uncertain before the ground was opened up, for the sake of simplicity the whole excavation had been estimated as barged away; and for each cubic yard of gravel used as concrete, a certain deduction was made in the monthly payments.

The supply of water for mixing the concrete was obtained from pipes laid down to the various parts of the works, either from the street mains or from the launder of the pumping engine. In mixing large quantities the expense of laying pipes is soon saved.

The Application.—Concrete was applied on the works of the London Dock Extension in several ways:—1st. In foundations for masonry or brickwork, as a means of spreading the weight over a large surface. 2nd. As the cheapest method of reaching a good foundation in the clay or gravel, whether for walls or piers of warehouses, &c. 3rd. In the dock walls themselves, wherever the concrete would not be exposed to the alternate action of wind and water. 4th. As counterforts or buttresses, on which nothing was to be afterwards built, but where weight was wanted.

In all these cases it is to be noticed that it was

applied as a mass, in the monolithic form, which is the true use and value of concrete. Whenever it is moulded into separate blocks, to be afterwards set in proximity to each other, concrete becomes an inferior substitute for stone, although often an economical and useful one.

The whole of the side walls of the two locks rested upon a bed of concrete, of a thickness varying very much with the level of the clay, from 3 feet to 6 inches. The invert of the lock chambers was laid on concrete, and the spandrels of the arch filled up with it. The high chimney of the pumping-engine house stood on a square of concrete of considerable thickness, the pumping engine itself resting on beech piling. As this chimney was very close both to the pumping-well (18 feet in diameter) and to the excavation for the Lower Dock, there was some risk of unequal settlement. A plumb-bob was therefore left suspended in the chimney, which at once would give warning of any inclination either way. Some time after the chimney was built, the plumb-bob showed that the shaft had inclined several inches towards the excavation. A quantity of limestone was at once stacked round the base of the chimney on the opposite side, which brought the shaft back to the perpendicular.

Concrete was used as the cheapest means of reaching the clay, in the foundation for the lattice swing-bridges over the locks; the bridge piers resting on arches the piers of which were of concrete up to a certain height. Columns of concrete were built up likewise in the proper places, upon which cranes and capstans might be placed when required. The whole of the walls and iron columns of the new warehouse rested on trenches of concrete about 8 feet wide, and averaging perhaps 8 feet in thickness; from the top of the natural gravel to the level of 17 feet below high water. As the concrete here was not to be exposed to the direct action of water, it was made of Dorking or grey stone lime, in the proportion of one of ground lime to eight of ballast. This lime carries more sand than lias; is but feebly hydraulic, and, indeed, not permanently so at all. It is the lime used in London for building purposes, and by some engineers even in dock work, when mixed with pozzolana.

By far the largest quantity of the gravel found in the excavation was used up in the construction of the walls of the basin, in which everything below the level of 17 feet from high water was of concrete, faced with 2 feet of Kentish rag-stone, to protect the surface from the disintegrating effects of water. At this low level there was no fear of vessels rubbing against the rough faces of the rag-stone. The general type of the basin walls was much the same as that of the West India Junction Dock walls, where Mr. Rendel used concrete of one part of Portland cement to nine parts of gravel.

The concrete portion of the basin walls was 17' 6" at the bottom, and 11' 6" at the top, the face being curved at first to a radius of 11 feet, and then carried up with a batter to the bottom of the brickwork, which was perpendicular. Whenever concrete is faced with rag-stone, it should be built with a batter, and the layers slightly inclining away from the face. All danger of the wall bulging out, or of the face-work peeling off, is then avoided. The Kentish rag-stone facing was hammer-dressed on the joints for a certain distance in, and care was taken to have at intervals long wedge-shaped stones, with the broad end inwards, tailing well into the concrete, which was carefully packed between the joints when first deposited. About 2 feet high of face-work was first set in, and then the concrete deposited in two layers of about 1 foot thick each. The first layer was allowed to harden for at least twenty-four hours before the second was deposited, and they were always arranged so as to break joint. A layer of concrete does not thoroughly incorporate with a previous one unless the meeting surfaces be kept rough, and free from sand; but, by sweeping off all sand, and, if necessary, picking the face in furrows, and by breaking joint with the layers, all danger is avoided of either a vertical or horizontal run of water through a mass of concrete. The brickwork of the upper half of the wall, with its counterforts, was not laid on landings, as in the lock walls, but was for 3 feet set in superior mortar, with hoop-iron band every three or four courses.

The above description applies to the east, west, and south walls of the basin; but the north wall varied materially from the general section, and was altogether very instructive, from the difficulties encountered in building it. The east end of the wall had been commenced in the usual way, by taking out the excavation of the basin in front, and of the wall to the natural slope of the earth,

when alarming cracks appeared in the churchyard of St. Paul's, Shadwell, and the whole ground on which the High-street and this church, with its handsome steeple, were built, appeared to be slipping into the works, for a length of 800 feet. Any one who witnessed the fall of the terrace at Ramsay Gardens some months ago will understand, on a small scale, the result of such a catastrophe. The excavations were at once stopped, and borings made in the churchyard and adjoining streets, outside of the Parliamentary boundaries of the dock company. The surface of the London clay was found to rise suddenly in a slope of 1 in 10 from the basin to the High-street, so that the whole prism of earth, resting on an incline, was only kept up by the weight of the earth in front. It was necessary, therefore, to alter the character of the wall, and to stop the excavation of the basin till the wall was completely built, and ready to take the thrust of the ground behind. For the better protection of the church, which was in more danger than the houses, a perfect forest of piles was driven into the clay in front of the churchyard. These were in four or five rows deep, several feet apart, and connected by walings at right angles to the basin wall. The ground was next taken out in pits, in the line of the wall, 50 feet centre to centre, 20 feet wide, and 40 feet back from the coping. These were carried well down into the clay, and the bottoms out in steps, sloping away from the basin. The pits were filled in solid with concrete, up to the level of 17 feet below high-water, the face being protected by 2 feet thick of Kentish rag as usual. Brick arches were then turned from pier to pier, to support the upper half of the wall, which was of the ordinary character.

To prevent the ground between the piers from falling through into the basin, vertical brick arches, 3 feet thick, were turned from counterfort to counterfort, and backed with puddle or concrete. These arches were founded in the clay, on the top of a strong slope of concrete, faced with a foot of puddle, to protect the surface from the water. The wall carried at the back of it a culvert 4 feet in diameter, for keeping up the water level in the Eastern Dock or the New Basin if required.

After the counterforts were finished, and the arches turned, the ground in front of the coping line was excavated, and the toes of the slopes and piers put in with Portland cement concrete, in the proportion of 1 of cement to 9 of gravel. This sets faster than lias concrete, and is heavier, a cubic foot of each weighing 139 lbs. and 129 lbs. respectively.

Before the water was let into the basin, the north wall resembled a massive viaduct more than a quay wall for ships to lie against; but after the water was admitted the arches were not seen, as their crowns were 8 feet below high-water level.

The use of concrete by Mr. Rendel in the London Dock extension is an excellent example of what good engineering ought always to be, viz.—the application, in the best and most economical form, of the material closest at hand, so long as that is consistent with strength and durability.*

SELF-EDUCATION IN ART.

We have received two or three letters from anxious strugglers, asking how they shall begin to learn to draw. Here is one of them, signed "A Working Man":—

"I have read, in yours of the 23rd instant, the account of Mr. W. Smith's 'Lecture on the Uses of Drawing.' I am a working man, and have been much interested in what Mr. Smith says about working men learning to draw; but, from living in the country, I have no facilities for learning, except teaching myself, and should feel very thankful if you or Mr. Smith would instruct me how to begin, through the medium of your paper."

We will let Mr. Smith reply.

The letter signed by "A Working Man," I have read with much interest, and I hope you will allow me, for the sake of those who are in a similar situation as that described by your correspondent (who are anxious to improve themselves by learning to draw, yet cannot tell how to begin), to say a few words on self-education in art.

Situate as I am, in the manufacturing districts, where working men are continually raising themselves to positions of wealth and influence by their own exertions, let me, from my own observation, at once assure your correspondent that having no facilities for learning to draw need be no permanent obstacle in his way. Experience has shown, in many instances, that those who are self-taught

* From a paper read by Mr. George Robertson, C.E., before the Royal Scottish Society of Arts.

are best taught. It may at the starting point be more difficult to acquire knowledge unaided, than it would be by the help of a teacher; but, when gained by sheer perseverance in the face of great difficulties, such knowledge becomes part and parcel of a man's mind, and he is the less likely to forget it. I find it incomparably easier to teach those who have taught themselves a little, than those who have been taught much by other persons. The reason is obvious: those who have taught themselves are educated, whilst those who have been taught by others are often merely instructed; and the difference between the two is well described by Dean French (I think) in the following words:—"Instruction is the furnishing a man from without with knowledge and facts and information: education is the drawing forth from within, and a training of the spirit of the true humanity which is latent within him. Instruction is the filling of a child's mind, as a cistern is filled with waters brought in vessels from a distance, whilst education is the opening up of its own fountains."

Education should first awaken, and lead out the powers within; and instruction will then furnish those powers with the materials necessary for their further development. Many men have become highly educated, without having received direct instruction from other men.

To encounter difficulties alone, and to overcome them, will develop the faculties of the mind, and lead out, or educate its powers, more rapidly and more certainly than the best instruction. A habit of thought, an invincible determination not to be conquered by any difficulty, a power of seeing the weak points and assailable parts of a difficulty, all these will be generated by self-teaching. Obstacles become, in the hands of the determined man, changed into advantages, when, to his determination, he adds this one golden quality,—perseverance. From a somewhat extensive experience among working men, my conviction is, that a working man had better commence learning to draw by himself, and not join a drawing class, or resort to a teacher, until he has made considerable progress in the elements of drawing.

This may be some encouragement to "the working man." Self-reliance is as valuable in art study as in other studies, and let your correspondent read what "self-help" has done for some of our greatest men.

In the self-teaching of drawing for workmen I would recommend, as a commencement, the study of practical geometry. There is a very useful little book, by Mr. Burchett, called "An Introduction to the Construction of Plane Geometrical Figures," which I would obtain and master before going any further. Its cost is 5d., and Chapman & Hall are the publishers. The "Practical Geometry," by the same author is also a valuable book, but it is too expensive, and contains much that would be useless. If, however, the cost of it (5s.) be not too heavy, get it, and leave out in the study of it all the special methods for the construction of polygons.

Groombridge's "Practical Geometry for Schools and Workmen" is a cheap substitute for both the above. And then I would say to the working man: master each problem as you go on. Work out the figures five or six times as large as those in the book; and, above all, see that you not only know how to work each figure, but that you can work them accurately. One square, made intensely accurate, is worth all the figures in the book drawn in a slovenly inaccurate manner.

When you have done twenty problems get a smooth drawing-board,* 30 inches by 20 inches, and, with a piece of white chalk, copy the problems as large as possible on this board, without the use of rule or measure, or, in other words, by the free hand; and this will be your introduction to what is called free-hand drawing. Suppose, for instance, you have made a square, geometrically, by means of your compasses and ruler. Draw then a square on your board, free hand, having a side 18 inches long; when it is as true as you think you can make it, test the straightness of the sides with your ruler, and the length of each side with a piece of string. If the lines are both straight and equal, then measure the distance from opposite side to opposite angle; and, if both diagonals are the same length, you have made a true square. Do the same with all the figures you have worked with your compasses; and, when you can get them true on the board with chalk, draw them free hand with a soft black-lead pencil on paper; but don't waste pencil or paper until you can get them right first on the board. When

you can get them right on paper, go on to twenty more problems, and work in the same manner; and so on through the book, leaving out only the most complicated of the figures. You can do all this entirely by yourself; for your compasses and ruler, and a piece of string, will be your masters, and tell you immediately, on reference, whether you are right or wrong in what you have done. Now, if you can do as much as this by yourself, you may take for granted that you are some distance on the high road to art power.

If you can afford it, next buy Dyce's "Outlines," a book full of admirable drawings in outline. The price is 5s. Publishers, Chapman & Hall. You will find that the first examples in this book are similar to what you have already done by following my suggestions, so that you will find no difficulty in beginning at the commencement, and will, moreover, have the great advantage of understanding all you do. You may go through the entire book without assistance from any one; but as you progress, remember that you will have to make your line of one uniform thickness, which must not be a hair's breadth thicker than your copy. Do not trouble yourself in the first few examples as to the thickness of the line, only see that it is equally thick everywhere. But when you have done say up to the twentieth copy, then take care your line in finishing be no thicker than the copy. You will find it convenient to divide your work into two stages, the first being the getting all the proportions and forms accurately pencilled, very lightly, with a soft pencil (H B); this is called sketching. The second will be the finishing stage, in which you will first rub out the constructional lines and the clumsiness of thick and irregular touches; and, when the drawing is only just perceptible, cut a sharp point to a hard pencil (H or F); and, keeping the pencil perpendicular to the surface of the paper, go over your drawing firmly, making one uniform line, as you see in the copy. This second stage is usually called *lining in*. If the line is shaky, or as though it had been drawn by a man having a mild attack of ague, rub it out, and try again and again, until it is as good as your copy. In this manner go through the whole of Dyce's "Outlines."

When you have done this, you will have made a good beginning; and the chances are that before you have completed the outlines, some opportunity will enable you to pursue your studies in a School of Art, or under a qualified instructor. If this is not the case, drop a note to the editor of the *Builder*, and tell him how you have succeeded, asking for further instructions, which I have no doubt he will give you or ask some one else to do so. If you have the opportunity call on the master of any School of Art, show him your drawings, and ask his advice in further studies. This you will always find him willing and pleased to give you, gratuitously.

Thus, I think I have shown you that you may commence learning to draw, at no great expense to yourself—either of time or money. If you are disposed to sacrifice the cost of one pot of beer per week, it will supply you with means to pursue the study of drawing. If you can dispense with your nocturnal pipe two evenings in the week, you will have ample time to go through the course I have suggested in six months. Forgive the use of this illustration, for I use it only to show you that no great self-denial is required in the pursuit of learning to draw.

Do not allow any one to persuade you that you have no taste or genius for drawing. If you have fixed determination and steady perseverance, you may take the genius for granted.

WALTER SMITH.

We commend these remarks to the consideration of every working man in the kingdom; more particularly every young working man; sons and apprentices of working men; and to others beyond them in social position; with an earnestness greater than our words can convey. Let them remember that, by the acquirement of the power of drawing, they at once advance themselves in station: they have an additional power of direction: they are fore-men. They have put their foot on the ladder; and, if they have health, strength, integrity, and will, they may go up.

POLYTECHNIC INSTITUTION.—Amongst the novelties here are two new lectures by Professor Pepper, entitled "The Iron Age," and the Science of the Armstrong, Whitworth, and other rifled guns, illustrated with experiments, and a new series of dissolving views, with descriptive lecture by Mr. James D. Malcolm, illustrating the navies, dockyards, and iron-clad war steamers, the *Warrior* and *La Gloire* of England and France.

SHEFFIELD COGITATING.

In former numbers of the *Builder*, we have referred to the lamentable condition in which this important town remains, owing to the apathy and the conflicting nature of the interests and functions of the authorities. In pursuing our investigations, we commented upon the impracticability of the streets, the want of structural beauty in many of the buildings, and we exposed the insufficient sanitary regulations which are, we believe, unparalleled elsewhere, and hence peculiar to this locality. In the face of all this, one person obtruded himself before the public of Sheffield; and, very unfortunately for Sheffield and himself, endeavoured to misconstrue our intentions, and to pervert our facts. He alone, out of a population of about 185,700, stood forward as the champion of the exultations of Sheffield. This, at first sight, we considered very significant, as indicative either of the apathy of the residents, or of their consciousness of the truth of our remarks. Recent disclosures, which we shall presently quote, show that the well-informed and more liberal-minded people of the town are not so disposed to gloss over the existing evils, or to shrink from the responsibility of removing them, as the self-elected champion (Mr. Saunders) would wish the world to believe. At the same time our comments have received ample testimony as to the acuteness which characterized them.

It will be remembered that, during the controversy, we called attention to a pamphlet published by Mr. Saunders, in 1856, entitled "Sheffield as it is, and as it ought to be," and that we also compared it with his letters to the *Sheffield Daily Telegraph*, in reply to the *Builder*, in 1861. Since then the views of the *Builder* have been carefully and dispassionately studied, argued, and reflected upon by thinking men in the town. We have received evidence of the value and usefulness of our suggestions, and we now beg the reader's attention to some of the following extracts from the local press:—

A correspondent of the *Sheffield Daily Telegraph* of the 31st October, when alluding to the unredeemed pledges given by various town councillors before their election to office, says,—

"The pledge of Mr. Alderman Saunders, 'to remove all nuisances,' is not for sale, having been purchased by the *Builder*."

A correspondent of the same journal, November 6th, complains of the state of the streets thus:—

"Every day and every hour do I not see the poor horses drawing cabs and carriages, carts and wagons, tumbling and slipping, sweating and shaking with fear, because they can't keep their feet? And while it is so bad for quadrupeds, are bipeds better? . . . A short time ago Mr. Jackson, your active chief constable, did apply an effectual remedy; but I heard it whispered on the steps under my feet that he had been found fault with because it used so much water. I afterwards heard that the value of the water was sixpence. Now, if you don't get up a public subscription to have another sixpenny worth, and save me from further torture, I will certainly visit your dreams with a vision of ELLIOTT'S GHOST."

It will be borne in mind that we also alluded to the bad position which the statue of Elliott occupies. On the 8th of November the same journal published a reply to the foregoing letter. It is the effigy of Rebecca, surmounting the drinking fountain at the church gates, which is supposed to speak, and say,—

"Who, my dear fellow, could look at your black and ungainly figure, seated most indecently with your back to the post-office, without being frightened? What four-legged brute could eye your unpoetic phiz—excuse the expression—without taking fright? For myself, I can't say much,—placed on the top of a square fountain, with an urn in my hand like a milk-jug, and four vases at my feet like Egyptian flower-pots. I never was anything to boast of, but now my dress is all in patches, my shoes are tattered, and I altogether look like the woman described by the Italian poet Rinaldo,—

'Non giungo io tu porio
Fallario est mon giorio'

which means, 'She looks like one whose rags are proof of moral degradation.'"

Another correspondent, "T," adverts to the bad paving, and says,—

"I do not think Sheffield is safely or properly paved."

And, after referring to the narrow granite paving in Manchester, he continues:—

"The large flat blocks used in Sheffield hold the mud get slippery and dangerous, and punish both man and beast."

Again, "A Manufacturer," who does recognize the smoke nuisance, writes with good judgment in reply to a letter signed "A Resident," upon the question of a site for the station of the proposed railway to Chesterfield. He disapproves of the site suggested, and says:—

"The situation recommended is surrounded by the gas-works, a grinding wheel, a steam corn-mill, the Pond

* Or a black canvas, strained on a frame, would do better still. The price of one, 22 inches by 17 inches, is 1s. 8d., at Chapman & Hall's.

forges and rolling-mills. Messrs. Marsh's works, and Messrs. Jessop's rolling-mills. What an impression would the smoky chimneys of these and neighbouring works give to the traveller as he passes through the town? How many thanks would he bestow on the Midland Railway Company for the pleasure of a sight! The latter are points of view, perhaps, 'A Resident' may not deem important; but it does not follow that, because the inhabitants of Sheffield do not complain of their impure and smoky atmosphere, others would look upon the matter in the same light."

Upon the following day "A Resident" candidly admits that the "Manufacturers' objection

"Would apply with more or less force to the 'City of Soot,' and to nowhere more than to the Victoria and present Midland stations."

Thus far have the words of the *Builder* been confirmed, both as regards the nature of the streets and the neglect of the Smoke Prevention Act. But, reverting to the bad sanitary state of Sheffield, we cannot refrain from quoting from the *Telegraph*, November 9th, which contains a letter by Mr. John Watkinson. Its tone does credit both to the head and heart, and shows him to be a gentleman possessing great sagacity and discernment. He formerly held the position of clerk to the guardians; and his experience in that capacity during the cholera epidemic entitles him to speak with the weight of authority. His views are antagonistic to those of Mr. Saunders in 1861, but coincide with the pamphlet, "Sheffield as it is and as it ought to be" by the Mr. Saunders of 1856, and with the *Builder*. He says:—

"Beware of statistics. The selection of a single year as showing the healthiness of one year over another affords no just criterion. Your correspondent, Mr. Alderman Saunders, refers you to Birmingham; the deaths there in 1859 (a year in which mortality in Sheffield was much below the average), being 1 in 1,000 less than those of Sheffield. I refer you to the period when cholera was prevalent in Sheffield. In the former town only three deaths from cholera were reported, whilst in the latter there were upwards of eighty!"

Further on he desires—

"To draw the attention of the sanitary committee of the town council, and that of the public at large, to the present neglected state of the ash-pits, or middens, so called by (your correspondent) the alderman, who says—'The majority of our middens are drained: they are dry; and constantly, except under peculiar circumstances, emptied: what poisonous gases exist, rise up, and mingle with the atmosphere, tainting to some extent the air, doubtless, but not so far as to prove injurious to health.' Here, be it observed, it is admitted that neglected middens do taint the air; but not so that tainted air is injurious to health. This is an extraordinary conclusion, and one at which, I think, none but your correspondent, the alderman, will arrive."

Referring to the period of the cholera epidemic in Sheffield, he says:—

"The offensive matter soaked down to the bottom of the ash-pits, and was, as I verily believe, one great cause which brought about, in an aggravated degree, the calamity with which Sheffield and its neighbourhood was visited on the occasion of cholera. . . . and I am sorry to believe that Sheffield is now in that state of filthiness from the cause referred to, that, so soon as a certain condition of atmosphere shall again prevail in the town, we shall be visited with an epidemic of a serious if not of a fatal kind."

In regard to sanitary matters, Sheffield has not been 'roused,' the *Builder* and your correspondent having had the discussion to themselves. The *Builder* is satisfied that in 1856 Mr. Saunders agreed with him that black was black; whereas, in 1861, the former finds the latter arguing black to be white; so that, to end the controversy triumphantly, it is only necessary that Mr. Saunders should prove white to be no colour at all."

The foregoing extracts are so undeniably in favour of the statements made in the *Builder* (Nos. 972, 974, and 976), that we need not enlarge upon them. Lastly, we pointed out the poverty, defects, and inconveniences of the existing town-hall: we suggested that it should be rebuilt, and in such a way as to render it worthy of such a wealthy town. We are now glad to find that a more healthy tone of opinion is being created,—and we hope, fostered,—than could have been expected, had Mr. Saunders been listened to by his townsmen.

A writer in the *Telegraph*, November 23rd, sends a communication, headed "Our Wants in Sheffield," and says:—

"Sheffield has for a long period been yearly increasing in wealth; and it cannot be doubted but that during the last twenty years the trade of the town has increased at a greater rate than it did in the previous fifty years. Still, with all this enlargement in our manufactures, the adornment and improvement of the town have but little progressed, and we are worse off in respect to public buildings than any other great town in the kingdom. . . . In 1831 the population of the borough was 91,702. The music-hall is still the largest room in the town, while the population is now 185,700. It is to be hoped the town-council will cast off its slumbers, be alive to the wants of the inhabitants, and take some means to place us on a level with the people of Sheffield in 1831. At present the accommodation for the police and prisoners to be tried is alone worthy of the dark ages."

In making the above extracts, we have been influenced by a strict sense of the duty we owe to the public of Sheffield. It is the special province of this journal to advocate those measures and reforms which will ensure, to the fullest extent, a happy domestic vitality to all classes of society.

Our selections, too, have been taken from the *Telegraph* only, simply for the reason that that journal advocated some of the reforms we have suggested, both in its leading columns and in its correspondence. Moreover, it was the organ of Mr. Saunders's comments upon our survey. The *Independent* is doing good service in the same cause of improvement.

The proportions as well as the population of the town are increasing rapidly, and the facilities for commerce ought to keep pace with the requirements. The wants of the people, created by the more refined civilisation of our age, should be kept steadily in view; and supplied, so as to promote the convenience, the health, and the prosperity of the inhabitants.

THE LIVES OF THE ENGINEERS.

SMEATON.

We return, as promised, to Mr. Smiles's very able work; and, although it has already been so fully made use of by our contemporaries that we can scarcely broach any entirely new quarry for our own particular use, we shall select the lives of two of the celebrated engineers, an English one and a Scottish one,—Smeaton and Rennie,—treated of in Mr. Smiles's second volume, as not quite so much made use of as those in the first volume, as yet; and hence likelier to be a little fresh to our readers as the subject of a cursory article or two.

John Smeaton was a precursor of Rennie, who may be said to have filled the place he occupied when he died, although Rennie was himself already a distinguished engineer by that time. Brindley was more fully a contemporary, and indeed occasionally a colleague, of Smeaton's. While Brindley, however, arose from very poor beginnings, and was a completely self-educated man (if, indeed, he could be said to have ever become an educated man, even so far as regarded his spelling, which was certainly a curiosity); Smeaton had the advantage of well-to-do parentage; his father having been a thriving and respectable attorney at Leeds; near which, at Austhorpe Lodge, the future engineer was born, on the 8th of June, 1724; and where he may be said to have lived all his life; having inherited the house from his father. Indeed, it seems to have been designed that he should also inherit the business of his father; and he was accordingly planted on one of the office stools in his sixteenth year; but a certain itching for other tools besides the pen soon convinced the old attorney that his son was not cut out for the respectable profession of a lawyer; yet it was not till he had tried to wean him from his mechanical pursuits, by sending him to London, to pace the courts of Westminster Hall, that he ceased to hope to reclaim his son from his idling disposition, as he, doubtless, regarded it to be. A formal "memorial," no doubt quite in the orthodox lawyer style, despatched from Westminster Hall, praying his father to cease from troubling him with further endeavours to make a lawyer of him, and to allow him to choose the more congenial business of a mechanician, in the shape of a mathematical instrument maker, touched the heart of the surely not very stern old lawyer; and he reluctantly assented to the desire of his son to descend to the level of a mere mechanical workman; which, at that time, was the nearest practical approximation to the idea of a "civil engineer;" there being then no such "profession" in existence: at all events, a millwright, at labourer's wages, was the nearest approach to so nondescript a calling.

Thus reprieved from the execution of deeds which were his horror, young Smeaton was not long in seeking out for himself a philosophical instrument maker; and indeed it is quite probable that he had already his eye on such a one; and that his father, in sending him to London, had merely put him the sooner in the way of his final destiny, instead of removing him out of the way of it. That the young mechanician, moreover, had no more grovelling idea of the life he had adopted soon appeared; for, instead of living a mere workman's life, he sought the society of educated men, and soon thrust himself into "Royal Society" associations, and was allowed to read various papers to the F.R.S.S., which so deeply influenced influential members that they obtained for him, as his very first engineering work of any importance, the greatest work he ever did,—namely, the construction of the Eddystone Lighthouse. It was after some time, however, that this great event took place; and after he had first entered into business for himself, at the age of twenty-six, as a mechanician; had brought several important inventions into notice,

such as improvements in the air-pump, in ships' tackle, in mill-work, &c.; and had afterwards turned his attention to engineering proper, and had visited Holland and Belgium, to inspect the great dykes, canals, and other engineering works, of the districts, in these "low countries," through which he passed, on foot, and by canal.

On his return he was recommended by the president of the Royal Society, Lord Maclesfield, as the fittest man he knew, to grapple with the tough work of erecting a lighthouse at the Eddystone, to replace those which storm and fire had successively swept away.

And here, at once, his peculiar education, as a mechanician, no doubt aided him greatly in the successful solution of the difficult problem which was presented to him. The dove-tailing of every stone in the structure was just such an idea as such an education was apt to suggest.

The previous erections on the Eddystone Rock had been of wood. It had been long ere any one would venture to test his engineering powers, by endeavouring to erect the much-desired bacon on this deadly morsel of rock.

"At length, however, one Mr. Henry Winstanley (a mercer and country gentleman), of Littlebury, in the county of Essex, obtained the necessary powers, in the year 1696, to erect a lighthouse on the Eddystone. That gentleman seems to have possessed a curious mechanical genius, which first displayed itself in devising sundry practical jokes for the entertainment of his guests. Smeaton tells us that in one room there lay an old slipper, which, if a kick was given it, immediately raised a sheet from the floor; in another, the visitor sat down upon a chair, which suddenly threw out two arms and held him a fast prisoner; whilst, in the garden, if he sought the shelter of an arbour and sat down upon a particular seat, he was straightway set aloft into the middle of the adjoining canal. These tricks must have rendered the house of Littlebury a somewhat exciting residence for the uninitiated guest. The amateur in engineering, who carried the same genius to a certain extent for the entertainment of the inhabitants of the metropolis; and at Hyde-park Corner he erected a variety of jets d'eau, known by the name of Winstanley's Waterworks, which he exhibited at stated times at a shilling a head."

This whimsical character of the man in some measure accounts for the oddity of the wooden building afterwards erected by him for the purpose of a lighthouse on the Eddystone rock; and it is a matter of some surprise that it should have stood the severe weather of the English Channel for several seasons."

The light-house somewhat resembled a Chinese pagoda, with open galleries and numerous fantastic projections. In a perspective print of it, published by the architect, he complacently represented himself as fishing, out of the kitchen window. A severe storm one night played havoc with it, while Winstanley himself was inside; and in the morning not a vestige either of it or of its whimsical architect could be seen. Poor man, he had indeed been fishing in troubled waters!

The next light-house was designed by one Rudyard. It was erected a few years after Winstanley's disappeared, and was a much better one in all respects but one; and that involved its fate by fire; for it was also built of wood, and was burnt about fifty years after its erection in 1706-9.

Strange to say, although the architect of the first of these two structures was "a mercer and country gentleman," and that of the second "a London silk mercer;" nevertheless, the architect of the third lighthouse was not an architect either: neither was he a builder nor an engineer, but a mathematical instrument maker. Mr. Smeaton, however, had already gained renown as an able mechanic, and one who could patiently master difficulties; and the opinion of him that he was a fit man to do what others had thus failed in fully and permanently accomplishing appears to have been justified by the issue; for Smeaton's lighthouse on Eddystone rock has "withstood the storms of a century," and still stands, as firm apparently as the rock itself to which it is dovetailed, and from which it rises as if it were but a continuation and an integral part of that which the lash of the waves of centuries alone can slowly wash away.

With a description of the well-known fabric we need not here trouble our readers.

"The Eddystone Lighthouse has now withstood the storms of a century—a solid monument to the genius of its architect and builder. Sometimes, when the sea rolls in with more than ordinary fury from the Atlantic, driven up the Channel by the force of a south-west wind, the lighthouse is enveloped in spray and its light is momentarily obscured. But again it is seen shining clear like a star across the waters, a warning and a guide to the homeward-bound. Occasionally, when struck by a strong wave, the central portion shoots up the perpendicular shaft, and leaps quite over the lantern. At other times a tremendous wave bursts itself upon the lighthouse, as if to force it from its foundation. The report of the shock to one within is like that of a cannon: the windows rattle; the stairs slam; and the building vibrates and trembles to its very base. But the tremor felt throughout the lighthouse in such a case, instead of being a sign of weakness, is the strongest proof of the unity and close connection of the fabric in all its parts."

Smeaton's "extraordinary building" very soon gave him celebrity. Numerous visitors resorted to his rooms at Gray's Inn, in order to inspect the model and hear him talk of his great work; till at length he had to depute his wife to explain the details. It does not appear, however, that his success led to his extensive employment on engineering works for several years; otherwise he would not have offered himself, in 1764, as a candidate for the vacant office of receiver for the Derwentwater estates; to which he was, however, appointed.

One of the earliest subjects on which he was consulted was the opening up of river navigations; and the Nith, the Wear, the Chelmer, the Don, the Lea, the Calder, and other rivers and navigations received his attentions, and were benefited by his improvements. He was also employed on the Lincolnshire Fens, and other low-lying lands. He was often called upon for advice as to old bridges, and for his services in the erection of new ones. Thus, in 1762, he was consulted as to the repairs of Bristol old bridge; and, in the following year, the London corporation advised with him as to the widening and enlarging of old London Bridge. Perth, Coldstream, and Banff bridges were reared from his designs; but the only bridge he erected in England was that at Hexham, in 1777, and it was a total failure: it had scarcely been finished, when the foundation of one of the piers subsided; and, in 1782, the bridge was washed entirely away down the Tyne by a flood. Writing to Pickernell as to this sad result, he said,—

"All our honours are now in the dust! It cannot now be said that, in the course of thirty years' practice, and engaged in some of the most difficult enterprises, not one of Smeaton's works has failed! Hexham Bridge is a melancholy instance to the contrary."

Thus the same engineer who had founded a lighthouse far out at sea, so firmly as to bid defiance to the utmost fury of the waves, was baffled by an inland stream!

The Forth and Clyde Canal was constructed under Smeaton's auspices; and among his various works he was also employed in the improvement of harbours, as at Ramsgate, Whitehaven, Bristol, Dover, Yarmouth, Scarborough, Sunderland, Eyemouth, and various others. He also designed the harbour of St. Ives, in Cornwall. The chief harbour works executed by him, however, were those of Ramsgate. He was consulted respecting canal projects almost until the close of his life;—amongst others, on the improvement of the Birmingham Canal, the Ure Canal, the Dublin Grand Canal, and various other schemes of the same sort. He was the principal authority on lighthouses; and, amongst others, he erected two on Spurn Point, at the entrance to the Humber, between the years 1771-6, which were lighted by coal-fires down to a comparatively recent period. The Government consulted him respecting their dockyards at Plymouth and Portsmouth. Water companies consulted him as to water supply, and landowners and coalowners as to the best method of draining their lands or working their mines. He was called upon to design many weirs, sluices, and dams; and his dam on the Coquet, north of Newcastle, was considered one of the most complete works of his kind.

He was ready to supply a design of any new machine, from a ship's pump or a fire-bucket to a turning-lathe or a steam-engine. His machinery was neatly designed, and he was very particular as to its careful execution and finish. The water-pumping engine which he erected for Lord Irwin, at Temple Newsam, near his own house at Austerhorpe, to pump water for the supply of the mansion, is an admirable piece of workmanship, and continues at this day in good working condition. His advice was especially sought on subjects connected with mill-work, water-pumping, and engineering of every description—flour-mills and powder-mills, wind-mills and water-mills, falling-mills and flint-mills, blade-mills and forge hammer-mills. From a list left by him, in his own handwriting, it appears that he designed and erected forty-three water-mills of various kinds, besides numerous wind-mills. He also bestowed much patient study on the development of the infant powers of the steam-engine.

Smeaton's was not an era when great fortunes were made by eminent engineers. Two guineas a day constituted his charge for a full day's work. He earned a fair income, however, by his profession; although he sacredly reserved a portion of his time for scientific investigation and self-improvement. Like Watt, who admired him and called him "Father Smeaton," he was urged to go to Russia, but refused. The Princess Dashkoff, who had been employed by the Czar to tempt him to desert his country for better money pro-

spects, honoured the man for his refusal. "My sovereign," she said, "has the misfortune to find one man who has not his price."

We must devote a separate article to Rennie.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE ordinary meeting of members was held on Monday evening last, at the house in Conduit-street.

The chair was taken by Mr. Wyatt, V.P.

The minutes of the last meeting were read and confirmed.

Mr. T. Hayter Lewis (honorary secretary) read a list of donations to the library, including a cast from a bust of James Gibbs, the architect of the library at Oxford, taken at an advanced period of life by Michael Rysbrach. This was presented by Mr. George Gutch.

The chairman, in proposing a vote of thanks to the donors, called attention to the cast, which he observed was a very fine work of art, and would be a valuable addition to their memorials of departed architects.

Mr. Wyatt Papworth then read a paper on the Superintendents of English Buildings in the Middle Ages; being notes for a historical account of masons, their customs, institutions, &c.

At the conclusion,

The Chairman, in inviting discussion on the subject, observed that he was sure they were all much interested in the very learned and elaborate paper which Mr. Papworth had prepared. They were that evening favoured with the presence of a learned Freemason (Mr. Matthew Cooke), who perhaps might be able, without infringing upon his masonic obligations, to say something pertinent to the subject.

Mr. Matthew Cooke said he had listened to the paper with much interest, but was quite unprepared to take part in the discussion.

Mr. Mylne observed that the design of the paper appeared to be to show that the master mason had more to do with the design of the building than was generally supposed. He (Mr. Mylne) quite agreed with the view taken by Mr. Papworth, although he thought there was some difficulty in arriving at the conclusion whether it was a first or a subsequent master mason who was responsible. With regard to ecclesiastical buildings, it was more probable that the master mason was the designer than in the case of palaces or royal residences. In several towns in Scotland (Dundee, for instance) muniments were still preserved which showed that the ecclesiastical and municipal authorities agreed in selecting the person who should be master mason; but in their contracts with that individual there was a clause that, in case his services should be required in connection with any of the king's buildings or works, then in such case they should not be held bound to pay him his salary while so employed. From the year 1530 to 1560, a Frenchman was the principal master mason in Scotland. Other masons were subsequently appointed; but the principal master mason was appointed for life, wore the royal livery, and had a fixed stipend from the Crown. It was not generally known, but such nevertheless was the case, that the office of master mason had never died out in Scotland. The present master mason was Mr. James Smith, who held the office by patent. With regard to Freemasons, he had never been able to find any trace of them, as a company, in Scotland; but all the early master masons of fame in Scotland appeared to have been Freemasons, which was a curious circumstance.

Mr. Street remarked, that what was true with respect to the position of Spanish architects was also probably true with reference to those of England and France. It seemed that in former times many persons carried on the profession of architects in Spain who came much nearer to the definition of an English architect in our own day than the gentlemen of the Middle Ages described by Mr. Papworth, who got a shilling a-day for their services. The master of the works was a perpetually recurring term in the archives of the Spanish cathedrals. Mr. Papworth appeared to think that the master mason was the architect because his mark and also that of the second master mason were frequently to be found on the same stone. He (Mr. Street) could not, however, believe that the men who designed the magnificent monuments of the Middle Ages could have been persons remunerated on the scale of one shilling per day. He might add, however, in confirmation of Mr. Papworth, that he had never been able to find the term "freemason" used in the sense in which the word was now used. It would seem that in Spain it was not unusual for architects to meet and give

their opinion as to the mode of construction, &c.; and records remained showing that committees were so appointed, and that each architect prefaced his answer by stating that he was the master of the works at such and such building. It would, he thought, be extremely interesting to ascertain the scale of remuneration paid to such men as "William the Englishman," "Elias of Dereham," and others; for he, for one, was certainly opposed to the theory that men of such attainments were paid on the scale of a shilling a-day.

Mr. Mylne reminded the meeting that the master-mason received fees in addition to a fixed stipend; and that in many cases he was in receipt of fees from perhaps eight or ten works going on at the same time.

Mr. White said that he had paid great attention to the subject for some years, and that the conclusions to which he had arrived were at variance with those of Mr. Papworth. It should be remembered that in the present day the same term or designation did not apply to the same men in all parts of the kingdom. Thus, for instance, in some villages, if you ask for the builder you would be referred to the plasterer; and in other cases, if you asked for the plasterer you would be referred to the mason. In the present system of Freemasonry, the term "free and accepted mason" was used, which he fancied applied to the arch masons, and not to the artificers or labourers who had not attained a full knowledge of the science of masonry. It seemed to him absurd to suppose that the lower order of masons possessed the same amount of knowledge as those who supervised the work, or the arch masons.

In this opinion he was fortified by evidence still existing of the fact, that the guild of arch masons carried out the works from the earliest ages until the decline of art, upon a systematic and geometrical principle, which enabled them to communicate to those under them the power of setting out work without the assistance of those elaborate drawings which were now indispensable. He did not think there were any drawings of detailed works in the records of the old cathedrals, which was an argument in favour of the theory he was endeavouring to set up. He would be glad to know what Mr. Papworth meant by the word *cementarius*.

Mr. Papworth.—It means mason, of course, and is the Latin term for our own word.

Mr. White.—But how do you get the derivative?

Mr. Papworth.—Well, I suppose from cement.

Mr. Kerr proposed a vote of thanks to Mr. Papworth for his learned and carefully-prepared paper. The important question which he had raised was—who was the architect in the Middle Ages? Upon this subject there were several theories; some persons holding that the monks were the architects; others that the master masons were the designers; and others that there were architects, properly so called. With regard to Freemasons, he did not pretend to any knowledge of Masonry beyond what he had read; but he took it for granted that no one in his senses supposed that such a society existed in the Middle Ages. With regard to the Scottish masons, the working masons of the present day had a perfect freemasonry among themselves, which was identical with English freemasonry. The Scottish masons had ceremonies and symbols, and they were free and accepted among themselves. The consequence was that the Scottish trade union was more formidable (except in the extent of its numerical strength), than the English trade union. It appeared to him sufficiently plain that the ecclesiastics in the Middle Ages had a good deal to do with the works; for, looking at that great gulf between the knowledge possessed by the clergy, who were almost its sole repository, and that of the people, it was clear that the latter could not have been in possession of that constructive science necessary for the erection of the great ecclesiastical monuments of the Middle Ages. Under these circumstances he thought there was a good deal to be said in favour of the theory that ecclesiastics were connected with the building of ancient cathedrals and churches, but that they were indebted for assistance to practical men to work out their designs. He did not think that any Freemasons as such existed in the Middle Ages, although the masons might have had a confederation among themselves.

Mr. Mon is inquired of Mr. Papworth whether, in his researches, he had met the word "comptroller;" for he found, in the statute of Henry VII., for punishing workmen who might commit an assault upon the "overseer or comptroller" of the works, that heavy fines would be incurred. He (Mr. Morris) fancied that the "overseer or comp-

troller" must have been a superior officer, with more of the capacity of the architect of the present day.

Mr. Papworth replied that he had found the word "comptroller" as early as the time of Edward III.; thence down to Charles and James; but that he appeared to have been simply the comptroller of the accounts, and altogether independent of the works. This was proved by the fact that he was allowed a certain sum to pay a clerk to assist him with the accounts.

Mr. Edward Roberts seconded the vote of thanks to Mr. Papworth; observing that he (Mr. Roberts) was "a real Freemason." He believed that in early times there were lodges of Freemasons and labourers, and that the word "livery" was used then in the same sense that the word was now used in the city of London. With regard to working drawings, he found that lines were often cut in stones, showing how the mouldings were to be carved. These, he apprehended, were the working drawings made by the master mason, but he did not believe that the latter was the designer of the building.

The Chairman, in putting the motion, awarding the thanks of the meeting to Mr. Papworth, observed that the latter gentleman had collected a mass of interesting information, but that the great difficulty still remained unsolved. He hoped, however, that, by further digging in the same mine, he might hit upon a vein which would show who really were the class of men who designed the great architectural monuments of our country raised in the Middle Ages. He thought it could scarcely have fallen to the lot of a mason to have combined in his person the office of designer and builder; and the fact that the master mason often remained so short a time on the works, and was repeatedly succeeded by others, went to prove that there must have been some master mind who designed the building. In Italy, the Pope seemed to have protected the Lombard masons, who appeared to have enjoyed certain privileges and exemptions, owing no doubt to the services which they were doing to religion. These privileges allowed the Lombard masons to come to Great Britain, where they worked by substituting stone for the original buildings of wood. On this account, he believed, they were free masons in the full sense of the term. After their knowledge was imparted to the natives of this country, free masonry appeared to have died out, and was not revived until the fourteenth century. In the Florentine records, a good deal of interesting information would be found about the customs and institutions of the masons. It was the practice in Florence for every man to make a return of the name of the person for whom he worked, and of what he earned; and these returns showed the conditions on which the man worked in relation to his guild. Here might be found an exact description of the worldly condition of the Florentine architect, who seemed to have filled much the same position in reference to the building as the architects of our own day did in reference to our great works.

The vote having been unanimously agreed to, The Chairman observed that the president, Mr. Tite, was prevented by indisposition from being present that evening, but that he hoped he would be with them at the next meeting, when Mr. G. G. Scott would read his paper on "the Restoration of Ancient Monuments." At the meeting on the 6th of January, the subject considered would be the "Construction of Hotels," on which occasion Mr. Mossley, the architect of the Westminster Palace Hotel, and Mr. Currey, the architect of the London Bridge Terminus Hotel, would describe these buildings.

The following gentlemen were, on ballot, elected associates of the Institute:—

Ernest George, of 18, Cannon-street, and Streatham.

Francis T. Gompertz, of 45, Ebury-street, Pimlico.

Henry Hall, of 15, Duke-street, Adelphi.

Thomas Vaughan, of 18, Cannon-street, and Stoke Newington.

THE FOREIGN DEPARTMENT OF THE 1862 EXHIBITION.

At the Society of Arts, on the 27th ultimo, Mr. P. L. Simmonds, in the absence of the gentleman who was to have read a paper, gave a *résumé* of the expressed intentions of foreign exhibiting countries; from which we take a few interesting items.

To Great Britain, the International Exhibition of 1851 certainly opened a wider range of customers from the more intimate appreciation that followed of the quality and cheapness of the

manufactures she produces. Instead of being flooded, as was anticipated, with cheap foreign goods, a greater vent for British manufactures has been afforded in the last ten years than in any former period. In every direction our foreign trade has more than doubled. To South America, our exports have risen from 3,000,000*l.* in value to 12,500,000*l.*; to China, from under one million to nearly three; to African States, in about the same ratio; to the North American Republic, from under 15,000,000*l.* to 21,613,000*l.*; to the States of Europe, from 25,200,000*l.* to 46,000,000*l.* And as regards the Continent, and, indeed, most other quarters, it is those very nations which took a most active part in the Great Exhibition of 1851 that show the greatest increase, and have become our best customers, such as France, Prussia, Russia, Holland, Germany, and Turkey. Our general trade has doubled. The real value of the external trade of the kingdom (imports and exports) last year reached the large sum of 376,919,296*l.*, of which 210,648,643*l.* was for imports. The extension of commercial relations with various countries, and a more thorough knowledge of our productive resources, and the quality of our manufactures, by foreigners, has had much to do with this increase. And, certainly, the British exhibitors will, I think, be able to show next year that there has been no retrogression; that science and skill have been largely developed; and that even the art education of our workmen has not been neglected, thanks to the labours of the Department of Science and Art.

The declared value of our exports to the foreign countries which took part in the Exhibition of 1851 was, for 1850, 47,081,205*l.* The value of the imports was not computed at that time, and it is therefore impossible to give it. The real value of our aggregate trade last year (imports and exports), carried on with the countries which have announced their intention of being represented at the International Exhibition of 1862, was 287,000,000*l.*

The total declared value of our exports to foreign countries in 1850 was 52,739,246*l.*, and in 1860, 117,988,399*l.*

In 1851 there were 6,556 foreign exhibitors in the thirty classes, who occupied 131,655 feet of horizontal, and 222,832 feet of vertical space, against 7,381 British exhibitors, occupying 207,059 horizontal, and 430,311 vertical feet of space.

Large as the Exhibition building is, on the present occasion, it is quite inadequate to the wants of intending exhibitors. The United Kingdom and the British colonies could alone have filled it creditably,—especially when we remember how important are our own home industries—textile, metallic, mining, engineering, &c.; and when we look at the surprising advance of our various colonies, and the active exertions they are all making to be creditably represented, as I have of late had frequent occasion to show in the pages of the Society's Journal.

Although we have liberally given up a clear half of the building to foreign countries, and the commissioners have endeavoured to mete out the available space as fairly as possible among the numerous applicants, the cry is still, "Give—give;" and they are all, like Oliver Twist, asking for more.

The foreign countries that took part in the Exhibition of 1851 were:—5 empires, 15 kingdoms, 6 principalities and vice-royalties, 8 grand duchies, 9 duchies, 8 republics, 3 free cities, and 1 electorate.

In 1862 the foreign countries which will be represented in the competitive display will comprise 8 empires, 12 kingdoms, 18 republics, 1 vice-royalty, 1 pontificate, a number of duchies, principalities, and petty states, and 3 free towns.

Africa will be much better represented on the present than on the former occasion. Egypt and Tunis again appear in the list, and will no doubt make an equally interesting display. Great attention has been given by the French to the development of the products of Algeria, where there are now 203,000 Europeans.

Morocco will exhibit in 1862; a country with which we now carry on an extensive and increasing trade. The value of the external trade of Morocco has quadrupled in the past ten years. This may be accounted for partly by the introduction of a more liberal system of fiscal administration, the additional confidence felt since the new treaty, and partly by the unusually large demand for cereals, which originated during the Crimean war, and has continued ever since. Wool, silk, hemp, oils, gums, wax, and other raw produce will probably form the bulk of the exhibits.

North America, which showed to advantage in

1851, intends to be represented notwithstanding the deplorable internecine war. The Commission appointed by the President of the United States, under the authority of Congress, comprises a commissioner from each of the six States of Massachusetts, Connecticut, New York, Ohio, Maryland, and Pennsylvania, and also names agents who are to receive goods in Wisconsin, Illinois, Indiana, Minnesota, Iowa, Michigan, and California. The Executive Committee, which sits at Washington, includes the Hon. Edward Everett and the following officials:—The Secretary of State, the Secretary of the Interior, the Secretary of the Smithsonian Institution, the Superintendent of the Census, the Mayor of Washington, and the Secretary of the New York State Agricultural Society. A government vessel is to bring over the goods.

Although China will directly, as a foreign state, take no part in the Exhibition; yet, indirectly, there will be a very interesting collection of products and manufactures of this industrious nation shown, through the Hong-Kong Committee, the consular establishments at the northern ports, and by merchants and others at home. Especially will there be magnificent trophies of the spoils from the Emperor's Summer Palace, in rich silk hangings, gold and velvet embroidered carpets, bronzes and vases, ivory carvings, and such like.

Returning now to Europe, France will be, perhaps, the most formidable of the foreign contributors, as the originator and most active promoter of these Exhibitions, and because ample funds will be placed at the disposal of the Commission. Already 50,000*l.* have been voted for expenses, and fully as much more will probably be expended. Great Britain spent only 40,000*l.* in the expenses attendant on forwarding British and colonial goods for exhibition at Paris in 1855. There were 1,700 French exhibitors at London in 1851, and 2,500 English exhibitors at Paris in 1855. Although she has received the lion's share of space, France is reported to be dissatisfied with her allotment. Something like 132,000 square feet has, I believe, been assigned to our neighbour, against 119,000 feet in 1851; but in these details I must be understood not to speak with any official precision, as the exact apportionment has scarcely yet transpired. There have been nearly 9,000 French applicants for exhibiting-space on this occasion, of whom 5,000 were from the Departments, 3,200 from Paris, and the remainder from Algeria. These, however, have been gradually reduced down to about 3,500. There is one satisfactory feature with regard to the French department, and that is that the exhibitors are likely to be ready in time on the present occasion, instead of being about two months in arrear as in 1851 and 1855.

The Emperor Napoleon expressed the strongest wish to send over the most celebrated pictures from the Louvre for the Fine Arts Department; and when he found that the early closing of the lists, and the large applications for space prevented their being received, he determined to hang the walls of the French Department at least with some of the finest paintings. Among the pictures coming from France will be that of the Battle of Solferino, by Horace Vernet.

In Prussia there are already about 500 intending exhibitors announced as prepared to take part in sending contributions. The pictures from the Royal Palace will alone occupy 1,000 feet in the Fine Arts Gallery, and the magnificent service of plate presented by the City of Berlin to the Crown Prince on his marriage will form an attractive feature. The "true and veritable" manufacturer of eau de Cologne, M. Jean Maria Farina, intends keeping a fountain of this perfume playing during the whole term of the Exhibition, no doubt to the great delectation of the ladies. Recently, the Secretary of the Prussian Legation, and two of the Prussian commissioners, have had personal interviews with her Majesty's commissioners, arranging details and announcing results accomplished.

The empire of Austria will be represented by about 1,800 exhibitors, from Austria Proper, Hungary, Croatia, and Transylvania. Austria will be particularly strong in agricultural and mineral products. The Commune of Vienna has voted 10,000 florins to assist such exhibitors as are not able to defray the transmission charges. The Emperor will send the best fine-art treasures from all his palaces: to Paris, he only sent those from the Belvedere. The oil paintings will date from 1784, commencing with the works of the great master, Heinrich Fugger.

In the Belgian Decree of April last, appointing the Royal Commissioners, it was stated that, taking into consideration that the Exhibition of 1851 entailed an outlay on Belgium of nearly

7,000*l.*, though it was not open to every branch of art which will be represented at the forthcoming Exhibition; and being fully persuaded that the Belgian exhibitors on the present occasion will be much more numerous than was the case either in 1851 or even in 1855; the Commission recommend that the sum of 9,000*l.* should be applied for from the Government, to defray the necessary expenses, &c.

This amount was granted. The Duke of Brabant accepted the honorary presidency of the Commission, which is one of the most extensive and influential of any yet nominated. Circulars were addressed, in May, by the secretary of the Minister of the Interior, to all the Chambers of Commerce, requesting their cordial support; and to the principal artists in the country, inviting them to contribute a choice selection of their works, which are to date from the year 1830. The King has consented to lend all the royal pictures. The president of the Commission and the London Commissioners had an interview with Her Majesty's Commissioners a few days ago, reporting progress.

From Russia there will be many rare and remarkable objects, such as porphyry candelabras and columns, jasper cups of gigantic size, large mosaics, malachite articles, and some picturesque and interesting trophies. The Emperor will contribute the best of his pictures from the Hermitage and the Winter Palace. Russia will, no doubt, stand well with its iron and steel manufactures, for which it received a Council Medal in 1851. Many of the articles intended for exhibition have already arrived, as they had to be despatched from the Baltic before the navigation closed. The International Exhibition is said to form the general subject of conversation in the higher circles, while it occupies equal interest among the workmen and students.

In Spain, an Exhibition of industry was announced to be held in Madrid next year, confined to the products of Spain, Portugal, and the American republics of Spanish origin. This will, probably, now be postponed, as preparations are making to transmit a creditable collection to the International Exhibition. The Duke de Veragua is president of the Local Commission: the Minister of Public Works is actively occupied in the matter; and Commissioners have been sent by the Government into all the provinces urging the various manufacturers to forward something to the Exhibition. Seville is going to send a good many articles.

Portugal is working hard, the King Regent being the president of the commission.

The Roman collection of 1851 was principally interesting for its sculptures, cameos, and mosaic work. In 1859 there was an exhibition of industrial products at Rome. On the present occasion, but little was anticipated from the Roman State, but very recently an announcement has been made that the products from the Pontificate will require a space of 3,000 feet; that a commission has been appointed to assist the Ministers of Commerce and of Public Works in selecting the objects to be sent; and that the charges of transmission and of insurances will be met by the Government.

United Italy, now numbering a population of 22,000,000, intends to make a noble display, especially in the fine arts department; indeed, its application for hanging space was for about one-tenth of the whole at the disposal of the committee. The Institute of Fine Arts in Naples undertakes the reception of works intended for exhibition from the Neapolitan provinces. The pictures to be sent will date from 1784, recording the revival of Italian art by Canova. The Italian Commission is a most numerous and influential one, embracing all the present and past ministers of state and officials. Among other objects in the Italian court will be a magnificent display of silks and velvet.

Turkey, which has been a little dilatory in applying, now comes in and wants much more than the space that can be allotted to her.

Thus much for the movement in the principal countries intending to compete.

In the words of Mr. H. Cole, C.B., in his report on the Paris Exhibition, "An extended knowledge of the nature and capacities of production peculiar to each country is the first and most obvious result of international exhibitions. This knowledge is spread not merely from nation to nation, but more usefully between the producer and consumer, establishing a direct connection between the two. So long as the United Kingdom enjoys its present advantages in possessing great mineral resources, as well as those facilities of transport which arise from its insular position, and the physical energy of its people does not decline, it would seem to follow that no result but

a highly beneficial one would ensue from that extended publicity of its productions which is conferred by these exhibitions.

International exhibitions will extend and hasten the development of the productive industry of all nations, but they are not likely to contract those natural laws which are regulated by the climate, the physical condition, and even the political institutions of each. Almost every nation has something peculiar to itself which is useful to another, and it is the increased ease of interchange which international exhibitions chiefly promote. Looking to their influence on this country, international exhibitions may be said to have been of eminent use. They have created both an earnest wish for the better education of all classes, and even, perhaps, an exaggerated dread of being outdone by other countries, but at the same time a firm resolution to advance.

Almost every branch of national industry has shown progressive improvement since 1851; and, notwithstanding greatly increased taxation, the general commerce of the kingdom has made enormous strides since that year; which, in some measure, ought to be attributed to the two international Exhibitions which have taken place. It seems, therefore, to be a conclusion which cannot be gainsaid, that these exhibitions have both amply repaid the United Kingdom for the exertions and outlay which have been made."

THE PRE-HISTORIC RACES AND RELICS OF CAITHNESS-SHIRE.

UNDER this title there is an interesting and curious article in the *John O'Groat's Journal*, from which we shall condense a few details. The writer had previously described the standing stones which abound in Caithness: he then proceeds to the consideration of other relics. There are first the "tulochs" or Picts' houses. These consist of, in some cases, very huge cairns, almost always grown over with grass and divided internally into chambers, which were evidently dwelling-places. But of these there were two sorts.

First, those on elevated ground, and which it was impossible to surround with water, even had there been a fosse formed; and, second, those which had fosses and were surrounded by water, and were, therefore, placed on a lower level than the others. Of the first class the examples are very numerous. On one, at Breckigoe, a very beautiful stone hammer was found, which is still in the possession of Miss Innes, of Thrumster; as well as a cup or vase of granite, in the possession of Mr. Coghill, commission agent, Wick. In this district they seem to abound more along or at a short distance from the coast than inland.

Examples of the second class are much fewer. One is "Grey Steels Castle," at the Loch of Ranggo, on the Forse property, and is placed so far into the loch as to be nearly surrounded by water, without any fosse. A second is at Yarrow Loch, and is known as the "Cairn of Yarrow." This is a large cairn, and about one-half of its circumference is surrounded by the water of the loch, the other half being surrounded by a fosse. The diameter of the cairn is about 45 yards, and the width of the fosse about 8 or 9 yards. The depth of this fosse is not known. The material excavated from the fosse seems to be thrown up round the cairn, forming an embankment.

The writer then notices a few of those places, either cairns or mounds, which, as he thinks, were all sepulchres; at least, they were all *used* as sepulchres. Of these, he says, there are at least three very distinct classes—first, the stone cists; second, the cromlech; and, third, the circular cairns divided into chambers internally by projecting monoliths. The first of these may again be divided into three classes; as first, those cists with no cairn or mound; second, those covered with mounds of earth; and, third, those covered with cairns of stones. The internal structure of these three are, however, the same, being all composed of four or more stones for the sides and ends; and they all vary in size, being sometimes found 6 or seven feet in length, and at other times only 2½ feet. Sometimes the sides are formed each of a monolith, and the ends always of a single stone each: at other times they are found formed of several stones in the sides. They are always found covered or lintelled with several large flat stones; and over the whole is raised a mound of earth or cairn of stones as the case may be; or where no mound or cairn exists, the cist seems to have been buried, like the walled graves now used in some places, where all is under the level of the surrounding surface. Then there is the cromlech, composed of three stones, and the opening shut up by smaller ones. There are in Caithness

cromlechs which had been covered with earth forming a mound, and others which seem never to have been so covered.

There are also those circular grey cairns which are very abundant in this district. On the hills of Yarrow there are many examples of these. Several of them were opened some years ago by Mr. Rhind, when their internal structure was properly known. They are situated in all sorts of places,—in hollows, on hill-sides and hill tops. Two opened by Mr. Rhind had a circumference at the base of about 50 yards. A description of one will nearly serve for all the others that have been opened. Internally they are composed of two side walls, each about 12 feet in length, the distance between these walls varying from 4 to 5 feet. This space is then divided by monoliths projecting from the side walls about 1 foot or 1½ inches, and by two pairs of these the place is divided into three chambers. It is open, however, from end to end, the monoliths which form the divisions leaving a space in the centre of about a foot or 15 inches. The extreme end of the innermost chamber is composed of a single large stone, and the entrance or passage to the chambers is 9 feet in length, by 2 feet wide and 2½ feet high. This passage is in every case lintelled over with very heavy stones, while the chambers are raised to about the height of 5 feet or 6 feet, before the commencement of a very rude arch takes place. One of these tumuli, however, differs from others. The general character of its internal structure is singular in so far as it is divided into chambers by monoliths. The passage to the chambers is also the same, while a part of the structure is arched and the rest lintelled. Mr. Rhind's researches in this county are considered to have proved that all these places were tombs, and that at least two modes of burial existed—one being by cremation, and the other by breaking the thigh-bones and doubling back the body. The necessity for this seems to have been the smallness of the space in which the body was placed, the distance between any two of the projecting monoliths that formed the chambers being seldom more than 4 feet or 5 feet, and often only 2½ feet or 3 feet; and as the body seems always to have been laid alongside the side wall, this space was too short for the full length of an adult human body: hence the necessity for breaking the thigh bones.

[Would not this rather seem to show that the cells had pre-existed, and were used subsequently for a purpose for which they were not originally intended? or were built by a people of smaller size than those whose bones are found in them?

Ethnologists, we may here add, appear to accord with our suggestion that the diminutive Picts were of Scandinavian origin; our idea being that the Laps are a remnant of the race.]

EDUCATIONAL PERSUADERS OF THE OLD SCHOOL.

GREAT improvement is required in the management of the schools of this country, particularly in those for the use of that part of the population who have recently been called the "lower middle class."

There are many thousands in this country—clerks of small income, shopkeepers who are not in a large way of business, clergymen whose income is not so much as the wages of a good mechanic, men of various professions who have large families and but scanty means, who would find it derogatory to send their children to the national schools, and yet cannot, without the greatest difficulty, manage to get them placed in schools of a higher description, in which the children might be certain of proper instruction and management. It is notorious that the majority of the schools for the use of the class above alluded to, for both boys and girls, are of a very inferior description, and the teachers unqualified either by their knowledge or fitness for the task which they undertake.

The system of Government inspection of the National schools of the metropolis and throughout the towns and rural districts of England, has an excellent effect: the ability of the teachers is by this means certified, and the progress of the scholars strictly watched. These establishments are rapidly driving away the school masters and mistresses who are still so well remembered by many who are now living. In the days gone by a man lost caste in society if he wanted ability for other pursuits, or was unable to make his way otherwise in the world: he became a schoolmaster; and women, when they had no other chance of obtaining an income, opened a school. As we have

already said, in some of the old schools the mechanical means of reading were rapidly acquired, yet in other respects there was great reason for complaint; and the lives of the children, when they should have been the most pleasant, were made miserable.

In many parts of the provinces, the old style of schoolmasters is still to be found, and in their schools the extent of ignorance is remarkable. Not long since, in the North of England, the writer met with an intelligent-looking little boy, and the following dialogue took place:—

Writer.—Do you go to school, little boy?

Boy.—Ay, sir.

Writer.—Can you cypher?

Boy.—(With great emphasis) Na.

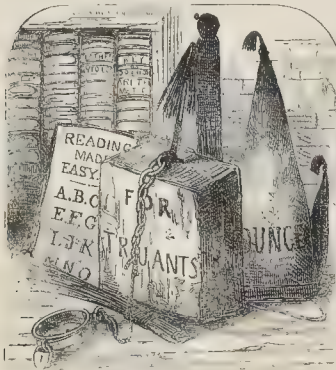
Writer.—Can you write?

Boy.—Na.

Writer.—Can you read?

Boy.—Ay, sir; I can do a little o' that.

Schoolmasters of this description were common in the days gone by, and it was by no means unusual for schools to be closed for days together, in consequence of the masters being unable to attend to their duties. The writer remembers in years long past, in a green country lane, hearing the loud cheering of a number of boys: on coming nearer it was—"Hip, hip, hurrah, boys—holiday—the master's drinking—hi—ray." Then the ignorance and unfitness of the schoolmasters were the means of great misery to the boys. The schools became hateful to many of them; in consequence, severe punishments were resorted to;



Persuaders of the Old School.

and the truant clog, with its chain and collar by which it could be fastened to the leg of scholars, became an essential part of educational discipline. There was also the black-hole. In one of these places we remember of a little boy dying of fright. It was not unusual for the master to throw a round ebony ruler at the head of a boy sitting at the further end of the room, and it was by no means uncommon for boys to be stripped in the presence of their companions, and most brutally beaten. The spirit of the lads prevented them from making complaints to their parents; and, in consequence, the teachers of the old school, pursued their practices with impunity.

The mode adopted, and the evident incapability of the teacher, caused antagonism between the master and the pupil, instead of that friendly feeling which should exist; and, in order to persuade the boys, the birch and "leather taws," singed at the ends to make them sharp; or canes, sometimes tied two and three together, were well-known supporters of the schoolmaster.

Although such methods of teaching would not now be tolerated, and the boys have reason, in consequence, to be glad, there still remains much to be done in the way of improvement of the schools intended for the use of the children of the middle classes. Better schools are springing up. We hear of the progress of one at Shoreham, to which the children of shippers, artisans, &c., can be sent, at a cost, for board and education, of about thirteen guineas a year.

An influential meeting has been held in London, which was presided over by Lord Brougham, and at which were present the Archbishop of York, the Bishop of Winchester, and a large number of other gentlemen, for the purpose of endeavouring to provide funds for the accommodation of 1,000 boys in this institution. High testimonials were given of the manner in which the school had been managed for a number of years.

We trust, therefore, before long, to see the experiment extended to the large scale which is proposed. The persuaders we have sketched as a record may be put by with Bedlam manacles. We have no longer faith in them.

A RELIC OF OLD SUBURBAN LONDON.

AN ALARM BELL.

In the future years of the metropolis, notwithstanding the rapid changes, there will remain various matters below the ground, and some above it, which will puzzle many hereafter. Amongst the latter we may mention the circular and other shaped plates which used to be so commonly placed on the fronts of houses by the different insurance companies. On the main coach roads within the metropolitan district,—the roads, which in some instances are now becoming green-looking, will be turned into paved streets; and it is not improbable that some of the milestones may be allowed to remain; and, in course of time, the brief inscriptions will become indistinct by the beating of the weather, and this may lead to the battle of archaeologists.

The use to which the two or three old watch-boxes which still remain were formerly put could not be explained by the policeman on the beat, nor by the people living close by. There are many other matters which are circumstanced in a similar manner. Our object at present is, however, only to record some particulars of an object which, fifty or sixty years ago, was commonly used in the suburbs for the purpose of frightening thieves, and protecting life and property. This is the "alarm bell," which was fixed in various positions on those houses which stood in pleasant gardens, but in lonely situations; where, notwithstanding the protection of blunderbuses and other weapons, persons were not safe. There are indications of these having been fixed on houses which now form portions of the lines of streets; but on examining these dwellings it will be found that they have been disguised in several ways, by facing, by putting in new windows, by concealing the roof, &c., in order to make them harmonize with their neighbours. An experienced eye will, however, detect that these have been isolated buildings, which have been standing at the time when there was no residence within a considerable distance. There is one of these bells still hanging near the Polygon, Somers-town. Within the recollection of many, this place closely abutted upon fields which ran between the last-named district and Camden-town and Islington. Now, however, this alarm bell is hemmed in by continuous rows of streets, which extend northward and eastward for several miles. And past this bell the policemen wander their regular rounds; gas-lights and bright shops are at hand; and people, not thinking of the sudden alterations which have been made, do not readily conceive to what purposes this object was put.

The "alarm bell" was sometimes placed on the



roof of snug-looking dwellings of brickwork turned up with stone, which are of about the date of Charles II.'s reign; and also of others of an older as well as a more modern period. In other instances, it was fixed above the quaint-looking doorways, or in some private parts of the grounds sheltered by trees, which shaded it from the view of the ordinary observer. At night, in some cases, this engine could be set ringing by the opening of a window or a door, or even by the tampering with a keyhole. Then, in the silence and darkness, the bell sounded its warning notes, at once arousing the household to prepare for resistance;

and those well disposed, within hearing, to come to afford help; while also warning the thieves to beat a quick retreat.

The sight of this relic seems to indicate the need of much further improvement: it, however, also leads the memory back to the accounts of those days (not so long ago) when the roads around London could not be safely travelled at night under ordinary circumstances. Although the vocation of the knights of the road may be said to be gone, there are many traditions, in the suburbs, of Claude du Val, Dick Turpin, and other notorious characters. In Islington there were two or three old-fashioned-looking hostleries, which were said by the inhabitants to have been frequented by Turpin and his mischievous companions. At Holloway there was a house standing to the east of the main street which, seventeen or eighteen years ago, was actually surrounded by a moat. We remember this then solitary-looking habitation, surrounded by tall poplars, willows, and other trees. This was said to have been a residence of Claude Du Val's. It is not always that local tradition can be depended upon in these matters; for the houses of these highwaymen seem to have been as numerous as the "King John's castles" and palaces of Queen Elizabeth. Going a little way out of town, in the forest near Loughton, the dwellers in that part will show the resorts in which the thieves of Turpin's band found concealment when they were hardly pressed.

POINT-DE-GALLE CHURCH, CEYLON.

PREPARATIONS are being made for commencing—as soon as the necessary arrangements can be completed—a new church at Point-de-Galle, Ceylon, on a site within the ramparts. The peculiar nature of the climate, with the exposure of the church to the monsoons and sea, renders it necessary to consider strength as well as shade from the glare of the sun. The plan is that of a cross church, with an apsidal end, and tower at the intersection of the nave and chancel; the former being 63 feet 6 inches long, and 26 feet wide, with aisles; the chancel, including the space under the tower, being 36 feet 6 inches long. The transepts are 17 feet 6 inches deep. The walls will be built of tufa or coral, hollow, and very thick, with all the external and a good deal of the internal ashlar of local granite. The windows are deeply recessed without internal splay, and fitted with jalousies of thick cast green glass, excepting where painted glass is introduced; and this will be very thick, instead of the usual thin-coloured sheet. Around the nave are verandahs, formed by the slope of the aisle roofs over the walls, and supported by shafts from the buttresses. The windows are all hooded on the outside, and every precaution is taken to prevent the direct rays of the sun striking into the building. The inside is intended to be lined with bricks, made in the island, or from Madras, and covered with chuanu. The tiles for the roofs and floors will probably be cheaper sent from England than those of local make, and of far better quality.

The inside of the church will be striking, from the great height obtained and its extreme simplicity. A cool tone of colour will pervade the whole, and an attempt will be made to counteract the external glare by the use of negative tints.

The roofs are all double, the under roof and general construction showing: the native woods will be used, the roofs being either of teak or jack wood, whilst satin-wood will be employed in the joiner's work. No seats or pews are intended; but the tile floors are to be covered with matting, and to have forms, with back of bamboo, and cane seats throughout, excepting in the chancel and choir, which there will be open framing. Every effort is made to give space and room, so that the usual difficulties arising from a large congregation in such a climate may be ameliorated. The chancel is raised by three ascents of steps, and terminates with an apse. Above the south porch is a room to be used as a vestry, and over this entrance to the church will be a carved tympanum. The tower is kept low, with gable ends to resist the monsoons. The internal carving and any other enrichment will be sent from England.

The architect of the church is Mr. Joseph Clarke, F.S.A., and the work will be carried out under his directions, with proper local superintendence.

SOUTH KENSINGTON MUSEUM.—During the week ending November 30th, 1861, the visitors have numbered 8,517; from the opening of the Museum, 2,368,865.



POINT DE GALLE CHURCH, CEYLON. - MR. JOSEPH CHANN, F.S.A., ARCHITECT.

"FRANKLIN."

On the 26th ult. the bronze statue of Sir John Franklin, to which we have before alluded, was inaugurated at Spilsby, in Lincolnshire, his birth-place. The statue is placed on a granite pedestal in front of the Spilsby Town Hall. The casting, which is of bronze, was made on Wednesday, October 2nd, at the Grove Foundry, Southwark, under the superintendence of Mr. Rogers. Mr. Bacon (the artist) and Mr. George Smith, the architect by whom the pedestal was erected, were present, and some ceremonial was observed.

The persons concerned appear to have taken little pains to make known the day fixed for the occurrence, even in the case of some who had asked to be informed.

In connection with this event, an anonymous poem, entitled "Franklin," has reached us, which, in the compass of 470 lines, tells, in touching and eloquent language, the whole story of the final search for Sir John Franklin and the crews of the *Erabus* and *Terror*, the result of which was the marvellous Writing now in the United Service Museum.

Apocryph of the event at Spilsby, and to recall the circumstances of that search, honourable to all concerned in it and to the country, we make some longer quotations from this poem than usual. Lady Franklin having invoked assistance, the *Fox* is bought, and sails:—

"Of all the precious freight the vessel bears,
The most sublime is that one woman's heart.
Hark! how it thrills out in the farewell lines
She gives McCintock as he sails away!—
"The rescue of but one survivor from
The fatal *Erabus* and *Terror*, I—
And you, I know full well,—will ever hold
The noblest end of all our highest aims."...
And hark again!—"All man can do to gain
Our object will, I feel, by you be done.
My only fear is, heedless of yourselves,
You risk too much your precious lives for me.
Let me, then, then, how dearer to my heart
Than even your success, your welfare lies.
May God in mercy send you safely home,
And your few heroic followers!—
And if you fail,—for fail, perchance you may,
In spite of every effort,—still to you
A nation's honour is for ever due
And my poor gratitude, which now is yours."

The final farewells said, the *Fox* departs,
Borne on her way by many a heartfelt prayer;
She kisses the ocean, gains the frozen seas,
And enters on the perils of her task!"

Baffin's Bay is reached, and frost holds the ship
In "daily tightening fetters." The ice relaxes,
And the vessel drifts, helpless, for 1,200 miles:—

"Yet still the *Fox* goes drifting slowly on,
And uniform dull silence reigns around;
Save when an iceberg looms from the face
Of some tall glacier, and falls thundering down,
Startling the timid echoes into life.
Chasing them off from clattering peak to peak;
Till all the solitude is filled with sound,
Crashing and roaring; deafening, horrible!"

The relation proceeds; Bellot's Strait is identified,
a skeleton is found near Herschel Cape, and
the great discovery is approaching:—

"At Crozier Cape the captain finds a boat
Which Hobson, too, had seen, and left therein
A memorandum to announce the fact,
That records of the long-lost *Erabus*
and *Terror* have been gathered. When he returns
On board the *Fox*, and tells the thrilling tale,
With what full hearts is every word received!
A cairn, round which large quantities of clothes
And blankets had been heaped, was firstly seen;
And, searching anxiously within the cairn,
The memorable 'Record' was obtained.
This told that, northward, up the Wellington—
The Channel—both the ships had striven along,
Till, westward, round to Beechey bight they pass'd,
And winter'd there. Thence, late in '46,
They sail'd, and farther north still press'd;
Their gallant captain, Sir John Franklin, died
Th' eleventh day of June, the following year."

Many a hand
Had passed across the paper, leaving there,
In varied characters, some mournful fact.
"Tis past! The suffering has been endured,
The noble fight been won! The soiled, blurr'd page
Attests the deed, and long shall be preserved
As noblest monument to those brave men."

Some few repairs, much needed, to the ship,
Are soon completed; then they steer for Home!
Oh, Land of Promise! Land of Hope! of Love!
Dear England—brightest gem in Ocean's crown!—
Thou ne'er canst look so bright as to those eyes
Which two years long have gazed on Arctic wastes!

Again the widow'd matron mournful stands,
And gazes up to heaven with tearful eyes,
With fearful, but now thankful, holy eyes,
Holy with resignation and with love.
With resignation, that the noble life
She valued should be spent in noble cause;
With love, which, pining through the realms of space,
Soars up to Heaven, and clasps its treasure there!
Close press'd up near her heart, her trembling hands
Now hold the 'Record' rescued from the cairn.—
"That precious fragment" which she, prophet-like,
Seem'd to discern across a hemisphere."

Well is thy self-appointed task achieved,
Thou high-sou'd woman! and where'er the tale
Of Franklin's Expedition shall be told
In future years, Jane Franklin's worthy name
Shall close the narrative,—the honour share."

RUGBY CEMETERY COMPETITION.

OUT of 139 plans submitted in competition for chapels, lodge, and laying out the proposed cemetery at Rugby, the Board ultimately reduced the number to three, those of Mr. Bidlake, of Wolverhampton; Mr. Bland, of Birmingham; and Mr. Dodd, of Reading, as the ones most suited to their requirements. None of these, however, being exactly suitable, the committee requested the above-named gentlemen each to prepare a new set of plans embodying the suggestions offered by the Board. The amended designs were delivered on the 31st October; and at an adjourned meeting the plans of Mr. Bidlake were selected; under whose superintendence the works will be carried out; at an estimated expenditure of 3,000*l.*, including draining, laying out, and planting the land. The selected design is in the Early Geometrical Gothic period; the chapels being similar in plan; both having bell-turrets; greater dignity being given to the consecrated; which has, in addition, a small vestry; a mortuary, square on plan, with pyramidal roof and small porch, is included in the design. The lodge, of a later period in style than the chapels, and the ground, will be inclosed on the approach side by a dwarf wall, with appropriate iron railing and gates.

THE ARCHITECTURAL UNION COMPANY.

THE fourth ordinary general meeting of shareholders was held on Wednesday last, at the House in Conduit-street.

The chair was occupied by Mr. Tite, M.P.

Mr. Moody, the secretary, read the report of the directors, as follows:—

"The Directors have much pleasure, in submitting this, their fourth annual report, to the shareholders, to be enabled to congratulate them on the continued success of the undertaking; all the tenants named in the last report, except the Architectural Photographic Association, still occupy their holdings; and since then lettings have been effected to the Motelet Club of the Ecclesiastical Society, and Mr. Alfred Gibbert.

The capital account is now closed, and a new lease has been granted to the company by the corporation of the City of London, by which all intermediate leases and part-holdings of portions of the premises have been got rid of, and the company has thus obtained the clearest and best title to their property.

There are now 1,437 shares on the register, upon which 10,370*l.* has been paid.

The following directors retire by rotation, viz.:—David Brandon, James Edmeston, Owen Jones, M. Digby Wyatt, John Whichcord, and J. M. Lockyer, esqrs., of whom the first five, being eligible, offer themselves for re-election.

James Lockyer and Frederick P. Cockerell, esqrs., retire from the office of auditors, but, being eligible, offer themselves for re-election.

The revenue account is made up to the 29th day of September last, and the directors propose forthwith to pay a dividend of 8*s.* per cent. income-tax, which will amount to 41*l.* 6*s.*, leaving a balance in hand of 69*l.* 1*s.* 9*d.*, and 12*l.* 1*s.* on the capital account.

The directors beg to point out that one and a-half year's interest on the mortgage has been paid during the last financial year, and that legal and some other exceptional liabilities have been discharged, which have alone interfered to prevent the payment of the full dividend of five per cent. Some expense has recently been incurred in making a separate entrance to the east gallery, which is already let for some evenings of the week, and which, if let, as the directors expect, for the remainder, will return at once the outlay thus incurred, and will prove a permanent source of addition to the revenue of the company.

The directors would remind shareholders that they should make known, as much as possible, that spacious accommodation in the Eastern Gallery is to be had, with use of a committee-room, with lighting, warming, and attendance, for any one night in each week, all the year round, at the moderate rent of 35*l.* per annum.

The directors further report that the dividends arising from the Auxiliary Donation Fund of last year amounted to 15*l.*, of which, by the express wish of the donors, 5*l.* has been paid to the Committee of the Architectural Exhibition, and the balance of 10*l.* remains to be applied for the encouragement of architectural art or science, as the directors may determine.—By order of the Board,
CHARLES MAYHEW, Deputy Chairman.

7th November, 1861."

The statement of receipts and expenditure showed that the total receipt for the year (including a balance at the bankers' as per previous balance-sheet, of 677*l.* 18*s.* 7*d.*), was 1,826*l.* 10*s.* 5*d.*, and the expenditure 1,332*l.* 17*s.* 8*d.*, leaving a balance of 493*l.* 12*s.* 9*d.*

The Chairman, in moving the adoption of the report and balance-sheet, observed that the directors had not recommended a dividend of 5 per cent., because they had to pay three half-years' interest on their mortgage debt, in addition to the charge for alteration in the premises, which, however, would not occur again. The directors had also acquired a property which might be considered very little short of freehold, as they now held the whole of their premises in one lease

direct from the City of London, and at a very low ground-rent.

Mr. Jennings seconded the adoption of the report, which he said had been carefully prepared, and really required no explanation.

Mr. W. E. Williams inquired whether any further sum of money had been borrowed during the past year, as a further charge for law expenses appeared in the accounts.

Mr. Edmeston explained that the charge referred to had been incurred for the purpose of getting rid of a number of intermediate leases, and bringing the whole under one title direct from the City of London. This rectification of title had very much improved the property.

Mr. Williams said there were sufficient funds to pay the former dividend of 5 per cent., and that it was undesirable to keep a large cash balance at the bankers'. Last year they had 5 per cent., and this year they were down to four—a declension which he hoped would not occur again.

The Chairman.—But next year we may have a war, and it is just as well not to go up to the hilt of the sword. The rental last year was, you will perceive, 1,148*l.*, and there is very little arrear; but small as it is, it is, I believe, amply covered.

On the motion of Mr. Wyatt Papworth, the retiring directors, Messrs. D. Brandon, J. Edmeston, Owen Jones, M. D. Wyatt, and J. Whichcord, were re-elected, Mr. Papworth explaining that the indisposition of Mr. Lockyer was the only reason why his name was not included among the number.

On the suggestion of Mr. Mair it was ordered that in future the names of the directors should head the annual reports, &c., of the company.

The retiring auditors (Mr. James Lockyer, and Mr. F. P. Cockerell) were re-elected.

The thanks of the meeting were also awarded to the honorary directors, auditors, and secretary.

On the motion of Mr. Papworth, seconded by Mr. Sancton Wood, a vote of thanks was accorded to Mr. Tite, M.P., for his continued support of the company, and for presiding that day.

The Chairman, in acknowledging the compliment to him to be useful in his day and generation. He was glad to find that although the Architectural Union Company was not established merely as a mode of investment, it had proved so successful. He hoped and believed it would continue to improve.

The proceedings then terminated.

BRITISH ARCHEOLOGICAL ASSOCIATION.

THE meeting held November 27, Mr. Pettigrew, F.R.S., V.P., in the chair, was the first of the session, and the chairman reported the success of the congress held at Exeter, and the various communications made illustrative of the history and antiquities of the county of Devon, which will appear in the Journal and the "Collectanea Archaeologica."

Nineteen new Associates were announced.

Various presents were made to the library from the Smithsonian Institution, Royal Society, Architectural Museum, Numismatic Society, Canadian Institute, Dr. Ormerod, and Mr. Prendergast, the latter a copy of his Concordance to the poetical works of Milton, printed at Madras.

Mr. H. Syer Cuming exhibited the tapestry panel of a casket of Flemish work, being an allegory representing the various emblems of Virtue, Vice, Folly, Learning, &c. The costume of the principal figure is that of the time of Charles II., but others depicted are of an earlier period.

Miss Gibbs exhibited a Danish silver coin of Frederick III., found at West-hill, Wandsworth.

Mr. Blashill exhibited the drawing of a sepulchral slab from Mansell Gamage Church, Herefordshire, having a rich floriated cross, circa 1280. It lay about 3 feet deep, and covered a lead coffin. It is now affixed to the north wall of the church. Mr. Blashill also exhibited a portion of Roman pavement found opposite Bow Church, Cheshire, formed of square red and white tesserae, but having no pattern.

Mr. Cecil Brent produced some fine Roman patera, obtained from Whitstable. One dish was perfect; very handsome, with a border exhibiting the ivy leaf.

Mr. Thomas Wright gave an account of interesting discoveries recently made at Ludlow, in Shropshire, in laying out the ground for a new cattle-market, of which early mention was made in our pages. The site lay in the outskirts of the town. In the process of breaking the ground, foundations were found; and these having been followed up, the foundations of nearly the whole

of the conventual buildings were uncovered, so that the purposes of most of the parts could be well fixed: numerous fragments of architectural ornament were found scattered about, which showed that there had been much rich decoration. Mr. Wright exhibited a plan of the buildings, made from these foundations, by Mr. T. Curley, the engineer of the works, whom he complimented for his zeal and judicious management in exploring the remains. Photographs of some of the architectural fragments were exhibited. Mr. Wright also made a report on the result of the excavations on the site of the ancient cemetery of the Roman city of Uriconium, at Wroxeter. This cemetery lay without the Roman city on its eastern side, extending along the sides of Watling-street. One field had been trenched in every direction, and had yielded an inscribed stone commemorating a Roman soldier named FLAMINIVS T. POL. F.; a considerable number of lacrimatories and other vessels in earth and glass; two lamps, coins, and other objects. The adjoining field, which could not be excavated until next autumn on account of the crops, promised a still richer harvest of sepulchral antiquities. The men were now at work on a field on the opposite side of the road, where sepulchral remains had formerly been found by the agricultural labourers in the course of digging for other purposes.

The remainder of the evening was occupied by the reading of a paper on Netley Abbey, giving an account of the excavations by the Rev. E. Kell, who exhibited various tiles, &c., obtained, and he presented a plan of the building made in agreement with the foundations now discovered. Mr. Gordon Hills made remarks upon the architectural arrangements.*

ADVANTAGES OF ART EDUCATION. SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.

On the 28th ult. the first lecture for the session was delivered by Mr. James Dafforne: the subject was "Art Education—its Objects and Advantages." Mr. Dafforne urged that no more striking evidence of the general indifference to art and all pertaining to it can be adduced than what is supplied by the Crystal Palace—a magnificent and costly edifice instituted to serve as a museum of artistic works of every kind for instruction, and yet it had failed to become what it was intended to be, and the only real attractions were matters totally foreign to its original design and too frequently of a character unworthy of an intelligent mind. The disadvantages arising from ignorance of art were pointed out by the lecturer in various ways as regarded the picture-buyer, the manufacturer, the designer, the artisan, and the public; and it was contended that there was little chance of the arts, both fine and industrial, assuming their proper position among us till the entire educational system at present adopted had undergone a complete change. Why is it, he asked, that, with all the capabilities which the country derives from nature to take the lead in every branch of art-manufactures, we are yet so far behind the production of France, and, in some articles, other Continental countries? We have materials, capital, enterprise, industry, ingenuity, and perseverance; but we want the taste and the mind to combine the whole in a successful result—a fact universally admitted at the International Exhibition of 1851. The systems of teaching employed in the Royal Academy, in the Government Schools of Design, and in private schools were brought under notice, and examples adduced to prove how inadequate they are to meet the exigency of the case; and the lecturer argued that it was of little use to educate the lower classes in art till the upper ranks had themselves been so educated as to enable them to appreciate what was really good. The lecturer argued against the absurdity of neglecting to allow a child to learn to draw because it may not have exhibited a *taste* for art, a reason which would not be admitted with respect to music or the ordinary branches of education—for what parent stays to inquire whether or not his child has a *taste* for grammar or geography? It was not for mere practical or commercial purposes, important as these are, that he advocated the cultivation of art among all classes, but he wished it to be considered what it really is—a great means of cultivating the mind, and as a highly intellectual enjoyment to those who have made it a study, even if they have not

* At the next meeting, to be held on Wednesday, Dec. 11, the Rev. Mr. Harshmore will read a paper on Domestic Life in the Reign of Edward I., from the Household Expense Book of Bogo de Clare; and Mr. Pettigrew, a paper on Ogham Inscriptions.

gone beyond the mastery of its elementary principles; but, of course, the deeper the study the more intense is the gratification it yields. The lecturer was listened to with great attention, and an interesting discussion followed.

On Thursday, the 6th instant, Dr. Dresser was to lecture on Decorative Art.

INSTITUTION OF CIVIL ENGINEERS.

On November 19, Mr. Bidder, president, in the chair; the whole of the evening was occupied by the discussion upon Mr. Longridge's paper on "The Hooghly and the Mutla."

It was remarked that, owing to the increased trade of Calcutta, and the insufficient accommodation for shipping in the river Hooghly, as well as of warehouse room on the bank, an inquiry had been instituted as to whether any of the channels in the Sunderbunds could be rendered available for the relief of that port. The Mutla had been found to answer the requirements, as it possessed a safe and convenient navigation, with a tract of land suitable for warehouses and offices on its banks, within a moderate distance of Calcutta. The chief objection to the new settlement had hitherto been the unhealthiness of the site; but its salubrity would improve year by year: as embankments were being made to keep out the flood of high tides, the land was being drained, roads formed, and tanks or reservoirs excavated to hold and insure a good supply of pure fresh water. There were numerous applicants for the land, which was sold in allotments on building lease; and there was every prospect of the new port affording a useful and necessary adjunct to Calcutta.

With a view of ascertaining what peculiar causes were in operation to make the channel of the Mutla so much deeper and more regular than that of the Hooghly, a chart of the upper part of the Bay of Bengal had been contoured. It was thus found that there was a deep water channel in the centre of the gulf, some portions of which had not been sounded at 300 fathoms; that the water shoaled from 100 fathoms at twenty miles from the coast, to 5 fathoms at five miles; and that the channels passing up the creeks were nearly at right angles to the line of from 30 to 50 fathoms of water. Also, that the entrance to the Mutla was the nearest to the deep water; hence, there was a greater freedom of current, and the flood was carried more quickly up to the head than in the others, causing its channel to be superior to that of the Hooghly.

When Great Britain was looking to India as the future cotton field of Europe, and when endeavours were being made to open that country to commercial enterprise, the importance of a well-organized system of transit co-operation by railways, by water, and by ferry-bridges, could hardly be over-estimated. As fifty millions sterling had been expended in trunk railways and canals, it would be necessary to improve and utilize to the utmost the river navigations, to act as feeders to those main lines, and to provide an additional number of river boats. Since any alteration in the channels of the rivers, and especially of the great delta, would be costly, and the result very uncertain, it was contended that it would be preferable to construct vessels of suitable size and form for the navigation of shallow and tortuous rivers; and that economy of transit, as well as management of the vessels, was, in such cases, mainly dependent on the efficiency of the steering and towing apparatus.

It was observed that no great faith could be placed in any scheme for the improvement of Indian rivers; inasmuch as, for eight or nine months in the year, the weather was perfectly dry; and for four months there was a tremendous rainfall, producing an immense flow of water, when the rivers assumed a character quite unprecedented in this country.

With respect to the change of the seat of trade from Calcutta to the Mutla, there were as many difficulties in the way as if the attempt were made to transfer the trade of the Thames at London to the Medway. It was more a question of economy than anything else; for if millions of money had been sunk in the erection of warehouses and buildings for the purposes of trade, that was an element quite as important as the question of the river itself. Looking to these facts, and to the delays and cost of unloading a cargo twenty or thirty miles from the place to which it was consigned, and conveying it that distance by railway, it was thought that there was no prospect of the navigation of the Hooghly being changed for that of the Mutla. To this it was replied that the difference of expense between

Mutla and Calcutta would be considerably in favour of the former port. It was thought that preference should be given to a river where there was always 26 feet of water, to one which was beset with shoals; and to a river, the mouth of which was only fifty miles from the head of the navigation, available in one day's steam, to one which required three days' steam, in a country where steam-power was costly. It was not a question of superseding Calcutta as a port of commerce; but it was contended that Mutla would form a valuable auxiliary—like Birkenhead to Liverpool—and that by the route advocated the physical difficulties of the approach would be lessened, and the same point arrived at, only with diminished risk and greater economy.

On November 26th, Mr. J. R. McClean, Vice-President, in the chair, the paper read was "On Measuring Distances by the Telescope," by Mr. W. B. Bray.

THE LEICESTERSHIRE ARCHITECTURAL SOCIETY.

At the November meeting, Mr. Frederick Jackson, architect, of Nottingham, presented to the Society a copy of his plan of Nottingham and environs, engraved in copper from his own survey during a period of ten years.

The Rev. J. H. Hill laid upon the table a quantity of rude masses of baked clay, which he supposed to be Roman handbricks or props. "The parishes of Orby, Ingoldsells, and Adlethorpe, abound with them, and they are met with at Hogsthorpe and Thorpe. There can be no question that these parishes have been used extensively as potteries by the Romans, and I have no doubt there must be many remains of that people imbedded in the marsh, where the bricks are found oftentimes accompanied with pieces of Roman pottery. The Roman town of Burgh joins the parish of Orby, and the Roman city Vianona was only six miles off, and there are traces of a Roman road passing from Vianona to Burgh, and so along the coast, all which tends to prove that the bricks are undoubtedly Roman. The bricks are found at a depth of from 4 feet to 7 feet; they lie under a marine alluvial deposit, and they crop out on the shore at four different points. Much obscurity hangs about these remains, and nothing but actually digging through the beds of them can throw light upon the subject: the marsh was probably deposited upon the bricks after the Romans had made their embankment, which goes along the sea-coast. The bricks indicate a progressive manufacture; those far inland being much smaller than those on the coast. I think all the bricks show they were made by small hands, probably by women and young persons. The bricks lie in thin layers, and stretch in something like lines from Orby down to the sea, and are found in an extent of about five or six miles, by one, two, or three miles."

LIVERPOOL ARCHITECTURAL SOCIETY.

The fifth fortnightly meeting of this society for the present session was held on Wednesday, the 27th ult.; Mr. James M. Hay, the president, in the chair.

The Chairman referred to the subject of architectural examinations, which had been brought before the Royal Institute; but, as there appeared to be a dislike on the part of the members present to meddle with this subject, and a difference of opinion regarding it, he would like to hear the views of some of the professional members before entering further into the matter.

Designs for the new market at Chester and the proposed workhouse at Birkenhead were exhibited. In reference to the latter building the President observed that the successful competitor was Mr. Layland; and he understood that measures had been taken to supplant Mr. Layland on account of his inexperience. He thought such a course was very unfair, and that no such manoeuvres should be employed.

Mr. James Hay then read a paper on "The Granite Architecture of Aberdeen," which explained the general features of Aberdeen architecture, and contained suggestions for improvement in the method of employing granite for building purposes. Mr. Forest read a short paper descriptive of Joubert's patented method of photographing, by which the pictures are burnt in on glass.

THE GRAPHIC SOCIETY.—The first *conversations* for the present session will be held on the 11th instant at University College.

THE CATASTROPHE AT EDINBURGH.

The full extent of the catastrophe occasioned by the fall of the house 109, High-street, Edinburgh, on Sunday week, has now been ascertained. Thirty-five bodies have been recovered from the ruins,—the remains of persons of all ages, from ninety to infants found on the mother's breast. The number of the escaped and rescued is, so far as can be ascertained, thirty-two. The excavations were continued until Friday night, when the foundations of the house were laid bare, about 18 feet below the level of the street. The cause of the catastrophe, it is stated, was at last disclosed. There was, it is said, a concealed stone wall, 3 feet thick, which ran parallel to the front and back walls, in the middle of the huge building; but which was not carried into either of the gables; and it was found that on the west side it had been to a large extent undermined to make way for a boiler, the heat from which had helped to crumble the thin remainder of the wall. The boiler had been there for probably thirty or forty years, but of late it had been very little used. The wall had been further weakened by hollowing out a chimney for the boiler, and by carrying through a door. On the east side the wall on the shop floor had been partly removed, it is believed, in 1816, to open the shop from front to rear; two pillars of the wall only being left for support. The wall was not only undermined, but was utterly decayed; and it not merely fell, but was shattered to pieces, on a considerable fragment of it only being found remaining. The timbers, also, were perfectly rotten with age.

Some interesting particulars as to the age and nature of the building were given on the 29th ult. by Mr. William Chambers, the journalist, while addressing a public meeting held for the promotion of building societies at Edinburgh for the erection of improved dwellings for the working classes. "I have no doubt," he said, "that the house which has just fallen was as old as the battle of Flodden, if not older. You may observe many old buildings with wooden fronts, very picturesque, but very crazy. These timber fronts were added 7 feet in advance of the original stone walls at the clearing of the Boroughmuir of its woods in 1508; and to all appearance the edifices behind these curious fronts had existed a century previously. In other words, there must be many tenements which might be dated as far back as about the year 1400, or nearly a hundred years before the discovery of America. For anything we know, the fallen house may have been one of these very old tenements; for its comparatively modern stone front, which gave it a substantial appearance, was only a disguise to the rottenness behind. Originally the houses of people of distinction, these ancient tenements are at length mere encumbrances of the ground. Yes, wretched as they are, often not worth five years' purchase, enormous prices are sought for them, when any body wants to replace them with new buildings; and hence, in any scheme of renovation, power must be got to take them at only what they are worth. Besides the extreme insecurity and worthlessness of these buildings, they fail to give anything like the accommodation that is required, and the manual labouring-classes are over-crowded into holes and corners for which rents are exacted far beyond what ought to be paid."

The continued existence of many of the dangerous old buildings in Edinburgh, as Mr. Chambers remarked, is a scandal and disgrace to a Christian country. Such a state of things ought not to be any longer allowed. What is wanted is a searching inquiry and report on the condition of these huge old tenements. In the present instance, although there is no such thing as coroners' inquests in Scotland, the public, both in Scotland and in England, will look forward with no little interest to the thorough examination which has, it seems, been promised, into the immediate causes of the late fearful calamity. It is of the greatest importance, both for the interests of truth and justice, and for the education of the public mind, that such investigations should take place in public, and that the public should know the whole facts accurately, at whatever conclusions the Procurator Fiscal, or public prosecutor, and sheriff may arrive in regard to blame.

The Lord Advocate, in moving a resolution at a public meeting, for the purpose of getting up a subscription (which now amounts, by the way, to between two and three thousand pounds), for behoof of the sufferers, made some reference to this subject, which we may here advert to. As to the circumstances, he said, in which they were assembled, he thought that they would agree with him that the less he said on that subject the

better. At the same time he thoroughly agreed that the question as to what had caused that calamity was very important, because the inquiry might result in discoveries of information that might serve to protect them against the recurrence of such a disaster. In all towns of the antiquity of this, it must be that such accidents were possible, and the causes of them may be obscure. But, at the same time, this was a fearful warning, and it would be wrong, indeed, if it did not excite their vigilance and inquiry. He then made reference to the necessity of recognition taken for the Crown being confidential; but stated that if there appeared any circumstances which it was necessary to disclose to the authorities, that was done; and, in one (!) instance, the chief magistrate of a burgh in Scotland had his attention directed to some tenement as being in a dangerous state.

At the same meeting the Rev. Dr. Begg, a long-tried friend of the working classes, said he hoped something would be done to meet what was undoubtedly the general cause of all such calamities; namely, the wretched accommodation for the working class of the citizens.

The same reverend gentleman afterwards delivered a secular lecture on the subject in John Knox's church, to a crowded audience, chiefly of working men. In course of his address, Dr. Begg referred to the number of houses that had been pulled down in Edinburgh, and proceeded as follows:—It is plain, therefore, that, whilst the supply of houses has been almost stationary in Edinburgh, the demand has immensely increased; and that to cram so many additional people into those old rotten tenements is the very way to increase all our social and moral evils, and to run the risk of bringing them down by the mere additional weight. All this points in the direction of a searching general inquiry; and I should like to see it made by Government authority, and through the instrumentality of impartial men. But it also seems to indicate that the mere pulling down of houses, instead of abating, will only aggravate this mischief. What is to become of the poor inmates? My advice is to examine thoroughly, to lay bare the evil to its core, but to make the existing houses secure wherever that is possible; and meantime provide a large supply of comfortable and suitable dwellings for the people. The fall of this one old house ought to ring the knell of many. I hold in my hand some portions of the beams of a house still standing. It has been sent me by a poor old woman who is now afraid to live in her miserable dwelling; and you will see that it is mere musk and rottenness. This is the case, I have no doubt, with hundreds of houses in Edinburgh. What makes the matter worse, I am told by an architect that these old houses are made without centre-bearing walls of brick. The result is that the whole pressure is upon the rotten ends of these beams; so that when they begin to give way they go down like so many cards. Unless something is done to prop the floors, we may expect a number more to tumble soon; and perhaps, when a number more of the people are killed, and we have acquired a prominence before Europe, all classes may be thoroughly aroused. But what do I say? Men in numbers are being killed every day by the pestilential state of many of the dwellings. The chaplain of the Infirmary told me yesterday, that many patients were sent there literally poisoned with bad air. Dr. Gairdner also made an analysis of the death-rate of Edinburgh, and found that, whilst, in the New Town and other well-arranged sanitary districts, the mortality was only at the rate of thirteen or fifteen a thousand, the rate in the more neglected, poorer districts rose as high as thirty-three per thousand. In other words, in some districts of the population an immense slaughter of people is regularly going on,—going on as regularly as if the people were brought out and put openly to death. No doubt it is more startling for the time to see a house fall and bury thirty poor creatures under the ruins, but there is no other real difference between the two cases; and the people that have settled down and forgotten the one state of matters may possibly very soon forget the other also. What is to be done? Shall the evil be remedied by the operations of benevolence, or by the efforts of men to provide profitable investments of money? or by the contributions and exertions of the people themselves who need the houses? The answer is that all these means may be made available, but that our ultimate trust must chiefly be in the efforts and sacrifices of the people themselves. More benevolence has done very little in the way of housing the people of this country. A combination of benevolence and a desire to find a profitable or fair investment have done more. But

the grandest triumphs in the way of erecting working men's houses have been secured by the exertions and sacrifices of working men themselves, especially in England.

The promotion of building societies, therefore, was what Dr. Begg, like Mr. Chambers, chiefly urged.

ALARMING OCCURRENCE AT STRANRAER.

At the Reformatory School, Stranraer, an occurrence somewhat similar in its nature to the catastrophe at Edinburgh has taken place, but without fatal results. The Reformatory School, which at present contains some 32 boys and 17 girls, has been for the last two years and a half located in a building erected about nine years ago for a large carrying establishment. The two first flats were built of substantial masonry, but the upper flat was, as is usual in carrying premises, erected of timber; and the whole building was roofed in with tiles. The upper wooden flat was never used for the reformatory, and was to have been taken down to rebuild the third story with brick. During a recent hurricane, while most of the inmates were in bed, the upper wooden story, with the roof, fell, followed by three chimney stacks, fortunately, over and clear of the building; but part of the framework and roof, with the whole of the western gable chimney, fell right down through the flooring of the upper story on to the boys' dormitory in the second floor, carrying with the mass the whole of the thirty-two boys and one of the assistants of the institution, together with beds, furniture, and everything, down to the school-room beneath on the ground-floor. An assistant teacher was awakened by the crash; and, looking into what was the dormitory, could distinguish nothing but a dark mass beneath, from which proceeded piercing cries. Very soon a muster took place, when it was found that four were missing. A search among the debris was made, and the four boys were discovered buried under the mass, but were soon extricated. Not one of the inmates received any material injury.

THE BUILDERS' BENEVOLENT INSTITUTION.

On Thursday, 27th ult., the eighteenth election of pensioners on the funds of the above Institution took place at the London Tavern, Bishopsgate-street, the persons to be elected being two males and one female. Mr. George Plucknett, treasurer to the Institution, occupied the chair; and among the gentlemen present who took an interest in the proceedings were Mr. Joseph Bird, Mr. George Bird, Mr. W. Hutchons, Mr. T. Cozens, Mr. John Thorn, Mr. T. Stirling, Mr. Matthew Hall, Mr. Wilfred Nicholson, Mr. D. Nicholson, Mr. Richard Head, Mr. R. Richardson, Mr. W. Phillips, and several other members of leading metropolitan firms.

The Chairman, in opening the proceedings, said it was their pleasing duty to meet that day for the purpose of electing three pensioners on the funds of the institution. There was, however, a list of fourteen candidates, eleven men and three women; and out of that number they were only enabled to elect three, two men and one woman; which might seem very small; but, when it was considered that, from the increase of subscriptions which had been received, they on the present occasion were empowered to make an addition of one to the number usually elected at this period of the year, it might be looked upon as gratifying, inasmuch as it was an indication that the institution was prospering. The institution had been very well supported by the builders of the metropolis, by the merchants, architects, and surveyors; but there was another class of builders—he meant the suburban builders, living within a few miles of town—who had not responded to the necessities of their fallen brethren; many of whom had been in a state of prosperity, but by misfortune were cast down; and, becoming aged, sought that relief which could well be spared by those whose fortunes had a more favourable tendency. He wished to impress upon the minds of all the gentlemen that that Institution, founded for the relief of members of every branch of the building trade, was not confined to the metropolis alone, for they had candidates from very distant parts of the country. He (the chairman) then alluded to the Lord Mayor (their president), who, notwithstanding his connection with other charitable institutions, and his position as chief magistrate of the city of London, still adhered to the Builders' Benevolent Institution, and gave it his warmest support. In conclusion, he begged of all builders,

suburban and otherwise, who had not yet contributed, to forward their guinea, and prevail upon their friends to follow their example, so that the Institution might become one of lasting benevolence to their necessitous and aged brethren.

The poll was then opened; and at its conclusion, at three o'clock, the following were announced by Messrs. Thorn, Cozens, and Stirling (the scrutineers) as the successful candidates—

William Palmer, aged 70, a builder for 23 years, unable to work from rheumatism and general debility. Archibald Croser, aged 81, a decayed carpenter and builder, in business for 38 years, and Amelia Smith, aged 71, widow of Wm. Smith, builder, of Regent's-park, who lost his property in erecting the houses known as Kent-terrace.

The above newly elected pensioners now make the number of 36 on the funds of the institution—viz., 17 males and 19 females—the males receiving 24s., and the females 20s., per annum.

The Chairman regretted that they were unable to elect any more on this occasion; but in all probability there would be another election in May next, when some of those who had been unsuccessful would, no doubt, be returned.

Mr. Joseph Bird requested the candidates on the next occasion to be diligent, for many hundreds of votes at the present election had been unrecruited.

Mr. A. G. Harris (secretary), then returned thanks for those who had been successful, as they themselves were unable to fulfil that duty.

During the polling a substantial dinner was provided by the Institution for the candidates and the officials. The usual votes of thanks concluded the proceedings.

METROPOLITAN BOARD OF WORKS.

At the meeting of the Metropolitan Board of Works, on 29th ult., Mr. J. Thwaites in the chair, the chairman read the following communication from the Right Hon. W. Cowper, the first Commissioner of Works:—

"Dear Sir,—I am anxious that the Royal Commission on the Thames Embankment should meet again as soon as possible, to consider the embankment of the Surrey side, so that the second report may be made before the meeting of Parliament; and I trust that you will be able to find time amid your many engagements for this important purpose.

WILLIAM COWPER."

To this letter he had returned the following reply:—

"Dear Sir,—The construction of a Thames embankment is a matter of such eminent public importance, and its urgency is so fully appreciated by myself and my colleagues at this Board, that I cannot hesitate to waive all personal feeling, in order to resume my seat at the Thames Embankment Commission, although I still adhere to the views expressed in my protest against the former report.

In adopting this course, I confess myself influenced by the belief that the strong expression of public opinion in behalf of this work, backed by your own and Lord Palmerston's cordial sympathy, will materially contribute to remove all difficulties in the way of its execution, and insure the concurrence of the other members of the Commission in the views which I formerly ventured to urge.

J. THWAITES."

A deputation from the vestry of Chelsea attended the Board, to present a memorial on the subject of widening the King's-road, near the bridge over the Ranelagh Sewer.

The memorial was referred to the Works Improvements Committee.

APPOINTMENT OF DISTRICT SURVEYORS.

The Board proceeded to the election of two district surveyors for the East and West Hackney districts, from a numerous body of candidates. The first voting was for the purpose of selecting six of the candidates to go to further poll, and stood thus:—

For West Hackney:—

Sancton Wood	33	H. S. Legg	14
J. Johnson	31	S. Hill	14
George Legg	31	Stephen Salter, jun. ..	12
J. H. Stevens	30	J. W. Papworth	12
Robert Kerr	28	W. Lightly	12
T. E. Knightley	19	G. O. Lane	6
S. S. Markham	17	Alfred Williams	5
J. J. Cole	17	A. S. C. Baker	5
Sidney Godwin	16	C. F. Hargrave	2
H. Field	16	J. Houle	1

E. W. Lower, resigned.
J. Winter and C. Field, no certificate of competency.

The after votings placed the six selected candidates thus:—

G. Legg	25	31	26	22	23.
S. Wood	27	26	23	22	20.
J. Johnson	24	23	22	21.	
J. H. Stevens	23	21	18.		
R. Kerr	16	13.			
T. E. Knightley	15.				

Mr. G. Legg was therefore elected.

For East Hackney, the first voting was as follows:—

S. Wood, resigned.		H. Field	17
R. Kerr	30	S. Salter, jun.	14
J. H. Stevens	29	J. W. Papworth	12
J. Johnson	29	W. Lightly	12
T. F. Knightley	23	G. O. Lane	6
S. S. Markham	23	Alfred Williams	5
J. J. Cole	18	A. S. C. Baker	5
Sidney Godwin	16	Alfred Williams	5
H. S. Legg	15	E. F. Hayward	2
S. Hill	14	J. Houle	1

The six highest were afterwards thus placed:—	
J. Johnson	31 27 29 29 26.
Stevens	27 23 24 29 13.
R. Kerr	24 19 16 18.
Knightley	20 12* 14.
Markham	17 12* 13.
Cole	13.

Mr. J. Johnson was therefore elected.

A report was brought up from the Works and Improvement Committee, stating that, having considered the memorial from the Commissioners of Sewers of the City of London, relative to an improvement in St. Andrew's-hill, they are of opinion that it is not such an improvement as would justify the Board in contributing towards the cost.

After discussion—

The Chairman put the motion, and the recommendation of the committee was adopted by a majority of 17 to 14.

The following further recommendation was made by the same committee:—"That, having considered the memorial and letter from the Commissioners of Sewers of the City of London, relative to the widening and improving of Great Tower-street, they are of opinion that it is a most desirable public improvement, but are not prepared to express any opinion as to the propriety of the Board contributing towards the cost."

Mr. Freeman moved that no contribution be made by this Board for this improvement.

Mr. H. L. Taylor said this would be a very great improvement, and would facilitate the large grocery trade which was carried on through Tower-street to the eastern portions of the metropolis. He moved as an amendment that the Board do contribute the sum of 552l. 13s. 4d. towards this improvement.

The Chairman put the question; and on a division there appeared—for the amendment, 13; against it, 13. He gave his casting vote in favour of the amendment; believing that, next to Newgate-street, this was a street which particularly required improvement.

The minority, however, were determined that no progress should be made; and several motions for the adjournment of the debate and the adjournment of the Board were alternately made, all being negatived; but, as it was evident this state of things might have gone on for some time longer, the majority gave way, and the further consideration of the subject was adjourned to the next Board.

NEW PUBLIC ROOM FOR ALNWICK.

A ROOM, 100 feet long and 50 feet wide, has just been completed in Alnwick, which is intended to serve as a dining-hall, drill-room, and corn-exchange. It was inaugurated on the 25th ult., by the eighth commemorative dinner, given by the Duke of Northumberland to the workmen and others employed upon the works at the castle and on the estates, when upwards of 700 men sat down to dinner. The Newcastle Daily Chronicle says:—

"The new Corn Exchange occupies an ample area on the south side of Market street, in the rear of the house now occupied by Mr. F. R. Wilson, architect; and as its site is considerably elevated above the level of the street, its approach by this side will be formed by a flight of steps 16 feet long each, composed of a single stone, brought from the quarry at Rothbury, out of which were furnished the stones forming the grand staircase at Alnwick Castle. There will be two landings in the staircase, of 5 feet by 18 feet. Having reached the top of the staircase the visitor enters the vestibule, 20 feet deep, and running the whole width of the building; and from thence he passes into the main building or public room, the dimensions of which are 100 feet in length by 50 feet wide. Over the vestibule are two cloak-rooms and a committee-room, 35 feet by 12 feet, reached also by another flight of stone steps. A spacious orchestra or rostrum is erected at the north end of the public room, and running its full width, access to which is obtained by a passage contiguous to, but distinct from, the committee-room. The carriage entrance to the Corn Exchange will be from the Green Bank on the south, where a road on the level of the street will be formed, and an ornamental gateway and arched porch erected. From the north the building will be approached by a pair of elegantly designed and elaborately finished wrought-iron gates. We are informed that the design of those gates, when shown to him, that he intimated his intention that they should be erected at his cost."

This would certainly appear to be an error of judgment to build a corn exchange in the rear of a private house. The opportunity of improving the convenience and aspect of a town so seldom occurs that to pass one by becomes a culpable negligence. The local journals state that the whole has been designed and carried out by Mr. T. Robertson, of Alnwick—a builder, cabinetmaker, upholsterer, and undertaker,—who has been assisted, says one of the dinner guests, according to the same reports, by Mr. Salvin. Here we have

* Show of hands as to tie:—Knightley, 20; Markham, 10.

one of those cases of divided responsibility which are so often fraught with disastrous consequences. We trust, however, that the building in question may not furnish a misfortune whereby the Institute of Architects might point a moral.

PROVINCIAL NEWS.

Kelvedon.—A public hall has recently been erected in this place as a private speculation. It is 40 feet long by 18 feet wide, and 13½ feet high, and will seat about 200 persons. A large cupola, with lifting cap, over the centre, serves to ornament as well as ventilate the building. The walls and ceiling are hung with oak and marble pattern papers. The hall is lighted at night by three "star" gas-burners. The first public meeting was held on the occasion of opening the hall with an entertainment consisting of "Penny Readings." Mr. T. Butler, of Ewell Hall, occupied the chair. The Rev. J. Naah, Independent minister, read "The Death of Charles II.," by Macaulay. Mr. Birk read "The Spanish Armada" and "Misadventures at Margate." Mr. Simpson read "The Diver," by Schiller. Mr. A. Gardener read "The Trial," from the "Pickwick Papers." There was a good attendance.

Orford.—At the town-council meeting last week, reports were read from the New Corn Exchange Committee, recommending the appointment of Mr. John Castle as clerk of the works, and some other matters in connection with the works, all of which were agreed to. The chairman of the committee stated that some additional expense had been incurred in getting a good foundation for the building, as it had been found necessary to go much deeper than was at first anticipated. Such being the case, it was considered to be both cheaper and better to use bricks instead of concrete for a certain depth; and, by doing so, they would now be enabled, if it were considered necessary, to form cellars under the whole or part of the building; which they could not have done had they used concrete instead of bricks. Everything was progressing satisfactorily.

Guildford.—The new public halls and assize courts are in progress. It appears, however, that the act of the town-council, in taking shares, was not approved of by certain parties in the town, as a report of proceedings in the Court of Queen's Bench shows the application was for a *certiorari* under the 4th section of the 7th of William IV., and the 1st of Victoria, cap. 7, in order to raise the question of the validity of orders given by the corporation for the payment of calls on their shares in "The County and Borough Halls Company, Guildford, Limited." The Court granted a rule nisi to show cause.

Stockport.—The local Advertiser speaks of "the new Volunteer Barrack, now presenting its stupendous magnitude to the public gaze; the new Catholic church, in St. Peter's-gate, which is also progressing rapidly; and the new Mechanics' Institution, in Wellington-road South, which bids fair to become the best and most useful, as it will certainly be the handsomest and most commodious, public building in Stockport." The last building, he adds, will be amply commodious and sufficiently large for all the purposes of the institution. The basement story will contain four rooms, the smallest of which will be 14 feet by 13 feet 9 inches, and the largest will be 41 feet by 13½ feet; the four rooms combined measuring 97 feet 10 inches by 60 feet 3 inches. The ground-floor will contain six rooms, the smallest of which will be 13½ feet by 13 feet; and the largest will be 35 feet 2 inches by 16½ feet. It will include the library, reading or news-room, committee-rooms, and a small assembly or lecture-room, 35 feet by 16½ feet. The large lecture or concert hall extends over the entire building. The floor of the hall will be 80½ feet by 41½ feet. There will be a gallery, 41½ feet by 15½ feet; an orchestra, 41½ feet by 17½ feet; an ante-room under the gallery, 15 feet by 13 feet; and an ante-room under the orchestra, 17 feet by 15 feet. This hall will be the most commodious and convenient in the town of a general character, and will supply a want long felt. Speaking by comparison, it will be about the same breadth as the Odd Fellows' Hall, and about 30 feet longer. The floor will accommodate about 500 persons at a tea-party or banquet, without inconvenience, exclusive of the gallery. The floor, gallery, and orchestra, will hold about 1,000 persons at a concert or public meeting. The two principal entrances to this structure are one in St. Peter's-gate and the other in Wellington-road. The first-floor is considerably elevated from the street, and to be entered from large stone steps to landings at each entrance doorway. The various

rooms on this floor are lighted from large elliptic-arched windows. The large assembly or concert-room will be ascended to by a double staircase at the west or Wellington-road entrance, from the first-floor, and a landing on each side of the room, under the orchestra. The light will be received from a large dome in the centre of the coved ceiling. The walls will be moulded and enriched, as also the ceiling, and decorated in elaborate panels. The work is being executed by Messrs. Thackrah & Peirce, joiners and builders, from designs furnished by Mr. Stevens, architect, Macclesfield. The estimated cost is about 4,000*l.*, towards which about 2,614*l.* have already been subscribed, leaving some 1,400*l.* to be raised.

SCHOOL-BUILDING NEWS.

Tipton.—The architect of the national schools just opened at Church Heath was Mr. J. Weller, of Wolverhampton, and the builders were Messrs. H. & E. Nicklin, of Tipton.

Kirkdale.—The new industrial ragged-school and church, erected at Kirkdale, will be opened on the 7th of January next. The comparatively small sum of 400*l.* would enable it to be opened free of debt. The whole building, with the internal fittings and land complete, has cost nearly 3,000*l.*, of which 2,500*l.* have been raised.

Sheffield.—The foundation stone of the Methodist New Connection Sunday and evening schools, Andover-street, Sheffield, about to be erected by the members of the Methodist New Connection, in Andover-street, near Rock-street, has been laid. The building will consist of a centre room 42 feet by 30 feet, and two side rooms, 18 feet 6 inches by 14 feet. The total cost will be about 340*l.*, towards which about 70*l.* have already been raised, in addition to 50*l.* given by Mr. E. Firth. Mr. Jenkinson, of Sheffield, is the architect; and Mr. Larder the contractor.

CHURCH-BUILDING NEWS.

Wellingborough.—The work of restoration in Wellingborough Church commenced in 1850, under the advice and direction of Messrs. G. G. Scott and E. F. Law, and the chancel and chancel aisles were then rescaled with open oak seats: the oak screen, and the stone work of the pillars, arches, and windows were restored, and two unsightly galleries were removed from the aisles, at a cost of about 1,250*l.*, the whole of which was defrayed. Last year it was resolved to finish the work so commenced. The restoration of the nave and aisles is now completed. The plaster ceiling of the nave has been replaced by a new paneled roof: two galleries at the west end of the nave have been removed; the whole nave and aisles rescaled with oak to correspond with the chancel; the tower arch thrown open and restored; the woodwork of the western wheel-window replaced by stone tracery and filled with stained glass; all the other windows restored and re-glazed; and many other improvements made. The works have been executed under the superintendence of Mr. E. F. Law, at a cost of about 1,500*l.*, of which about 600*l.* remains as a debt.

Hampton.—The new Wesleyan chapel in this village has been formally opened for divine worship. The chapel (erected from the designs of Mr. M. P. Manning), is in the Gothic style. It is about 50 feet in length and 25 feet wide, and is capable of accommodating above 200 people. At present a portion of the chapel is used as a school-room, but it is intended as funds accrue to complete the gallery and add the staircase turret, increasing the number of sittings to between 300 and 400. The contract for the work was taken by Messrs. Gascoyne, of Richmond, for 510*l.* The ground and enfranchisement increased the cost to about 700*l.*

Trowbridge.—Holy Trinity Church, which has been closed for some months past, for the purpose of undergoing repairs and renovation, has been reopened by the Bishop of Salisbury. The church, which is Early English in style, has been renovated in the interior. An east window, of stained glass, has been supplied by Mr. Horwood, of Mells; the fund for defraying the expenses of the same having been collected by the Misses Gane. It represents the Nativity and Crucifixion. The organ has been freshly stained, and the pipes adorned with gold and blue. The painting and colouring have been executed by Mr. J. Berry, the plastering by Mr. Davis, and the stone work by Mr. W. Long, of Trowbridge. The pulpit is new, and of Bath stone, carved oak lectern has been presented to the incumbent, the Rev. Digby Walsh, M.A., by the Rev. Edwin Palmer, Fellow of Balliol College,

Oxford. A warming apparatus, on an improved principle, has been supplied by Messrs. Haden, and has been fixed by Mr. W. Long. The church provides sitting accommodation for 1,033 persons.

Tisbury.—The consecration of the church just erected at Tisbury, by Mr. Granville Leveson Gower, of Tisbury Park, says the *Sussex Express*, took place on the 26th of November. The new church is built on the site of the old one; and, in consequence of the height of the tower and spire (150 feet), is seen from the whole surrounding country; the background formed by the Tisbury woods adding to its picturesque appearance. The church, the style of which is Decorated, comprises a nave, chancel, side mortuary chapel, and vestry, together with a tower about 75 feet high, surmounted by a spire of equal height, making 150 feet; it is built of stone, and is approached by an ascent from the road, some stone steps leading to a lych gate. The nave is about 50 feet long; the chancel 30; the breadth being 25 feet; the walls are of Bath stone; the roof of open timber work. The chancel is divided from the nave by an arch, resting on columns of green and red marble, with sculptured capitals. The whole flooring of the church, excepting where there are seats, is inlaid with Minton's encaustic tiles; those within the Communion rails being fac-similes of those in the ancient church, and supposed to date as far back as the time of Edward I. The seats are all open; and, with the pulpit, reading-desk, lectern and stalls in the chancel, are of oak, grown upon the estate: the pulpit is carved in panels. The west window is a double lancet, with quatrefoil light in the centre, above the tower, which is fitted up for the school children, and has a window of three lights with Decorated circles, and cusps in the head. The east window is a triple lancet, with deep splay mouldings. Immediately adjoining the chancel, on the south, is the mortuary chapel, over the family vault, and designed to contain the old monuments of the Gresham family, to whom the estates belonged from the time of Henry VIII., and from whom they have descended to the present owner. It is a small chapel, paved entirely with coloured marble; but, in keeping with the tessellated pavement of the church: the roof is vaulted, the groins meeting in the centre, in a boss, carved with the letters I.H.S. The chapel has a window of three lights, the highest in the middle, and is separated from the chancel by an open screen, of the Decorated style, the arches double, and double marble shafts. The vestry, which has an entrance from the north by an ornamental doorway, and arched recess, is lighted by two windows of a plain form, and is furnished with oak fittings. The church is warmed by a hot-water apparatus. The architect was Mr. Pearson, of London. The sittings, &c., were from the Messrs. Carruthers, of Reigate; and the ornamental oak carvings from Messrs. Rtee & Kett, of Cambridge.

Basingstoke.—Lady Huntingdon's Connection Chapel has been opened for divine service. The new pews, which are of an ecclesiastical design, are deal, stained and varnished. The whole of the interior has been altered to accord with the pews. Mr. W. Constantine, of London, was the architect, and the work was entrusted to Mr. Thorne, of Basingstoke.

Pershore.—Extensive repairs and renovations, at an anticipated cost of between 4,000*l.* and 5,000*l.*, are about to take place at Holy Cross Abbey Church, under the supervision of Mr. Scott.

Beoley.—The ancient church of this parish has had its chancel repaired by taking down and rebuilding the east end and a portion of the south wall. This has been done by the firm of Naish & Lawrence, of London, at a cost of about 300*l.*; the expense having been borne by Messrs. William & Arthur Hornby, who are the joint lords of the manor. The new work is remarkable for its extreme plainness; the only ornament being a stone cross on the gable. An early Norman piscina, an interesting relic, has been destroyed, and the workmen have replaced it with a new one of a nondescript character. There is yet a great deal to be done in the church. The interesting Sheldon monuments, dating from the early part of the sixteenth century, require care to keep them from perishing, and the building itself should be judiciously restored.

Cury (Cornwall).—The Bochym aisle of Cury Church has been lately decorated with two painted Gothic windows, at the expense of Mr. S. Davey, of this place. The stained glass manufactured by the Messrs. Hall, of Bristol, is blended with the family arms and other devices. The whole work was designed and carried out by the Messrs. Amos, Nicholls, & Son, builders, Redruth.

Liverpool.—A few members of the Independent denomination, with the assistance of friends, have purchased a site at the corner of Norwood Grove and West Derby-road, and are about to erect upon it a chapel and schools, which are estimated to cost, with the land, about 7,000*l.* It is expected that the foundation stone will be laid early in the coming spring.

Manchester.—St. Mary's Church, Lowton-common, has been consecrated by the Bishop of Chester. The want of a church having been much felt, Miss Leigh, of Hale, gave 1,000*l.* towards a building and endowment fund, and Mr. W. J. Legh, M.P., and Mr. T. Bideak, gave the land. The church cost about 2,000*l.* Mr. E. E. Paley, of Lancaster, was the architect, and Mr. J. Fairclough, of Wigan, was the builder.

Belfast.—During the past summer Portaferry Church has been enlarged, so as to give upwards of sixty additional sittings. There have also been built a chancel, vestry, and organ-loft. The east end of the chancel has a stained-glass window, void of figures, with the exception of a design of "Noah's dove," beneath which are the words, "God is love." The stone-work was executed by the Messrs. Fitzpatrick, of Belfast; and the glass was supplied by Messrs. Willmet & Co.

STAINED GLASS.

Cranbrook Church.—The large east window of this church has just been filled in with stained glass, at the expense of Mr. R. Tooth, of Swift's Park, in remembrance of a deceased son. In the centre is a full-length figure of our Lord at his transfiguration. One of the side lights contains a representation of John the Baptist in his raiment of camel's hair, and of St. Stephen, the protomartyr. In the other are Moses with the law, and Elias with the prophetic roll. Above are some smaller figures, representing Faith, Hope, &c. Below are the five subjects of our Saviour's Passion—the Entry into Jerusalem; Weeping over the City; Institution of the Lord's Supper; Agony in the Garden; and Bearing his Cross.

St. Thomas's, Winchester.—A memorial window from Messrs. Powell & Sons, of London, has just been placed in the church of St. Thomas by Miss Lavie. It consists of two lights; the subjects being the Good Samaritan and Abraham entertaining the three angels; the inscription beneath being as follows:—"Be not forgetful to entertain strangers, for thereby some have entertained angels unawares." Beneath the subjects are panels containing tracery and foliage on a highly-coloured ground. At the base of the memorial is the text, "Be ye doers of the word, and not hearers only." The quatrefoil in the head of the window contains a cross surrounded with grapes and vine-leaves. A brass plate runs along the base of this and the next window, which was put up in 1853, and bears the inscription:—"In memory of Augustus Lavie, who departed this life January 8, 1861." Beneath the adjoining window, put in about three years back, a brass label bears the following words:—"In memory of Elizabeth Lavie, who departed this life December 29, 1857."

Montgomery Church.—The glass in the window at the east end of this church has been taken out and replaced by stained glass, of the following designs: In the two top lights are Peter with keys, and Paul with sword. In the four next lights are the four Evangelists, in the act of writing. In the centre light of the next seven is the Saviour's Ascension, with John the beloved disciple, and the Virgin Mary. On the two lights on each side are groups of the Apostles. On the two supports, or outside lights, are, on the one, Christ as the Good Shepherd; on the other, Christ as the Light of the World. On the three centre lights of the next seven and bottom lights are the Crucifixion, the Saviour being on the centre light, with the Thieves on the side lights; on the light on the right side of the Crucifixion are Roman soldiers casting lot for our Saviour's vesture, with Centurion on horseback, deriding Him; on the light on the left side is the converted Centurion on horseback; on the left support is Christ blessing the elements of Bread and Wine; on right support is Christ, the Man of Sorrows, with hands bound, wearing the Crown of Thorns, and bearing the Cross. The traceries are ornamental designs, the centre ones being the Alpha and Omega. The size of the bottom lights, which are the largest, is 7 feet by 1 foot 6 inches; the others being proportionately smaller. The window was made by Mr. Baillie, of London, the same artist who, in 1853, erected a stained glass window in the chancel of Pickford Church, near Acton Burnell, to the

memory of the late Earl of Liverpool, at the cost of Lady Louisa Coates: he also, in 1856, erected a stained-glass window in Aberhapp Church, to the memory of Mrs. Coleman, daughter of General Proctor, at whose cost the window was supplied; and, in 1857, erected a chancel window to the memory of General Proctor's wife, the subject being the Canaanitish Woman. The contract for replacing the roof, we may here add, was taken by Mr. Lewis Evans, carpenter, of Montgomery. It is in contemplation to take down the gallery, in front of which is an old screen, which will, if taken down, be put in some other part of the church. The altar-floor will be taken up and relaid with ornamental and caustic tiles, in the front of which will be a new altar-rail. The old roof, with flat ceiling over the chancel, has been taken down and replaced by an open-timber roof, stained and varnished old oak colour, and new slated at the sole cost of the rector, the Rev. Mr. Lloyd.

MONUMENTS AND MEMORIALS.

Memorial to the late Lord Herbert.—A very crowded and brilliant meeting was held on 28th ult., at Willis's Rooms, St. James's; H.R.H. the Duke of Cambridge in the chair; to do honour to the memory of the late Lord Herbert. Amongst those present were—Viscount Palmerston, K.G.; Earl Grenville, K.G.; the Right Hon. General Peel, M.P.; the Duke of Newcastle, K.G.; the Earl of Cardigan; Earl Russell; the Bishop of Oxford; Earl De Grey and Ripon; the Earl of Carnarvon; the Chancellor of the Exchequer; General Sir John Burgoyne; the Right Hon. W. Cowper, M.P.; Lord Lyveden; the Right Hon. Sir G. C. Lewis, M.P., Secretary of State for War; Colonel North, M.P.; Earl Grosvenor; the Right Hon. S. Estcourt, M.P.; the Right Hon. T. Headlam, M.P., Judge Advocate-General, &c., &c. Lord Palmerston moved the first resolution, "That this meeting desires to express its deep sense of the loss which has befallen this country by the untimely death of Lord Herbert; and is anxious to pay a fitting tribute to his eminent public services as a minister and statesman, and to the self-sacrificing zeal with which he discharged his official duties." General Peel seconded the resolution, which was unanimously passed. The second resolution, "That a subscription be raised for the purpose of erecting a statue to the late Lord Herbert, and also for the endowment of exhibitions or gold medals in connection with the Army Medical School at Chatham, to be given at the end of each course of instruction to the candidate or candidates for admission who evince the highest proficiency in the knowledge of the art of preserving the health of the troops at home and in the field;" was moved by the Chancellor of the Exchequer; seconded by Sir John Burgoyne; and unanimously passed. The Bishop of Oxford then moved a resolution, appointing various noblemen and gentlemen as a committee to collect subscriptions. This resolution was seconded by Earl de Grey, and also unanimously passed. Respecting the speeches, all that we need here remark is that every one spoke in the most earnest and strongest terms in regard to Lord Herbert, whose various extensive charities the Bishop of Oxford more especially expatiated on; and whose sanitary efforts in the army the Chancellor of the Exchequer stated had, combined with those of Miss Nightingale and the Commander-in-Chief, reduced its mortality by no less than one-half: that is to say, added the speaker, only one-half of the men die now who died in the British army under the same circumstances before their measures were adopted.

Another Wellington Monument.—The inhabitants of the town of Wellington, Somerset, have set to work to raise funds sufficient for the erection, in the centre of their town, of a monument to the late Duke of Wellington. The design is, we are informed, by Mr. John Gibbs, of Oxford, the architect who designed the recently-erected cross at Brandbury in honour of the marriage of the Princess Royal of England with the Prince of Prussia. The design for the proposed Wellington memorial consists of a case of three steps, to be worked in granite, surmounted by a double surbase of carved panels, filled in with the arms of England, Ireland, Scotland, and Wales, in alternate shields, forming one half of the sides of an octagon; in the intervening panels the arms, &c., of the late duke are to be inserted. Out of this base will then rise a column, also carved throughout with emblems and incidents of victories. On the summit of this pillar will be placed a statue of the duke, 7 feet high.

Statue of Schelling.—A Munich letter

states that a bronze statue of Schelling has just been erected in that city. The pedestal, which is of blackish grey syenite, bears on one side the simple inscription,—"Schelling, the great Philosopher;" and on the opposite side, the words,—"Erected by his grateful pupil, Maximilian II., King of Bavaria." The statue was modelled by Brugger, and successfully cast by Ferdinand de Miller, inspector of the royal foundry.

NEWS FROM NEW ZEALAND AND MADAGASCAR.

Township of Buckland, for Sale.—The above valuable township (of Buckland) has just been laid out in quarter-acre lots; and is, in point of soil, or situation, unequalled in the province. It is situated in the centre of the Ruataniwha plains, and is watered by the Waipawa River. It is intersected by the grand highway to Wellington from Napier. In view of the future of this estate, liberal reserves for public purposes have been made by the proprietor. Suitable sites have been set aside for the use of churches, for a burial-ground, court-house, and public ground.

Harbour of Napier.—A correspondent of the *Hawke's Bay Herald* complains of the waste of money on this harbour, as well as of the incompetence of its engineer.

London Exhibition.—The following gentlemen have been gazetted as commissioners for Hawke's Bay Province:—The Superintendent of the Province, with Messrs. Kennedy, Rhodes, J. A. Smith, and H. S. Tiffin.

Napier Gaol.—Tenders were to be given in for building the gaol at Napier.

Otago Gold Fields.—Gold was being found in abundance, and large quantities had found their way to Dunedin. The weather was very severe, and the road to the diggings was all but impassable. An escort lately brought from Tuapeka 5,055 ounces of gold. The total amount received in Dunedin in one week was 6,000 ounces, and in future 10,000 ounces are expected. There were about 200 arrivals of people in one week at these gold fields.

Madagascar.—The newly elected King of Madagascar has ordered a "beautiful stone house on the south side of Antananarivo, at a great expense," to be built. The king, in a letter written in English, says that it will be a school-house, "where young men and children of all denominations may be taught the English language, philosophy, geometry, geography, chemistry, history, arithmetic, drawing, &c., &c. It is with this view," he continues, "that the stone house will be constructed. The length of it is 60 feet, and the breadth 28 feet."

EXTERNAL DECORATION OF THE EXHIBITION BUILDING.

It being in contemplation to raise a sum of money for the decoration of the blank spaces under the arches of the Picture Gallery at the new building in Cromwell-road, I would suggest that some more durable material than stucco or paint should be used; for in passing there I have frequently observed that after rain the centres immediately under the arches are perfectly stained, and the specimen placed up as a sample has quite changed colour in the part exposed to the drip. Before entering on this expense, would it not be as well to consider if some material like enamelled tiles would not offer a better means of decoration? There is a specimen of this kind at the corner of Bond-street and Grosvenor-street, which has been up several years, and with good effect, apparently unchanged. A plain simple design might easily be executed.

OBSEVER.

CLERKS OF WORKS AND THEIR DUTIES.

SIR,—I have read somewhere that an architect is the master builder. He not only can design a building, but he can direct every artificer employed upon his building how to do his work. The clerk of the works is his foreman upon the works, and should be qualified to set out all masons' work, and to find the joints of all stones that may occur in domes, arches, heads of tracery windows, and for any other geometrical figure that may occur in all the variety of buildings; to set out for properly framing and trussing all roofs, floors, partitions, &c., that may occur in carpenters' work; and to direct the carpenter how to prepare his work for the plumber, slater, and plasterer. To set out all joiners' work, and direct the joiner how to prepare and fix his grounds for doors, windows, &c.; how to prepare

and hang boxing-shutters, prepare and hang doors of every description, and to prepare and fix every variety of staircases and handrails, according to true geometrical principles. And he should have a quick eye to detect and put right any error that may occur in any of the finishing works. He should be able to distinguish good materials of every kind from bad, at first sight, with few exceptions. He should be able to make a clear, intelligent, and plain working drawing of any of the works connected with the building he is engaged upon, or that he may be engaged upon, either in a geometrical or perspective form. He should be able to take out the quantities and to measure up all artificers' works, and to abstract and put the same into bills. He should be able to detect any clerical error that may occur in the drawings, and put the same to rights without troubling the architect about perhaps only a small matter. The want of these qualifications in a person employed as a clerk of works is the chief cause of the misunderstandings which continually happen between architects and builders, and tends directly to impede the progress of the works, and begets an ill feeling between the contracting parties.

A man can qualify himself for a good and efficient clerk of the works only by great study and attention to all the works as they proceed, so as to get a thorough knowledge of them; and nothing makes a man so familiar and well acquainted with objects as drawing them. Indeed, a man that cannot draw well is not fit for a clerk of the works; and a person that can only draw, without a good practical knowledge of all the building trades, labours under a vast disadvantage; because, if a clerk of the works cannot talk to the workmen in their own language about their work, they are apt to slight him. Nothing has a greater tendency to get the works well done, than a knowledge among the workmen that an eye is upon them that thoroughly understands what they are doing.

ROBT. RICHARDSON, Clerk of Works.

THE TRADE OUTRAGES AT SHEFFIELD.

SIR,—We shall be extremely obliged if you will kindly insert the inclosed letter, as repudiating the Sheffield outrage. The Council represents above 30,000 of the workmen of London; and it will be a source of gratification to them to find their protest inserted in your journal.—On behalf of the Council, GEO. HOWELL, Secretary.

SIR,—In a paragraph on the Sheffield outrage, in your last issue, it is assumed that the diabolical attempt at assassination is the necessary result of their trades' union; and, moreover, it is taken for granted that the assassin had his instigators, and these instigators were the leaders of the union. In the first place, permit me to deny that these unions foster or revolve a spirit as to compass the death of any of their opponents; nor do they encourage intimidation of any kind, or of an illegal nature. It is quite true that sometimes, in moments of passion, individuals belonging to our trade societies have so far forgotten themselves as to come to blows; but it is most difficult to ascertain who was most to blame, the non-unionist or the unionist; but the most commonly assumed charge is that the unionist is the aggressor, and he has to bear the legal punishment if a breach of the peace is committed. Yet, we know many instances where the aggressor has been the non-unionist; but, knowing that the chances were in his favour, and the expenses of a prosecution would be borne by his employer, he has prosecuted his victim, and the innocent has suffered. But this school of adversity has its advantages: it has been a good discipline, and prepared us for the proper discharge of our duties as citizens. Nor must it be assumed that we encourage intimidation because we have sometimes hired counsel to defend the prisoners; for we feel sorry for the men and their families, that passion got the better of them, and brought them into trouble. But, at the same time, we always feel that such men cannot be trusted, on account of their tempers, and they are seldom selected a second time to fill any important position in the society, if the fault was on their side. But if they have been victimized, we feel bound in honour to protect them.

We think the builders' dispute during the past two years shows plainly to the public how capable our intelligent workmen are of preserving the peace when engaged in disputes with their employers. We have heard it stated by gentlemen of the highest position that no real case of intimidation has yet been made public; those that have been are being rather personal quarrels which at any other time would never have been heard of. It is likely, therefore, that we should throw the shield of protection around the man who would consent to become a victim to his notice being rather personal quarrels which at any other time would never have been heard of. It is likely, therefore, that we should throw the shield of protection around the man who would consent to become a victim to his notice being rather personal quarrels which at any other time would never have been heard of. It is likely, therefore, that we should throw the shield of protection around the man who would consent to become a victim to his notice being rather personal quarrels which at any other time would never have been heard of.

There are in the United Kingdom about 1,000,000 of our best workmen belonging to these societies; and should it be proved that one of these men, in his ungovernable passion, became an assassin, would it be just to stigmatize all the rest for his one act? Certainly not.

* There was no insinuation whatever against the London Trades' Union. We had no doubt that it would repudiate all such doings. Have the Sheffield unionists done as much?—ED.

We hold him alone responsible; and we think the remarks made in your journal unwise about his turning Queen's evidence, because it is supplying to a bloodthirsty man a means of escape, and giving him the opportunity of involving the innocent in order to exculpate himself.

Hoping, sir, you will insert this as a protest from the Trades of London against being supposed to entertain any other feeling but that of horror at such an act, I remain, yours truly,
Geo. HOWELL,
Secretary to the Trades' Council of London.

* * * It must be recollected that so far from the outrage in question being a solitary case, ascribable to the murderous personal tactics of some one individual, the adoption of such tactics is systematic at Sheffield, and has been so for years, during all which time explosion after explosion has occurred with a regularity and persistence only comparable to the combined and deliberate throwing of shells into a town that is besieged; and it is about as reasonable, and sensible to suppose that it is merely a succession of isolated villains who throw the infernal machines that are alone blameable, as it would be to hold that the individual soldiers who throw the shells into a town are alone responsible for doing so. It is a well-trained army of unionists who adopt the Sheffield tactics; and if the leaders have no power to prevent such tactics, they are dangerous leaders; and the sooner so infernal a union is dissolved the better. Even since the occurrence under notice took place, another of a similar kind has just happened.

THE BUILDING TRADE AND APPRENTICES.

SIR.—The disputes—the endless disputes, I may say—betwixt employers and the men in the building trade are such as immediately to interest the public; for on the public, after all, the cost falls in the enhanced price paid for labour. In looking at this question, I wish the men to have their rights, but I wish the employers and the public to have theirs also. The weak point of the masters is that of allowing the men to dictate as to the number of apprentices they shall take. The number is always greatly short of the increasing demand for men in this country, where so much building is going on. If ever the master builders are to feel free to manage their own business, and the public are to be used fairly, it must be by the building trade being thrown open like most others; and it is to this point, above any other, that a stand should be made against improper interference. This tying up of the building trade,—this modern plan of protection,—is a great injustice to families who have sons to bring up to earn a livelihood. Here are, say, three or four trades which they are not allowed to enter; consequently, they have all to be pressed into other trades which are open, and thus an over supply is created. Every open trade has to suffer a loss by the closing of the building trade. Many a hundred are compelled to go into the factory who would be masons, bricksetters, &c., if the one trade was open like the other. A mother goes round from yard to yard with her lad, asking if they can do with him as an apprentice: the answer invariably is, "We have our full number, and the men won't allow us to take any more;" the result is, she goes home, and next week he is sent to the factory. I submit, that in these days of freedom and free-trade this monopoly should be broken in upon; and that the public, for their own sakes, ought to help the employers to do it.

AN ADVOCATE OF FREE LABOUR.

ARCHITECTS' ACTIONS.

Messrs. Nelson & Innes v. Rev. Mr. Spooner and Others.—This was an action in the Court of Queen's Bench. Mr. Serjeant Shee and Mr. Dowdeswell appeared for the plaintiffs, and Mr. Collier, Q.C., and Mr. Quain for the defendants.

The plaintiffs in this action, Messrs. Nelson & Innes, architects, in Whitehall, send the defendants, near Hounslow, and two other gentlemen, to recover damages for not employing them to superintend the erection of a schoolhouse and premises at Heston, pursuant to their contract. It appeared that in the month of June, 1860, it was proposed to erect a schoolhouse and premises at Heston, and several architects were requested to send in designs and estimates. The plaintiffs sent in a design and also an estimate, according to which they calculated the school and premises could be erected for the sum of 1,545*l*. Their design was approved by the committee, which included the defendants, subject to certain alterations which were suggested. The plaintiffs accordingly prepared plans of the proposed alterations; and when the plans were completed the execution of

the work was submitted to competition. Several tenders were sent in; but the lowest tender was upwards of 2,000*l*; and, as that sum was beyond the means at the disposal of the School Committee, the design was abandoned. The plaintiffs then brought the present action to recover their commission of five per cent., upon the ground that they had prepared their plans upon the understanding that they were to be employed as architects to superintend the erection of the buildings. The defendants, on the other hand, denied their liability, upon the ground that the plaintiffs had led them to believe that the plan as altered could be erected for the sum of 1,545*l*, as contemplated in the plaintiffs' original estimate; whereas it turned out that it would cost several hundred pounds more. The question in dispute really was as to the terms upon which the plaintiffs had prepared their amended plans. The plaintiffs' case was, that there were such substantial alterations and additions that the defendants must have known, even if they were not informed by the plaintiffs, that the cost would exceed the original estimate; whereas the case for the defendants was that the plaintiffs had represented that the proposed alterations amounted only to what was called a "give and take," and could be constructed for the sum which the plaintiffs had originally estimated. Upon this question there was a great conflict of evidence, numerous witnesses being examined on both sides, which occupied the Court two days.

Lord Chief Justice Cockburn summed up the evidence to the jury, and they retired to consider their verdict; but, after being locked up for several hours, they were unable to agree, and were eventually discharged.

The architects retained by plaintiffs were Messrs. Chas. Lee, H. Abrahams, A. Aspitel, J. Wright, and Barnett; by defendants, Messrs. Philip Hardwick and Joseph Peacock.

The amount of damages that would have been awarded by the jury was understood to be 2*l* per cent. upon the amount of the estimate, it having been considered by them that as the architects had not the trouble of superintending the execution of the buildings, this sum would compensate them for their work services.

The following addendum to the verdict was also agreed upon by the majority of the jury:—"That this extensive and prolonged litigation might have been avoided had the proceedings of the committee been conducted in a regular and business-like manner, and the final instructions to their architects been clearly and officially defined."

PAYMENT TO ARCHITECTS; AND COMPETITIONS.

Burial Ground, Whitley.—We have received several communications, drawing attention to the particulars which have been issued in this case, and calling on us to denounce them. The particulars include the following:—

"The plans, &c., to be sent in to the clerks, on or before Monday, the 16th of December (only thirteen working days), with the terms on which the whole works will be superintended to completion;"—a new feature in such advertisements.

"The board will not pay for any plan it does not approve of, nor does it bind itself to approve of, or adopt any."

A plan of the site, showing the levels, together with a copy of these stipulations and conditions, will be furnished to any applicant on payment of 7*s*. 6*d*."

It would seem to be simply waste of time for us to say anything on the subject; while some of the very gentlemen who write to us to "denounce" such invitations are preparing to respond to them. So long as architects are found willing thus to waste their time and degrade their profession, so long will committees give them the opportunity. The following communication bears on the subject.

SIR,—Can we reasonably expect the public to recognize the importance of our profession, whilst we deign to reply to such competitions as the one referred to by your correspondent, "W. A. R.," in the last number of the *Builder*?

If we unanimously declined thus to war against our own interests, we should raise our profession to its proper level; but so long as we continue to compete in trivial matters, publicly throwing away our time and talents, we cannot hope to improve our position.

Let us suppose for an instant that only twenty architects submit designs for this building: each of them must (at the lowest computation) incur an expense of 10*l*.; making the cost to the profession 200*l*.—a sum exceeding the total amount

of remuneration offered (by the building committee) by exactly 70*l*.

Thus it is that we continue our daily labour at an absolute loss. We invest time, thought, and money, knowing that the amount of cash expended by the profession will in most cases prove to exceed the offered remuneration.

The evil has arisen solely from a want of a proper acknowledgment of professional etiquette. The remedy, therefore, is in our own hands. Let it once be understood that those architects who enter into a certain class of competitions lower themselves in the estimation of members of the Institute and Association, and in a short time they will cease to exist.

Building committees will try to obtain a design cheaply only so long as they believe that they can get a good article for their money, and will not issue such advertisements when it is publicly understood that there will be no replies from well educated men.

We want "combination" but it must be free from any objectionable compulsory code of laws: the etiquette of the profession must be our shield.

I think we might circulate a code of hints to building committees with some considerable advantage.

AUGUSTUS FIERE.

Miscellaneous.

SALE OF THE EAST-INDIA HOUSE.—Messrs. Pullen & Co. have concluded the sale of the East-India House, which occupied five days. The property last disposed of comprised the offices of the Treasury Department, with the museum, which was erected about five years ago, at a cost of several thousand pounds to the East-India Company. The auctioneer, in putting up this lot, stated that it would cost about 25*l*. to remove it in its entirety, and that it would be sold in one lot. There were several bidders for it, and it was eventually knocked down for 79*l*. 10*s*. The museum was purchased by Mr. McLachlan, builder, St. James's-street. The portico in front of the edifice in Leadenhall-street will remain; it being intended to form part of the new building to be erected on the site of the present structure.

SHIP-BUILDING WOODS.—Professor Grace Calvert is now making an investigation for the Admiralty of different kinds of woods used in ship-building. It appears that the professor is at no loss to explain why so many of the fleet of recently built gun-boats became rotten, and others escaped untouched. He finds the goodness of teak to consist in the fact that it is highly charged with caoutchouc; and that, if all the tannin be soaked out of a block of oak, it may then be interpenetrated by a solution of caoutchouc, and thereby rendered as lasting as teak. A few years ago an enterprising individual spent 80,000*l*. in trying to introduce a new wood for ship-building purposes from South America, where it is known by the name of Santa Maria; but the dockyard authorities could not be persuaded to take it into use, and the imports were entirely neglected. This is one of the specimens investigated by the Manchester professor; and he finds it to be sound and resinous, and but little inferior to teak. Of the durability of teak there can be no question.

THE ROYAL SOCIETY.—The Fellows of the Royal Society assembled in considerable numbers at their anniversary meeting on St. Andrew's Day—a meeting more than usually interesting, as Sir Benjamin Brodie, the president, then delivered his farewell address on resigning the chair. After the delivery of the medals, the meeting proceeded to ballot for council and officers for the ensuing year, and the following were declared duly elected:—President, Major-General Edward Sabine, R.A., D.C.L., LL.D.; Treasurer, William Allen Miller, M.D., LL.D.; Secretaries, William Sharpey, M.D., LL.D.; Mr. George Gabriel Stokes, M.A., D.C.L.; Foreign Secretary, Mr. William Hallows Miller, M.A.; other members of the Council, Mr. John Couch Adams, M.A., D.C.L.; Sir William George Armstrong, C.B.; Benjamin Guy Babington, M.D.; Sir Benjamin Collins Brodie, D.C.L.; Mr. George Bowdler Buckton; William Benjamin Carpenter, M.D.; Sir Philip de Malpas G. Egerton; William Fairbairn, LL.D.; Captain Douglas Galton, R.E.; Mr. Wm. Robert Grove, M.A., Q.C.; Mr. William Hopkins, M.A., LL.D.; Mr. John Lubbock; Mr. James Paget; Mr. J. Prestwich; Mr. W. Spottiswoode, M.A.; Mr. J. Tyndall. The anniversary dinner of the Fellows and their friends was held at St. James's Hall. When we stated some months ago that General Sabine would be the new president, the correctness of the assertion was denied by some of our contemporaries.

METROPOLITAN IMPROVEMENTS IN SPITAL-YIELDS.—The Metropolitan Board of Works have at length determined upon the completion of the new street (Commercial-street) which connects High-street, Whitechapel, with the terminus of the Eastern Counties Railway, Shoreditch. They have issued notices on the line of the new street that they have given instructions to put up to auction various plots of freehold land situate in Commercial-street, and some of the adjoining streets, which will be disposed of in areas sufficient for the erection of dwelling-houses and shops.

PROPOSED BARRACKS FOR NOTTINGHAM.—A paragraph is running round stating that the site of the new barracks for Nottingham is in the parish of Basford, about two miles from the town, situate between Bulwell-lane and Cavendish-hill, Sherwood, on a farm belonging to his Grace the Duke of Newcastle. A Parliamentary grant of 13,000*l.* has been obtained, and the site, an area of twenty-four acres, purchased with part of the money. The architects whose plans have been approved by the Government Board of Works are Messrs. Wyatt. The designs include officers' apartments, barrack accommodation for the men, on a greatly improved principle; an armoury, magazine, hospital; an extensive range of stabling, and every appearance necessary for a cavalry regiment. The total cost of the building is estimated at 100,000*l.* It will be some time yet, however, before anything can be done: the drawings are not yet ready.

THE WOODEN HOUSES OF CHESTER.—At the last meeting of the Chester Architectural and Archaeological Society, Mr. T. Hughes, in introducing this subject to the meeting, took occasion to elicit the sincere regrets of the society that the society was about to lose one of its most interesting antiquarian remains, and one which had long been looked upon by the intelligent stranger as one of the "lions of Chester." He alluded to the house known as "God's Providence is mine inheritance." The ancient timber houses of Chester were now few and far between; and it was a melancholy reflection to feel that one of the most characteristic yet remaining was about, within perhaps a few weeks, to vanish from the scene, in order to satisfy the necessities of commerce. Mr. Gregg, the present owner, he knew to be a man of considerable public spirit; and while, unfortunately, it could not be expected that he would altogether sacrifice his business views to either the wishes of the general public, or the gratification of the antiquary;—still it was much to be hoped that at least the carved timbers of the old house, and as far as possible its external character also, should be in some measure preserved in the new erection. This course would certainly serve to identify the spot; about which clung, like ivy, many an old and loved tradition, sacred alike to both citizen and stranger. We earnestly echo Mr. Hughes's observations. Our old towns are fast reducing themselves to the level of new settlements.

CONFERENCES ON STATE OF LABOURING CLASSES. A series of conferences on the state of the labouring classes is now proceeding in the diocese of Rochester, the active-minded bishop of that see having made arrangements for holding meetings of the clergy and laity at various points for the purpose of considering the subject. At Chelmsford Mr. C. Du Cane, M.P. for North Essex, delivered an interesting speech. In his opinion, he said, a single specific for admitted evils would not suffice: a chain of elaborate workmanship must be forged out with care, skill, and patience, link by link. Mechanics' institutes, reading-rooms, night-schools, book-hawking, and labourers' friend societies, ought all to be blended in one harmonious whole; and town should assist county and county assist town in developing each of these movements. The country might be covered with institutes, labourers' societies, allotment systems, savings banks, and all the paraphernalia of a complete educational system; but, unless the cottage accommodation of the working classes was looked to, all other efforts made in their behalf would be greatly thrown away; for they would never keep the labourer permanently from the beer-shop and public-house. Morality might be preached from platform and pulpit; but it would be preached in vain so long as all sense of decency and distinction of sex was destroyed in early youth by the manner in which even yet, in many both rural and urban parishes, whole families were nightly huddled together in one common sleeping-room. He attributed 99 per cent. of the crimes committed by the working classes to the vice of drunkenness; but he did not hesitate to charge nine-tenths of that drunkenness and immorality to the generally inferior state of our cottage accommodation.

THE INTENDED NEW BRIDGE AT BLACKFRIARS. At the last meeting of the Committee for letting the Bridgehouse Lands at Guildhall, the following notice of motion, by Mr. John Kearns, was submitted for their decision:—"That the resolution of this committee, of the 26th of July last, 'That the design sent in by Mr. Page, for an iron bridge of three arches, be recommended to the Court of Common Council for adoption, exclusive of the sculptured groups on the piers,' be rescinded, for the purpose of considering the different plans submitted to the Committee; and to proceed in the consideration of the report to be presented to the Court of Common Council on the reference in relation to Blackfriars Bridge." The result was, that the Committee, by a large majority, decided on recommending the design of Mr. Page to the Common Council for their adoption. If we are rightly informed, the intended structure will be 6 feet 10 inches lower in the centre, and 2 feet 9 inches lower at the side arches, than the present bridge; and the incline will, therefore, be easy. The width of the bridge will be 80 feet within the parapets, being nearly double that of the present bridge. In construction, it will be similar to that of Westminster, but with only three spans to cross the river.

FALL OF A RAILWAY ARCH IN MANCHESTER.—The large arch, newly built by the London and North-Western Railway Company, over Chapel-field-road, has fallen, blocking up the thoroughfare with bricks and earth, to the height of 10 or 12 feet. The fallen arch was one of 55 that have recently been built between Bank Top and Chancery-lane, by the North-Western Company, alongside their former line, which is also built on arches. The new line is to be handed over to the Manchester, Sheffield, and Lincolnshire Company, when completed; in order to have distinct lines of rails for the two companies, and thus facilitate the traffic of the London-road station. Forty feet is the span of the arches, with the exception of the one that is now in ruins, which was 60 feet span, 20 feet wide, and 30 feet high, and on a very sharp skew. It was constructed entirely of brick; and, according to the local *Courier*, was admitted by Mr. R. Neill, the contractor, and Mr. Baker, the engineer, of the line, to be an experiment in engineering; that is, there was no precedent of such a large arch being built entirely of brick, without stone quoins. Mr. Higgins executed the brickwork. The frost and heavy rain are supposed to have contributed to the accident, for there had not been time to asphalt the top, which was 2 feet thick, with 3 feet of ballast above. The parapet wall was not finished; which would, when erected, have added to the superincumbent weight. The scaffolding was taken down about a week before. Mr. Baker had inspected the structure; and, though previously doubtful of its stability, he expressed himself well satisfied. The other arches are believed to be safe, being on the square, though one, it seems, had to be rebuilt. Mr. Neill will bear the loss. His son had a narrow escape.

THE WOODS AND FORESTS.—The annual report of this Department has been issued for the year ending the 31st of March last. It shows the receipt of 370,894*l.* from the Crown estate, including Windsor Park; but from this must be deducted 72,174*l.* expenditure, and 18,552*l.* for compulsory charges, such as property-tax and pensions: the receipts from the Royal forests and wood-lands amounted to 40,550*l.*, and the expenditure to 32,961*l.* The result, therefore, was a gross receipt of 411,444*l.*, an expenditure of 123,687*l.*, and a consequent surplus of 287,757*l.* for the Exchequer; against which, however, there is to be set a further expenditure of about 27,000*l.*, the charge for the Office of Woods and Forests, its commissioners, clerks, and legal staff, and expenses; a charge which does not form part of these accounts, but is voted among the Civil Service Estimates. From this volume it appears that landed property is greatly improving in value. Many of the trees in the avenue of Windsor Great Park have been for some years showing symptoms of rapid decay. Two years ago the Department requested the advice of the Duke of Bedford, Mr. Ralph Sneyd, of Keele-park, and Mr. John Clutton; and they recommended that the decaying trees should be gradually replaced, in the part of the avenue nearest Windsor, by elms; but, in the part beyond the double gates, by English oaks; as the soil there is more congenial to that tree; and it would be in strict keeping with the character of a deer-park. It was represented that in this situation and soil the lime tree would have little chance of thriving. The Treasury have authorized an expenditure of 1,550*l.* for beginning with the removal of a hundred and fifty decaying, unthriving, or unlikely trees, and planting others in their places.

ACADEMY OF THE BEAUX ARTS, PARIS.—The Academy of the Beaux Arts, on Saturday, proceeded to the election of a member to replace the late M. Abel de Pujol in the section of painting. The number of votes was 38, of which 20 were required to render the nomination valid. At the first ballot, M. Meissonnier obtained 15, M. Hesse 14, M. Larivière 6, and MM. Yvon, Cabanel, and Gudin, 1 each. At the second, M. Meissonnier obtained 19, M. Hesse 15, M. Larivière 3, and M. Cabanel 1. And at the third and last, M. Meissonnier had 20, M. Hesse 16, and M. Larivière 2. The first-named artist was accordingly declared to be duly elected.

A WONDERFUL LOCK.—There is now in course of manufacture at Wolverhampton a new patent keyless lock, having 244,140,625 combinations. This lock is the invention of Count Kersolon, a Frenchman, but it is now the property in this country of a Mr. Loyzell. It has five rollers, and each roller is marked with twenty-five letters of the alphabet. If the letter at which it is set should not be discovered, the exhausting of all the variations necessary in that case to the opening of the lock would require an immense expenditure of time. It is intended to place one of these locks upon some iron safes that are being made for exhibition at the forthcoming World's Fair. In one of the safes it is proposed to place the sum of 500*l.*, which is to fall to the lot of the person who may be fortunate enough to effect an opening of the safe.—*Leeds Intelligencer*.

SANITARY CISTERNS.—Rae's patent self-cleansing and filtering cisterns appear to be a useful invention. This form of cistern has a sloping or conical bottom, with a pipe at the apex of the inverted cone, through which the waste water escapes into the usual closet, thus cleansing the bottom and preventing all lodgment of organic or decaying and injurious matter. Above the cone is a filter of gravel and charcoal leading into the interior of the filter, to which the water ascends through the filtering material; and it is drawn off by the filtered water-pipe. Attached to the upper portion of the filter there is an air-pipe which ascends above the surface of the water when the cistern is full. The general supply enters the cistern in the usual way; and old cisterns can readily be supplied with the patent filtering apparatus.

OPENING OF THE RAILWAY FROM LIÉGE TO MAESTRICHT.—The railway from Liège to Maestricht, according to the *Nord*, was opened on the 24th ult. This line connects the Liège and Givet railway, worked by the Northern Company, with the Dutch and German railways, and is the most direct route between France and the province of Liège on the one hand, and Holland and Germany on the other. The trains from Paris for Berlin, Hamburg, and all the north of Germany, says *Galignani*, at present pass through Liège, Verviers, Aix, Cologne, Düsseldorf, Duisburg, and Oberhausen; and the distance from Liège to the last-named place is 197 kilometres. The distance from Liège to Oberhausen, by Maestricht and the lines at present existing from Maestricht to Simpelveld, Herzogenrath, Gladbach, Ruhrort, and Oberhausen, is only 170 kilometres, and will be further reduced by 54 kilometres, when the line from Ruhrort shall be opened.

OPENING OF THE SMYRNA AND AIDIN RAILWAY TO KOS-BONNAR.—The opening of the first section of this line to Kos-bonnar (forty-one miles from Smyrna) took place on the 14th ult., in the presence of his Excellency Riza Pasha, the governor-general, and a large company of the chief consular and commercial notabilities of Smyrna. Colonel Rechid Bey, imperial commissioner for the railway, was present on behalf of the Government. The train consisted of twenty carriages, and the number of persons invited was nearly 500. The departure from Smyrna took place at ten a.m.; and, after stopping at all the intermediate stations, the train arrived at Kos-bonnar about noon. An Imaum offered a suitable prayer on the opening of the section, similar to that delivered at the ceremony of the Kustendjie line. The company proceeded to a marquee, in which a *déjeuner* was served. Mr. Crampton, the contractor, presided, supported on his right by the Ottoman authorities, and by the consular body on his left. In proposing the health of the sultan Mr. Crampton congratulated the company on the gratifying event which had brought them together,—the opening of the first railway in Anatolia. During the day telegraphic messages were despatched from Kos-bonnar to Smyrna, Constantinople, and London, with which cities the communication was uninterrupted. Riza Pasha telegraphed directly to the Porte, announcing the opening of the line.

The Builder.

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Condition of our Towns: the Black Parts of Preston.



NOTHER day we go in quest of the Ribble through Fishergate, in the opposite direction to that of our former route.* After passing the railway station, and noting the general neatness of the entrance for departures to Carlisle and Lancaster, as opposed to the disorder of the entrance for departure to the more Midland towns, we observe that Fishergate becomes suburban, casts off its old-world name at Fishergate-hill, and assumes the names of West-end, Ribble-place, and Broadgate consecutively. There are rows of suburban streets

and terraces of a generally clean and healthy character; another sepulchral mansion behind a boundary-wall, bulged out by pressure of earth on the inner side, which a thaw after a frost may cause to fall out upon the pavement; and at the end of a regiment of neat little houses, facing each other and flanking the road, with pebble pavements in front, and close yards in the rear, a new church. This is in the Norman style, and is remarkable for two extremely colossal and massive octagon western towers, and for two large round gate-posts formed of Norman pillars, with capitals, a confusion of parts that is certainly not common. There is a noticeable feature in this district, in the large perforated coal-cellar plates in the pavement. These are in design like great traceried wheel-windows, about 1 foot 6 inches in diameter; and studded with iron knots to prevent passengers from slipping on them. These perforated coal-plates, or cellar ventilators, are used in other parts of Preston, and are on the same plan that writers in these columns have recommended for London cellars on the paved footways. The mosaic-like arrangement of white headers to the dull red brickwork enlivens the street fronts here and there; and the different turnings branching off, give distant hazy views of factories bathed in steam, with their chimneys saluting—commerce, perhaps—in volleys of smoke. Yet a few minutes' walk, past Stanley-terrace, very sunny with terrace gardens set out in a hollow before it, and Grafton-street, where new villas are building, across South Meadow-lane, fast developing into a street likewise, and we come upon the muddy wharf-side of the river Ribble. A vessel is moored close by, and men are busily unloading it—of pebbles for paving. And here we must say a word on the score of the properties of the different kinds of pavement. These pebble pavements as in use at Birmingham, Shrewsbury, and elsewhere, admit of rain and slops, and in shambles of blood, first lying in myriads of little pools, and then of soaking into the earth, and, after that, of being re-distributed in the air in

the form of exhalations; according to the state of the temperature. The York paving-stones, used in London, are not very porous; but still they are so in some degree, and, as every one knows, are greasy with mud in bad weather. But the Caithness flaggings, used in the North, are not at all porous—rain runs off them immediately, and no mud ever adheres; they are dry and clean five minutes after a heavy rain-fall. In some towns, where Caithness paving has been but partially introduced, the appearance between this and the old sandstone flagging in this respect is remarkable. In a few minutes after a shower the Caithness flags will stand out a dry, pale, slatey blue colour, while the rain is still glistening upon, and gradually soaking into the darkened, greasy sandstone. So, as we stand looking at the vessel freighted with pebbles, moored to the wharf on the muddy banks of the Ribble, we think if she had brought non-porous flagging instead, it would have been so much the better for Preston.

On one side of the river there is a morass; on the other a great flat plain between the wharfs and the town, covered with factories, which extend in both directions, and encompass the old town. A little variety is produced on the gaunt outlines of some of these buildings by tank towers, and in others by great hook-shaped ventilators rising out of the roofs, which, ugly enough in themselves, are palpable evidences of some attempt to better the condition of the operatives, and, therefore, shall pass scatheless from criticism. Also in sight, close to a walled-in group of tenantless premises, which has a mistiness as of a chancrey suit hanging about it, there is a great scavenger heap, standing in a pool of the usual deposits, awaiting shipment; and a little beyond this there is the mouth of a sewer issuing forth hot sewage. An immense number of corks has, perhaps accidentally, got into the sewer, and, bobbing about in the sewage, they float out into the river, and indicate its exact course as it intermixes with the stream. These last mentioned facts are, of course, evidences of the existence of some scavenger and sewerage; but they are also evidences of the imperfect manner in which both are carried out. This, then, is the "pathway by the river," the walk to which the lads and lasses of Preston may betake themselves of a summer's evening for air and exercise, unless, indeed, they have a preference for the rough games in the muddy Orchard, or are careless enough to be able to enjoy a walk in the cemetery. The place opposite the sewer out-let, called the Marshes, is the only recreation ground. When will Preston think it good to make a people's park?

From this we wend our way to get a nearer view of the houses of the factory-workers. To do this we cross the plain and pass rows of houses building, with old brick-bats taken out of rubbish-heaps, on the old unhealthy plan of digging a pit in the earth for the kitchens; others, in Spring-row, already built with pigsties, pits, and water-buts on higher ground behind them, so that all overflowing and percolations must filter through the houses the floors of which are below the level of the soil in the rear, common privies in front of the houses, muddy coal-ash roads, and clothes hanging out to dry. Will this generation never learn the absurdity of placing floors below the level of the surrounding soil and then of placing water-buts, privies, and pigsties close to them with no drainage? How long will doctors come and go and cure fever, rheumatism, and other ills, and the causes of them not be removed? Some flaming placards pasted under a railway-arch give the state of the local habits and feelings in an indirect manner: "Beware! beware! Have you the bowel complaint? remember that it may assume the form of incipient cholera if improperly or ignorantly treated. Do you want curing, speedily, safely, and pleasantly, without any disgusting medicine which are enough to make an horse sick, then go to Bell & Co., 95, Friargate, at once," and so on. A little farther on others

are being pasted up as we walk: they concern the ward elections. "Voters, go in for Ware." "Ware, and no interference with the poor man's pig." "Beware, Ware! we say, if he intend to let the pigs alone."

By the side of the Aqueduct Inn is another of those unaccountable pieces of mismanagement we have noticed before: the end of a sewer discharges the whole of what drainage there is upon the face of the land. In this case the sewage is steaming with the waste steam from the cotton-mills of Messrs. J. Swinson and W. Tayler. A vacant piece of ground is here bounded on three sides by the rear out-buildings of houses, and on the fourth side this sewer forms a stream. The space within is used as a rough playground by children, who have riddled it into innumerable holes, but it is not of them we would say a word: a butcher, close by, makes use of this space in which to bury, a few inches beneath the surface, the blood and guts and offal from his slaughter-house! Another similar space is left further on off the Fylde-road, where a sort of crater in the centre is full of stagnant slime; twenty-three colossal factories can be counted from this point of view, all shooting from their narrow, long-necked chimneys interminable wreaths of the densest smoke that could possibly be manufactured. Leyland-street and Dawson-street, close to Mr. Hugh Dawson's factories, are back to back with cruelly small yards, all of which have privies and pits; and there are two holes made in the wall at the end of the row, for the overflows to be carried to the rest of the sewage streamlets, with which this neighbourhood is defiled. At one end of this second open space, thus laid out with volcanic scenery and sewage, there is a magnificent Roman Catholic establishment, containing church, schools, and domestic buildings; and immediately before the elaborate west end façade of the church of the aforesaid establishment, there is another crater-full of green fæcal matter, which deponent has but little doubt represents the drainage of the schools and domestic buildings of the establishment aforesaid. Who can wonder that sickness lurks in such neighbourhoods? Its general prevalence may have conducted to bring it under something like regulations, as a notice on the church-door declares "sick calls must be given to the priest of the district, and left at the presbytery before ten in the morning." There are other notices affixed to the church—one giving word of an arch confraternity of the Immaculate Heart of Mary for the conversion of sinners; others notifying a confraternity of the *Bona Mors* for a happy death, an Altar Society, a Purgatory Society, a Girls' Holy Guild, a Men's and Boys' Holy Guild, a Young Women's Holy Guild. When may we hope to hear of the formation of a confraternity to cleanse the houses and plant health at the hearths of the poor residents of this fearful district? The architectural effect of this fine group of buildings is due to Mr. J. Hansom. The church, which is dedicated to St. Walbourg, has a very large one-spanned nave—as nearly as a man can count by paces, 70 feet wide,—with a handsome timber roof with carved spandrels, and with a large, bold wheel window at the west end. The tower is still unfinished. The east end of the church overlooks a railway cutting and St. Walbourg's-street—a row of houses, with pebble pavement and a sloughy kennel in front, and a row of privies and water-buts in the rear, the drainage from which percolates into a ditch by the side of the railway.

The next row of houses is called Mandland Bank: their contracted yards and crowded ash-pits overhang the steep bank of a canal. The view from the canal bridge is ghastly. There are a few wretched, decayed trees on the banks, and the overhanging privies and dung middens have discharged their surplus filth over their boundary walls on to these banks below sewers empty themselves into the canal; and the water has the appearance of a stagnant sheet of fluid with a thick oleaginous brown crust on it. There is a

* See page 833, ante.

new, showy, lofty red-brick school close by, with stone facings of good Early Decorated Domestic details, that is as startling in its contrast to the unsanitary conditions around, as is the Roman Catholic establishment just passed. All over Preston this contrast is present. New churches and new schools, surrounded by the most unsanitary conditions, denote that cleanliness is farther from godliness in Preston than it is in the adage. Cold Bath-street, overlooking the said new schools, and Bolton-street, are more rows of poor houses. By this time we have approached the factories. In the neighbourhood of the celebrated Horrocks's factory,—what housewife of discernment is there but prides herself upon the selection of Horrocks's longcloth?—in the neighbourhood of this famous firm is Kirkham-street, where families live in horrible cellars, a second family above them on the ground-floor, and a third over that, where the roads are made of coal-ash, the yards so confined that the people must hang out their clothes to dry in the street, at the doors, on the stairs, over the beds, or else over the terrible choked off-pits that are within a pace of the back doors. Half-way down Back Bolton-street is the rear of St. Peter's School, a dirty old brick building, with a small playground for the boys that overlooks, in one corner, a cavernous pit of liquid filth, with a trap-door in front of it, next Bolton-street, for the use of the poor residents; and within a stone's throw is St. Peter's Church, with a graveyard choking full and closed. Moss-street is occupied on one side by a factory; on the other by a row of back-to-back houses for the operatives. These houses have no yards whatever, so the tenants dry their clothes in the street on lines fastened from the fronts of their houses to the factory-wall. As there are no yards, there are no privies; but for the accommodation of the whole colony of families who live in the cellars and first and second floors, there is a nest of privies built at the end of the street across from the factory-wall to the wall of the houses. The occupants of the other end of the street must traverse the whole length of it, not only to use them, but to dispose of all their refuse. Bedford-street, Brook-street, Atherton-street, Victoria-street, and Ashmoor-street, have all the same characteristics—families living over families, and washing with pose-tubs in the upper rooms, &c. In the rear of Moss-rose-street there are back-yards; but they are literally one yard wide, and the ash-pits, with their rotting contents, are within one yard of the backrooms of the dwellings. This is near St. Peter's school for girls—a tasteless, neglected brick building, of the same type as those just mentioned for boys—where the girls' privies are so disgusting that the children are reduced to the necessity of using the paved yard, which is accordingly defiled with pools of urine; further, a channel has been actually made to convey these away past the entrance-door. The state of the windows and of the whole of the establishment, too, would be a disgrace to a community of savages. There is another open space, bounded by Gordon-street, Brook-street, and Victoria-street, which would be of inestimable value if laid out as a play-ground for the children of the crowded district; but half of this is now occupied by a nest of piggeries, and the remainder as a second-hand timber-yard. Factories are thick upon the ground in this neighbourhood. We see Arkwright's great factory here. There are, too, many more rows of houses built on the same type as those described—Hawkins-street, Springfield-street, Murray-street, and more—before we find another open space. But we see another, bounded by Hawkins-street and Emanuel-street, which has been made a temporary playground for children. In the centre of it, however, a pig-jobber has been allowed to form a circular tank, or dung-basin, in the soil, by raising a mud bank and clay parapet, in which he preserves the pig-stye manure. We can only conclude that the Board of Health is paralysed.

Cotton-mills and weaving-sheds have taken possession of a vast tract, or moor, originally quite out of the town. Here are Goodyear's, Gardiner's, and Adam Leigh's factories. Many others are newly built, and still more are building; and the rows of factory dwellings keep pace with these erections. The latter are all built after the same model,—no drainage, the smallest possible yard, with a privy and ashpit and water-butt not 3 feet from the backs of the houses, or none at all. Midway on the moor is a deep ravine, over which a road has been thrown, and millions of cart-loads of scavenger and rubbish are gradually filling it up. Upon this artificial foundation rows of factory dwellings are now being built, and some of them are furnished with cellars, or, more correctly speaking, pits, sunk in this foundation of scaven-

age. New mills are built without roads. The Queen's Mill, newly built (1861) on this moor, has neither roads nor drains; and the rain and waste steam have formed lakes around it of coal-ash mud, which the operatives must ford to enter the mill. An exception to this state of things has been attempted by Mr. Tomlinson, a barrister-at-law and land-owner here. He provided his houses with drainage and water-closets; but, unfortunately, the want of playgrounds obliges the children to play where they may, and the closets soon got out of order; and this pioneer movement was abandoned, and the reign of the cesspool system resumed. A second step has been taken in the right direction. There are ragged and industrial schools on Mill-hill,—another of these overcrowded streets; but to make them of efficient avail, the unsanitary conditions of the roads and dwellings should be reformed.

Another day we step out along Fishergate to view the cemetery. This is situated at a sufficient distance from the town. Fishergate, after passing the Town-hall, is called Church-street, and contains the fine rebuilt parish church, a handsome edifice with a tower and spire, but surrounded by miserable dwellings and incongruities, a vendor of "fresh barm," "leeches kept by Mrs. Barnes," "funeral palls kept," and a botanist's herbarium. And at the end of an adjacent site, called Graystocke-yard and St. John's-place, there are a series of ruinous privies, and a pit of huge dimensions, which appears to serve the whole of the churchyard district. After passing the Bull Inn and Royal Hotel, and the Red Lion facing it, with the old bank next door,—a quaint building, with brick pilasters,—Church-street resolves itself into a poorer district, in which the three gold balls of the pawnbrokers are pretty frequent signs. As the roads and paths are badly kept and swept, we are surprised to pass the office of the Board of Health here. Presently we come to a new Independent Chapel, in Grimshaw-street. This is a detached building in the Early Decorated style. There are three doorways in the western façade, with a large five-light window over them, a tower on one side and the base of another on the opposite side. The long sides, for the convenience of the galleries, are lighted by double rows of Domestic Decorated windows, which present a striking contrast to the cathedral-like west-end. The details are, however, good. After this we see a brick factory-looking building, which turns out to be the Grimshaw school, erected in 1836, enlarged in 1845; but what takes our attention more is the spectacle of a man on a factory roof, at the end of the street, shovelling out soot into the road. If the Board of Health permit of this manner of disposing of the surplus soot from engine chimneys, the streets are never likely to be clean. After this there is Queen-street, with courts off it, the Druid's Arms; then Brewery-street, Malt-street, Hop-street, Vat-street—all running out of Duke-street East. There is no privacy to these houses, as the doors stand open for ventilation, and the tenants of the upper floors must cross the lower rooms to reach the staircases to them. Then there is a sprinkling of rag and bone stores, old brass and copper stores, a small shop where "herb, ginger, bitter, and nettle-beer" are sold; then more rag-shops, and we are out upon the London-road—wide and airy, and where there is really breathing room. A paper-maker's waggon is grinding along, full of rags, bound for Withneld Fold; and the Preston barracks—said to be models internally, but externally presenting a serio-comic castellated appearance—are soon in sight. But we turn out of the road before long at New Hall-lane, in which there are more mills, and more unhealthy houses for the operatives. The streets running off at right angles have double names; thus, Frederick-street is called Thomas-street on the opposite side of the way. A new row of houses is building, which are curiously propped up in the rear; and on inspection it appears that they are run up so thin and slight, that until the floors and roofs are on to bind them together, they cannot stand by themselves, but must be supported. Another street, called Green-street East on one side, and Elizabeth-street on the other, has clothes hanging across the road and a gasometer at the end of it. More mills, and more mud; a row of houses, with a man weaving in a cellar in one of them; a great stagnant swamp, with a brick-yard in it, and a square dung-heap; an isolated row of houses in Skeffington-road, with pools of drainage spread before them; more mills, more mud, more dwellings propped up while building, with five feet of drainage water in the cellars and a foul ditch in the rear; then a length of blighted trees, blighted hedges, and foul ditches, on either side of the coal-ash road; cows

grazing in fields where there are stagnant pools and the grass is tinged with an unearthly green by the soaking of too much town percolations; more ditches, and more stagnant pools in low-lying fields. Then it is that we count funerals in front of us, funerals behind us, funerals keeping pace with us; mourners dressed in black are passing along the black footways; the hedges, ditches, and sheep in the fields, are all black; the smoke blowing from the factories and hovering over the roads, now eddying, now descending in flakes, is also black; and it becomes difficult to shake off the impression that we are being carried to the grave ourselves. A tombstone mason has a yard by the road side, with a dung-heap in the centre and a haystack at the side, against which some slabs are leaning carved with crucifixes, with considerable feeling, which are facing the cocks upon the midden. The gable end of the mason's house is tarred black, and the whole prospect wears a funeral aspect. At last, after passing a vacant plot with a board notifying that it is building land to let, we come to a group of ecclesiastical domestic buildings and the cemetery gates. We take the former to be the superintendent's lodge, but we are mistaken. It is the Hesketh Arms and Cemetery Hotel! For a hotel to be close to the lodge and entrance-gates of a spacious cemetery of fifty acres, with three chapels in it, is an innovation for which we were not prepared. On entering the gates another innovation meets the eye. This is a stagnant pool of drainage from the lodge and retiring place for ladies, cut into a meandering shape to resemble a small lake. A notice-board declares that "Every person who shall play at any game or sport, or let off fireworks, shall forfeit a sum not exceeding 5l." The tendency to indulge in such practices in such a place can be accounted for in two ways: first, by the want of proper recreative grounds; and secondly, by the proximity of the Cemetery Hotel. The cemetery buildings are exceedingly good. The Roman Catholic Chapel has a neat little tower, looking, perhaps, a trifle too much like a miniature village church; and the spire of the Protestant Chapel is almost double the height of the tower; but there is a pretty bell-turret to the Dissenter's Chapel, and rich metal crestings to them all. Many of the tombstones are of an excellent character; and the general effect, aided by the abundance of green trees, is more than usually appropriate and pleasing.

Our task would not be complete without an examination of the reservoirs. The farm-houses on the route show the infectious nature of the bad example set in the town, as they have ditches full of black fecal matter round them; and one of them has the addition of a lake of the same material close to the door; while Ribbleson Moor, likewise on the route, is undrained and swampy. The reservoirs are in good order, except that there is a weed and a fungus-like leaf growing in all the crevices of the stone bottoms—probably on account of their not having been cleaned of late years.

Facing Preston, on our return, the town presents a most curious aspect,—not a house, tower, or spire is visible; but in their places there are countless jets of dense smoke darting up in the sky, rocket fashion, and these diffusing into heavy clouds cast a threatening aspect over the landscape as of a coming storm. We take a different route back to the town; but there are the same pools lying in the farm-yards, the same moisture in the ditches, more dung-meets, more brick-kilns and waste places, and tracts of privy stuff, the same proximity of piggeries and dwellings. And so we get back to Preston through Wignall-street, in which the road is yet unmade, and through which the filth from the houses flows down past the entrance of a beautiful new church (St. Luke's), and round a corner site facing the west end of it, where there is a new school, designed by Mr. Carter. A house opposite the church and school and the roads around Napier's mills do their best to spoil the effect of both with their disgraceful negligence. We learn that the school is intended by the incumbent of St. Luke's, the Rev. Mr. Winlaw, for the Sunday education of grown-up people, and is only part of a scheme which includes the erection of another school and of the establishment of suitable playgrounds for the young. The absence of the latter, as noticed in the foregoing remarks, leads to much mischief: it is a great feat with the boys to throw over the church spire, and hence hundreds of quarries are broken; and the factory windows are destroyed by the same agency. We wish the reverend gentleman all success in his great endeavour. With better health and a better education other careers would open for the Preston operatives, who now have but the choice of entering the factory or the

army. The enlisting sergeant will tell that there are more recruits to be had in Preston than in any other town in the kingdom; but they are so weak with their tea and bread diet that it takes two years to feed them up to be soldiers. Under their present conditions, the men of Preston are old at forty; at forty-five they are "auld and one."

If our well-meant words have any effect, the rising generation may last a little longer.

THE EXHIBITION BUILDING AND MODERN ARCHITECTS.

At the Society of Arts, on the 4th instant, Mr. Henry Thomas Hope in the chair, Captain C. Philpotts, R.E., read a paper descriptive of the building for the International Exhibition of 1862, which was illustrated by a large number of drawings and models. When it was concluded,

Mr. Henry Otley begged to ask one question, and offer a few brief remarks. As this building was intended to be permanent, and to commemorate the genius of this country to all time; as, moreover, it was intended to challenge the criticisms of the artists of Europe; he wished to learn, for his own information and that of others, whether (seeing that no fewer than 280 plans were sent in by architects for the building for the Exhibition of 1861), before proceeding to the erection of the present building, any architect in this country was invited to send in plans for that structure, or whether, in the course of the construction of the building, any architect had been invited to give advice or co-operation in the matter. Captain Philpotts had described, in eloquent terms, the architectural features of the building; and, with reference to the south front in the Crown-street road, he stated that certain ignorant persons had represented to the public that the domes, which were considered the most beautiful features of the building, were not to be seen from the south front. (Mr. Otley) felt himself personally involved that matter of ignorance. He was the means of giving some information to the public through the *Illustrated London News* as to the intended Exhibition building; and he took pains, as far as possible, to obtain correct information as to what the building would be. Not only did he obtain the views of the artists of that journal, but he was permitted to examine the drawings in the rooms of the Royal Commissioners. On inspecting those drawings he saw represented a very wide front, with two domes, one on each side; but, calculating from the plan of the building, he discovered that these domes could not be seen within a distance of 100 or 150 yards from the front of the building; therefore the including those domes as part of the building in the drawing exhibited in the room was a false representation of the building. He stated that fact in the newspaper he had referred to; and, therefore, he was not one of those ignorant persons who had misrepresented the thing. He begged to ask Captain Philpotts from what position he obtained the view representing one of the domes as shown in the drawing before them. That drawing was a very pretty thing to show to a meeting or to circulate in papers. It was fortunate that the artist was not restricted to the narrow limit of view to be obtained from a street 60 or 70 feet wide, in which alone the south front could be seen. The view now represented must have been taken before the houses were erected, or from the top of one of the houses. In either case it submitted it was not a fair representation to the public.

Mr. Donald said he thought it was a great pity at the view did not include the houses on the opposite side, which would have made it complete. The trees in the drawing were purely ideal.

Mr. Dunn would, in the first place, tender his thanks to Captain Philpotts for his paper, which gave them a great deal of information they did not possess before; and he for one was very glad to receive it. He begged to put a few questions, with the assurance that he did so not from any unfriendly spirit, but solely from a desire to obtain information on those points. He would ask first—how were Captain Fowle's designs chosen?—that was to say, what number of designs (if any) were sent in besides his, and under what circumstances were his designs selected? What had been paid for those designs, and what further sum was still to be paid? What was allowed to the various parties to make their tender for the building? How many persons did tender, and what was the nature of their tenders? Under what circumstances was the order of the present contractors accepted? Was it true that, owing to wrong calculations as to the strength of various parts of the building,

those parts had been strengthened; and under what circumstances had they been strengthened? Those questions had been brought before him in various ways; and, judging from the manner in which the contract was let, added to the questions raised in the letter of Sir Joseph Paxton on the same subject, people were led to think of these things; and he for one should be glad to have a little more information upon them.

Mr. W. N. Wilson said he doubted whether it was within the province of this meeting to discuss arrangements which were not those of the Society of Arts, but entirely those of the Royal Commissioners, with regard to this building. It appeared to him, however much they might, as a society or a body of the public, or as a number of architects, be interested in the manner in which this building might have been originated, in the plans adopted, and in the mode in which the tenders were accepted, yet that these were matters which were entirely beyond their control; and therefore he thought the discussion of those subjects was quite superfluous, and could lead to no useful result. The only effect of such a discussion, he thought, would be to raise jealous feelings in the minds of some who, no doubt, would have liked, and were probably quite competent, to take part in the preparation of plans as well as in the making of contracts; but he felt they could arrive at no good result from the discussion of those subjects. They must look at the thing as a *fait accompli*. It was, he apprehended, quite open to them to take the plans; and, where they discovered faults, it was competent for them to point them out; and, if they discovered merits, to eulogise them. Having visited the building last Saturday, and having seen those of 1851 and 1855, he would say he was not a little pleased with all he saw in the structure now in course of erection. There was much to be astonished at,—first, as to the great amount of work already done; and, secondly, as to the great amount of work still to be done; and which, he was sanguine enough to believe, would be completed by the time specified, and that the Exhibition itself would be—what he was sure they all heartily wished it might be—a great success.

Mr. Henry Cole, C.B., said the gentleman who spoke first had inquired if any architect had been consulted in the preparation of the plans for this building. He came prepared to hear that question asked; and in return he might ask that gentleman to have the kindness to define what an architect is. He had taken some pains to find out; and he confessed himself rather puzzled. He had gone to past times, in order to ascertain who had built some of the most striking buildings in Europe, and to find out whether they were or were not architects in the sense in which the term was understood. He would pass over some of those buildings and builders rapidly, in order that the gentleman might satisfy himself whether or not they were built by architects. In the first place, they had the exquisite belfry of Giotto, at Florence, who was bred a shepherd, and became a painter, and subsequently an architect; but he found no facts to substantiate that he was brought up professionally as an "architect." He next took Brunelleschi, the inventor of domes, who was originally a goldsmith; after that a sculptor; then a painter. He then became enamoured of construction; and as a self-taught architect built the dome of Florence, the constructive principles of which were adopted by Michelangelo in St. Peter's at Rome. He had never heard that Michelangelo himself was ever articulated in a professional architect's office. He began his career as a sculptor, was eminent as a painter, and subsequently took up with architecture and military engineering. Bramanti, he dared say, had been heard of. He began as a painter, and subsequently erected a great part of the Vatican: hence he had been called an "architect." Leonardo da Vinci was in the first instance eminent as a mathematician, then as a modeller, then became a painter: subsequently he wrote some poetry, and afterwards became a water and military engineer, and in the latter capacity defended a number of the strong posts of Italy. Subsequently he erected a number of buildings, and became what was called an "architect." Palladio—a name which he had no doubt heard of—began as a geometer: he never heard that he served his time to an architect; he had no systematic education in that profession; and yet he erected buildings which made him renowned. San Gallo, another eminent constructor, began as a sculptor, and subsequently became an "architect." He supposed the questioner had also heard the name of Inigo Jones: he began as a carpenter, afterwards he became a landscape

painter, and met with patrons who sent him to Italy, where he turned his carpentering to good account, learned to erect buildings, and became "an architect." They had all heard the name of Wren. He (Mr. Cole) should like to challenge anybody to show that he was an architect in the sense in which they understood it. He was very ingenious in making mechanical toys. He was a professor of mathematics at the University of Oxford. He happened to be acquainted with the Crown Surveyor of the time; who, having got into difficulties with a building under his charge, consulted Wren; and Wren, not being a professional architect, gave him sound advice, which led to his stepping into the place of his friend; and he erected St. Paul's Cathedral against much architectural advice: hence posterity called him an "architect," and it was commonly supposed that he was well entitled to that appellation. Then there was another person following him—Vanbrugh. They knew that he covered England with a great number of buildings, but he had no professional education as an architect. However, some people thought that he had a special genius for building. He built Castle Howard, Blenheim, and other mansions. The next most eminent name that occurred to him—coming now to modern times—was that of Sir Charles Barry, for whose talent he had much respect. Now he fancied that Sir Charles was what is called a real, professionally-bred architect. Sir Charles Barry's works they all knew: as to whether or not his Houses of Parliament were a great success, the world was divided in opinion: some thought them all wrong: others thought them approximating to right. But of this point there could be no question: having been deputed to build Houses of Parliament, in which people should be able especially to hear, and talk, or parley, he did not succeed in making rooms in which people could hear fairly well, if at all. Sir Charles Barry was also deputed to make a picture gallery for Lord Ellesmere. He had made a pretty architectural building, but unluckily not a picture gallery, as neither by day nor by night could the pictures in it be well seen. He was, however, an eminent professional architect; and, notwithstanding his great reputation, the military engineer whose construction was now before them had been consulted how to make Sir Charles Barry's picture gallery suitable for the purposes for which it was designed. When it was decided what was an "architect," he (Mr. Cole) would answer the other questions which had been put by the same gentleman, who did not appear to know the difference between a perspective drawing and a geometrical elevation. That gentleman inquired if any architect had been consulted. Not using the term as meaning men who were great sculptors, painters, engineers, or constructors, but gentlemen who had served a certain amount of apprenticeship in an architect's office, he believed none of the latter were consulted with reference to the plans of the building now in course of erection at Kensington. They were, however, very largely consulted in 1851; and, owing to the amount of time consumed in those consultations, the Exhibition was nearly rendered impossible. In 1850 the whole world was invited to send in plans for the building, and no fewer than 280 designs were sent in. A building committee of six of the most eminent men of the day was appointed to make a selection from these designs. Sir Charles Barry, Mr. Cockerell, and Mr. Donaldson formed the architectural section of that committee; whilst the late Mr. Robert Stephenson, Mr. Brunel, and Sir William Cubitt composed the engineering section. These gentlemen were elected a building committee, to see what they could do with these 280 plans. They sat upon these designs for seven months: at last they came to a conclusion that none of them were suitable for the purposes of the Exhibition. They then made, or caused to be made, a design of their own. These six gentlemen, somehow or other, by a process which he knew, but would not detail, prepared a design, of which a drawing was now on the walls; and he should be glad if it could be raised up to a position in the room where it could be appreciated. At last, three most eminent architects, and the three best engineers of the day, published plans and a design, and there it was. [The display of the design occasioned considerable merriment!] That (continued Mr. Cole) was the design which came out of the brains of 280 gentlemen of all Europe, hatched by the united ability of six of the most eminent architects and engineers this country afforded. They had only to refer to the records of Parliament to know how it was received. The question came incidentally before the House of Commons, and a division was taken whether that

design should be erected in Hyde Park or not. Parliament, the press, and the whole country, was saying, "On no account let us have that design, and don't cut up the park with a brick-and-mortar erection." He happened to sit, during that debate, by the side of Sir Charles Barry, who said, "Don't think that is my design: I wash my hands of it." Afterwards he met one of the engineering members of the committee in the lobby, who said, "Don't hold me responsible for that design." The day following he met another, who said, "I have nothing to do with it." In fact, every one of those six gentlemen who were supposed to have anything to do with that design repudiated any responsibility with regard to it. The result was, as they were aware, that, at the eleventh hour, Sir Joseph Paxton came forward with a design, but nobody would venture to say that gentleman was a professional "architect." At a period when it was doubtful if Hyde Park would be used or not, and if a suitable design could be furnished by any architect, Sir Joseph Paxton came forward with his glass conservatory. His proposal was adopted, carried out with brilliant success, and it certainly was highly conducive to the success of the Exhibition. Now, instead of the wisdom of 280 gentlemen ready to contribute their brains in competition from all Europe, instead of the six eminent architects and engineers who acted as the committee, the Exhibition building of 1851 was designed by a gentleman who was known as a horticulturist. They must all admit his was a highly successful building. It got the Commissioners out of difficulty, and every one was rejoiced now to find it re-erected at Sydenham; but it was not the work of any professional architect. Capt. Fowke, who had the highest constructive ability—amounting to genius—had been employed as secretary to the Paris Exhibition. He had built the National Gallery at Dublin, and designed the Industrial Museum of Scotland: he had also been employed in laying out the ground plan of the Royal Horticultural Society at Kensington. That ground, almost from its first purchase, was viewed as providing a home for future exhibitions. Nothing, therefore, was more natural than that in laying out the ground he should have made provision for the site of the future Exhibition. Accordingly, when the Royal Commissioners for 1862 entered upon their functions, Capt. Fowke had plans ready. He (Mr. Cole) supposed the most partial advocates of architects and competition would not contend that the process of 1851 ought to have been repeated as regarded the building for 1862. Was all Europe to be again invited? Were seven months to be lost? Was a building committee of the most eminent architects and engineers to be again appointed, to end in another horticulturist coming forward with another Crystal Palace? He should say that, having gone through that amount of experience with competition amongst architects, a different lesson was taught. On the contrary, having a proposed building which answered the purposes admirably—having no time nor money to lose—common sense said, adopt it. He would briefly state what this building would be. He would challenge any architect, English or foreign, ever to have erected such a satisfactory picture-gallery as would next year be shown to the whole of Europe. The gentleman who spoke first alluded to his connection with the *Illustrated London News*; and he (Mr. Cole) saw in that paper a most comical question asked about picture galleries. Somebody had asserted that picture galleries should be lighted from the top; so this paper said, thereupon, "What a monstrosity! Why not light from the sides? How pleasant it would be to look out of the windows." But that was not the suitable thing for pictures. If they wanted to exhibit pictures they must have walls on which to hang them, and special means of lighting to show them. It might be very pleasant to look out of the windows; but he did not think, in this case, to look out upon the building called "the Boilers" would be a particularly pleasing picture, and worth the sacrifice of hanging-space. At all events, if they wanted a picture-gallery, they must have walls to hang the pictures on; and common sense said they ought to light a picture-gallery so that the pictures could be seen. He put forth his challenge with unhesitating confidence, that no architect had ever yet erected a picture-gallery in this country or in Europe which would match that of Captain Fowke next year; and he ventured to say that the whole of Europe would pronounce that gallery to be the finest ever seen. That was what a military engineer would do,—a gentleman who, according to the precedents he had shown, was no architect. Further than that, they

would have a building which would not leak, as a glass building must more or less. He was a great admirer of the Crystal Palace, but he confessed it was a building which he looked upon in the light of a conservatory; to talk of it as a building suitable for all other purposes, he thought, was going too far. It could not be suitable for a picture gallery, for the directors had made one within it. In the present building they would have a space in the nave exceedingly well lighted, but from the sides. He could go through all the different points of objection taken, and answer them, but he should weary the meeting by so doing. He would conclude by saying this: having had some experience in the Exhibition of 1851, having had something to do with the Paris Exhibition, and having observed the construction of the present building, he would say, if the guarantors and commissioners desired to have a building which should be a common-sense building, and not to outrun the constable as to expense—which had been the case with treated public buildings—if they wanted a thing according to the principles of common sense, fulfilling the objects for which it was intended—they would have in the building next year those objects realized to a greater extent than had been the case in any Exhibition building which had ever yet been erected.

Mr. Otley claimed to reply to the observations of Mr. Cole, but the chairman ruled he was out of order.

Mr. Marsh Nelson suggested the adjournment of the discussion, in order to give the members an opportunity of examining the plans and drawings, and also to give an occasion on which to reply to the very ingenious speech of Mr. Cole. He was a humble member of the profession of architects; but as Mr. Cole had thought proper to vilify that body, he should move an adjournment of the discussion, even if the chairman had not ruled as he had done, which ruling he thought exceedingly unfair.

The chairman threw himself upon the protection of the meeting.

Mr. Nelson (amidst loud cries of order) proceeded to remark that the society would not perform its duty unless it afforded full opportunity for the discussion of so important a subject as this; which, he contended, ought not to be passed over in a single evening. An additional reason for an adjournment, he submitted, was offered by the fact of the unfavourable state of the weather on Saturday last for properly viewing the building.

Sir Thomas Phillips (chairman of the council) would address a few observations to the meeting, because he could not help thinking they had forgotten, to some extent, the object the council had in view in presenting to the members a description of the building for the Exhibition of 1862. Any fair criticism of the building itself would be a perfectly legitimate subject for the meeting; but they had no right to sit in judgment upon the acts of gentlemen who were not before them, viz., the royal commissioners for 1862. Let it be remembered that those gentlemen had undertaken an extremely onerous, an extremely anxious, and an extremely difficult duty, at the request of this society,—they were a body called into existence by the society itself; that selection having been concurring in by the numerous persons who had joined in the guarantee fund. Those gentlemen had undertaken the duties of commissioners for the Exhibition of 1862; and they had done so upon the thorough understanding that they were to be absolute,—that they were themselves to be the sole judges of the course to be taken; and it would never do for the society now to set themselves up as judges over those to whom they had delegated such absolute power, and to express opinions unfavourable to the course they were pursuing. The council of the society simply desired to present to the members a description of the building for the Exhibition of 1862. It was thought it would be interesting to them to know all that was being done to carry out that great enterprise, but it would never do for the society to say to the commissioners,—“You ought to have pursued a different course: you ought to have invited competition in the plans for the building; and you ought not to have entrusted Captain Fowke with the execution of the works.” The royal commissioners were not before them in any way. The motives for their conduct they knew not.

Mr. Sowerby agreed with Sir Thomas Phillips, that they had departed from the proper objects to be discussed. The thing to be considered was the merits or demerits of the building itself. With regard to the Exhibition of 1851, he was present when that building was discussed before the In-

stitution of Civil Engineers; but they must remember that there was a great difference between the Exhibition of 1851 and that of 1862; inasmuch as at the former period the whole question was novel, and it was difficult to hit upon a design to suit such a purpose. He was amongst the visitors to the building on Saturday; and his first impression was that it [was not equal to that of 1851] and he thought it would have been well if the council had called upon the architects of this and other countries to supply designs for the building of 1862. If this had been done he had no doubt a great improvement would have been shown over the designs of 1851; particularly as to mechanical contrivances and appliances.

Vice-Chancellor Sir W. Page Wood, F.R.S., said, the period has now arrived for proposing a vote of thanks to Captain Phillips for his paper for the large amount of information he had communicated, and for the great delight which had been afforded to most present. Whatever difference of opinion existed as to whether or not it was possible that a better building could have been designed, they should at all events have a building well fitted for the purposes for which it had been constructed,—a building a portion of which would be permanent, and which, therefore, could not be brought into comparison with the building of 1851, which was never intended to be permanent. They would also have that building constructed in a very short space of time, and at what seemed to him an inconceivably small amount of expense, when they saw the extent of the building itself, and the very handsome and ornamental features which existed in the two domes themselves of dimensions such as had never yet been erected in any part of the civilised world. At that late hour of the evening he should be very brief in proposing a vote of thanks to the gallant captain for his able paper; but he could not sit down after the painful observations which had been made with reference to the decision from the chair, without bearing witness, as one who had sat for some time in the House of Commons, that it was a thing unheard of in public debate for any person to address a meeting twice, except the proposer of the original motion, who had a right to reply.

Mr. Nelson said that an explanation was allowed.

Sir W. Page Wood.—The only explanation allowed was this: if a speaker was stated by any person who answered him to have said something which he did not say, he had a right to get up and say, “I did not say that,” and that was all the reply he could make; and though it was unpleasant—and he had himself suffered it—to get up in the House of Commons and make a speech, and afterwards hear one's arguments twisted in manner of ways, and as it might be thought, perverted—yet, if the reply fell short of making a speaker say anything he did not say, then he must sit still and bear it, without the possibility of making a counter statement. It was obvious if there was no such rule of debate, they might sit there an unlimited time. He felt it due to the chairman to state this; because in no assembly had he ever heard it said that the gentleman presiding was unfair in the decision he gave. That was a remark which ought never to be made, and he had never before heard it in any meeting of any description.

Mr. William Hawes had great pleasure in seconding the vote of thanks which had been proposed by Sir W. Page Wood. He regarded this building, not so much as an architectural structure or beautiful design, but as coming near to perfection in suitability for the object for which it was intended; and he believed it would be an entire success, in placing before the visitors, in the best manner, not only the arts of this and other countries, but their manufactures and the results of their commerce. It was not to be looked at as a architectural building, for it had no pretensions to be such. No building rapidly erected as this was could have that pretension; but it had the pretension of being a building well adapted to the purposes for which it was to be employed. If that were the case, they, as a society, ought to feel that they had promoted a great object.

Several other gentlemen having briefly addressed the meeting, the vote of thanks was carried unanimously.

TO CLEAN PAINT.—Smear a piece of flannel with common whiting, mixed to the consistency of common paste in warm water. Rub the surface to be cleaned quite briskly, and wash off with pure cold water. Grease spots will, in this way, be almost instantly removed, as well as other filth, and the paint retain its brilliancy unimpaired.

THE LATE SIR CHARLES BARRY AND MR. COLE.

SIR.—I have read with pain and regret the remarks made by Mr. Cole at the meeting of the Society of Arts on the 4th instant.

Mr. Cole began by expressing ignorance as to what an architect was. There is much ignorance in the world, and I have even heard of persons who are not aware of the qualifications necessary to enable their fortunate possessor to climb to the head of a Government Department. I will leave it to others to enlighten Mr. Cole's ignorance, but I must suggest to him that he would have done better to have confined his speech to the matters before him rather than have tried to stifle the first whispers of criticism on Captain Fowke's building by an attack on one who is no longer able to defend himself, whose loss is so recent and so deeply lamented, and whose memory a whole profession agreed to honour.

I do not contend that the new palace at Westminster, of which Mr. Cole spoke so sneeringly, is perfect. Perfection, according to him, has not yet migrated from Kensington; but when all the circumstances under which the new palace was erected are borne in mind, I am content to challenge for it the verdict of posterity. Few can ever now a title of the difficulties, anxieties, and embarrassments with which my father had to contend for half a lifetime, or how the treatment he received with reference to his great work embittered the evening of his life, and helped to consign him to a premature grave.

The case of Bridgewater House Gallery, cited by Mr. Cole, was peculiar. Not only had the pictures to be considered, but a grand suite of rooms had to be provided for festive occasions. My father always considered the lighting of the gallery (which he left unfinished), as an experiment only; and there is among his drawings a design which he prepared to obtain a perfect light, at small expense, and without sacrifice of architectural effect.

I have no doubt that Captain Fowke is an able engineer officer, fully impressed with his present great responsibility, and that he was no party to Mr. Cole's attack. In carrying on his great work, he must have become fully conscious that a reputation in art must be obtained by desert, and that is only among the booths of a country fair that unknown heroes become celebrities with an ignorant public, in consequence of the discordant jangling of a brass band. EDWARD M. BAREY.

ON ENTERING ARCHITECTURAL PRACTICE.*

THE subject which I am to bring before you is one of which one or other aspect can hardly fail to interest all the members of an architectural society entirely composed of young men. We are met to exchange ideas about entering into architectural practice; a step which to some of us is prospective; which probably others of us are now actually taking; while some of us have to look back upon it as recently accomplished.

None of us, however recent, our entrance upon course of preparation for the architectural profession, ought to be indifferent to actual practice as the ultimate aim of our present studies; and, on the other hand, none of us are, I think, so long established in practice as to have quite forgotten the hopes and fears, the struggles and disappointments, the difficulties and the successes of that important crisis. I propose, therefore, to say first a few words upon the course of training, the natural qualities, and the educational accomplishments requisite before entering active responsible practice; secondly, to make some observations upon the act of commencing practice and ways of obtaining business; and lastly, I mean to venture a few suggestions, subject to the corrections of my professional brethren, upon how to transact business when it has been got, and more particularly upon how to act in carrying out the earliest commissions obtained.

The nature of the subject will, to some extent, preclude me from taking the highest and broadest views of our profession as an art, and will limit us almost entirely to considering it as a "practice," or, in other words, a business; and as I wish to give as much practical value to this paper as I can, you will pardon my dwelling upon comparatively small details in many instances. You must also pardon me if, in order to impress these details on your minds, I employ somewhat homely illustrations. If, however, here and there I have recourse

to an old saw or a familiar proverb, I shall make no apologies; for there is no form of speech in which so much portable wisdom is concentrated as in an old proverb.

I begin, then, by saying that no one ought to enter an architect's office as an artful pupil, and pay a premium for being introduced to the profession, who has not a reasonably fair prospect of being able, sooner or later, to practise on his own account; and if any gentleman present who is actually a pupil makes up his mind from what he hears to-night that he can never hope to succeed in practice, and must always remain an assistant, I would strongly advise him to try and get his friends to transfer him to some other line of business without loss of time. This does not, however, mean that a young man ought to abandon his profession because he feels just now as if he will never like to practise it. To many, perhaps to most young men, there comes, at some time or other, a period of dislike to the profession they have chosen; and that dislike often exists strongly in men who a few years later are enthusiastically fond of the very same profession, and brilliantly successful in it. I tell you, therefore, that it is not a sufficient reason for a man to abandon his calling because he has taken a dislike to it, so long as he feels that if he could but work round to like it he might fairly expect to succeed.

There are youths who enter offices, not so much as regularly artful pupils, to go through a long course of study, but as junior clerks, and to whom the position and salary of an architect's assistant may be a better thing than they could hope for elsewhere. What I have said, of course, does not apply to such; but it does apply, and very strongly I think, to all those of some little social standing, and accustomed to comfortable circumstances, who are regularly artful to architects.

Responsible practice being then the thing for all or nearly all of us to look forward to, from first entering an office; much of what preparation and training are requisite may be sufficiently gathered from subsequent parts of this paper, where I shall try to describe what an architectural student ought to have made himself before he enters practice, and what he will have to do; but I will here briefly refer to a few of the things which a good architect requires to know and to be, and which a student must constantly aim at.

The profession of an architect demands of a man's moral nature that he shall be upright, that he shall be firm, that he shall be prudent, and, to some extent, that he shall be brave. It requires, among intellectual qualities and habits of mind, first and chiefly, great industry, then a plentiful share of plain common sense—a turn for drawing—a certain amount of ingenuity—good taste, and quickness of perception. As to an architect's education, he requires to be generally at least well educated, and he cannot possibly be too highly so; and in all that relates to the use of the pencil and to his profession he ought to be accomplished. Lastly, in habits he must be a man of business, an artist, and a workman; and in mind, manners, feelings, and actions, in fact in everything, a gentleman by nature and by culture.

If to these qualities there be added a brilliant genius, so much the better; but it is so rarely the case that what is called genius results in anything better than a flippant disregard of all study and all rule, and in unreliable and fitful skill in some isolated department, with corresponding neglect of other parts of the profession, that I am far from anxious that any of you should suppose himself a genius, or value himself highly upon that distinction if he have reason to believe that it has fallen to his lot: remember the fable of the hare and the tortoise.

Some of the characteristics I have named cannot be acquired, where at least the germs of them do not naturally exist. If you have no natural capacity for drawing, for example, and discover that after repeated efforts you cannot acquire a mastery over the pencil, you had better give up architecture. In the same way, I think a fellow with no ingenuity, who had never contrived anything in his life; who had never as a boy or youth designed and made a mousetrap or a steam-engine; or made models of stage-coaches, or Punch and Judy, or invented the perpetual motion, or contrived a turning-lathe, or an electrical machine,—in short, one who had shown no traces of the inventive and constructive faculty,—would do well to hesitate as to his chance of success when thrown upon his own resources to devise means of meeting difficulties and emergencies, or to design buildings.

The same observations will partly apply to one or two other qualities I have named; but the larger portion are so entirely matters of habit, while even

the natural qualifications are capable of improvement by exercise to so great an extent, that I have no hesitation in recommending them all to you for cultivation.

Particularly cultivate industry—work hard, and work often. Do not work constantly, for that will be bad for you; do not work listlessly—that will be even worse; but work energetically, and with concentration of mind during the time you devote to work; and when you want to relax, do so, not by falling into a half mechanical, heedless, inattentive spirit, but by leaving off entirely.

I would strongly urge upon your attention common sense, as a quality very capable of being improved by your own efforts; and the best way to gain this all-important distinction is to think always about what you are doing. There is nothing so destructive to the success of a young man in an office as the habit of doing one thing and thinking of another. Fix your mind upon what you are doing, even if it be only sharpening a pencil; and avoid mooning and careless work as you would poison. Whenever you cease to give your attention to what is before you, you are getting harm instead of good, and are losing what may be golden opportunities, and gaining a bad habit instead.

I have told you that you must make yourselves men of business, and have by that phrase implied a variety of qualities which there is hardly time to analyze.

A good man of business is orderly, methodical, prompt, punctual, active, and attentive; he always does what he professes to do, and does it well; and he clearly understands his duty, and allows nothing whatever to prevent him from doing it.

Now, if you young gentlemen will make a conscience of being punctual in your arrival at your places of business; will try to be prompt, active, and exact in the performance of what you have there given you to do; and will take the trouble exactly to understand your position and duties, and diligently to perform them, you will be going the right road to become good men of business. One more hint on this head you must bear with: any man of business acting on his own account has frequently to direct and command others: the only method of learning to command properly is by first yourself learning to obey.

I told you that you must be gentlemen. What a gentleman is I am not going to try to explain: I may, however, give you the hint that two things are most desirable for the making of a true gentleman; and that without them you cannot hope to do much good in this respect. The first is, that you should habitually associate with and narrowly watch gentlemen: the second is, that you should have a good education and good general information.

With regard to society, I would advise you all to cultivate any opportunities you have of visiting friends at whose houses you will meet good general society, and especially to frequent literary or artistic circles if any such are open to you. I believe connection with this Association and with the Institute will be of great value in procuring you professional associations and friends, while travelling will do still more for you; not in the way, perhaps, of procuring you friends, but of setting you at ease in miscellaneous company and among strangers.

It will be impossible here to go to a great length in describing to you the course of education you should pursue. Let me, however, first of all recommend you to make as much as you can of all opportunities of seeing and sharing actual work in the offices where you are; and, above all, of visiting buildings in progress, talking to the workmen, and narrowly examining the work. Let your leisure hours be regarded as a precious treasure of which a fair share is to be allotted to study connected with your profession, and observe a methodical plan in thus disposing of your time, arranging for each evening what you will do, in what order, and how long time you will spend over each thing.

I strongly recommend attendance upon a course of lectures, such as those of Professor Donaldson now are, and those of our warm friend Professor Robert Kerr no doubt will be; and this, not only on account of the actual amount of information you gain, but because you will have a systematic outline of the main facts relating to your profession so impressed upon the mind as to afford you great help in subsequently classifying and remembering all the facts you can.

As for objects of study and books, the new curriculum of the Institute scheme of examinations will point out to you what you had better study, and furnish you with an admirable list of books. I recommend you by degrees to make acquaintance

* A paper read by Mr. T. R. Smith, at a meeting of the Architectural Association, December 6th, 1861.

with all those books; together with a little general reading and generally artistic study; devoting a good deal of your time, however, especially in the early years of your study, to drawing, modelling, carving, and such other works as will make you thoroughly acquainted with architectural forms; how to draw them; and if possible how actually to produce them, with your own hands. This practice will help you to cultivate what is of great importance to an architect, *i.e.*, a general familiarity with and love for all the fine arts.

Of all employments, for leisure, however, none is superior to learning to draw the figure from plaster casts or from life; and those who are wise will do well to devote a large proportion of time to this. Leigh's school in Newman-street may be named as affording good facilities for this study; which, however, you can pursue under the best auspices, and without expense, by making yourselves students at the Royal Academy.

Take notes, and make sketches of whatever strikes you; and take care that your notes are clear enough to convey, to a person who had never seen or known the thing you put down, a distinct idea of it; and that your sketches do the same thing with the addition of dimensions exactly taken and carefully applied. I think it a good plan also to date every such note and memorandum.

I cannot sufficiently impress upon you the vast importance of acquiring the most intimate knowledge of the small details, alike of construction and of architectural form, and of all building materials. A good architect is always something of a workman in his knowledge of work; and a few months or a year spent, half of it in a carpenter's shop, and half in a mason's yard, will be of the utmost advantage to you.

Painters and sculptors have an immense advantage over us in being their own handicraftsmen; and good workmen in the various branches employed on a building will have very much the advantage of you when you get into practice; unless you, while yet students, make it your business to become very familiar with all the minutiae of handiwork. One exercise that I would strongly recommend you is to take a good and full specification for some work, read it over word by word and line by line, and make a memorandum of every word of which you do not understand the full force; and then never rest till, either on the building or in the office, you have got every one of those words so thoroughly explained to you that you will never for a moment hesitate at any one of them when you see it again. I fancy the majority of you will be rather startled to find how long a memorandum paper you would fill, the first time you try this, if you do it thoroughly.

By all means accept any trials of strength in which you have a fair chance of success, but no others; and whatever you enter upon strive at with all your might. As soon, therefore, as you feel likely to succeed (and on this point you had better take the advice of those who know you better than you know yourself) try early to become students of the Royal Academy, and later to compete for and gain its silver and gold medal. Compete also for any prize offered by the Institute, or by our own or any other society which you think you ought to be able to get: speak or read a paper at this Association; and, above all, when the Institute examinations are established, set yourselves heart and soul to pass them. The value to you of these efforts is incalculable.

Finally—and I place this study last that it may occupy a conspicuous place—study buildings. Don't trace much: never steal designs; and never fill your pocket-books with surreptitiously obtained information. But on new buildings openly watch and sketch, and note all points artistic and constructive, but more particularly the latter, that you are fairly allowed to make your own; and make it at once your pleasure and your business to take every opportunity of studying ancient buildings. There, and there only, you can learn what will make you real architects; and the amount and kind of study you give to them will be the thing which will determine, not perhaps the amount of practice you may ultimately obtain, but certainly the grade you will hold among your brethren.

To young men in London, Westminster Abbey affords an inexhaustible mine of architectural wealth, perfectly accessible, and in which the officers of this society can, I believe, procure permission to draw for any of you; and there is in going there the great advantage that you may easily get some of those more advanced than a little in the way of how best to study with the pencil and the measuring rods.

After a youth has in this way gone through his

articles, there are two steps very essential to his being fairly fit to practise. The one is that he should visit one or more offices, spending a longer or shorter time in each of them, so as to gain experience and to see different modes of practice; and the second is that he should travel. In visiting offices I should advise that, however good the one where you were educated, you see the practice in one or two others; selecting in preference the best offices, even if it be necessary to enter them without salary; though a youth who has well employed his time of pupillage ought ordinarily to be able to command some salary wherever he goes.

As to travelling, it is most desirable that a good long tour should be made, embracing as many as possible of the continental cities of architectural renown, and extended to as long a time as possible. For this, no sacrifice that can honestly and fairly be made should be spared; and during this golden harvest-time no exertions should be omitted to enrich mind and eyes, note-book and portfolio, with as much as the time will possibly allow.

To these two essentials I think I ought to add a third, of a very prosaic nature, but a very necessary one. I think no one, likely to fall into a miscellaneous practice, especially in the country, should omit to learn the principles of taking out quantities and measuring up works, and to gain some facility in these branches; not necessarily with a view of furnishing bills of quantities to builders; but in order to be able to make preliminary and other estimates with accuracy, and to wind up the accounts of extras and omissions on a building with fairness and without difficulty.

So much for preparation for practice. Now let us consider the actual start into responsible practice,—the transition from the student state into that of the architect; at least, the would-be architect.

Many men, I think, postpone this step too long. And I believe that, of the two errors, a too early start is less likely to be fatal to success than a too long postponement of one.

The main essentials for success in practice are, first, to be competent; and secondly, to have the reputation of being so. I have already told you that I think any one devoid of the natural gifts necessary to success had better never enter the race at all. I have now to add that, so soon as these gifts have been sufficiently trained and strengthened, and enough of knowledge and of such experience as can be got from engaging on other men's works has been obtained for a man to feel himself competent to act as an architect, the less he delays about trying to gain a reputation the better.

It is difficult to attempt to say what is the degree of information and experience requisite to enable a man safely to commence practice. Those who have had the good fortune to have a good and rather prolonged general education may ordinarily safely commence after fewer years of special training than others; so that I do not think it any gain of time, while it is certainly a loss of everything else, to begin your profession very young. I believe a man who brings a studious and well-stored mind to the work may fit himself for practice in, perhaps, from four to six years; but that ordinarily from six to eight or even ten years are requisite for a man to gain knowledge or experience enough to begin on. This I know, however, that the quickest school is responsible practice on your own account. The sternest teacher is necessity; and that one learns more in three months from one's first work than in three years from watching or even engaging in that of another man.

A principal reason for advising that a start in practice be made as early as is prudent lies in the very arduous nature of the process of getting into practice. It will probably be found by you incomparably the hardest and most prolonged effort of your lives; and you should, therefore, engage in it with as few cares, as light a burden of years and responsibilities, and as unbroken a circle of friends as you can command; for every year you wait threatens to add to the weights and diminish the number of friends and helpers.

Every year, too, that you become accustomed to the work of an office and the regular receipt of an income makes you less inclined than before to venture upon the uncertainties of a commencement of practice; and often makes you unfit for the amount of waiting and watching that must fall to your lot.

Let me then urge you all, while remaining as improvers or assistants in offices, or as clerks of works, or so forth, for a certain time after your articles are completed, to treat all that as a portion of your preliminary or student life, and to

look forward to actual responsible practice, if you are ever going to engage in it, as your real work.

I would especially urge the undesirableness of incurring either expensive habits or pecuniary liabilities; which, though they may be easily discharged out of your income as a clerk, will destroy your peace and prosperity if you find yourselves passing into a condition where income may for a time be seriously diminished or totally interrupted. I believe many men, who would have had a brilliant career had they started early, have never entered practice at all, or at any rate not till far too late in life, owing to their having remained too long in other peoples' offices; having become accustomed to the receipt of a comfortable salary; having under these circumstances married and having then been unable to encounter the possibility of being obliged to spend a year or a couple of years without clearing a five-pound note or having contracted habits of self-indulgence which have unfitted them for encountering the brunt of the battle of life.

While on this subject, therefore, you will allow me to impress upon you the great importance of cultivating frugal and prudent habits. It is not the amount of a man's income, but the rate of his expenditure compared with his income, that makes him rich or poor; and everything which at this stage you can accustom yourself to do without is so much gained towards your future success. Try, if you can, while in the receipt of a salary, to lay by a little money, at least enough each year to pay your expenses during a few weeks' sketching in the fine part of the summer; and, if possible, to trifle to keep towards future emergencies.

We will now suppose that a young student, after three or four years' apprenticeship, a year on the Continent, and one, or two, or three, or more years spent in a builder's workshops, and in various offices as an improver or as an assistant, thinks of commencing practice. I think the first essential for him is that he must somehow have or get the means of procuring at least a bare livelihood, independent of any architectural commissions whatsoever. Some men are fortunate enough to be able to secure this through the assistance of their parents or friends, or from their own property to those who are not I would recommend the adoption of some sort of work which can be done in their own chambers, and which is, to say the least, not inconsistent with their being architects on their own account. Measuring and taking out of quantities supplies the requirement with some and leads a few here and there to abandon architecture entirely, and take to surveying; for which reason, and for the reason that it mixes a man up in an undesirable way with builders, I do not think that it is so good as other things; such as drawing on wood, lithography, writing for the press, short-hand writing, etching, engraving, tinting views, making perspective outlines, and the like. The best source of income, however, and one which fortunately is very often available for a clever young man, is a partial connection with some office where he has been brought up and employed, and in which some department of business has more or less fallen into his hands. From some source, however, an income is essential; as an architect,—in fact, any professional man,—can never hope to enter practice without passing through a period of greater or less length in which he does nothing; or, even if he does work, receives nothing. It is also essential on another ground, namely, that, without some resource which will serve for a livelihood at least, a young man cannot feel a proper independence of position in treating with his first clients; and will, if hard pressed by them, which is too often the lot of beginners, feel obliged to give away where he ought to be firm and will promise impossibilities, or will undertake work at rates below its recognized value,—things which it may take him many years to escape from or which may possibly even act injuriously on him through his whole career. To this subject I shall have occasion to refer again.

You ought, however, to contrive to dress well, as that will have a great effect upon your future success; and you ought to contrive to afford yourself a moderate amount of recreation. But it is more important by far to avoid debt: that will be, if incurred, an effectual clog to your success, and, if there be no alternative, you are better shabby and dull than gay in unpaid-for clothes, or merry upon borrowed money.

The next essential is what is called a connection; that is to say, a circle of relatives, friends, and acquaintances, who shall know so much of you as that you exist, and that you have started as an architect, or an architect and surveyor, if you are competent to call yourself that; and who shall

have a not altogether unfavourable impression of your personal character and professional ability.

I need not waste time by showing you the necessity of this. I may, I think, take it that you will grant, that if a person neither knows you nor knows that you are an architect, nor thinks well of you, he will not be likely to employ you; and I will proceed at once to refer to the sources from which your connection must be drawn: and here let me add that this question of future connection ought to be from time to time in your minds from the very first; so that if there be a possibility or probability of any particular line or branch of practice being thrown into your way, you may specially prepare for it while yet a student.

A man's best friend is ordinarily his father; and of course the most valuable of all positions for a young man is to be son of an architect in good practice, and to be introduced by him to practice. This, however, is a rare case; but to have a father living and influential, and to have elder brothers in good positions in life, is most valuable to a young man. I do not think that ordinarily other relatives are often of use, till after a man has got over the greater part or the whole of his difficulties; and, although men who have influential relatives often speak and feel bitterly because they are not helped as they think they ought to be, I really think there is a very easy and natural solution of the apparent unkindness, if we think for a moment of the circumstances of relatives. In the first place, then, relatives, such as uncles, elder cousins, and the like, are ordinarily likely to rate you at below your real value. They knew you, perhaps, as boys, and remember you as such: they probably will almost forget the length of time in which you have been acquiring professional knowledge and experience; and, at best, they have the means of knowing it accurately, and will not rate it at longer than it has been, which strangers may possibly do. Again, relatives are not free to leave you or to express displeasure against you if you do not please them, as strangers are; for if they did so there would be a chance of a family quarrel; and many a man would sooner encounter the sort of coolness which will be felt because he puts architectural work into the hands of a stranger, passing by a relative, than place himself in the position of opening business relations with a young man whose business capabilities are untried, and whom it will be impossible, in case of dissatisfaction, to dismiss without raising such a quarrel. Lastly, I regret to have to add that it only too often happens that young men will not exert themselves and do their very best for their relations as they will for strangers; and many persons knowing this, and aware of the great importance of having their business thoroughly well done, shrink from venturing to employ a relative, unless they actually know his business character to be thoroughly reliable and established. The same observations apply to old family friends; and the first part of them apply to all persons, who knew you well when boys, and have known little of you since. All this class of friends must be looked upon as ultimately valuable, but as not ordinarily the first to be of service to you.

I believe that the most valuable elements of a good connection, after a man's father and brothers, are the personal friends and acquaintances of his father and mother; not only the most intimate, but also those who may be removed, or but seldom seen,—old schoolfellows, old college friends, and business acquaintances. These, if they have esteemed the father, be it half a century ago, will make acquaintance with the son with pleasure and good-will, and will feel little or none of the difficulty as to employing him which I have referred to as existing among relatives. Then come your own personal friends: school and college friends, if they are themselves doing well, will often be most valuable to you, and so will casual acquaintances. In fact, it is well to remember that in the matter of connection your great point is to be known, and known to some extent favourably, by a great many people; but that it is not at all essential you should be intimately known to all or any of them. Let me add also that it is as an architect you must be known if you want to get practice. The most extensive reputation as the best drill in your rifle club, or the best dancer in twenty ball-rooms, or the best singer at your choral society, will, however many friends it may bring you, bring you little business, compared with a comparatively limited reputation as an architect.

Let me add, in the matter of connection, that to be well and favourably known among members of your own profession is of great advantage to you many ways: some of which I shall have to refer presently: here I only shall remark that such

a society as this Association, and especially the obtaining a prize here or elsewhere, will be of great value to you in obtaining professional acquaintances and distinction, as well as professional knowledge.

And now let me repeat, as to connection, what I said before as to natural qualifications. I think no one ought to proceed to educate himself as an architect unless he, or his friends for him, see some reasonable prospect of his having acquaintances enough accessible to form the nucleus of a fairly extensive business connection, which will include some tolerably influential persons. To such nucleus your own exertions, and above all your professional successes, will add fresh acquaintances; while it is just possible that you may have the good fortune to get a connection, or to augment the one you have, out of the ranks of the general public. This, I think, must often happen, when it does occur, in one of four ways; either by successful works already done, or by professional introduction, by writing or by competition: that is to say, first you are likely to find that, when you have actually got a job and done it, your connection will be extended; and, sooner or later, work will come to you from persons who are personally perfect strangers, but who have seen your building and have heard that you have satisfied your employers. Secondly, you have a prospect of success if you are so fortunate and so skilful as to be introduced to some position, either a public appointment or a post under the auspices of an architect of great standing, which will give you importance in the eyes of the public. Many, perhaps most, of the civil engineers get their professional position in this way; but there are comparatively few opportunities of the sort in architecture, that the thing is not of common occurrence. Still it does happen,—as, for example, there are several gentlemen now in good positions who owe them to their having held important posts under the late Sir Charles Barry, on the Houses of Parliament. Lastly, you may also succeed with perfect strangers, if you have ability and energy, and cash, and good fortune enough to publish a really good and really successful book, or to gain a good competition; but these are uncertain methods, especially the last-named one—the competition.

There are two methods of getting into practice, besides that of "working up your connection," which are attractive to the eyes of young men, but are, I believe, really of small value to a beginner. One is the obtaining some public appointment; the other is obtaining a partnership with an experienced man. Now, the truth of the matter is, first, that both these things are thought so well of that no beginner need count on securing either the one or the other; and, secondly, that they, both of them, are things which are extremely unlikely to suit a beginner if he could get them. A public appointment obtained early, more often than not prevents a man from exerting himself as he otherwise would; and so commonly cuts short what might have been a successful career. A partnership among architects is so very, very seldom a lasting connection, and for some reason or other is all but invariably dissolved with mutual disadvantage after a few years at longest, that I am quite convinced architecture ought to be looked upon as a profession no more suited to partnerships than the profession of a barrister or a consulting physician; and that the less a young man thinks of such a thing the better. It is right, however, to add, that, in the case of public appointments, the canvass for them may, in some cases, be of indirect advantage to you; and that those of you who intend to practise in London will do well to try to obtain the Institute certificate of competence to practise as district surveyors.*

ARCHITECTURAL MUSEUM.

THE COMING SESSION.

THE 1862 session of the Architectural Museum will commence with an address by the president, Mr. Beresford Hope, who will, on the same occasion, present the various prizes to artist workmen.

Twenty-two competing specimens have been sent in for the colour prizes; and the same successful result may be hoped for in respect of the ten remaining competitions, open until the 1st of January next.

The presentation of prizes will be followed by lectures on the following subjects:—On Tile Pavements by the Rev. Lord Alwyne Compton; on the Quattrocento, or Transitional Architecture of Florence, by Sir Francis E. Scott, bart.; on the Formation of a National Museum of Architecture,

as viewed especially in its connection with the Mediæval styles, by Mr. G. G. Scott, R.A.; on Labourers' Cottages, and their bearing upon Architecture, by the Rev. T. James, M.A.; on the various Systems of Coloured Decoration of the Middle Ages, by Mr. William Burges; on the Ecclesiastical Architecture of Georgia, by the Rev. G. Williams, B.D.; and on the Difference between Minister and Parish Churches, by Mr. E. A. Freeman.

The session will not begin until somewhat later in the year than usual.

The programme is certainly very promising.

LONDONDERRY PENITENTIARY BUILDINGS COMPETITION.

WE are informed that the committee have selected the designs of Messrs. Fraser, Ferguson, & Fraser, of Londonderry, for their new buildings, from among six sets submitted, several of which were by Belfast and Dublin architects. The front of the new institution is intended to be constructed of red and white bricks. The flank elevations will be of rubble stone, with white brick facings. The internal arrangements comprise a board-room and refectory, sick rooms, probationers' room, matron's and under-matron's apartments, with dormitories for thirty inmates, baths, &c. There will also be an extensive laundry attached to the main building, fitted up with washing apparatus and steam-drying closet.

THE RUGBY CEMETERY COMPETITION.

WE have received a communication on this subject, but must confine ourselves to one or two points in it. It appears that the 139 plans mentioned were the total number of drawings sent in, including plans of chapels, lodge, entrance, mortuary, elevations, sections, perspective views, and plans for laying out the ground, and came from twelve or fifteen architects, some of whom sent in three sets of designs. At a meeting of the Board, on the 16th of November, the members proceeded to vote, there being eight members out of nine present, when three were found to be for Mr. Dodd, three for Mr. Bland, and two for Mr. Bidlake. It was finally decided a fresh poll on the three should be taken at the next meeting.

On the 23rd the same members attended, and the votes were—For Mr. Bland, 3; for Mr. Dodd, 1; for Mr. Bidlake, 3. The numbers for Mr. Bland and Mr. Bidlake being equal, the chairman called on a member to vote who had not done so, and that gentleman voted for Mr. Bidlake, as he thought his plans came next to Mr. Dodd's, which he preferred. Mr. Bidlake was accordingly selected as architect for the buildings.

As may be supposed this strange mode of selecting an architect has not given universal satisfaction.

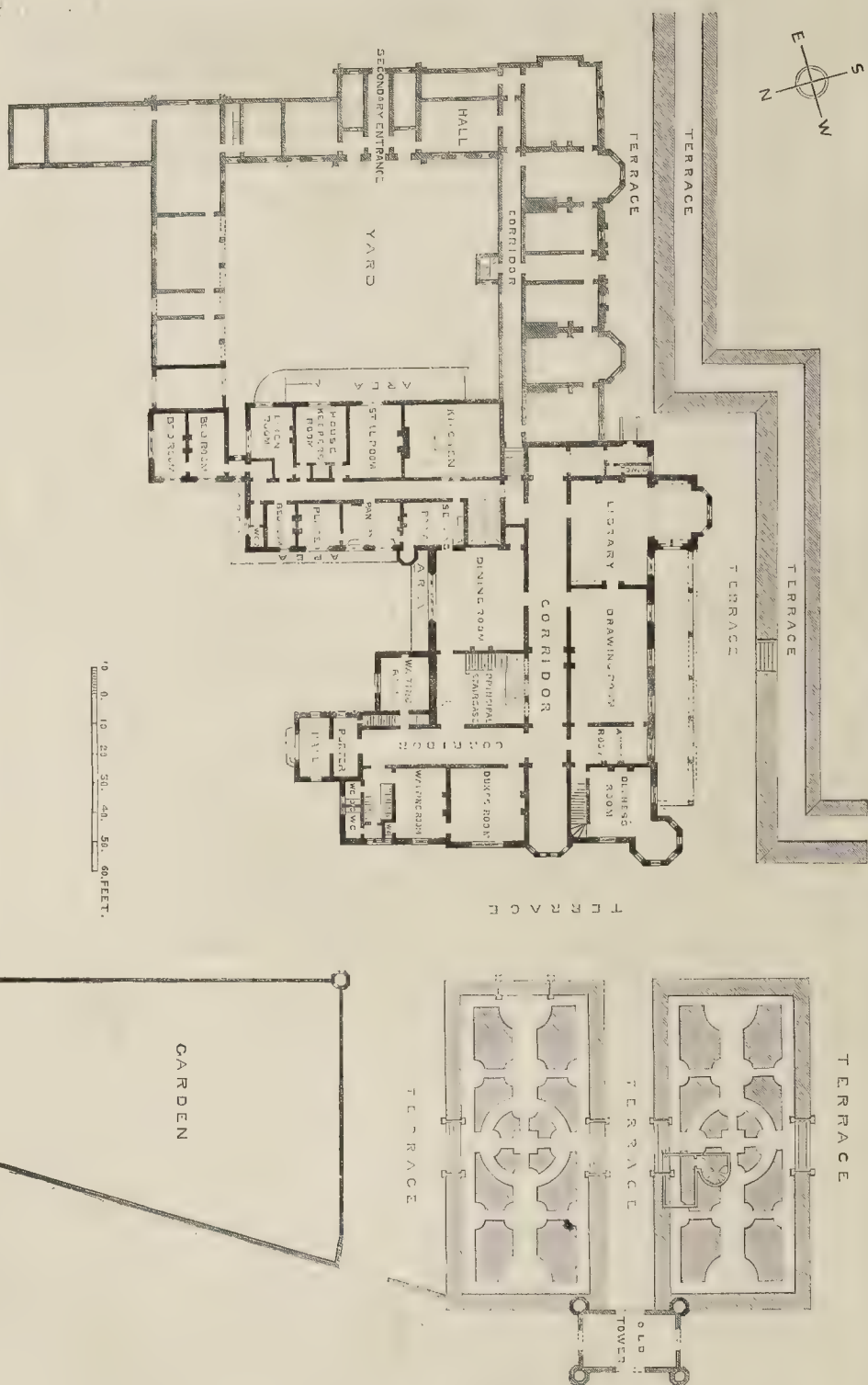
THE OLDEST TREE WITHIN THE CITY BOUNDS.

THE venerable tree in the Temple Gardens, which is in all probability as old as Shakespeare's days, and which may be seen forming one of a row which stood close to the Thames wall, in prints of Charles II.'s time, is in a sad condition. A recent gale has blown off one of its limbs, and such is the tottering condition of the trunk, and other remaining parts, that the whole can be shaken by a touch. When we think of its venerable age, its picturesque appearance, that in all probability Dr. Johnson and Goldsmith often rested below its shade, and other associations, we trust that neither pains nor what little expense is necessary for its preservation, will be spared by the authorities of the Middle Temple. A few crutches judiciously fixed up, while ivy might be trained to creep around it, the filling of the hollows of the trunk with plaster of Paris, in the same way as the decayed trees are managed at Hatfield; and some other help, might be the means of preserving it for more than a century to come. As the poor old tree is at present situated it is in danger from every strong blast which blows.

NEW RIVET-MAKING MACHINE.—A new description of rivet-making machine, for manufacturing rivets for the iron frigate *Achilles*, has arrived from Manchester at Chatham dockyard. The saving of manual labour by the use of this machine is described as something extraordinary; the apparatus being capable of turning out rivets complete at the rate of forty to sixty per minute, with only two men to attend to it.

* To be continued.

BULSTRODE, BUCKINGHAMSHIRE. — Plan of Ground Floor.



BULSTRODE, BUCKINGHAMSHIRE.—One of the Seats of the Duke of Somerset.—MR. BENJAMIN FERREY, ARCHITECT.



BULSTRODE.

In a work entitled the "Vicissitudes of Families," by Sir Bernard Burke, there is a very interesting historical sketch of Bulstrode, and its possessors. The Shobingtons, an ancient Buckinghamshire race, held the lands of Bulstrode before the invasion of the Normans. When William the Conqueror had subdued the realm, he took a fancy to the fine park and mansion at Bulstrode, and granted the whole to a Norman who had come over with him: this enraged the Shobingtons, who, calling around them the ancient families of the Hampdens and Penns, and with their retainers, stoutly defended their lands.

Whether the Shobingtons wanted horses or not is uncertain; but the story goes that, having collected a number of bulls, they mounted them, and surprising the Normans in their camps, killed several of them, and put the rest to flight. Being summoned to appear before the king, Shobington pleaded that he and his ancestors had long been inhabitants of this island, and promised that if the king would permit him to keep his estates, he would be faithful to him as he had been to his predecessors: on which the king granted him the free enjoyment of the estate; after which the family was called Shobington Bulstrode, and in later times, Bulstrode only. The manor of Bulstrode then passed to the abbess and convent of Burnham; but in the seventeenth century the Bulstrodes again came into possession, and became allied to another Buckinghamshire family,—the Whitelocks, of Fawley Court. With the Whitelocks and Bulstrodes of the seventeenth century their long connection with Bulstrode Park ceased. Tradition gives one singular occupant to Bulstrode in the remarkable personage, "Praise God Barabones," and it is even asserted that this Barabones built the mansion at Bulstrode; but that was not so, for the edifice was erected by a far less worthy individual, the notorious Judge Jefferies.

Bulstrode's vicissitudes appear to have varied with the times. The Roundhead Whitelocks, made it notable in the Commonwealth; Jefferies filled it with a Jacobite spirit; and afterwards, when the Whigs and William III. were in the ascendant, the Dutch favourite of the Dutch monarch turned his eyes towards the fair acres of Bulstrode. Bentinck, created by the king Earl of Portland, purchased Bulstrode, and, towards the close of 1708, betook himself to a retired life, and made it his favourite residence: his grandson, the second duke of Portland, also resided chiefly at Bulstrode, and his accomplished duchess used constantly to entertain a host of the notabilities of the day. Amongst them was her attached friend, Mrs. Delaney, who came to her as a visitor during the half of every autumn. In the "Memoirs of Mrs. Delaney" (lately edited by Lady Llanover), frequent mention is made of Bulstrode and the beauty of its park, &c. Amongst the odd occurrences connected with this place is the fact, that Dick Turpin, the famous highwayman, actually robbed the second duke of Portland within his own park. A portion of the house, most likely built by this duke, yet exists, and has ever since formed a part of the residence for successive occupiers. It consists of a low wing, built in red brick, with stone dressings and large chimney-shafts, marked by the heavy peculiarities observable in Kensington Palace, and buildings of that type. The duke's son and successor, William Henry, the third Duke of Portland, in all probability pulled down the older house built by Lord Jefferies (as no traces of any edifice of that date exist), and began the erection of a huge mansion to the east of it, in a somewhat castellated style, from the designs of Mr. James Wyatt. This building was advanced in skeleton, and consisted of a considerable west facade, with entrance-tower, two wings, internal quadrangle, extensive basement, &c., when the project was abandoned, and the whole left to become a ruin. Mrs. Delaney often refers to the building operations going on during her visits. She says: "Great works are going on here: the horse-shoe gravel-walk, with great slopes, and a place in the bottom for water (which fronted the house), that could never be made to answer its purpose, is all thrown down, and a lawn is to be substituted in its place that will fall with a hanging level to the park, and open a very fine and agreeable view to the house. Besides the satisfaction the owners will have in making so advantageous an alteration, they have the much higher delight of maintaining such numbers of industrious people. Fifty men are now at work with carts and horses before the windows, which afford a constant amusement. The work cannot be completed till next Michaelmas twelvemonth."

William Henry, the fourth Duke of Portland, was the last of the Bentincks who possessed Bulstrode, the estate being purchased in 1810 by the late Duke of Somerset. This nobleman also contemplated the erection of a mansion, and plans upon a very extensive scale were prepared for his grace by the late Mr. Jeffery Wyattville, but never carried into execution. The present duke, under professional advice, has taken down the whole of the ruined building, with the exception of the gateway tower and apartments over, which, mantled with ivy, forms an ornamental feature at the entrance to a noble avenue of lime-trees, and is now erecting a mansion according to the accompanying design. The new building stands upon a more elevated site, a little to the east of the former residence, and is attached to the wing previously described, which will be remodelled and brought into harmony with the new structure. Advantage will be taken of the rapid slopes of the ground to form broad and pleasant terraces. Its convenient distance from London will make Bulstrode an agreeable summer residence for the duke during the parliamentary season, his grace proposing "to restore the whole locality to that state of rural beauty which at different times captivated Saxon and Norman, monk and layman, Cavalier and Roundhead, judge and statesman; and which Nature itself has marked out as a retirement from the thoughts of poets and the fatigues of princes."

The mansion is designed in the old English manorial character, with brick walls, relieved in parts by facial ornaments of vitrified brick devices, Bath-stone dressings, and ornaments. The roofs are covered with green slates. The interior will be fitted up in a solid and plain manner. The sunk flower-garden to the south-west is formed over extensive arched cellars belonging to a former residence. The works are being executed by Messrs. Holland & Hannan, of Duke-street, Bloomsbury. The park, which occupies about 800 acres, and is of great beauty, possesses additional interest from the large circular Roman entrenchment to the south-east of the house, inclosing an area of twenty acres, with some stately oaks on its banks.

B. FERREY.

HYPÆTHRAL TEMPLES.

It would be a difficult thing to answer such an able paper as that read by Mr. Ferguson at the last meeting of the Institute, even if time for deliberation and for reference were afforded: you may judge, therefore, how grave a task it was to attempt to do so on the spur of the moment; and I trust I may be pardoned if I offer a few remarks on one or two points which escaped me in the debate. I must premise, however, that, although the meaning of Vitruvius, as a practical architect, may be taken strictly, it is not always so with the non-professional authors. Many well-educated Englishmen will talk of the *rafters*, instead of the *joists*, of a floor; and confuse girders with bressummers: we must therefore not wonder if similar want of preciseness is found in classic writers.

In the first place, I would venture to defend my friend Mr. Falkener as to the passage in Justin (xxiv. 8), where, in describing the attack of the Gauls on the Temple at Delphi, the author says—"The priests cried out that they saw the god leaping into the temple per *culminis aperta fastigia*." Now, as "*culmen*" is generally considered the upper, or highest portion—the "*culmination*" of anything, it seems properly translated by the word "*ridge*." It remains for us, then, only to consider what the open "*fastigia*" could mean. But the primitive meaning of the word is a "*slope*," or hanging level. Thus Vitruvius (vii. 1), describing the way to lay that sort of pavement which he calls "*ruderalio*," says it should have a slope, "*fastigium*," of 2 inches in 10 feet to carry off the rain. He also uses the same word (viii. 7) for the fall of the water in an aqueduct. Instances may be multiplied of the word being used in this sense, and may be found at length in the Dictionary of the Architectural Publication Society, *sub voce* "*fastigium*," where it is also shown it means a pediment, probably from its sloping sides; and, in a more restricted sense, the corona and cymæ over the tympanum of a pediment. But what becomes of the word "*culmen*," the ridge? Whatever the opening may be, it was close to, or had something to do with, the ridge. It has been observed that *fastigia* is a plural word, and means more openings than one: this I should venture to doubt, for a reason that will arise out of the examination of another author.

This is Plutarch, who (in his life of Peri-

cles XIII.) is speaking of the Temple of Ceres at Eleusis, and says Corambus began the temple, but died; Metagenes made the cella and the upper columns, and "Xenocles *εκορυφωσε*, i.e., at the highest point of the temple, placed the *οροσυν*,"—literally the opening. Now, here we have a similar word to Justin's *culmen*, the *κορυφή*, which is "the head of anything, the top of a mountain, the apex of a triangle." It is clear, then, the opening was at the very top; and it is also clear the word is singular: so there must have been one opening only, not two. And, on reflection, I think it will be felt that Justin intends to describe one opening only, if we translate "*fastigia*," slopes, or sloping rafters; and then the passage would mean "through the slopes of the roof, open at its summit." I grant, the passage is obscure; but Justin was not an architect.

Again, I do not agree with the meaning ascribed to the expression of Vitruvius, "*sine tecto*." It is urged the Pætheon has an opening at the top, and that building cannot be said to be without a roof. This is true; but the author does not tell us the temple was without a roof, but "that the middle of the building is under the open sky, without a roof." "*Medium autem est sub divo sine tecto*,"—a passage I should consider quite sufficient to settle the question.

I also think Mr. Falkener has rightly considered the passage from the "Digests," first brought forward by the learned Professor Bötticher. It seems to run thus,—"*Labeo* says that the covering (*stratura*) made of boards of any place which may be taken away in the summer and replaced in the winter belongs to the house," (or *Edium*, may mean temple). It is replied that "*stratura*," and its derivatives, generally mean a pavement; but this is scarcely so. It means frequently the covering of a bed, "*molliis strata lecti*" (Lucret. iv. 84); and in Pliny (vii. 56), and Seneca (epis. 18), it is the cloth that covers a horse under the saddle. The truth appears to be that *stratum* and the words derived therefrom signify anything "spread out,"—a street because stones are spread on it; the sea, because of its extended spread; and in like manner, as I said, the counterpart of a bed, or a horse-cloth. At any rate, it seems no one ever heard of a boarded floor in a temple, especially one to be removed in summer and replaced in winter; while, to the present day, coverings of board are used for protection against weather, not only in Damascus, but in China.

I must now beg to say a word in defence of the theory that two public buildings, at least, at Pompeii, had "a middle open to the sky and without a roof," which I considered was proved by my discovery of a gutter or channel on the pavement, round the inside of each. It was said they were not temples. Certainly, what is generally called the Chalcidicum of Eumachia is not; as it has a circular *ῥηνα*, or apsis; nor does it appear to be a basilica. It is perhaps, after all, best designated by the title found inscribed on its walls—a Chalcidicum. But I think the other building, usually called a basilica, is not so. It has no proper apsis; and the raised portion at the end, which has been supposed to be so, is not approached in the usual way. It seems rather to have been intended for a statue and a shrine, but the point is doubtful. This, however, seems clear: both these buildings must have been hypæthral, both open to the sky; or why should there be a channel round the internal court, just where it would catch the drip of the cornice. And if these public buildings were so, why not the temples?

ARTHUR ASHPITEL.

A SKETCH OF GEOLOGY.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY.

On Thursday, November 28, Mr. Francis Camplin, president, in the chair, Mr. Robert C. Patterson read a paper on "Geology, and its Relation to Mining, Engineering, and Agriculture." The reader first considered the materials composing the earth's crust,—granite, gneiss, serpentine, slate, marble, sandstone, coal, chalk, clay, and sand; noticing the position in which these rocks were generally found in different parts of the world, and investigating their nature and mode of formation. He then passed on to the subject of the two great divisions into which all rocks may be classed,—those occurring in regular strata or layers, termed "*stratified*," and those which are found in mountain-like masses, such as granite, and do not exhibit any signs of stratification,—termed "*unstratified*." It is from the former all fossil remains are obtained; no trace of organic life having yet been found in the unstratified rocks. The use of fossils in geology was stated;

how, by their specific nature, by their mode of grouping, and by the succession observable with regard to them, they characterize geological formations. The stratified rocks were classed into three well-marked series; each of these series being capable of further subdivision. The three principal groups are the paleozoic, or primary; the mesozoic, or secondary; and the Cainozoic, or tertiary. The subdivision and the average thickness in feet of these rocks are the following:—

	Paleozoic.	Feet.
Recent		
Pleistocene	20 to 100
Pliocene	70 to 100
Miocene (wanting in England)	
Eocene	2,000
<i>Mesozoic.</i>		
Cretaceous	1,200
Wealden	750
Upper, middle, and lower oolite	1,500
Lias	180 to 800
Triassic	1,600
<i>Cainozoic.</i>		
Permian, or Magnesian Limestone	600
Carboniferous	3,600 to 15,000
Devonian or old red sandstone	3,000 to 5,000
Silurian	24,000
Cambrian	20,000

The author commenced a review of the geological epochs by beginning with the Cambrian rocks, the base of the paleozoic epoch, stating that they consisted chiefly of slates and sandstones. Above the Cambrian strata occurs the Silurian system, so well known by the researches of Sir Roderick Murchison. The fossils of this system are eminently marine. One of the most characteristic is the lily encrinurus. The next system described was the Devonian, or old red sandstone, found principally in Devonshire. This system owes its colouring to the peroxide of iron. It consists of alternations of sandstones and limestones. The principal fossils are the cephalopods, ostracods, and brachiopods. The economic products of the old red sandstone are flagstones for paving, and slates for roofing.

Resting upon the Devonian occurs the carboniferous system, the most valuable and important to man in all economic geology;—the two principal flags, limestone (for mortar and hydraulic cement), ironstone, and coal. The next system described was the cretaceous, so called from the chalk which forms its most prominent feature. It is divisible into two well-defined groups,—the chalk and the green sand. The chalk is again divided into chalk with flints and chalk without flints. The green sand, so named from its colour, imbeds nodular sandstones and deposits of fullers' earth. The organic remains of this system are very abundant, and are chiefly marine. The following are a few of the fossils: spatangus, cor-anguinum, galeries, scaphites, belemnites, hamites, trigonia, plagiostoma, &c. The economic products of the system are chalk and flint. The chalk is calcined to expel the carbonic acid. It is used in making hydraulic cement, also by the bricklayer, plasterer, and cement maker. Flints, when calcined and ground down, are used in the manufacture of glass and porcelain. The phosphatic nodules of the green sand, when ground down, are used as a manure, on account of the large percentage of phosphate of lime contained in them.

Tertiary Epoch.—The author divided this period into three groups; the upper, middle, and lower tertiary; dwelling at considerable length upon the London clay, the coralline crag, the brown coal of Germany, the drift, and recent deposits; and devoting the latter part of his paper to geology in its direct application to mining, engineering, and agriculture. A knowledge of the general principles of this science, and of the physical geography of the region which is to be the sphere of the undertaking, is highly important to the civil engineer. The nature and composition of the various deposits, varying as they do from loosely coherent beds of gravel, sand, or clay, to rocks of crystalline texture and hardness, will often determine the choice between two preferred lines of road, or the course to be pursued in a certain district: for example, when the beds are loose and porous they are frequently to be avoided, while, on the other hand, a rock, though hard and crystalline, may present a valuable stone for masonry, and may thus repay the cost of penetrating it, since an excellent supply is to be procured upon the spot for the mere expense of quarrying the material. In tunnelling, the geologist is the best pioneer: he alone can point out the state of the various strata and the nature of the rock to be cut through, the probable amount of water contained in them, and the best method of draining it off. On the formation of a railroad or canal a vast advantage is to be gained by an acquaintance with the structure of the land to be operated upon. In the construction and maintenance

of harbours it is most important to have a thorough knowledge of the geological strata and of the nature of the coasts where the harbour is to be situated, in order to render it easily accessible to vessels, whether for commerce or refuge. The builder and the architect may also derive important assistance from the geologist, both as regards the durability of certain rocks, their position, and the facility with which they may be obtained.

Mr. Patterson concluded his paper by noticing the advantages which a knowledge of the principles of geology conferred upon the miner and the agriculturist; stating, in reference to mining, that, though it existed long before the truths of the science assumed a technical aspect, "yet do its operations proceed with certainty and precision only in proportion to the advancement of scientific generalisation."

A discussion followed.

GLASGOW ARCHÆOLOGICAL SOCIETY. "BRASSES" IN SCOTLAND.

At the fourth annual meeting and *conversazione* of this society, held last week, Mr. Robert Hart in the chair, the following gentlemen were elected office-bearers for the ensuing session:—President, Mr. Smith, of Jordanhill, F.R.S.; vice-presidents, Sheriff Strathern and J. T. Rochedale; council, Messrs. G. Neil, Robert Hart, J. Baird, Alexander Galloway, J. Fleming, Sir Andrew Orr, Dr. Strang, William Euing, John Buchanan, M. Connal, Dr. Scouler, and A. D. Robertson; hon. secretary, Mr. John Honeyman, jun.; hon. treasurer, Mr. Wm. Church, jun.

The secretary read a paper on the proceedings of kindred societies in this country and abroad during the present year; and the Rev. R. S. Oldham read a paper on "Monumental Brasses," illustrated by rubbings exhibited; which, with one exception, were from England. This exception was the rubbing of a small mural brass to one of the Minto family, in the south aisle of the nave of Glasgow Cathedral. This was the only Scotch brass known to Mr. Oldham, or to any of the members present at the meeting; but it was suggested that, if more attention were given to the investigation, additional examples might be found; as, even in comparatively obscure buildings, slabs from which brasses had been torn were known to exist.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of members was held on Friday evening, the 6th inst., at the house, in Conduit-street. Mr. R. O. Harris occupied the chair.

Mr. Henry Eastwood, of Guilford-street, Russell-square, was, on ballot, elected a member of the Association.

The secretary announced that the modelling class was again organized, and that it would meet every Friday evening at the rooms of the Association; also that a prize of 2*l.* would be given for the best six sketches illustrating some portions of the following buildings:—Westminster Abbey, St. Mary's Overy, St. Paul's Cathedral, and the Banqueting House, Whitehall. The sketches are to be made on the spot, and are not to be finished at home. They will be exhibited on the occasion of awarding the prizes at the annual *conversazione* of the Association, and the judges are to be chosen by the class of design.

Mr. T. Roger Smith then read a paper entitled "On Entering Architectural Practice," which we print separately.

At the conclusion, Mr. A. Smith proposed a vote of thanks to Mr. Roger Smith.

Mr. Spiers, in seconding the motion, called attention to the system of architectural education in Paris, and described the curriculum through which students usually passed.

Mr. Druce referred to the subject of public competition as useful to young architects; and expressed his opinion that the dispensing of patronage was at present conducted with far greater fairness towards the candidates than in

* *The Modelling Class.*—The class will meet for two hours every Friday evening at 9, Conduit-street (where the necessary arrangements have been made), at six o'clock on the nights of the ordinary meetings of the Association, and at half-past six on the Class of Design nights. The first meeting under the new regulations took place on Friday, the 6th, when Mr. Ross, who still continues to superintend the class, gave some preliminary instructions as to the manipulation of the clay, &c. It is to be hoped that all members of the Association who feel the importance of this study will lose no time in joining. Efforts will be made to obtain loans or gifts of casts from good subjects. Mr. Blomfield has accepted the presidency of the class.

former years. He thought it highly desirable that young architects, when commencing practice, should endeavour to augment their incomes by surveying, taking out quantities, writing for the press, and so forth.

The Chairman observed that a suggestion thrown out by Mr. Smith as to the desirability of visiting workshops, especially the joiners' shop, was well worthy of attention. He himself had been able to avail himself of the experience to be derived from visiting the workshops of Mr. Myers, and he hoped, had profited by the privilege. It was, he thought, also desirable that young architects should, when practicable, obtain an appointment as clerk of works. This, he was aware, was a difficult matter to accomplish; but whenever it could be obtained it could not fail to impart a practical knowledge of construction in all its parts.

After some further discussion, which, however, the lateness of the hour curtailed, the vote of thanks was put from the chair, and carried unanimously.

It was announced that the next drawing of the class of design would be "A Village Railway Station."

AWARD AS TO ST. THOMAS'S HOSPITAL AND CHARING-CROSS RAILWAY.

We gave particulars some time since of the reference in this matter. We have now to mention that Mr. John Stewart, of Liverpool, the umpire appointed by the Board of Trade, has, by an award dated 7th December instant, determined that the compensation to be paid by the Charing-cross Railway Company, as well for the purchase of the fee simple of the whole of the St. Thomas's Hospital and premises, with the appurtenances, as for the damage sustained or to be sustained by the governors,—by reason of the execution by the Company of the works authorized by the Charing-cross Railway Act, 1859, and the exercise by the said Company of the powers of the said Act, and of the Acts incorporated therewith,—shall be the sum of 296,000*l.* The claim, it will be remembered, was 750,000*l.*

CHURCH-BUILDING NEWS.

Husbands Bosworth.—The church of All Saints, Husbands Bosworth, has been re-opened for divine service, after having undergone considerable restoration. In 1858 a new mixed school and master's house were erected, at an expense of 800*l.* In 1859 a cemetery was formed; which, with the two chapels, boundary fences, and an acre and a half of land, cost 1,500*l.* In 1860 a new infant school was added to the mixed school, at a cost of 400*l.* The two schools, together with the master's house, form a group on the village green, just at the entrance to the town from the Welford-road. The whole of these works have been carried out from the designs and under the superintendence of Mr. E. F. Law, of Northampton. The works at the church have been executed by Mr. Law, of Lutterworth, builder, and also the mixed schools and master's house. The infant school was erected by Messrs. Thompson & Loveday, of Kibworth; and the cemetery chapels and fences were erected by Messrs. Clark & Barrett, of Northampton. The works in the church, included in the contract entered into by the Church Charity Trustees, embrace the conversion of the old vestry into a south aisle to the chancel by the opening and restoring of two arches; one, connecting it with the chancel, and another connecting it with the south aisle of the church; the introduction of the two new windows of Decorated character; the re-leading of the roof, and the erection of new seats in pitch-pine. A vestry, in keeping with the chancel, has been erected on the north side. The organ-gallery at the west end of the nave has been removed, and the organ placed in the south aisle of the chancel; the tower arch opened and restored; and the interior of the tower fitted with seats for the accommodation of Sunday school children. The window in the west side of the tower has been restored and filled with stained glass, by Messrs. Powell & Son, of London (provided at the expense of the rector). Facility was afforded in accomplishing this portion of the restoration by the fact that no provision had to be made for ringers; inasmuch as the ringing of the bells (five in number) is effected by one man, through the medium of a bell-ringing machine, which was provided some time ago at a cost of 35*l.* We understand that the works here detailed are only the beginning of what is contemplated. The works in the chancel include the removal of a flat timber roof and the substitution of a high-pitched pitch-pine roof, of Decorated character,

having six pairs of principals, with carved ribs moulded, resting upon stone corbels, terminating with carved bosses of natural foliage. A Geometrical Decorated window has been introduced at the east end, and a two-light window of similar character on the north and south aisles. Over the last-named windows scrolls, carved in Caen stone, have been introduced as labels, upon which inscriptions are carved in Church text, the letters being raised on the surface of the scrolls. The east window is filled with stained glass by Messrs. Powell & Sons. In a medallion, in the centre light of the window, the subject of "Christ Healing the Blind" is introduced. In the tracery are emblems. Two new oak stalls are placed on each side of the chancel, having open tracery fronts, and carved poppy-heads as terminations to the ends. The communion-rail, which is also of oak, is of Decorated character. The whole of the chancel floor, including the portion within the communion-rail, is paved with ornamental tiles, executed by Messrs. Maw & Co. The cost of the whole of the works is 1,250*l.*, 450*l.* of which have been defrayed by the Church Charity Trustees, without the assistance of a rate, or foreign aid, and the remaining 800*l.* by the rector.

Debbling.—The parish church here has been re-opened, after undergoing extensive alterations and repairs. The alterations include the taking down of the old wooden bell-tower and re-building it in stone, with a new shingled spire. The interior of the church has been entirely re-paved and re-floored: the large pier between the nave and aisles has been reduced; and a new arch has been erected. There is also a new stone arch between the north aisle and the chancel, and a stone reredos has been fixed over the communion table. The pewing is of yellow deal, stained and varnished; and the old oak pulpit, some little time since removed from All Saints' Church, Maidstone, has now replaced the one formerly used at this church. The whole of the work has been carried out under the superintendence of Mr. R. C. Hussey, of London, architect; the brickwork by Messrs. Bridge & Son; the carpentering by Mr. W. Grenard; and the painting by Mr. Levi Ashdown, all of Maidstone. A patent "Gill air-warmer" has been supplied by Messrs. Ellis & Son. An organ, containing six stops, has been erected by Mr. T. Goodwin, of Maidstone. The expense of the whole has been borne by voluntary contributions.

Ripple.—The old church at Ripple, near Dover, having become greatly dilapidated, a new structure has been raised on the same site, and which has been opened for divine service. The building is capable of seating about 100 persons. The architect was Mr. Ashpitel, and the builders were Messrs. W. & G. Denne. The marble tablets of the old church, many of them of considerable antiquity, have been preserved, and re-fixed in the new building. The baptismal font is also one of the relics of the former edifice, bearing date 1663. The architecture is in the Norman style. The capitals to the columns are all enriched, and the chancel arch carved and supported by zig-zag columns. The old church was of great antiquity, and known to have existed long before the date inscribed on the baptismal font, from the fact that, in pulling down the old structure, stairs were discovered in the wall leading to the roof-loft. The entire cost of the structure is 1,009*l.* The building has been enriched by several stained windows, and other gifts from influential residents of the neighbourhood.

SCHOOL-BUILDING NEWS.

Eton.—The Queen has been pleased to subscribe 100*l.*, and the Prince Consort 50*l.*, to the fund for building new school-rooms in connection with Eton College. The building is already commenced, and is expected to be completed in the course of next year. The cost is estimated at upwards of 10,000*l.*; but 7,000*l.* of this sum have already been subscribed. Messrs. Lawrance, of White Waltham, Berks, are the contractors, and the architect is Mr. Woodyer, under whose designs the college hall has been embellished.

Leigh.—A new school has been opened here. The building contains a general school-room, 36 feet by 18 feet; and, adjoining it, a class-room, 12 feet by 10 feet, the latter for thirty-five children. At one end there is a porch about 6 feet square, paved with encaustic tiles, forming one of the two entrances to the school. Ventilation is effected through a turret. The roof is open. The woodwork is stained and varnished, and the floorboards are tongued together with hoop iron. There is a play-ground at the back, with out-buildings, and the school is skirted with ornamental trees. Its estimated cost is about 600*l.*, of

which 200*l.*, and upwards have been subscribed: the site and grounds were given by the incumbent. The architect was Mr. R. Parkinson, of London, and the contractors were Mr. Hellyer, of Thornford, and Mr. Lane, of Leigh, the former executing the masonry and the latter the carpentry. Messrs. Hamann & Gillett had also a share in the work in supplying the ironmongery, erecting the vane, &c.

Rusholme.—Trinity Church Schools, Rusholme, have been opened. The architects were Messrs. Pennington & Bridgen, of Manchester. The exterior is Gothic in design, the materials being red bricks, relieved by bands and arches of blue bricks. The builder was Mr. Penk, of Cheetham. Accommodation is provided for 400 children. On the ground-floor is the industrial school, 25 feet by 20 feet, with kitchen, scullery, and offices attached; and an infants' school, 65 feet by 19 feet. The boys' school, on the upper floor, is of the same size: the girls' school is 50 feet by 20 feet; and there are class-rooms, lavatories, &c. The roofs are open-timbered, and Dr. Arnott's system of ventilation has been applied. A play-ground adjoins the schools. The site, with two cottages that stood upon it, cost 720*l.*; builder's contract, architects' commission, &c., 1,760*l.*; making, with sundries, 2,616*l.* The committee received 2,487*l.*, as donations.

MONUMENTAL.

Sir Robert Ferguson.—Mr. John E. Jones has just completed a statue of the late Sir Robert Ferguson, which is to be erected at Londonderry, of which city he was representative in Parliament during many years. The figure is clothed in modern costume. He is represented as addressing the House of Commons, having a cloak suspended from the shoulders, thus dispensing with the conventional tree-stem, &c. The figure is of colossal size, and will be shortly cast in bronze.

The late Bishop Blomfield.—A committee, consisting of the Marquis of Lansdowne, Lord Overstone, the Bishop of Oxford, Sir Walter James, bart., and Mr. A. J. Beresford Hope, has been appointed to make choice of a design for a monument to the late Dr. C. J. Blomfield, Bishop of London. They have selected a model by Mr. George Richmond, R.A.; and the Dean and Chapter of St. Paul's have granted a site for it in the south aisle of the cathedral.

Sir Humphrey Davy.—A monument is about to be erected to the memory of Sir Humphrey Davy, at Penzance. It will consist of a granite column and base, surmounted with a statue of the great chemist, holding a safety lamp in his hand.

GUERNSEY.

Testimonial to an Engineer.—Mr. Lyster, the late acting engineer to the harbour at Guernsey for a period of eight years, has received a demonstration on the part of the authorities and workmen of the harbour works. The workmen presented him with a claret jug, value 26*l.*, having the following inscription:—"Presented to George Fosberry Lyster, C.E., M.I.C.E., by the Foremen and Men employed on the Guernsey Harbour Works, as a token of their esteem," &c. A farewell dinner was also given to Mr. Lyster by the harbour committee of Guernsey. On his departure another demonstration was made by the harbour workmen, who assembled on the castle pier and fired a salute from a battery of guns which they had improvised for the occasion.

Rocquettes Church.—A meeting of the subscribers to the fund for erecting a church at the Rocquettes, St. Peter-Port, was held some time since at Guernsey. This church was to contain 900 sittings, but the number has been reduced to 750, one-half to be free. The whole of the church is to cost 5,900*l.*: of this there have been collected 3,550*l.* The meeting was called together to decide how to act. Guarantees for 500*l.* being secured by the meeting, it is expected that the church will soon be commenced.

MUSIC AND THE STAGE.

Royal Opera House, Covent Garden.—The title of Mr. Balfe's new opera, "The Puritan's Daughter," suggests *Il Puritani* as the story, but has, in truth, no connection with it. The story involves the escape of King Charles II. from a plot by the Puritans, and the love-sorrows of a Puritan maiden, Miss Pyne, attached to an ill-treated cavalier, admirably sung by Mr. Santley, the best English baritone. In his acting, Mr. Santley has greatly improved, but has still room to strive in this respect. Without reference to his part in the

concerted music, his singing of "Oh, would that I had died ere now," is faultless. Mr. W. Harrison, in a light comedy part,—the Earl of Rochester, tipsy half the time that he is on the stage,—creates considerable effect by his good acting, and sings what he has to do in his best style. His song in glorification of punch, "Let others sing the praise of wine," will be one of the popularities. Under the same head must be placed, "No more shall anguish," and "How well I recollect the night," both exquisitely sung by Miss Pyne, who throughout the opera is excellent; and when we add a capital chorus, that with which the first act opens, and two masterly trios, it will be seen that Mr. Balfe's last production has claims for a considerable success. Without any great pretensions in respect of scenic effect, two very good scenes have been provided for the opera. The ruined chapel attached to Middleton Hall, and a large open-timber roofed apartment in the latter building, with lofty practicable flight of stairs in the centre, are very complete and satisfactory. The former scene has the effect of two lights; the ruined chapel being seemingly touched with the setting sun, the fallen capital and statue by the rising moon.

THE LAW COSTS OF THE ARCHITECTURAL UNION COMPANY.

STR.—I find in the last published accounts of the directors of the Architectural Union Company that they have paid their own solicitor the several sums of 296*l.* 7*s.* 4*d.*, 52*l.* 12*s.* 2*d.*, 60*l.* 10*s.* 2*d.*, and 19*l.* 9*s.* 8*d.*, making 428*l.* 19*s.* 4*d.*; and to other solicitors, 124*l.* 5*s.* 6*d.*; in the whole the astounding sum of 553*l.* 4*s.* 10*d.*! I am quite aware that the business included the purchase of the house, a mortgage deed, and a lease from the City; but I nevertheless maintain that the amount is preposterous, especially with reference to their own solicitor. I ask no question, and I look for no answer: no good would come of it; but I seek to record the great dissatisfaction in this particular of

MORE THAN ONE SHAREHOLDER.

THE FROST AND WATER CISTERNS.

DOUBTLESS many of your readers are much troubled in the winter by having their cisterns, pipes, and closets frozen during the inclement weather. The following remedy I have adopted in my own habitation with the greatest success, viz.: Put a lump of salt (the common agricultural salt will do) in the cistern once a week, and a small quantity in the closet-trap the last thing at night. This will have the desired effect, and prevent much trouble and expense. The philosophy of the expedient is obvious. Water freezes at 32 degrees, but salt and water will not freeze till the air is 25 degrees colder. If the cistern should be frozen, it is quite sufficient to put salt therein, which will soon dissolve the frozen water. JOHN USHER.

*. The supply pipes must, nevertheless, be protected from action of frost. If it can be prevented, they should not remain charged with water.

MESSRS. BARCLAY'S DRAY STOPS THE WAY.

How to relieve the choked streets from their over-crowded condition is admitted on all sides to be one of the great social problems of a Londoner. Various schemes have been propounded; some plausible, others ingenious, many wholly chimerical; but among them all I do not remember one setting forth the desirableness of limiting the gigantic proportions of the drays of Messrs. Barclay and their beer-brewing fraternity.

All who have fretted in pent-up vexation of spirit (and who has not?) as the time for the departure of their train drew near, their cab or omnibus being hopelessly blocked, will remember how often the stoppages have been occasioned by brewers' drays. Beer-barrels, as we all know, are ponderous articles, requiring a great amount of space, but why they should not be carried on drays similar to those on the Continent—long and narrow, instead of excessively wide—I am at a loss to conjecture. True, the draymen are uncommonly broad, and consequently require unusually large seat space: one, as will be remembered, always rides in sleepy oblivion through the noisiest streets. But still, this heavy individual might be accommodated with sitting room on a dray half the width of those now in use. Perhaps Messrs. Barclay may be able to tell us why their present very inconvenient drays are employed? If there be no sufficient reason, then, in the name of common sense, let

them be cut down to the average width of street carts and waggons. It is scarcely necessary to remark how greatly such a reform would help to relieve the streets during the coming year, when the Exhibition will double the traffic.

C. R. W.

THE SHEFFIELD TRADE OUTRAGES.

STR.—The letter, signed "George Howell," in the *Builder* of December 7th, I regard as a simple attempt to throw dust in the eyes of the public. The subject is too important to be thus glossed over. Read what the Rev. Brooke Herford (a staunch supporter of unions) said in a sermon the other day, to a vast assemblage of working men:—

"Neither you nor I can lay our hands upon the man who has done this particular act. Possibly he may never be known; or, as likely, if he be known, it will be impossible to bring such proof as would lead to his conviction. And what even if he were found out, and convicted, and hung, as he deserves to be? would this kind of thing be stopped? Would you be sure even that you had punished the most guilty party? I should not, and I will tell you why. This act is only one part of a system—a system of black and lawless terrorism, by which in some trades in Sheffield—not in all, but in some—the requirements and orders of the committees are religiously enforced. That terrorism acts a thousand times by the dread it inspires by one of these occasional strokes of secret malice. Its mandates are absolute: when once they are made known and obeyed, or more and more pressure is brought to bear, and dark hints thrown out in smooth and courteous words, of which, however, every working man knows the meaning only too well. I have heard men sneer at measures to sympathise with the American slaves: tell us something about the white slaves, they have said. I will tell you something about them. I tell you there is no slavery in England to compare with that which some of the unions exercise on many of their members! It is often as unreasoning and as absurd as it is relentless and cruel. I don't get my knowledge from masters: I get it from working men themselves; and you all know I speak the simple truth."

Going to another point, he says,—

"I assert that in many of your unions the whole spirit and purpose is that of a narrow, grasping monopoly, which you would be the first to denounce if it were exercised against yourselves."

To take an illustration of this. Here is a man—a grinder say—in one of your favoured and exclusive trades: you won't work with him or let him work, unless he is in your union; and you won't have him in your union! Why? Is it because he is not a competent grinder? No: but because his father was not! And therefore, though he be ever so skilful, he shan't work in your union, and he must not work out of it! Why, one could laugh at such mean and silly laws, were they not so terrible in their consequences. Where would the world have been if such rules had been enforced? What would you think of it if the world enforced such rules against you?"

Sheffield.

S.

THE ORDINANCE FRAUDS AT DUBLIN.

CAPTAIN CONOLLY, of the Royal Engineers, and his accomplice, M'Ilwaine, the contractor, have been tried by a jury in the Dublin Court of Queen's Bench, and found guilty; Conolly of conspiracy and forgery, and M'Ilwaine of conspiracy. We have already given an abstract of the precise nature of this case; which, however, only discloses the mouth, as it were, of a "pit of corruption" of unknown depth; which, it is whispered, the Government authorities are afraid to attempt to fathom. The nominal amount of fraud on which this special case was based appears to have merely been the difference between 1,447*l.* and 2,858*l.*, into which the 1,447*l.* had been fraudulently converted. The *modus operandi* was explained at the trial in the written words of Conolly himself; and although the nature of the fraudulent conspiracy was before explained in our columns, we may here again slightly advert to the subject. In a private letter to M'Ilwaine, Conolly says: "My dear M.—I have to pay 300*l.* in three weeks from this date: there is no escape from it. As you cannot help me without I assist you to do so, I have arranged matters according to the enclosed dockets. When you get the amount of those bills you can pay me 300*l.* You also owe me a balance of 277*l.*, which I hope you will soon be able to clear off; and then I promise you there will be no more transactions of this nature." Enclosed in this letter was a slip of paper having, in Conolly's handwriting, the following calculations: "1*l.* B., 221*l.* 16*s.* 2*d.*, 445*l.* 16*s.* 8*d.*, 224*l.* 0*s.* 6*d.*" "1*l.* B." stood for Island Bridge, and the figures represented the true claim, the fraudulent claim, and the profit realised. Then, "for me," and the balance was brought out 744*l.* 6*s.*, with the words "for you." A second calculation was this: "Rich," 268*l.* 9*s.* 3*d.*, 501*l.* 6*s.* 9*d.*, 237*l.* 17*s.* 6*d.* "Rich" meant Richmond Barracks, and the figures the true, the false claim, and the gain. Those under the 237*l.* 17*s.* 6*d.* were put "150*l.*," with the words "for me," and the balance was brought out

82*l.* 13*s.* 6*d.*, with the words "for you." Such was the division of the spoil under the hand of Conolly himself, who realised, on these two transactions alone, the 300*l.* which in his letter he said he "required." Sentence has not as yet been pronounced on the delinquents.

PROCEEDINGS UNDER METROPOLITAN BUILDING ACT.

CLERKENWELL COURT.

Walls of Insufficient Thickness.—At the instance of Mr. Godwin, district surveyor of South Islington, Mr. Peter Brewster appeared before Mr. D'Eyncourt to answer complaint that the walls of the side building of a house on the south side of Enfield-road, being above the height of 22 feet, were of the thickness of 9 inches only in three stories instead of two. Further, the footings of back building were insufficient. Three other similar summonses had been issued in respect of adjoining houses.—Ordered to amend the irregularities in each case, and to pay 16*s.* costs.

Party Walls.—Mr. Ebenezer Conquest was summoned by the same district surveyor for not carrying up party wall separating a building erected at the back of the garden of 7, Caronbury-square, from adjoining building, 18 inches above roof, as required by the Act, and for forming an opening in the wall on the one part communicating with said adjoining premises. The defence set up was that it was an addition to the adjoining premises, and that wall was not a party wall. It was shown that there was no connection on the ground-floor, and that the entrance to new building was from the garden and the street; further, that section 97 says that if any building in one occupation is divided into two or more tenements, each having a separate entrance from without, every such tenement shall be deemed to be a separate building for the purposes of the Act.—Ordered to amend the irregularities complained of, and to pay 10*s.* 6*d.* costs.

Want of Notice.—**Wooden Enclosure.**—Mr. R. Southey appeared to answer complaint of the same district surveyor that he had partly enclosed with wood a building at bottom of the garden in rear of Nelson Cottage, King Henry's-walk, instead of with incombustible materials, as required by the Act; further, that he had not given forty-eight hours' notice, as required by the Act. A solicitor, on part of defendant, attempted to show building was exempt from requirements of the Act, on the ground that it was 30 feet from nearest building, but had failed to succeed, and the district surveyor was also to be 30 feet from ground of any adjoining owner.—Ordered to amend the irregularities, and pay 10*s.* 6*d.* costs. A fine of 20*s.* for not giving notice was imposed; but it was understood that this would not be enforced if the works were set right.

Shops on Fore-courts.—On Wednesday, the 4th instant, a case was heard before Mr. Barker, in which Mr. R. L. Sibbald, the Clerkenwell district surveyor, summoned Mr. Balmer for erecting two shops in fore-courts of his premises, in the Pentonville-road, as projections under section 26 of the Building Act. The magistrate dismissed the case, saying that he conceived the section did not apply, and that he had no jurisdiction in the matter, of which he took the same view as Mr. Corrie, in believing them to be buildings in themselves.—The surveyor said he would prefer making a communication to the Board, and the case was adjourned for a week. At the expiration of that time the case was finally dismissed.

PAYMENT TO ARCHITECTS; AND COMPETITIONS.

THE OTHER SIDE OF THE QUESTION.

STR.—Many must have read with pleasure and amusement "W. A. R.'s" letter on the Plymouth Chapel competition, and also Mr. Freer's sensible epistle, recommending a combined effort against exacting conditions in competitions. It is to be feared, however, that this effort can never be made.

The prosperous architect disdains competitions; workers can be found to waste their time and money on them; but he who is not fully occupied, and may have active clerks and pupils to keep at work, feels that the advertisement, offensive though it be, applies to him, and is addressed to him; and that, if he combined with others to ignore it, a tribe of a lower grade—surveyors, builders, and architects' assistants—would soon fill up any blank in the number of competitors. Despite the strong and laudable spirit which is abroad to make competitions more just and honourable, matters do not seem to mend. Here we have a local board of architects, headed a long scheme for improving their town "One Hundred Guinea Premium" addressed to civil engineers and others, which premium, on closer inspection, resolves itself, in smaller print, into a set of 2*s.*, 2*s.*, and 1*s.* 6*d.* The manner in which the successful competitor for leading, and levelling, and cutting a new street and thoroughfare, 36 feet wide, through a great length of this town of tortuous lanes, is to achieve greatness and obtain premium No. 1, is worthy of quotation:—

Condition 5. "The competitor whose plan and scheme shall be marked A shall (subsequently to his plan being selected, and previously to the receipt of the award of 25*l.*) adopt any portion of the other two selected plans and schemes, and embody the same into his own, or adapt his own to the same, if the board require; and forthwith prepare accordingly detail drawings and specifications for the works, at the scale of one-eighth of an inch to a foot, which shall include plans, sections, and elevations of each separate property (architect's work to vary the engineering, and the work of the lower grade to be done through), to be of such a nature that the board may be able to carry out any separate portions of the works at any time thereby; the specification of each property to describe all sanitary arrangements contemplated within each separate dwelling. He must also be prepared to enter into an engagement to carry out the works, if the board require; and, subject to their pleasure, at and for the charge of 4*l.* for every 100*l.* actually expended in work done under his superintendence."

Here is a field open for distinction!—to pioneer a new public road through the town, and design elevations, and in detailed specification describe the alterations of every house on both sides of the new street; also to devise a thorough system of drainage, "including plans for the connection of the existing drains therewith, and for improving the same!" And this in a low seaport town for 6*s.* Comment is needless here.

W. N.

Books Received.

The British Almanac, and Companion, for 1862. London: Knight & Co., Fleet-street.

THE "British Almanac, and Companion," now in its thirty-fifth year, contain their usual amount of indispensable information. The essays in the latter are on the Census (Hammack); Cotton Supply; Co-operation in Lancashire, a sensible and comprehensive article (John Plummer); the approaching International Exhibition, an interesting resumé (Dodd & Thorne); Statistics of the United States; the State of Popular Education; and its usual article, Architecture and Public Improvements, for the most part little more than a catalogue.

VARIORUM.

"The National Defences." By G. P. Bidder, Jun., M.A.—This is a thick pamphlet, containing a report of a paper read at the Institution of Civil Engineers on 13th April, 1861, together with an abstract of the discussion which ensued, and an appendix, the whole printed by permission of the council.—"Emigration of Educated Women." By Maria S. Rye (Emily Faithfull & Co., Victoria Press, for the employment of women, Great Corn-street, W.C.).—There is undoubtedly a great want of educated women in our Australian and other colonies, both for wives and for governesses or other educators. The author gives the following statistical tables, as "collected from the latest and safest colonial reports:—"

Deficiency of women for New Zealand.	11,461
" " Victoria	138,579
" " South Australia	1,389
" " West Australia	4,207
Total	155,636

As 155,636 fewer women than men in the two islands of which alone we possess statistical accounts! To the supply of an educated portion of this great deficiency, the author believes that "the one only real difficulty is the answer to the inquiry, 'Who will receive these ladies after their arrival in the colonies?'—who, for the love of the work, for the sake of assisting efforts made here to lessen sorrow and suffering, will respond to this appeal of workers in London?" She thinks this difficulty will be mastered as soon as the fact is known; it being impossible to suppose otherwise than that the philanthropists abroad at work with pleasure with the philanthropists at home. The "inquiry" requiring an answer is a most important one, demanding very discreet arrangements, especially at such a place as Melbourne, which is said to be at present completely overrun with women; and, although these be of the less educated and more "unfortunate" order, if the most careful and efficient measures be not taken, the unfortunate class may only be increased, without conferring much benefit on the colony by their superior education.

—Amongst the earliest Almanac issues we observe "Dietrichsen & Hannay's" well-known Royal Almanac, for 1862 (published at 63, Oxford-street), and forming its twenty-fifth annual issue. Another useful one is the Parliament Sheet Almanac of Vacher & Sons, Parliament-street, which contains various tables appropriate to its special locality.—The "Index to Current Literature," of which we have before favourably spoken, as a very useful key to the more prominent subjects of interest in the books and periodicals of the year, has been issued (for 1861) by Sampson Low & Son, of Ludgate-hill.—The editor of "The Art Journal," in the current number, the last of the year, announces the intended "Illustrated Catalogue of the coming International Exhibition," to which we have already referred. It will accompany eight monthly parts of the Journal. The present number is illustrated with fine engravings of Marie Weigmann's singular picture, "The Two Grandmothers," and Turner's "Fire at Sea," besides woodcuts, and Mrs. Thorneycroft's statue of the Princess Louise as Plenty. It is altogether a good number.

NEW INFIRMARY FOR LEEDS.—The subscription towards a new infirmary for Leeds has already reached the sum of 42,000*l.*

Miscellaneous.

NEW MOTIVE POWER.—An invention by Mr. Lenoir seems to meet with approval in scientific circles in Paris. It is simply the application of common gas, exploded in small quantities above and below the piston of what was once a steam-engine; the explosions being produced under regulation by the electric spark from a Runkorff machine. The gas costs 500 litres per hour for each horse power, ten hours' work costing about 1s. 3d. per horse-power. This invention is about to be applied to locomotives on land and water, and the gas required may be produced by the decomposition of water itself.

SOCIETY OF ENGINEERS.—The annual dinner of this society took place at Radley's Hotel, New Bridge-street, London. The guests numbered nearly 100. Mr. Amos, the present chairman of the society, presided; and among those present were Mr. Christie, Mr. H. P. Stephenson, Mr. Light, the Rev. Dr. Light, Mr. Louch, Mr. E. J. Walton, Mr. P. P. Nursey, &c. This society was established in 1854; at present there are nearly 300 members. During the year papers have been communicated, and the subjects discussed. The society now propose taking a suite of rooms as a clubhouse. Mr. Riley, F.C.S., has been unanimously elected the chairman of the society for the ensuing year.

SANITARY STATE OF WINCHESTER.—From statistics quoted by the *Hamphire Advertiser*, in order to make out a case against drainage in Winchester, it would appear that this town is rather a curious exception to the general rule, and requires looking into, were it only to show how other towns can be benefited by want of drainage and by overcrowding; for it seems that the healthiest parts of this town are precisely those where there is least drainage and most overcrowding! Alluding to statistics collected by Dr. Crawford, with a very different end in view, we presume, from that of the writer in the paper named says:—

"In the parishes of St. Thomas, St. Bartholomew's, and St. Lawrence, the mortality has for the five years past been but 15 per 1,000 of the population. This is as low, we believe, as Salisbury, or Wokingham; and, we believe, nearly 50 per cent. below that of London and many of the large manufacturing towns. There is one fact in this singular statement which appears to strike at the very root of the argument set up by the drainists. The parish of St. Lawrence presents the very low mortality of 15 per 1,000, while it is of all the parishes in the city the one that requires draining the most, supposing that the cesspool system and a want of outlet be the cause, as is pretended, of great mortality in Winchester. Again, we find in the parish of St. Michael, which includes the worst part of Canon-street, and is always put forward by drainists as a very assailable point, the mortality is but 20 in 1,000, an average few towns in England can beat; while in the neighbouring parish of St. Swithun, where stands the college, about the drainage of which and of College-street much has been said, it shows but 18 in 1,000. The parish of St. John is in the same healthy condition; St. Peter, Colebrook, exceeding it but by 1 in 1,000. The portions of the town that present the higher rate of mortality are St. Maurice, St. Mary, Kalendar, Milland, Winnall, and Wyke, the first-named being 22 per 1,000; the next, 24; Winnall, 25; and the last, 28. Here, again, comes a fact that militates against the arguments of the drainists. Surely no one who knows Winchester can believe that Milland, Winnall, or Wyke can have their higher mortality to a want of drainage. The houses in those localities are not crowded together. They have invariably gardens, and stand on comparatively elevated ground. Yet here the highest mortality is found; while, in St. Lawrence, where houses are crowded together, and where there is no back outlet, many houses wanting even a back door, with cesspools in cellars or close courts,—here we find a mortality so low as 15 in 1,000. Dr. Crawford must explain this inconsistency, so incompatible with the plea of the advocates for drainage." The truth is, however, after all, and notwithstanding the "higher mortality" of the "not crowded" parts, that "the higher mortality of St. Maurice and the lower portions of the town does not arise from a want of drainage, but from causes which drainage cannot remedy or remove,—over-crowded dwellings, filthy habits, poverty, intemperance, and above all, a want of wholesome water." That "low fever and other diseases dependant on poisoned blood are rife," as another medical gentleman (Dr. Hearne) states, is said to be "entirely without foundation." Blind leaders!

DUBLIN.—It is proposed to erect a new building at the Four Courts, 200 feet long by 75 feet, for the reception of the records, which have accumulated so much in each of the courts, especially in Chancery, that a general record-office for all the courts has become quite necessary. Application will be made next session for an Act to connect the four termini of this city by means of different lines of rail; also to build a central station near Carlisle Bridge; also to lay a tramway down the quays to the mouth of the harbour. There are two Parliamentary applications for new bills; one for the establishment of a new cattle and general market in a suitable locality to the quays, shipping, and railways. This will be a want supplied, as the present Smithfield market in Dublin is as much a nuisance as was its namesake in London. The other application is for a bill to organise a fire-brigade in the city,—a body much required, as the recent destructive fires will prove.

THIS BATH CITY ARCHITECT.—At the last meeting of the City Council, the town clerk read a letter from Mr. Manners, the city architect, stating that his declining health did not allow him to fulfil the out-door duties of his office, and respectfully requesting the council to confer upon Mr. J. E. Gill, conjointly with himself, the duties of city architect. Mr. Manners added that he should be able to give his partner the benefit of experience and knowledge acquired during thirty-seven years' service. Alderman Archard expressed an opinion that Mr. Manners should resign his office before any new engagement could be made. Alderman Gill stated that Mr. Gill had been associated with Mr. Manners seventeen years, and knew the borough property, perhaps, as well as Mr. Manners himself. A conversation on the subject resulted in the adoption of the following resolution:—"That the council do not feel they can appoint Mr. J. E. Gill as architect conjointly with Mr. Manners, but are willing to accept the services of Mr. Gill as his deputy, whenever Mr. Manners is unable to attend to the duties of the office."

VOLUNTEER BARRACKS AT BRADFORD.—New barracks have been erected and opened at Bradford, for the 3rd West York Rifles. The building is of stone, and contains large and lofty drill-room, gymnasium, armoury, &c. The site of the building and parade ground is leased to the corps by the ladies of the manor, and comprises an area of about two acres. The premises are fenced in with stone walls, and are entered by gateways leading from Manningham-lane and Lumb-lane. The parade ground, which is upwards of an acre and a half in extent, is covered near the building with asphalt. Round the boundary walls there is a grass verge planted with trees and ornamental shrubs. The building, which is constructed with stone from the neighbourhood, is in the Italian style of architecture, and presents towards the parade ground a front 160 feet long; it rests upon a raised terrace 12 feet wide, roofed in so as to form a covered walk or verandah. The slope of the terrace is formed of rock-work, amongst which suitable plants are interspersed. The front and sides of the building are flanked with loop-holed turrets, so constructed that each face may be commanded by the rifle; and the whole, if necessary, rendered defensible. The turrets are surmounted with flag-staffs, and the building with ornamental ventilators. The building internally consists of a drill-room, 97 feet by 60 feet, and 30 feet high to the apex. This space is covered in with a light wrought-iron roof, exposed to view and decorated with white and blue. On each slope of the roof there is a range of large skylights. For evening drill the room will be lighted with gas. In an elevated recess, at one end of this apartment, there is a gallery capable of containing about forty musicians; it is also adapted as a platform for speakers. Communicating with the drill-room is the armoury, 44 feet by 20 feet, against the walls of which about 400 rifles are now ranged. Adjoining it are the rooms for cleaning and repairing arms; the whole heated with hot water. Corresponding with the armoury, on the opposite side of the drill-room, there is a gymnasium, 44 feet by 20 feet, fitted up with all the modern requisites for gymnastic exercises. There are also within the main building an officers' orderly room, committee-room, and store-room. In the rear there is a three-stalled stable for the officers' horses, and at the side near Lumb-lane a two-storied dwelling-house for a drill-sergeant, who has charge of the premises. The buildings have been erected from designs furnished by Messrs. Andrews & Delaunay, architects. The total cost will be about 2,000l. This sum will include the formation of the grounds, boundary walls, and the cost of the various fittings and furniture.

WATERLOO BRIDGE.—At the half-yearly meeting of the proprietors, Mr. Powell (the clerk) read the report of the board, which stated that a scheme had been submitted to the board for the erection of certain edifices on the bridge; and notice had been given by the promoters of an application to Parliament for the necessary powers, but a sub-committee of the board had had an interview with Messrs. Sang & Vallance, the architect and surveyor, and they reported that the scheme did not offer any sufficient inducement for the board to give their consent to it. The total receipts of the year by tolls and other resources were 11,722l., and the payments (including the sums paid to dividend, at the rate of 4s. 2d. in the pound, 7,812l.), 10,953 18s., leaving a cash surplus on the year of 768l. 6s. 3d.

INSTITUTION OF ENGINEERS IN SCOTLAND.—The first meeting of the session was held at Glasgow on 13th November, Mr. W. Johnstone, president, in the chair, who announced that the council would give a prizemedal, value ten guineas, for the best paper to be read during the session. An introductory address was delivered by the president, and papers were read "On an Improved Governor for Screw-Propeller Engines," by Mr. G. Weir, and "On the Ventilation of Mines," by Mr. C. Simpson; discussions following on both papers. The proceedings of this first meeting have been printed. The second meeting was to be held on the 11th instant, when the following papers were to be read:—"Description of Improved Railway Buffer and Draw Springs," by Mr. A. Allan. "Description of an Improved Planing-Machine." "Description of a German Veneer-cutting Machine." "On a New Fountain Lamp." By Mr. A. Allan.

AN ECCLESIASTICAL RELIC.—Some workmen employed on the restorations now being effected at Worcester Cathedral were engaged last Monday morning in making an excavation, prior to the removal of part of the north wall of the choir, near to the high altar, when they came upon a stone coffin, portions of which falling away exposed to view the remains of a man dressed in canonicals. On examination, the remains turned out to be those of a Roman Catholic bishop. Part of the mitre—a piece of remarkably fine gold—was in good preservation, as also portions of the chasuble. On the breast of the skeleton lay a golden paten (which is now in the possession of the dean). Outside the wall, and just opposite to the place where the coffin was discovered, there stands a tomb of a bishop, the length and dimensions of which correspond to those of the coffin, but the inscription is illegible, from the ravages of time. From a plan of the cathedral, however, it would seem that at this spot was placed the body of Bishop de Constantius, once Dean of Rouen, and afterwards Bishop of Worcester, who died in the year 1195.

ST. STEPHEN'S CHURCH, SPITALFIELDS.—On the 6th instant the Bishop of London consecrated a new church in Commercial-street, Spitalfields, immediately adjoining the terminus of the Eastern Counties Railway. The architect is Mr. Christian, and the contractors are Messrs. Brown & Robinson, of Worship-street. The church is described as consisting of a nave and aisles. Its total length is 114 feet outside, and the width of the nave is 28 feet. The total width of the church is 66 feet, and it is 42 feet high. At the western end is a gallery, approached from the tower, which will seat about 150 persons. The church is lighted by six three-light windows, with a number of smaller ones suited to the character of the building, and dictated by the peculiarities of the site. The chancel is decorated in colours, under the direction of Mr. West. The standards of the chancel and the ironwork of the edifice throughout are from the establishment of Messrs. Skidmore & Co., of Coventry. The roof is supported by six arches, resting on four pillars. The western end of the nave terminates in an apse, after the manner of some of the German churches. As to its materials, the church is composed of brick throughout, stocks banded with red, and the apse has a brick cornice. The interior of the church is plastered, showing the red and white brickwork in arches and piers. Adjoining the church there is a parsonage, in a style corresponding with the church. It contains fourteen rooms. The cost of the church was about 6,200l.; of the parsonage about 1,600l.; and these, with extra charges for foundations, including every item for sundries and extraordinary expenses, will leave the total cost of the whole a trifle under 8,000l. One friend has given the magnificent sum of 5,000l. towards endowing the church; and the whole of its cost, with the exception of about 150l., has been raised.

LODGINGS FOR WORKMEN IN 1862.—A correspondent writes—I know that many of my friends are contemplating sending up large numbers of their workmen to the Exhibition of 1862, and are secure there cheap good lodgings, &c., &c. This is a most important subject; but I am afraid it is "nobody's business," and will be neglected. There is no fitter medium than your paper to bring it before the public, and I shall be glad if you will do so."

"PREVENTION OF CONFLAGRATIONS."—SIR: Your progressive journal is appreciated by many. It has an end in view—viz., the comfort of the people. The fires in Tooley-street, Antwerp, Chester, are before us: is there no safety? Fire-clay slabs fixed in iron are spoken of, but iron in these cases should not exist. To me it is the great desideratum to have fire-clay worked so that it may be proof against cracking. 20,000*l.* are, I hear, offered by northern firms to him who can work it to stand heat and cold. I look very coldly on all schemes and plans not having a definite object. Fire is a good servant, but a fearful master. Why should not Government hold out inducements to those who will improve the only indestructible material—fire-clay goods? My health is feeble, or I would devote my entire energy to this subject. I may state I have been supported nobly by the son of the late veteran reformer, Mr. Hume, in my endeavours to see what can be done with fire-clay.—C. M. DICK.

LIVERPOOL: CONCENTRATION OF THE PUBLIC OFFICES.—At the meeting of the town council last week, Mr. Alderman Dover brought forward a motion, "That a special committee be appointed to prepare and submit to the council, with the least possible delay, plans and estimates for the construction of offices for transacting the business of the several committees of the council, and of the officers connected therewith, and that such special committee do consist of the chairman and deputy-chairman of each committee of the council." He pointed out the vast increase in the duties of the council since the Town Hall was built; and showed that, in order to find sufficient accommodation, the corporation were now compelled to have four different sets of offices—the Town Hall, the Public Offices in Cornwallis-street, the Water Office in Hotham-street, and the apartments in St. George's Hall. There must, he remarked, be not only increased accommodation, but concentration, and in a central part of the town. The land in Dale-street was now lying idle and unproductive; and they must come to the conclusion either to erect the public offices there or to put up that property for sale, for they could not allow it to lie idle. They would never get land suitable for the purpose at the price which that land had cost them in Dale-street. The distance between the Town Hall and the new building would be little over 400 yards. The motion was agreed to, subject to alterations suggested by Mr. Beloe and Mr. Jeffery.

THE SANITARY QUESTION AT BEDFORD.—The Privy Council, having made a representation of the requirements of Bedford to the Town Council, and called upon that body, as the local conservators of the public health, to adopt suitable measures for supplying the deficiency under which they alleged the town suffered, have been awaiting the Town Council's decision for many months. After a number of discussions, remarks last week's local *Times* in speaking of the result, and many curious twistings of statistics on both sides; a suggestion was made that the adoption of the Local Government Act would enable the council to make right all that was wrong,—to do the works in a comparatively inexpensive manner,—and keep the control in their own hands, saving that wholesome and necessary control which the Government reserves to itself to check any extravagant borrowing of money. Great anxiety has been manifested throughout the town to get the provisions adopted so far as they were applicable to the peculiarities of the place. The inhabitants were thoroughly prepared for that measure, because public opinion had been tested on the opposite side. The decision amounts to this: the votes of six persons throw back the whole question of sanitary improvement, and place the town of Bedford in a hostile attitude towards the Privy Council,—an attitude which the inhabitants themselves do not want to assume. It is necessary that two-thirds of the council present shall record their votes in favour of such a proposal; so that, constituted, as the council was, on Wednesday, of seventeen members, the votes of the hostile six defeated the proposal supported by the eleven.

THE EDINBURGH CATASTROPHE.—During the last fortnight, Mr. Dymock, the Procurator Fiscal for Edinburgh, has been engaged taking evidence regarding the late catastrophe in the High-street; and, having examined about ninety witnesses, the recognitions are now closed. The evidence of the various parties examined having been duly considered, the report of Messrs. Leslie & Stevenson (to whom it was remitted to inquire into the cause of the fall of the house) is only awaited previous to transmitting the evidence to the Lord Advocate.

THE NATIONAL ASSOCIATION FOR THE PROMOTION OF SOCIAL SCIENCE.—A requisition by the members of this society is now in course of signature, addressed to the Lord Mayor. They state that, understanding the next annual meeting of the association will be held in London, in 1862, and being desirous that an adequate reception should be given to the association in the metropolis; more especially to the foreign members; they respectfully desire his lordship, as head of the City of London, to convene a public meeting in the Egyptian Hall for the purpose of taking steps for the formation of a general reception committee, to make the necessary preparations for the forthcoming gathering.

GAS.—The price at Cranbrook has been reduced from 8*s.* to 7*s.* per 1,000 cubic feet.—The village of WallSEND is about to be lighted with gas, and pipes are being laid down from Walker by the Walker and St. Anthony's Gas Company. The pipes, says the *Newcastle Courant*, "are patent bituminised, about one-fifth the weight of iron pipes, and about 35 per cent. cheaper. The process of the manufacture, it adds, consists in causing a roll of paper to pass through a reservoir of melted bitumen, after which it is tightly coiled round a mandril to any required thickness: thus, when hardened, a tube of perfect texture, great hardness, and strength, is formed." These pipes are also to be used in laying about five miles of gas-pipes in the borough of Sunderland.—The price of gas at Elgin is to be reduced from 8*s.* 4*d.* to 7*s.* 6*d.* In the north of Scotland, according to the *Banff Journal*, prices are still very high, ranging apparently from 9*s.* up to 12*s.*, and even 16*s.* and 18*s.* per 1,000 cubic feet. There is a very general determination, however, not to submit to such preposterous and impracticable prices any longer. It is remarkable how tenaciously and stupidly some gas companies still clutch at such prices.

ST. THOMAS CHARTERHOUSE SCHOOLS.—An appeal for the erection of a new wing to the Goswell-street Schools has been issued by the Rev. W. Rogers, M.A., incumbent of St. Thomas Charterhouse, treasurer of the schools. In the report Mr. Rogers says:—"Although these schools are conducted in spacious buildings, the accommodation is not sufficient for the increasing number of scholars, nor are the rooms adapted for carrying out the improved methods of education which it has been considered desirable to introduce. In order to meet this deficiency, a friend, who is deeply interested in education, and who is anxious for a further development of these schools, has given 500*l.* towards the purchase of a site, upon which it is proposed to erect an additional wing, containing a library and class-rooms, specially fitted up for object lessons. This will render the schools complete in every way, without increasing the annual expenditure. The site is now in the hands of the trustees, and the building will be commenced immediately. The estimated cost of the building is 1,600*l.*, exclusive of the site, for which 900*l.* has been paid."

CARBURATING GAS.—In a report on carburating gas, &c., presented to the City Court of Sewers, their engineer, Mr. Hayward, and their medical officer of health, Dr. Letheby, say,—We are of opinion that the process of carburating appears to be capable of economising the use of gas in the public lamps, to the extent of from forty to fifty per cent. This conclusion is founded on the assumption that the best quality of naphtha is to be used; namely, a naphtha which will give to the gas continuously a proportion of about ten grains of volatile hydro-carbon to each cubic foot of gas; these being the average results of the laboratory experiments. We are of opinion (they add) that these essential conditions can only be secured during the earlier application of the process by an arrangement with the Carbureting Company for the supply of the apparatus and the naphtha, as also for the maintenance of the same in complete working order according to the terms of a contract founded on the preceding data. If the company be willing to undertake such a contract upon suitable terms, we see no difficulty in the practical application of the system.

SAINTS ON MILAN CATHEDRAL.—"A. A." says, in *Notes and Queries*, it is very little known, that in a very out-of-the-way place, on the roof of this cathedral, are two wonderful statues by Michelangelo. They are said to represent Adam and Eve, not as they were in Paradise, but some years after their expulsion, when toil, care, and age had begun to tell upon their frames. I could learn no further account of them. Can any of your readers give me their history, and the reason why they are placed where so few can see them?

STAINED GLASS: ALL SAINTS', HUNTINGDON.—A portion of the glass for the eastwindow of this church has been fixed by Messrs. Clayton & Bell, of London. The subject is an illustration of the *Te Deum*. The window is composed of four lights: "The goodly fellowship of the Prophets"—"the glorious company of the Apostles"—"the Noble Army of Martyrs"—and the Holy Church throughout all the world—are represented in separate lights. Those containing the Martyrs and the Church are the two now fixed; and the rest are to follow as soon as sufficient funds can be raised. In the highest compartment of the "Martyr" light, the prominent figures are those of St. Stephen and St. Paul, bearing the respective emblems of their martyrdom; while behind are seen Ignatius and Polycarp. In the centre compartment are the martyrs of more Medieval times, Francis Xavier, St. Agnes, St. Lawrence, and St. George of England. Below these are the martyrs of the Reformation period, Cranmer, Hooper, Ridley, and Latimer. Turning to the light illustrative of "the Holy Church," we find in the highest places Gregory the Great, who sent missionaries to our island; Augustine, the first bishop of the English Church; and the Venerable Bede. And as the Church includes not only ecclesiastics, but laymen, there are represented William of Wykeham as the representative of Christian architecture, the founder of Winchester and New College, Oxford; and George Herbert, Handel, and Sir Isaac Newton. In the last compartment, embracing our own period, we have Queen Victoria, as the head of the Church. The professions of the Law, Army, and Navy, are represented respectively by a judge, a soldier, and a midshipman, while a negro in the background alludes to missionary work. Beneath every compartment are the words "We praise thee, O God;" and upon each scroll borne by the angels in the tabernacle work is written "*Te Deum laudamus*;" while in the tracery above all is the Lamb, as the object of universal adoration.

TENDERS.

For alterations and additions to Mr. Arnot's house, at Little Woodcote, Caversham, under the superintendence of Mr. John M. Dean, Stratford, surveyor to the estate:—

Richardson	275 0 0
Rivett	275 0 0
King, Barton, & Co.	235 0 0
Buck	219 0 0
Heath (accepted)	209 0 0

For wall for asylum buildings, for the Chelsea Vestry:—

Hallett	2686 0 0
Todd	597 0 0
Heale	585 0 0
Cole	567 0 0
Rudkin	520 0 0
Rowe	515 0 0

For Redhill Chapel and School. Messrs. Poulton & Woodman, architects, Reading:—

Wilkins & Bottom	2,493 0 0
Sawyer	2,500 0 0
Stevenson	2,250 0 0
Adamson	2,222 0 0
Scwell	2,187 0 0
Wood	1,973 0 0
Todd	1,996 0 0
Fieldwick	1,879 0 0
John Perry, jun. (accepted) ..	1,799 0 0

For repairs to warehouse, Maize Pond, St. Olave's. Mr. Coe, architect:—

Chapel	2577 0 0
Coleman	492 0 0
Little	497 0 0
Wagstaff & Son	394 0 0
Mears	287 0 0
Turner & Sons	287 0 0

For new warehouse, &c., Hosier-lane, Smithfield. Mr. T. C. Clarke, architect. Quantities furnished:—

Downs	2,940 0 0
Brass	924 0 0
Turner & Sons	885 0 0
Patman & Co.	865 0 0
Emerton	863 0 0
Lawrence, Brothers	842 0 0

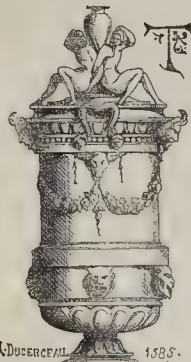
For the erection of two houses in the Wandsworth Lower-road, for Mr. F. Johnson. Messrs. Lauder & Beddels, architects:—

Dove, Brothers	1,685 0 0
Patman & Co.	1,683 0 0
Pritchard & Shelton	1,675 0 0
Wm. Hill & Son	1,640 0 0
R. Mann (accepted)	1,545 0 0

The Builder.

VOL. XIX.—No. 985.

A Heavy Loss.



THE death of his Royal Highness the Prince Consort has fallen on the nation with the effect of a stunning blow. Its unexpectedness; the extreme worth of the Prince,—a man in the prime of power; the sorrow which all know it brings to our beloved Queen; and the gravity of the position of the country at the moment, have all tended to increase the wail of lamentation which has come up from all classes and conditions of men. Even yet the loss cannot be fully estimated; but by none will it be deemed greater than by those connected with art, science, and literature; and by none of these latter than by our own readers. The debt which the industrial arts of this country owe to the Prince is enormous. No one comparing their present state with that which prevailed within the remembrance of not old people, and recollecting the part he has played, can doubt as to the powerful influence that has been exerted for good in these matters, and which may be said to have culminated in the suggestion and perfecting of the scheme of the first great International Exhibition. Not that we would infer that, with a prince otherwise disposed, we should have taken no steps in a progressive direction in these paths. On the contrary, there was a distinct yearning, under the surface, for something better, which might, or might not, have found strong expression undirected. Nevertheless, we urge that, for the impetus in a right direction which has produced the results before us, the nation is indebted to his Royal Highness the Prince Consort. "Where the word of a king is, there is power: and who may say unto him, What doest thou?"—Ecclesiastes viii. 4.

In the Middle Ages, the great fairs held in Frankfort were gatherings of the civilized world. To these bi-annual marts came the Russ with furs; the Pole with precious stones and metals; the Venetians with mirrors, glass, and silken stuffs; the Genoese with velvets, damasks, gold and silver tissues; the Spaniard with wines and fruits; the Belgian with lace, linen, woollen, and pottery; in fine, the merchants of every country whose inhabitants had wares to dispose of and wants to supply. Here, then, was seen at a glance, in the market-place of Frankfort, beneath the shadow of the cathedral, the wealth of the world. But the facilities of modern travel and the great extension of commerce have introduced other systems by which exchange of commodities is effected; and the *coup d'œil* of rich stores and gorgeous merchandise, periodically poured out upon the pebbles of Frankfort, has been lost to the world. To revive this splendid picture in these days of increased appliances and enlarged communications was to inaugurate a new era in the history of commerce and art. And it must be added that, to change the scene of this gathering of the nations from mid-Europe to our own island was an achievement of the highest national importance.

Another great boon we have received is the furtherance of all schemes having an educational tendency, and the gift of an art-loving direction to them. Although the same workers might have wrought as earnestly, the same results are not likely to have accrued without the sunshine of royal favour; and to have enjoyed this on all occasions, in every effort, has been assistance beyond mate and beyond count. When King George III. wished the day might come when there would be a Bible in every cottage, and every cottager be able to read it, it was considered the expression of a wish for a future good that, on account of its very greatness, must necessarily involve the lapse of many years before the day of its accomplishment could draw nigh. Who can estimate the extent to which this pious wish has been accelerated by the stimulus given to educational progress by the collections in the South Kensington Museum? The improvement in elementary education is, perhaps, most shown in the books from which rudimentary spelling and reading were taught: compare the good, plain, clear type of the sixpenny books issued by the Society for Promoting Useful Knowledge with the eighteen-penny books from which the grown-up portion of the generation learned what was aptly termed their "tasks," and this will be acknowledged at a glance. The system upon which education is undertaken has improved in the same proportion; for, while there appears very much more to be learnt than there was formerly, every branch of learning appears easier of comprehension and much more attractive. This impression must have been shared by the two millions and more of persons who have visited the museums in question, and who will have carried away with them recollections of school pictures, school apparatus, school furniture, and school toys, that will stand out in bright relief from the fainter remembrances of the fool's-cap and birch-rods of their own school-days. The fruits of this institution are but in blossom yet; but when its manifold advantages are brought to bear upon all schools, the commissioners appointed for the purpose of inspecting them will be able to frame reports of a much more gratifying nature than those they were enabled to present after their recent tour.

The same talismanic aptitude for popularizing any pursuit, be it what it may, has elevated agriculture from a mere lottery of the seasons into an elegant science. The bearing of this subject upon the food of the nation, and hence upon the health of the nation, constitutes it of the greatest importance; and the manner in which it has been entered into upon the Windsor and Osborne farms has given it a value in public estimation that has been, and will be, of great use. This lead has induced many influential and wealthy persons to turn their attention to a pursuit that formerly had but few charms for educated people. Cattle-shows, once confined, with but rare exceptions, to dealers, are now the resort and enjoyment of concourses of persons composed of all grades. We might run through many paths, and find the Prince's footsteps in all,—footsteps not behind, but in front; not following, but leading. The extent of his information, and his knowledge of the principles of art, were remarkable. It was with him no simple "I prefer that," or "I desire this;" but "It should be in such a way because of such a thing." It happened to us to be in the tea-room of the Royal Society on the evening that the Prince paid his first visit there. The visit being unexpected, the meeting was a small one; and we can perfectly well remember the general observation when the Prince, then quite young, passed round the table, on which some miscellaneous objects of curiosity had been placed, and spoke with knowledge of every one of them,—from a piece of amber, of which he named the original locality, to the model of a machine for cutting ship-timbers. A distinguished man, now dead, gave expression to his surprise; and the Prince replied with a smile,—the words

are as clear in our ears as if they had been uttered yesterday,—"Such matters were a good deal looked to at Bonn."

Nor was it knowledge alone that the Prince possessed. He had what is better—what is not always the result of knowledge, though it should be, and may be, possessed without it—he had wisdom: his speeches and his deeds remain to prove it. His last public words were a prayer for peace. "Most warmly," he said, on laying the first stone of the new buildings in Edinburgh in October last, "most warmly does my heart respond to your concluding prayer, that these and similar undertakings may conduce to the diffusion among all nations of the blessings of peace and mutual good-will."

The gratifying recognition of this journal on more than one occasion by the Prince—we hope to be pardoned for alluding to it—would be a sufficient claim on our gratitude if there were not a hundred others. Quite early in its career, by a special letter, unsought for and unexpected, His Royal Highness gave evidence of the interest with which he viewed its progress and its purpose; an interest which we are enabled to say did not then cease. We must restrain ourselves, however, from further expression. The records of his admirable life are written in many quarters; and its influences for good will extend far beyond the grave.

Of the sorrow of those he has left behind at the domestic hearth it is not for us to speak. The touching and noble picture which has been drawn of the Queen, surrounded by her children, and calling on them in the midst of her bitter sorrow to give her their assistance, that she might do her duty to them and to the country, has brought tears of pride and affection from the eyes of thousands. It is an eventful moment in her history and in that of the world. The future of great nations is at stake. May God, in His infinite mercy, give Her the consolation and the strength she needs; and enable the country to avoid, with honour, the frightful struggle with which it is just now threatened!

ENGLAND'S LOSS!

ENGLAND, appeal'd, sits mourning for her friend.

Her friend: so oft-times tried, so always true!
Ah! well may bitter sobs her bosom rend,
And tears of holy grief her eyes bedew.

The courteous grace, the ever-kindly word,
The sympathizing heart and generous hand;
The quick intelligence, that seldom er'd;
The wisdom, countless dangers to withstand.

The good example of an upright man,—
Fond son, true brother, husband, father, friend;—
All this she loses in a moment's span:
Ah! well may bitter sobs her bosom rend.

Great is her loss; but greater still the grief
To think of Her, the watching, weeping wife,
Whose love was powerless to give relief,
Or stay the flitting sparks of that dear life.

Oh! much-loved Queen, thy people's fervent prayer,
Goes up for thee to Heaven's mercy-seat;
Thy people's aching hearts thy sorrows share;
Accept their tears: true sympathy is sweet.

They measure by their own, the double weight
Of anguish that must press upon thy brow;
They mourn their friend: but thine the bitterer fate:
The dearer half of life has left thee now!

* * * *

Farewell, thou noble Prince! Around thy tomb
A nation weeps. A nation? Nay; a world!
From every land the wailing accents come,
Where'er thy peace-fraught banner was unfurl'd.

Where Industry and Art have won a name,
All, all will mourn for thy too early death;
Too early for their need: not for thy fame,
Which ne'er was tarnished by one sully-
ing breath.

THE QUESTION BETWEEN LONDON AND PARIS IMPROVEMENTS.

If the matter of our articles on Paris during the present year has been borne in the recollection of our readers, we shall have been held free of any duty of commenting upon the different expressions of opinion, as to value of the example to London, which marked the last month. Are we right in saying that there is value; or are we not? It must be recollected that the real question is this:—Suppose the street-improvements of Paris have had much to do with the rise of rents; is such portion of the really added charge so great or oppressive; and are the immediate benefits so small; that the charge cannot,—in the expectation of a better sanitary and social condition after the works will have been completed, in 1872,—be borne for some period of time by the inhabitants, or ultimately, at worst, failing the local resources, by the State. It is not whether Paris is now more unhealthy than London; but it is, what is likely to be the comparative position, in the several aspects of the question, from the manner of proceeding, at ten years hence. There are some arguments in favour of the active prosecution of the improvements in Paris, which it may be unnecessary to consider for London; but there are others peculiar to our metropolis, to make up for them. Further, an appropriation of resources, resembling the Paris system in principle, though exclusive of any *octroi*, would effect much without the State; which, however, ought, in the interest of the country, to aid largely. We appear to have contributed something to both sides of the question; and it is perhaps only because we have conviction of the importance of some elements thereof, points that others have scarcely alluded to; and because we know that there are items wanting to the calculation of cost, which might give a more favourable view of the advantage to the French capital than that which has been depicted, that we have left one part of the subject free for the expression of ideas and apprehensions which are influenced by the same causes that have so long retarded the improvement of London, and have sanctioned endurance of inconvenience, pecuniary out-going, and greater evils there, eventually to be removed at quintuple the original estimated expense. We have repeatedly said that we are not satisfied with the French example of metropolitan improvement and street arrangement: we may have something more to say of detail in the architecture: still there is in the manner and principle of the work that is done, much more that should be taken by London as model, than there is as error to be shunned. The pamphlet by M. Guérout, "*La Liberté et les Affaires*," which appears to have been the text for the article in *Bentley's Miscellany*, was mentioned by us in March last; and those who may have been induced to read it, along with our articles, will be aware that the points advanced by the *Rédacteur en Chef* of the "*Opinion Nationale*" and other commentators on the proceedings of the Paris municipality, have never escaped our attention. And we have taken some pains to show that the excessive height of buildings, and the diminution of area allowed to courts, are operative in the reverse direction to the sanitary tendency of the ample width given to the new routes. Moreover, the destruction of newly-built houses in good situations, could hardly ever be made to pay from the return of others taking their place, by any ingenuity in the planning of the latter. Neither is it perfectly clear that the immense earth-work in cutting certain of the new lines, and providing sites for the houses right and left, and the work of bringing the transverse and joining streets and their houses into the new levels, are judiciously undertaken. We confess still not to have found out what is the argument present with the authorities at the Hôtel-de-Ville, for making dominant a principle which returns no advantage, as our readers know, to the expression of the street-architecture. The argument for the raising of the level of the quays is indeed obvious. So also is that for the provision of the shortest course and most easy gradient, where a considerable area for building upon, at the termination of the route, may so be brought into immediate communication and made valuable. London improvements have never yet been conducted, looking at the question in that way. Where houses in Paris are pulled down as under the apparent notion that good street architecture requires that there should be no recesses or projections, we can only wonder that such principle should obtain influence in a capital where every attention is paid to effect of the public buildings by the choice of sites, or the arrangement of streets in connection with them.

But as regards the cost of a given portion of street, or a whole street, is it not apparent that though the operations on the spot itself, may have to be entered on the less-favourable side of the account, the undertaking may be financially judicious? We do not actually know that such is the state of the case as to the Boulevard Malesherbes; and no doubt the cost of that line, when exactly known, will be found very large; but the area placed in communication with the centre of Paris, if we take in, as we should, nearly all that extends beyond the fortifications to the Seine, is almost equal to that of the Bois de Boulogne; and this, and the Parc de Monceaux, certainly make up a large gain to be set against the cost of the road, even with its two or three furlongs length of cutting and clearances. There is no occasion to look to contingencies of revolutions for justification of the plan for Paris, in the case of other routes. We do in London, want, as remarked by Professor Donaldson in the discussion (which we reported) at the Institute of British Architects, some of the energy of the French authorities; or as we ourselves lately urged, first a plan for the whole metropolis, and then the avoidance of such blunders as the reconstruction of buildings on sites like those in Middle-row, or at the west end of Cheapside, the north end of Chancery-lane, and many others where houses have been burnt, or have fallen down, and regarding which suggestions have never been wanting. Will any one as well-informed and clever in figures as the writer in *Bentley*, calculate for us the loss by the conduct of undertakings we have already named, the two Victoria streets? Will he take up some of the estimates of loss by the crowded streets of the City, the deficiency of bridges, the impassability of Fleet-street, or the want of routes running north and south to connect the main lines of the eastern-and-western direction, or of others serving the railway stations? Will any one show what we have gained by delay about the Thames Embankment, or what we should gain by waiting twenty years more for the embankment on the south side? Can we learn anything about the advantage of making lines which ought to be the straight, twisted, like the Bow-and-Endell-street line, and that of Gresham-street? The traffic-requirements meant to be served by this last-named street, and those by new Cannon-street, were foreseen by Sir Christopher Wren, as his plan will show: how inadequate the portion of either required general line, is, the state of Cheapside, and the scheme now for a connection of Cannon-street with the embankment, testify. What Wren designed, and what Paris carries into effect, are in every point of principle, the same. For the fine-art part of the question; our friends across the water will take down an old building to get a view of a public monument: we, having our impediment away, build up another in its place.

Touching the sanitary part of the subject,—we have probably furnished some of the information for what has been said relative to the defects of places of residence in Paris. It is therefore the more desirable that we should remove misapprehensions which exist. The question, we have said, is not whether arrangements in the French capital are perfect; but whether the position, in London, is not altogether as bad, whilst less satisfactory in the prospect. The president of the Institute, in his address, made an allusion to average death-rate which he appeared to think had not been reduced in Paris by the "broad streets" and "open squares" which have "replaced the ancient, narrow, tortuous assemblages of dens of filth and impurity;" and which rate, more clearly he was of opinion, could not be reduced "so long as the water-supply and sewers" were "conducted on the present systems." Now, if it be meant that Paris has not improved sanitariously within a very recent period,—and pending the discussion of plans for some of the latter-named objects of improvement,—the evidence is somewhat to the contrary effect. There were really no facts known at the date of Mr. Tite's address, other than such as were obtained by Mr. Billaut, and may have been the foundation of the statement quoted by us in April last, namely, that there had been 1 decease for 38 inhabitants in 1851 and 1852; in 1856, 1 for 39½; and in 1860, 1 for 401; which the minister said was a reduction in mortality, in ten years, of more than 6 per cent. So far, then, a case against the works is not supported. As to whatever impression of the comparative unhealthiness of Paris, we question whether any one could be informed at the beginning of last month. On the 1st of January, 1860, the limits of the city were extended to the fortifications; and the

old *octroi* wall was soon afterwards removed; the change being one not merely in the area of statistical estimation, but even radically in the structure and internal communications of the capital. Mr. Tite had not figures of population for any year later than 1856. Those of the census of this present year are not published; and those of the mortality were not at the date of the address. We have since applied for at the Hôtel de Ville, and received the figures of the population; and the others we can now derive from the "*Annuaire*" for the year 1862, just "published by the Bureau des Longitudes." The population of Paris within the old *octroi*-wall was in 1856, as stated in our article of April last,* 1,174,346 persons. The whole population within the fortifications, was, at that time, as since found, 1,525,942 persons, that is inclusive of the garrison of 25,813 men. The population this year is 1,696,000 persons in round numbers; or there has been an augmentation of 170,058 in five years. The "*Mémoire*" presented by the Prefect of the Seine to the Municipal Council of Paris, and just published in the *Moniteur*, in addition to matter to which we may again refer, gives figures which allow us to see that the increase in the annexed districts in five years, has amounted to 1,713,4 persons: so that the increase in central Paris would be only the number 2,924; and the increased density of population per house, at least,—though owing to some extent, to the alterations,—may be less than is supposed. The returns of mortality are up to the end of 1860, of course; so that we must take the population of that year. Suppose we take four-fifths of the number 170,058, or let us say 136,050; and having added the population of 1856, 1,525,942, let us call the result 1,662,000 as the probable population at the end of 1860. Now the mortality for 1860, for the same extended area, was 41,127, exclusive of the number 134, of bodies deposited at the Morgue and "not recognized." This makes the mortality come to 24.75 per thousand nearly. Now what is the case at home? London is reputed healthy in comparison with the country towns; and yet the average of its mortality has been of late years 24.5 per thousand. Many of our country towns are much more unhealthy than the French capital. Even in 1856, in that capital, as we find by calculation, taking the figures of the population within the barriers, and those of the deaths 29,951, the proportion of the latter was but 25.5 in the thousand. This calculation had not been made when we first applied at the statistical department in Paris; and perhaps we could take credit for having brought the system of sanito-metrical registration to the notice of the French; who may owe as much to it in future, as the people do now in England. Even in the City of London, according to Dr. Letheby's report for 1860-1, the average for ten years of the eastern and western districts had been over 26 in the thousand. Again, looking at the mortality of young children; it is in Paris, as we supposed, great; but it is actually rather less than the mortality in London city, and considerably below that of some of the towns of England and Scotland. In the year 1860, in Paris, 35 to 36 per cent. of the deaths, as we find by calculation, were of children under 5 years of age.†

In the city of London, the proportion of deaths before the age of five years, was 37 per cent.: it appears however to have been somewhat less in proportion, this last autumn. But in Glasgow,—good as be its new water-supply,—no less than 49 per cent. of the deaths in September were those of children under five years of age; and a similar condition of mortality seems to exist both at Newcastle and Sunderland. Relating to Paris, there is one curious circumstance discoverable from the table for 1859 in the "*Annuaire*" for 1861. The deaths of children under five years, were but as 33 per cent. in the former year; and as the table in this case relates only to the central area of Paris, or before the annexation of the *banlieue*, the fact of the difference of mortality between 33 and 35 or 36, would tend to show that the central districts, where the houses are assumed to be the

* See p. 277, ante.

† The figures certified to us as furnished by the "Bureau de la Statistique" at the Hôtel de Ville, to the "*Annuaire*," are as under:—

Number of deaths:—	
Ages:—	
From birth to 3 months	5,381
" 3 months to 6 months	1,693
" 6 months to 12 months	1,994
In the first year	8,582
From 1 year to 2 years	3,192
" 2 years to 3 years	1,498
" 3 years to 4 years	970
" 4 years to 5 years	559

Total 14,601

most crowded, are not unhealthy, comparatively, as supposed. The idea of the unhealthiness, when contrasted with central Paris, of the closely populated districts like Belleville, corresponds with the impression of persons for whose opinion we have respect; and indeed it corresponds with appearances which we have before described. There are the large unutilized areas between the different agglomerations of houses, of the belt now annexed; but in the populated localities themselves, in the same zone, the improvements have not been considerable. The natural result of bringing these several districts within the general area of computation, would be to raise the figure of mortality for the whole, or actual city; the figure will as certainly be reduced in future years by the utilization of the intermediate areas, and by the open spaces which are being provided in the originally-estimated or central area of Paris. Though the areas be not the same, and though the addition of the old *banlieue* weights the figure of the mortality for children, the difference between the 25.5 per thousand of 1856, and the 24.75 of 1860, may be taken as quite justifying the idea of improvements, and Mr. Billault's precise statement. The demonstration of the exact money-gain from the improved condition of health we must leave to those familiar with such calculations.

It is most difficult to get at the exact results of the opposing influences which are at work, one influence comprised in the fact of the new routes, and the other in that from the effort to procure return from the elevated cost of ground; but the former influence must operate with considerable force of benefit; and, if the new buildings have the serious defects which we have plainly exposed, they are it is right to say, in many respects better constructed and better provided with sanitary appliances than were their predecessors.

In England, we have gained a step as compared with France, inasmuch as we have been able to reduce the mortality of certain towns as low as seventeen in the thousand of persons living; but that we have anything to congratulate ourselves upon in the further comparison, sanitarily, or socially and morally, we hold is very far from shown. In many arrangements for health, such as those which in the French capital, fall under the comprehensive head of police, we are vastly behind-hand. The street-cleaning at least, is admirably well effected in Paris; the practice of depositing refuse in the streets at night, offensive to English eyes, is better than what comes to pass, the retention of it for days or months, under staircases, as in London houses; the water even is better than that in the majority of London cisterns or uncovered water-butts; and granting that the supply is bad,—as admitted by us heretofore, and by the present action of the authorities,—it is practically always "on." Sundays included, which it is not in numerous quarters of London. The "charbonnier" would have brought Mr. Tite to his *appartement* on any story of a house in Paris, a "voie" of filtered water, two tolerably sized buckets, for two sows, each morning; or the *concierge* might have been induced for the same moderate charge, to provide enough of the ordinary liquid,—which is generally as pellucid as that in London houses,—to supply the capacious "hip-bath" required by the excellent president of the Institute. Perhaps the particular vessel named might not be always procurable, even at hotels for travellers, as it is not in London; but, though we cannot precisely show how the thing is done, we offer the statement of personal experience and practice every morning during a long residence in half a dozen hotels and *appartements* in testimony to the fact that an Englishman may sponge and lather himself *usque ad ungues*, from finger-nail to toe-nail, just as easily in the French capital as at home. Nay! better off is he in Paris, on the whole; for, as we took occasion lately to show, if he wants a bath, he has barely the length of a street to walk, to find one. For about the same cost as the "first-class" baths at St. Martin's and similar establishments, he has in some respects superior accommodation, and has an unlimited supply of water. This advantage; and the fact that they have long preceded us in recognition of the value of the adjunct to personal cleanliness and health,—whilst the parishes of London are in arrears, and in many cases even oppose the provision of baths and wash-houses,—should in fairness be placed to the credit of foreigners. So much has been lately said in Paris, respecting quantity and quality of the water supply, that we need not seek to find that there are defects. The quantity supplied to certain French towns exceeds the Glasgow supply according to the French account. By day and by inhabitant, Carcassonne has 400 litres, Besançon 246, Dijon

240, Marseilles 186, and Bordeaux 170. Paris has five litres less than London, which has 95, as stated; but so large a proportion of the Paris 90 is used for the streets and sewers, that it is considered the resident gets 35 litres only, as against 80 litres for the inhabitants of London. The main difference between Paris and London, seems to be really that the supply in the latter, passes by the waste and soil pipes of the houses, to the sewers; whereas in the former, it flows along the street gutters. Thus, advantage which Paris may have in the latter respect, is counterbalanced by the insufficient cleansing of the house-drainage contrivances. Great changes in quantity and quality of water supply, and in all matters relating to sewerage will be made by works already commenced. We will not anticipate particulars which we shall shortly give of these: let us only say now that the scheme of water-supply would be worthy of ancient Rome; and that the manner in which the recent sewerage works have been carried on is most creditable to Mr. Belgrand, and his assistants, and to the French *entrepreneurs* and workmen. This we say, with knowledge of the progress of the London sewerage works, and with certainty as regards them, no feeling of dissatisfaction: for, the conduct of them has never that we are aware of, since the commencement, justified the tone of certain newspapers, touching delay. But, the statement even, that the present water-supply of Paris is from a river receiving the contents of sewers, requires a little elucidation, to the end of the truthful comparison of London and Paris; and this we must give in another article.

HOW SHALL WE RISE?

The practical suggestions on "Self-Education in Art," which we lately gave, and the few words of encouragement which followed them, have brought us two or three communications, in which we are asked to state why it is that they, the writers, who have acquired the accomplishments pointed at, cannot turn them to good practical account. One writes,—“I have had seventeen years' experience at the building trade; and, having a taste for drawing, I have, by my own unaided exertions, acquired considerable proficiency in preparing plain working sketches; and, being very steady, I mounted the first 'step of the ladder,' as a general foreman to a builder, in a small provincial town. As business increased, I took another step, and became clerk. Upon this step I have stood for three years, at a wage of 4d. per day in advance of what we pay our best journey-men, without any prospect of future advancement; and, having made several, at present fruitless, attempts to turn these qualifications to increased money value, have almost come to the conclusion that a good clean workman is much better paid at the present time than a foreman or clerk; and consequently the attempt to qualify oneself to fill such positions will but end in disappointment.”

We can very well understand that there are many "striving to rise" who may, at intervals, feel despondent concerning their present condition and future prospects; though both may be better than they would have been, but for their own perseverance, in a lower social position. Occasional fits of doubting will seize even the bravest among us, when we see that to rise will involve the same struggle, and the same exertion for the future, as it has done in the past. We mount the few lower rounds of the ladder when we are young, and strong, and enthusiastic, with little or no weight to carry, with an eager gaze upwards, and a confidence in our purpose which makes light of difficulties. As we advance we lose some of our first freshness; we require a firmer hand and a truer eye and step, whilst the ascent is still as steep, and the fatigue increases at every step. Still we must not forget that every step upwards widens our prospect; or imagine that, a few steps lower, the prospect is as good because we suffered less in their ascent. If we are to arrive above at the platform of success, we must nerve ourselves against the fatigue of the ascent; and, with steady eye, firm hand, and undeviating purpose, be for ever taking the upward step. No lagging or looking downwards with regretful eyes. Below and above are places of rest, but there is none midway.

It is advisable, therefore, that, before we determine to make this ascent, we should first convince ourselves we possess the stamina necessary for the task; for it is certain that, to remain upon the ground in comfortable security and happy in our work, though our prospect be limited, is better than to ascend with faltering hand and unsteady step to a more exalted position, where the wider

range puzzles us, and where there will be much that is new to become acquainted with. A cottage which is nobly designed and perfectly built is better by far than a mansion which is a mere heap of stones. And before we lay our foundations, let us see whether our materials and labour are sufficient for a cottage or a mansion; and, if we find them to be only enough for a good cottage or a bad mansion, it will be better to content ourselves with the cottage.

Our correspondent is one who has risen from being a good workman to be a clerk; and complains that as a clerk he is only paid fourpence a day more than the good workman. This makes him discontented, and leads him to the conclusion that a good workman is better paid than a clerk. This is not the case, though, according even to his own statement; and we are going to show him, and not from any ill feeling, but simply for his good, that his deduction is incorrect.

He rises, from being a superior workman, to the position of an inferior clerk; for it will be no other position which is paid as he describes. Now, to prove his position he must show that he is as superior a clerk as a clerk, as he was superior to others as a workman. He must prove to us that a highly-qualified clerk does not receive so much actual salary as a highly-qualified workman—and this cannot be done. But it is quite possible that an inferior clerk may be paid even less than a superior workman; just as the lower rounds of a long ladder may be below the upper rounds of a short one. Now, our correspondent is in the position of a man who has climbed from the summit of a short ladder to the base of a long one; and he must expect to have the same difficulties in his fresh ascent as he had in his old one. And we will remind him that probably he has not worked so hard in his own self-improvement as a clerk, as he did whilst a journeyman; and now, instead of grumbling and looking backwards, he must work harder than ever, and look upwards. Every additional branch of knowledge, each new power of expression which he acquires, will be a fresh qualification for a still higher position; and, if he cannot obtain what he desires at present, better to make use of the time he now has to fit himself, at a future day, when the opportunity may and will occur, for something more than he now wishes.

We will ask, "How many opportunities have occurred which, for want of high qualifications, he has been unable to seize?" If our correspondent is wholly self-taught and in a limited business, he must first qualify himself for a higher position, and then carry his talents to a wider market. We bid him God speed in his work, though we have looked on his case impartially, and do not think it so unfortunate as he himself does.

But to go from a particular to a general view of this subject, let us add that an improver in a trade or profession must often be content with a lower salary than accomplished workmen or professional men can command who have arrived at full practice in a much lower trade or profession. It is the same in every walk. The future Lord Chancellor may at this time be a briefless barrister in Lincoln's Inn, whose whole income from his profession will not pay his house-rent, and certainly will not amount to the salary paid to some of his learned brothers' clerks. But we should esteem him a short-sighted man, if in disgust at this he threw up his profession, and returned to the position of a clerk in order to get a salary. An obscure country curate, now earning 40*l.* a year, may some day arrive at Lambeth; yet the butler of his patron is paid more than 40*l.* a year at present. Would the poor curate be right in doffing his canonicals, and descending to the sideboard, in order to improve his income?

There is always this difficulty at the starting point; and the cause of so many failures by young men is, that they lose heart at an unpropitious commencement, and throw away the ground already gained, in despair of ever doing better. It is often the case with the most talented even, and is perhaps more usually displayed by those possessing brilliant abilities than by those of more average capacities. The consequence may be seen in the sequel, where we discover that the men whose abilities never ranked high, and whose talents were not of the brightest, quietly and resolutely go on and monopolize the highest and most lucrative positions. And why is this? Simply because the men of average abilities do not rely too much upon their abilities,—because they realize, that if they are ever to arrive at a certain destination, they must work,—they must push on, in fair weather and in foul; and, when their more talented friends are waiting for the sunshine, the plodders are taking

possession of the winning-post. We counsel those who, like our correspondent, are lamenting, to go on. The great opportunity may be yet in store for them: let them fit themselves to take it when it comes. The world is wide, and in it every man will find his work,—and his work, if well done, will bring its reward with it. The market for intelligence and art power is a vast one, and the demand for both is on the increase. But there must be no waiting for the sunshine: it will come in its own good time; and let it find us steadily at work on the road,—able and ready.

ON ENTERING ARCHITECTURAL PRACTICE.*

We suppose you are now educated; with frugal habits; with your bare living secure, or tolerably secure; and with the knowledge that there is a tolerably large circle of persons who will know something about you who are, and will feel something of an inclination to favour you rather than not, when your card is put into their hands; and let us hope, a few warm true friends besides, and some professional acquaintances.

I think I shall startle you by naming the next essential; but the longer I live the more I am convinced it is one shamefully overlooked. You must, to succeed, preserve your Health and Spirits.

Providence may not have blessed all of you with a thoroughly sound constitution and a cheerful temperament; but let me add, for the comfort of those who may be constitutionally weak, a second reference to the hare and the tortoise. It sometimes occurs that the mere fact of having learned the necessity of taking constant care of themselves proves the means of insuring to such their success under labours which the more robust encounter with a furious, intemperate zeal, and under which they succumb.

Thoroughly good animal spirits, however, with industry and tolerable abilities, are an almost infallible guarantee of success in life; and these can only be preserved by keeping the body, and let me add the mind too, in health.

If any of you are in danger of destroying your health by excesses, in the ordinary sense of the term, I do not think any warnings of mine will stop you or check you; and I shall therefore say no more about that matter. At some period of life, however, many well-disposed young men are in danger of undermining bodily and sometimes mental health, partly by excessive labour, partly by irregular and unsystematic study or work.

To those who are working extremely hard, or are likely to do so, let me earnestly recommend two rules—first, to secure some definite recreation; secondly, to become, at least for the time they are thus labouring, as systematic as possible.

Let your recreation be as far as possible the opposite of your work, so as to supply what the other does not afford. Your work as architectural students will be sedentary and will tax the brain. I know no recreation so thoroughly suited to refresh the brain by rest, while it invigorates the body by exercise, as rifle drill; and your rifle drill will have this advantage over anything else you can adopt, that it occurs with a regularity in itself beneficial, while it has an importance attached to it which will prevent your feeling you can easily abandon it, or feeling that sort of false shame which would cause many men to dislike to break away from friends or work, for the sake of breaking themselves to some ordinary amusement. You can say to yourself or your friends, I must go to drill now," when you hardly could say, "I must be off to my row on the Serpentine or to my cricket club," with so good grace.

Above all things, take care to preserve seasons of repose for the brain; and make it an invariable custom never to go to bed when you are working hard, no matter how late it is, without first breaking the current of your thoughts. What I mean is this: do not go straight from your drawing-board or your note-book to bed, even if you are able to sleep, without spending about ten minutes—that will generally suffice, and more will be a robbery of your night's rest—in something that will turn your mind into another channel from your studies, such as a chat with a friend, a glance at a poem, or a newspaper, reading a scene from a play, or a chapter from Pickwick, or looking through an old sketch-book. Observing this rule, one well known among students, will often preserve you from a sense of exhaustion, headache, and general fatigue, when you rise in the morning, by procuring you undisturbed sleep.

Never allow yourself, when working hard, to

think of your work at meal-times; and avoid reading at such times; but, if you can, get some one to talk to; and, as a general rule, never cut yourself off entirely from friends and society, even when most busy.

Always, when you have the control of your own time, make a plan beforehand at some quiet moment—say while you are dressing—of how you will appropriate your time for the day: fix it in your mind, and act upon it throughout the day.

Lastly, let your habits be regular; and, if possible, your hours early; and if, after all, you find your health breaking down, then, by all that you hold dear, throw up work, prospects, everything, and sacrifice years, if necessary, sooner than gain your present object, whatever it may be, at the expense of the power of going further.

There is one other burden which is more trying to the mind than too much work—and that is none at all. Beware, most of all, of that, especially when you first commence business; and take care to provide employment of one sort or another for yourselves; and take care, too, that you do whatever comes to your hand as briskly and as expeditiously when little employed as if you were full of occupation. A mandering dawdling way of doing work is easily acquired at such times; especially if health or vigour have been previously impaired by overwork: it is a most injurious habit, and it is one that can hardly be shaken off.

The next thing I have to observe is that you must have an Office. No one will believe you have really started till you have an office of your own—a manifest place of business, with your name on the door. And if you are so lucky as to get a job to do while you are still an *employé*, my advice is, run out and engage a place of business, and order a brass plate the same afternoon; certain that for one thing given you under such circumstances half a dozen have been withheld.

Young men often fancy that while working in other offices they may very well manage to get work on their own account, and sometimes arrange with their employers to allow them to do so. If a man really feels unequal to commencing practice just at the time when such an event occurs, he may, if his client concurs, of course, carry out a building in this way; but he works at an immense disadvantage, and loses more than he dreams of.

If you really expect to get business you ought to have a regular room or rooms of your own. It may be immediately near to or under the same roof with an architect for whom you may continue to work; but you ought to have some place, your own sanctum, where your own name is on the door; where your client comes and sees you; not perched on somebody else's high stool, but sitting in your own easy chair, at your own table, and where he, however important a man he may be, takes, for the time being, the place of second importance in the room.

This is what you must aim at. If pecuniary considerations make taking an office impossible, you must in this, as in many other things, do the best you can; but let nothing short of impossibility induce you to think of really beginning practice in another man's rooms or in your own private house. The situation of your office is a question of importance, but one on which I think you must be guided by your own judgment, the advice of friends, and the circumstances of the case, more than by any general rules I could suggest to you. The only rules I can give are that you should see that the approach to your rooms is reasonably good, and that they are within easy reach of the persons you think most likely to visit you on business; and, if they are in a neighbourhood where other men of the same profession have rooms, so much the better.

In all this, as in all that follows, you will, I hope, not be so unfortunate as to have no wise friends, especially professional friends, to advise you, or so unwise as not, while relying on your own judgment, to give their advice, whatever it be, the most serious consideration. Never, however, ask advice when there is no possibility of your following it, or when you have no intention of following it, unless it squares with some project already settled; and never, if possible, let your adviser know in which way you would wish him to counsel you till after he has given his quite unbiassed opinion.

When you get your office and your professional card, there can be no harm in your announcing that you have started by calling upon or writing to every person among those whom we have referred to as forming your actual or possible connection; for I presume you by this time to have acquired the power of conducting an interview or writing a letter creditably.

Do not go in an abject way to beg for business; but, in a manly straightforward tone, let your friends know that you have commenced practice; and that, if they choose to intrust you with works, you will be very glad to do your best for them, and are willing to believe that your best would not be altogether a bad thing. This, I think, you should do at first as widely as possible; because, unless you change your office and send round a notice of that fact to all your connection, I think your future applications to them should be specific,—not general, as I will presently explain. Here let me add that, either in the business of first spreading the fact of your having started, or in any future effort, you can enlist the good offices of some of your lady friends, so much the better for you. Women make much better partisans than men; and, if you can get the assistance of one clever woman, occupying a good position in society, she will do more for you than half a dozen men.

Here let me observe that, to a professional man, the good offices of his friends are exactly what capital is to a merchant,—a starting fund, which will determine the magnitude of his business, and a possession which, squandered or mis-used, is irretrievably lost; but which, well employed, reproduces itself on a constantly extending scale of increase.

Avoid going to friends after your first start; still more to acquaintances and connections, with a mere general wish for them to give you business. Try, if you can, to have a definite thing to ask; and to that you may, with a good grace, add some general notions, if you like; but few men, especially men of station, and much occupied, like to have the double duty put upon them of helping a rising man, and of finding out *how* to help him. This will be often difficult for you; and any channel of information as to proposed works or business should be consequently carefully cultivated. But I am quite convinced that, as a general rule, the best introductions to the most influential men will avail you nothing, unless you know what to ask them for.

Again—avoid annoying your friends with applications about things that are not likely to succeed. Men are very apt to give their friends a great deal of trouble about competitions: this has the good result of interesting them for the time being in yourself and your work; but, seeing that you are almost sure *not* to get the competition, it connects you in their mind, especially if often repeated, with the idea of non-success. This is a great evil,—I believe usually much more injurious than the having interested them is advantageous.

On the other hand, if you want information, or if you want help in a matter where you think success is within your reach, make more applications than you at all think you need. You can never get information from too many quarters: you can never make too sure of a matter so long as any uncertainty exists. And remember this, that it is just as advantageous to you to ask a friend to help you to a thing, and then for you to get it, as it is disadvantageous for you to ask him to help you, and for you not to get it. While you are telling him of your success, and thanking him for his aid, you are making him think better both of himself and of you, and are strengthening, instead of weakening, your position in his esteem.

Most of all, do not make complaints about misfortunes and want of success; and, if you are illused, keep that to yourselves too, unless there is a plain and easy way of the matter being set right. The public has no sympathy with ill-used men; and the persons forming your connection are your public. You may be less chary of letting your successes be known; only do so with discretion, else people will come to suppose that success is so unusual a thing with you, that you do not know how to make enough of it when it does chance to come, and will feel a kind of contempt for you.

A character for habitual success will, however, be most advantageous to you if you can manage to obtain it; and, although there is something unreasonable in the public feeling in favour of successful men, it would not be difficult to show that there is also a good deal of ground for it.

Before passing from the subject of connection, let me add my conviction, which goes, I believe, contrary to the opinions held by many of the younger men here, that the most extensive and influential connection will not make a man succeed if he has no ability. I am inclined to doubt whether such cases ever have occurred; but I have little doubt that, in the present day, they have become impossible.

I know instances will be brought against me of men standing well in the profession, and of whom

* By Mr. T. Roger Smith. See page 857, ante.

it is asserted (probably with truth), that they cannot draw, and supposed that they consequently cannot design, and are not properly architects. In the first place, let me observe in reply, that a youth who can do nothing but draw and design on paper is not competent to judge of how many other qualities are requisite to make a man a good architect. It is not even essential for an architect to be able to draw. All that he has to do is to design and to build; and though I do not recommend the method as the easiest or the best, or even as possible to any of you, yet it is certain that some men can design, and can build, who cannot draw, just as there are farmers who are unable to measure, to cube dimensions, or even to tell you the weight of a cubic foot of hay, and who yet can walk round a hay-stack and consider it, and tell you to a hundred-weight how much hay there is in it. I know you will reply to me that the non-drawing architects get their buildings designed for them; and I admit that they get them *drawn*; but I also know that in many instances the buildings thus done are far superior to what the draughtsmen could have executed alone, and I hold that that superiority is due to the regulating and inspiring mind, more than to the executive hand. Again, let me add that in practice there is something more than draughtsmanship; that uprightness, business talent, extended information, familiarity with prices, with materials, with foundations, with construction, with workmanship, knowledge of the laws relating to buildings, and of local customs, acquaintance with the value of property and the modes of turning it to account, general weight of character, intelligence, activity, sagacity, and a hundred other things, are so necessary to a man, that, before you can prove connection alone to have succeeded in making a fool rank as an architect, you must inquire whether the men you have in your eye when you make the assertion are not highly gifted in some or all of these respects.

And if you make such inquiries you will generally find that you ought rather to admire than object to the successes of men who have had, as best they can, to embody their architectural conceptions without the unspeakable advantage which you possess in having the command of the pencil. And you will find, too, that those men who you think have got on through connection only, to the exclusion of personal fitness, are often the very men whose probity, trustworthiness, and skill, have reflected the highest honour upon the profession, disgraced as it at times has been by the unbusinesslike methods, the fallacious estimates, and the deplorable blunders, of some men who ought never to have forsaken the T-square and the colour-box for the more arduous realities of the committee-room or the scaffold.

Depend upon it, then, that your connection will float you and start you; but if you have nothing in the shape of skill and knowledge to justify your friends in continuing to support you, they will soon abandon you, and will not be easily persuaded to give you a second trial.

I now come to the question of competitions. Your connection will, no doubt, procure you invitations to limited competitions: these you ought uniformly to accept where possible. You ought to treat such competitions with some of the respect due to actual commissions; as you may, through them, succeed in getting better commissions put into your hands than you ordinarily could hope for otherwise; while, if unsuccessful, you have at least had the opportunity of giving a proof of your skill and your diligence to one acquaintance, if not more than one, who will, perhaps, have been glad of this opportunity of testing your powers before employing you on private matters.

As to public competitions, I have a very poor opinion of them as a means of getting practice. They are of great value to you on other accounts, but of small worth in that view. By all means, nevertheless, compete, and fill up all your spare time with competing; but not because you will be likely to get business directly through it. A competition is an admirable training for you: you hardly know your own strength or weakness except through it: it is the best of all preparations for actual work, and is a first-rate mode of preventing you from gnawing your heart out while you are waiting for business to come in; and, at the same time, of really improving you; while there is just chance enough that the competition may be a fair one, and your design may be chosen, to prevent your feeling you are quite losing time. At any rate, it will afford you good practice in the art of bearing up against disappointments, and that is an art you will need to exercise in the first years of your practice. But never put a public competition in the place of private

work; and, if a commission comes in at any time, which, if executed, would prevent your completing a set of competition drawings, throw the competition overboard at once, and unhesitatingly.

If you have interest, and may honourably use it, do so; but no competition is worth the damage you will do to your own moral sense and character, by making a dishonourable use of interest, or by submitting a mendacious estimate. I do not mean to say that these underhand methods are not of use towards securing a competition: quite the contrary, in five cases out of six they carry the day. But I do say, that I believe in the long run a practice founded mainly upon unfairly-gained competitions is *certain* to break down; and for these simple reasons;—first, that the man who repeatedly resorts to underhand methods becomes in his very nature untrustworthy and dishonourable; and, that stage once reached, his fall is only a question of time; and secondly, because it does not seem to be the rule that Divine Providence will allow any dishonest man, or undertaking, permanently to prosper.

A business, legitimately and honourably got together, goes on increasing and extending, unless some extraordinary misfortune or failure intervene, or actual incompetence exist. One founded on success in repeated competitions,—that success being based not on superior merit and skill, but on underhand practices,—will have a brilliant and dazzling appearance of success for a few years, and then will collapse; leaving the unfortunate man in solitude, disgrace, and desperation.

Still, compete! If you are to be the architects of your own fortunes, and are to build those costly and lasting structures in London, you will probably find the foundation as bad as actual builders find the treacherous London clay. Some cartloads of competition drawings, worked up with a fair proportion of miscellaneous disappointments, form the best concrete that I know of to improve this foundation; and therefore, whenever a big roll of drawings comes back, prepaid or not prepaid, with or without the "thanks of the committee," while the columns of the local paper inform you that "the design for the town-hall at Pogford Parva, which had unanimously been pronounced to be the best, was the one with the motto, 'Fiat justitia ruat cælum';" and, on opening the sealed envelope, was found to be by Mr. Jabez Johnson, of Pogford Magna, architect, son to the present Mayor of Pogford, and whose brother is the distinguished solicitor and town clerk," &c., &c., &c., do not go into a passion,—do not write to the *Builder* about it,—do not even feel unmitigated regret; but hang up the perspective as a bit of wall-paper in your room; kick the other proceeds of a month's anxious toil into the corner with as light a heart as you can; and say, "Thank goodness, there goes another barrowful of concrete to the foundations of my fortune!"

Does all this sound very formidable? Well, perhaps, it does; and, therefore, let me put what encouragement I can before you; and these are neither few nor light.

Perhaps the greatest comfort is that this is a battle in which you, with ordinary powers, opportunities, and advantages, and with sufficient constancy of purpose, may make sure of winning in the long run; while there is hardly a single personal advantage that you possess, whether of fortune or natural qualities, general education, or professional skill, which you may not in some way bring into the field, and which will not in some way help you.

Then there is constantly the pleasure of overcoming difficulties, and the growth of self-reliance and self-respect. There is the feeling, too, that your struggles are fitting you for, as well as bringing you nearer to, the position you hope to attain; and, lastly, in each difficulty overcome you have a pledge of your future security, for that which is hardly won is not easily lost.

The delay, while waiting for practice, is the heaviest trial attendant upon entering professional life in all its branches; and an architect has an immense advantage over every other profession that I know of; in being, as I have just observed, able to occupy himself during this delay in a way which directly tends to fill up his time and to improve his skill, while it presents at least a possibility of professional advantage.

Let me conclude what I have to say on the subject of seeking business by recommending to you, as your motto, the old proverb,—"Leave no stone unturned."

Possibly it will fix this proverb more strongly in your remembrance, and explain exactly the sense in which you are to make use of it, if I tell you its reputed origin.

It appears, then, as an accomplished naturalist

has informed me, that the creature who has had the honour of teaching to young architects by his own habits the all-important lesson that they must "leave no stone unturned" is none other than one of the tropical baboons.—I believe the blue-nosed baboon. This creature's favourite relish is to eat a scorpion for dinner. Now the scorpion lives under flat stones, and leaves no trace behind him to show under which particular stone he is hid. So the baboon, in his scorpion hunting expeditions, systematically turns over every stone as he comes to it; not passing one by, lest perchance his desired repast should be hid under that one. Be so good as to apply this rule to your opportunities and your acquaintances. Neglect no opportunity that is an opportunity by possibility: leave no friend in ignorance of your being in practice who is possibly a friend; and you will certainly be rewarded sooner or later by meeting with a great success from a most unexpected quarter. Pursue an opposite course, and you will be equally certain some day to pass by what might have turned out a good thing,—perhaps the best thing that ever was within your reach.

Let us now suppose that you have found what you want under some stone or other, and that some one offers you your first professional employment; and by degrees other things come in. So much of your future success will depend upon how you now acquit yourself, that I must be excused if I venture to follow you during the first few steps of your professional career.

In the very few topics which I shall select out of the many which under this division of my subject present themselves, I shall do as I did when considering student life, and shall omit all that relates to soundness of construction, excellence of design, and the method of studying and working out your buildings; not because these material and artistic considerations are of no importance—they are the most important of all,—but because they are the very things which, if you learn any thing at all, your ordinary studies ought to teach you, and the things which are frequently and most properly pressed on your attention. What I am going to say refers more to matters which you might often omit to notice while a student, and which yet you ought to be somewhat aware of when you engage in business on your own account.

You ought early to take in the exact nature of your position, its responsibilities and risks, its honour and its duties; and with all this you should never lose sight of your own youth and inexperience, and of the comparatively slight hold which you most likely have, at starting, upon your client's confidence.

Let me start, then, by recommending you never to do less than your very best. You cannot do more, but you cannot afford to do less; and this maxim, made into a principle of action both for your student- and your after-life, is the only one which is a sure clue to that continual progress without which you cannot even hold your own.

Settle it in your own mind that though in skill, knowledge, and science, you may stand high; your inexperience is your great obstacle, and a source of great danger to you. This want of experience you must make up for by much additional labour, by watchfulness, by forethought, and by occasional recourse to the advice of friends.

It will be of infinite advantage to you through your practice if you cultivate the habit of constantly saying to yourself, "What next?" That is to say, the habit of forethought; but, when you first undertake to carry out a building, it becomes absolutely necessary, if you would not forfeit alike your client's confidence and your own chance of success.

Let me illustrate what I say by a simple instance. Probably you know all about making plans; and your competition experience has enabled you to understand well how to grasp the main idea and details of a subject, and embody them in drawings; and you have got on very well thus far.

Suppose now you take the plans to the client one day, and he asks you to go to the ground with him, and you find some men, some pegs, some cord, and some long bits of wood; and your client says: "I thought I should like to see how your building will occupy the ground, and so I got these men up, and all is ready if you will just stake out the principal walls. The men don't know much about such a job; but of course you do; and they'll do as you tell them."

Now suppose (and many a really well-informed young architectural pupil and assistant is so circumstanced) you had never seen a building set out, and had never given it a thought before: the chances are you would not, thus taken aback, hit intuitively upon a neat and rapid way of doing it,

even if you got it done at all. Your client will see you are embarrassed, and that you are bungling, and will probably take an unfavourable impression which months may not efface, and which may be a most untrue one; whereas, had you just exercised forethought enough to inform yourself, before it was likely to be wanted, of the method of setting out a building, a quarter of an hour would have taught you all you needed to know, and your forethought would have been as good to you as experience.

It is just the same thing if, instead of your client, it is your builder; and a difficulty is brought requiring prompt solution, which you might have foreseen by care, but for which you are quite unprepared. You may unguardedly sanction some egregious blunder, or some gigantic extra; for many builders' foremen will coolly propose one or the other or a combination of both to you; and you may get your whole work spoiled, though having no experience to exercise, and having failed to exercise, that careful forethought which will be as valuable as experience.

Consider beforehand all points likely to turn up: try to foresee requirements: be prepared as to the tradesmen to recommend, and the course to advise; and, if you are only careful enough, you may manage to think over nearly every point at your leisure; and, if necessary, talk it over with friends before it actually turns up on the building, so as to have your mind made up when the time comes.

Let me recommend you great caution as to anything which may lead either yourself or your client into liabilities. This you will often do, if you are not wide awake, very unwittingly; for you are recognised as your client's legal agent; and you may easily make him liable for an expensive bill of quantities, or for any amount of extras, without his being aware; while, if he has a large sum of money to pay through your incompetence, he has a legal remedy against you, and will very possibly proceed to make use of it.

Always, from first to last, and above all things, keep your client as fully and fairly informed as possible of all you are doing for him and in his affairs. You have no right to attempt to keep him in the dark; and, beyond all else, you have no right to attempt to do in his name what he would not sanction.

Let me add, for this reason as for several others, that you ought never to run the risk of misleading your client and ruining yourself by guessing at an amount of money for work. Never, under any pressure, name a probable sum unless you have some pretty reliable grounds for believing you are correct; and then use every possible caution to prevent your estimate from being overrated as to accuracy. Disregard of this rule will be safe to bring you into trouble: conformity to it will also give you trouble sometimes, but of a less serious kind.

All clients, as a rule, want more accommodation than they can have for their money; and consequently, as you cannot let them have all their wishes, an unpleasant alternative must at some period or other be placed before them. Either they must pay more money, or they must do without less in the building.

By all that is honourable and just, let me implore you always to put this alternative before your employers at the earliest moment that you are yourself quite clear about it. Many men habitually wait till it has become no longer an alternative: they get a contract, omitting certain works: they get authorization in that contract to order additions: they do order those additions, as extras; and then they present their client with what he wanted indeed, but at a price he had never dreamed of paying. I do not think I need say much to characterize this not infrequent course of procedure; and I have only to add that because a client, if treated so, may possibly be wise enough to make the best of a bad bargain, and pay both the architect's bill and the builder's, it does not follow that he is not, in his heart, calling his professional adviser a scoundrel, whom he will never employ again; and vowing that your whole profession is little better than a den of thieves.

Again, try to enter into, not to overrule, your client's views, so far as he has formed any of the building he requires; and in points where you and he entirely differ, inasmuch as the cause of that difference will be, I presume, that you are right and he is wrong (is it not always so?), just go to work, not to oppose him, but to convince him,—not to overrule his wish, but to change it. You will succeed much oftener than you suppose, even where at first you think there is no hope. If individuals or committees think well enough of

you to entrust you with a work which is to them of importance, they will not lightly go against the repeated expression of your own opinion, temperately but decidedly urged.

Whenever you can, adopt the plans your clients propose to you (for you often will have a ground-plan, sometimes a very good one, given you by your employers); and throughout hold yourself bound to fulfil their intentions as far as possible; but, on the other hand, preserve the most manly independence towards them where necessary. Consider yourself as bound to act with perfect impartiality between your client, on the one hand, and the contractor on the other. Absolutely refuse to permit anything unfair or unjust; and take care not to sanction anything that is unjust to yourself or the other members of the profession; such as, for example, working below the usual commission, or under circumstances manifestly unfair to your brethren.

Remember to be punctilious to a fault in all that affects the honour of the profession: abhor and avoid all commissions, fees, bribes, and other back-door iniquities; and, above all things, never take up work that has been taken out of another professional man's hands, without first yourself seeing him personally, and satisfying yourself that all is fair and above board.

In several particulars the welfare of the profession may be said to be at stake whenever any member of it goes wrong. I hold, therefore, that in your difficulties you have a right to the advice and assistance of almost any of your brethren, certainly of your friends; and I feel sure that any member of this Association would readily place at the disposal of any other member, even if a personal stranger, any information or advice he can afford him. This is especially necessary as to fees and commissions,—a subject upon which many at commencing practice know little or nothing.

The best general advice for you as to your remuneration is this.—Recognize that you are likely to have to do more for your money than your elders; but chiefly in the way of making up for want of experience by extra labour; and of doing with your own hands that which, in a large office, is the work of a clerk; so that you will be paid the same sum for attaining the same result. You ought to stand out for the regular commission on works usually paid for by commission, and the regular fees on works usually paid for by fees. In all other cases you ought to book your time, as a guide to you in arranging your charges; but you ought, I think, to book the time when you are doing principal's work and that when you are tracing, copying, or running errands for yourself, separately, and money them out at separate rates.

You will, I hope, keep a good diary, and early commence to keep a simple but sufficient set of books. Provide good forms for certificates, accounts, and all other formal documents; and keep all your transactions as regular in form as possible.

In dealing with a committee, let me advise you to get them to appoint some one person (who will ordinarily be the secretary), through whom all orders are to be communicated to you; or else you will be liable to get the wishes of single members expressed to you in a way which the committee would not in all cases sanction, and will be in great danger of getting into trouble.

Some of your first commissions will probably perplex you, as to how on earth you are to do them. For instance: you will have, perhaps, been studying the higher branches of your profession, and have started hoping your first work may, at least, be to restore a parish church, if not a cathedral; when in walks a solicitor, and asks you to make a specification for dilapidations at a public-house in Vinegar-yard, or some such elegant locality; thrusts a lease and a rusty key into your hands; and is off before you have quite gained self-possession enough to remember that you never saw to dilapidations before in your life. Under such circumstances you may have recourse to the general rule laid down by many people "never to refuse business." I thoroughly endorse this rule, with the explanation that by business you mean *your own business*; namely,—such as you can honestly undertake; and, to honestly undertake business, it is not, I think, necessary that, at the moment you engage in it, you should be personally competent to work out all the details of it, so long as you know the general principles of it, and know how it ought to be done. Work that you know less of than this, you had better decline; and in work that you only know so well as this, you had better get help from those more familiar than yourself with details.

Try to acquire, before you actually start, some notion of every branch that an architect's practice embraces; and to get a good knowledge of men capable of doing work; and then I think you need not refuse any work which you yourself understand, though you cannot execute it; provided you are sure you can get the details perfectly well done for you, and under your own eye. As, however, under such circumstances, you become personally responsible for another's work, I would advise you always to go through the whole business, every inch of it, with the person you employ; so as to know all that has been done, and to be able to speak to everything if you are asked. I would also advise you to get for such services the very best assistance procurable.

If, however, a commission be proposed to you of which you really understand nothing; so that you would have to delegate it entirely; take no share in the work; and then be entirely responsible for the results,—I say at once, the less you have to do with it the better.

Let me advise you, however, as far as possible, whenever you delegate work to delegate responsibility also; and in such cases for some years to come *always*, regardless of any other consideration, to go to the best sources known. If, for instance, you have to recommend a surveyor, or a tradesman, let me tell you, harsh as it may seem that you, as a young man unknown and untried yourself, cannot afford and ought not to venture to recommend any one except a man of the highest standing; and, having recommended him, leave him to bear the blame, or take the credit, as the work turns out;—the chances are that he will do the work well; and then you will get the credit which you really deserve of recommending a good man; but, if he does it badly, you can say to your client, and say with truth, "That man stands at the head of his profession, or of his trade, and I could not do better for you than I did in employing him."

This rule applies to builders, gasfitters, hot-water apparatus makers,—in fact, all tradesmen; and to surveyors, land surveyors, and clerks of works.

You, as a beginner, had better never venture to recommend to a client another beginner, however much you may wish to befriend him the time for doing that will come as you yourself gain standing; but at first your duty is, alike for the client's sake and your own, to supplement your own inexperience by as much experience and as high a character as possible in the people you recommend.

I would again advise you, in your early works, to adhere as much as possible to regular and formal modes of procedure, such as you have seen carried on in offices where you may have been; although you may not be quite aware of the force of such methods. It may save your client from litigation, and you from ruin, if you stand out for having a completed set of drawings, and a specification signed, before an inch of ground is turned; and if in that specification you embody the best and most complete code of general clauses you can lay hands upon.

Do not do solicitors' work yourself, and do not do without it. If you get a work to build of some importance, have a contract, and resist all your client's endeavours to make you draw it yourself. And if your client will not employ a solicitor, then let the agreement stand upon an interchange of letters, but do not be tempted into thinking you are safe in trying to manufacture a legal document.

And lastly, having introduced a mention of the legal profession, let me advise you, if you resort to lawyers in time of peace, to keep clear of them in time of war. Keep your client out of law if you possibly can; and exert yourself to the very utmost to keep him not only out of law, but out of all other annoyances. Let your foresight, if possible, make provision enough to spare him that terrible infliction a bill of extras; and let the testimony borne to you at the end of every transaction be that you have been inflexibly upright; that you have proved yourself thoroughly master of your profession; that you have spared no pains; and that you have never lost either your head or your temper.

I have now but one or two words to add; and I have left them to the very last, because they relate to a subject the most important of anything that has to do with your success in life; and to which, consequently, I wish to assign the crowning position.

I have told you something of what you must do for yourselves; and I hope that you will all do it; and will, as a consequence, feel a self-respect which shall place you above all manner, and a

coloured plates and wood engravings, executed with marvellous and fanciful skill. What a contrast to turn from these to the clumsy, tan-coloured volumes of the last century! Observe the corded projections down the back of the calf-skin binding, the narrow lines indented round the edges of the covers for a margin, or, may be, the stamped pattern: observe, too, the sparse gold lettering between some of the corded projections, which is the only relief to rows and rows of them. Open any of them, and the contrast is more startling: the paper appears fawn-coloured by the side of the snow-white pages with which we are supplied; the ink a greenish brown; every noun has a capital letter, every past tense an apostrophe, every chapter an entangled vignette. But these are the volumes that have been loved by the scholars of old, that Swift, Bolingbroke, Addison, Steele, Gay, Pope, Garth, and others ranged on their bookshelves; that Walpole treasured, that Mary Wortley perused, and which all generations to come will examine with interest. The palm must be yielded to the dictionaries of this old time, which we may fairly assume would have been consulted by their contemporaries. What affectation of learning in the quaint titles they possess! Not to go so far back as the old English of William of Wykeham, or of Geoffrey Chaucer, clerk of the works to the king's majesty, or even of Shakespeare, let us turn over the pages of a dictionary that was published in the life-time of the brilliant personages whose names we have strung together. It is a folio sturdily bound in the inevitable calf-skin,—a seventh edition of "A New World of Words,"—whereof the first edition was published some half-century still further ago. This bears date 1720, the memorable year of the South-sea bubble, the sixth after the death of Queen Anne, and professes to be compiled by Edward Phillips, gent., and to contain twenty thousand "hard words" more than the previous editions.

From all we gather from these fawn-coloured pages it would appear that architecture was looked upon more as a classic study than a profession. The rebuilding of the city after the Great Fire had been entrusted to a mathematician, and architecture appears to have been traditionally regarded as belonging to that science. The terms for every part of Greek and Roman buildings are given in Latin, while Gothic architecture is described contemptuously as being "so far different from the ancient proportions, that its pillars are either too massy, like vast piles, or as slender as poles; neither have the capitals any certain dimensions, but have figures carved on them representing the thorny leaves of thistles, colowrte, bearsfoot, &c." An architect is set down as "a master-builder, a chief workman, a surveyor of the building; and an artist was not thought of more account, being but "a master of any art, an ingenious workman." Painting is defined as the art of making a right use of colours and proportions so as to represent any object; a sculptor is a carver; and sculpture the art of carving figures in wood, stone, or metal. But we may glean indications of the stage at which many of the arts and sciences rested at this date. It would, of course, be incorrect to consider this particular period as beneath notice in these respects, for a great influence upon art was at work contemporaneously in France. Louis Quatorze had lavished upon Versailles the wealth of a kingdom,—where may we look upon a palace with so many paintings, so many statues, such fairy-like fountains, even in these latter days? This influence was felt all over Europe, for the minor courts attempted the same kind of splendour as that effected by the French monarch. The Mediaeval arts were held but in slight esteem compared to the favour in which the arts of the ancient world were regarded; but, nevertheless, there are instances of their *renaissance* too. "Annealing" is described as "a staining and baking of glass so that the colour may go quite through it; an art of some casualty altogether lost in England, if not in Europe; but lately revised and improved: annealing is also a particular way of baking tiles." Gazel and subit are mentioned as "certain weeds growing in Egypt, of which, being burnt to ashes, the finest sort of Venice glasses are made." Perspective is elaborately treated under five heads: lineal, aerial, practical, speculative, and military. Surveying is called "the science of planimetry reduced to practice." There are notices of different kinds of mathematical instruments, among which is a "way-wiser, a mathematical instrument fitted to the great wheel of a coach or chariot, to show how far it goes in a day."

As a specimen of the wordiness of these old times we will quote the definition of the short and

simple word "line"—"part of a writing: also the twelfth part of an inch; also the flax plant. In geometry it is a quantity stretched out in length, but supposed to be void of breadth and depth, being made by the motion of a point from one place to another." Then forty-nine different kinds of lines are catalogued and explained, such as lines of approach, lines of communication, of circumvallation, of contravallation, of defence, of gravitation; lines horary, synodical, substylar, capital, cogital; a line of measures (according to Mr. Oughtred), a line of numbers or Gunter's line (so called from its inventor), the line of the apogee of a planet, a line of the apses, and so on through forty-nine varieties. Carpenters' rules were limited to 1 foot or 18 inches in length: their gimlets were called "piercers to breach vessels with." Protracting pins are tapering pieces of brass with silver points, and have small heads holding fine needles, to draw black lines on mathematical paper, and to prick off degrees and minutes from the protractor, which is described as an instrument made of brass or silver, consisting of a thin semi-circle, divided into degrees, and a parallelogram with scales. What we should now represent by an elevation was then effected by a "profil,"—the draught of any piece of architecture or fortification, wherein is set down the breadth, depth, and height of the whole work; but it does not represent the length, which properly belongs to the plan or ground plan, so that it is much the same with a prospect of a place, city, building, &c., viewed sideways, and expressed according to the rules of perspective; and the word sciagraphy is "sometimes taken for the draught of a building cut in its length or breadth, to show the inside of it, as the conveyance of every room, the thickness of the walls, timber work, floors, vaults, &c." "Moresk-work" (in carving or painting) is mentioned as a "kind of Antick work, after the manner of the Moors, consisting of several pieces, in which there is no perfect figure, but a wild resemblance of men, birds, beasts, trees, &c., intermingled together;" and so far differs very little from the definition of "Antick work" generally, which is "a device of several odd figures of men, beasts, birds, fishes, and flowers, that are rudely formed one out of another, according to the artificer's fancy, and afford a grateful variety to the beholder's eye." A second definition of the same word affords a grateful variety to the reader's ear—to antick is to dance like a Jack Pudding.

Here and there we get glimpses of Old London in definitions of such words as Inns of Court, London Bridge, Gresham College, Royal Exchange, the Tower,—the strong fort, noble palace, and royal arsenal,—"where are arms and ammunition for 60,000 men, the treasury for the jewels and ornaments of the English crown, the general Mint for coining gold and silver, the great Archive—a place for keeping the ancient records of the Courts of Westminster, and the chief prison for confinement of persons of quality that are criminals in matters of state." Inns of Chancery are eight houses appointed for young students in the law, viz.,—1, Bernard's Inn, once belonging to Dr. Macworth, Dean of Lincoln, and in the possession of one Lionel Bernard; 2, Clement's Inn, once a messuage belonging to the parish of St. Clement's Danes; 3, Clifford's Inn, some time the dwelling-house of Malcolm de Hersey, and afterwards of the Cliffords, Earls of Cumberland, of whom it was rented; 4, Furnival's Inn, once the mansion of Sir R. Furnival, and afterwards of the Talbotts, Earls of Shrewsbury; 5, Lion's Inn, once a private house, known by the name of the Black Lion; 6, New Inn, once the dwelling-house of Sir J. Tyncaulx, which has also been called Our Lady's Inn; 7, Staples Inn, so named because it heretofore belonged to the English merchants of the Staple; 8, Thavay's Inn, anciently the mansion-house of J. Thavay, Armourer of London. The news near Charing Cross is mentioned as being the place where the king's hawks were formerly kept, and now converted into the royal stables. We know that 600 horses stood in the Electoral stables in Hanover, whereof 160 were carriage horses, being 20 teams of eight horses in a team; and we can easily believe the royal necessities suffered no diminution in this matter after the succession to the crown of England. The timber houses, still in greater proportion to those of less perishable materials, gave a different meaning to the word "gable" to that which we now attach to it. It was "the head or top front of a house in building. Some take it for the frontpiece, or fore part.

After the Great Fire, assurance offices were set up. One of these is described under the heading "Phoenix Insurance Office, the first office that was set up in London for the insuring of houses from

accidents by fire, so called from its emblem or device: the rate for ensuring 100 pounds on a brick house, is 6 shillings for 1 year, 12 shillings for 2 years, 15 shillings for 3 years, 19 shillings and sixpence for four years, 1 pound 10 shillings for seven years, and 2 pounds 1 shilling for eleven years: the number of houses so insured since Anno Dom. 1681 is ten thousand." A second is mentioned as the "Friendly Society, one of the offices settled in London for the insuring of houses from casualties by fire: the reward or consideration money paid for insuring to the value of 100 pounds in this office, is 1 shilling 4 pence per annum for seven years. The device of it is a sheaf of arrows, and the number of houses insured since A.D. 1684 is 12,500." We see that "cockpits" were houses built of a round form, with seats for spectators of three heights or more, one above another; and, if the transition is not too sudden, that "chappel" was a term used among printers for "the body of workmen in a particular house; so called because the first printing-house was set up in a chappel." From chapels we may descend to chantries with less irreverence, of which we are told, incidentally, there were 47 in Old St. Paul's. Piccadilly signifies the hem about the skirt of a garment, "whence a noted gaming-house, built by one Higgins, a tailor, famous for making these kinds of skirts, is called Piccadilly." In the word "Tabernacle," we may see somewhat of the shifts after the Great Fire:—"A kind of chappel made of boards, such as were raised in the City of London, after the dreadful fire, A.D. 1666, till the churches could be conveniently rebuilt, and which are still in use in some places, where the parish churches are not large enough to hold the congregation." We hear, too, of places in the country that were famous then:—Poole's Hole, a little brook, in Derbyshire, "consisting of both hot and cold water, which are unmixt and yet so near, that a man may put his finger and thumb, one in hot, one in cold, both at the same time;" a whispering gallery in Gloucester Cathedral; and, among other places, of Tunbridge Wells, just then coming into fashion.

Many words that are now the exclusive property of ecclesiologists and antiquarians were in common use then: thus, "ambury" is described as "a country word for a cupboard to keep victuals in;" and "kyate" is "a chest or coffin for burial of the dead." A faldstool is "the stool placed on the south side of the altar at which the kings and queens of England kneel at their coronations; and ducking-stools, for scolds, appear to have been a pretty general piece of furniture. "Garde-mangers" and "garde-robes" were closets to keep food and clothes in respectively. Definitions of words that were antiquarian to them, as well as ourselves, are not so true; for instance, "sarcophagus" is a sort of stone, so called because coffins were anciently made of it, which quickly consumed the dead bodies, for they had the virtue to waste away a corpse to nothing, *save the teeth*, in forty days: whence the word is used in general for a stone tomb, monument, or sepulchre. The implied cannibalism, so far as mummies are concerned, scarcely does to think about,—"*Mummy*, the substance of dead bodies anciently embalmed with myrrh, aloes, and other spices, and brought out of Egypt for rarities. *These mummies are much used in physicks both inwardly and outwardly: being good against bruises, spitting of blood, &c.*" Picture Sarah, Duchess of Marlborough, or Kitty, Duchess of Gough, sipping a solution of mummy by medical advice! The recent discoveries near Amiens impart an interest to the theory of this period respecting "elf arrows." These are "flint stones sharpened and jagged on each side like arrow-heads, made and used in war by the ancient Britains, of which some have been found in England, and greater store in Scotland; where the people gave them that name (elf-arrows), and imagine they drop from the clouds." That which this age of the *Spectator* and the *Tatler* called fossils were "all sorts of bodies whatever that are dug out of the earth, generally so called by writers in natural philosophy;" and what we call fossils were known to them as "formed stones,—such bodies as being either pure stone or sparr, are found in the earth so formed that their outward figures and shape very much resemble that of cockles, muscles, periwinkles and other shells."

We are not yet through our dictionary.

SOCIAL SCIENCE ASSOCIATION.—The Lord Mayor had fixed this Friday, the 20th, for a meeting at the Mansion House, to arrange for the approaching Congress in London. In consequence of the regretted death of the Prince Consort, the meeting is postponed.

THE ROYAL ACADEMY MEDALS.

Our advertising columns last week mentioned one of the awards, but we may amplify the notice. The three gold medals were respectively awarded to Mr. Andrew Brown Donaldson for the best historical painting, to Mr. George Slater for the best work in sculpture, and to Mr. Thomas Henry Watson for the best design in architecture. In presenting the last gentleman with the medal, the president, Sir Charles Eastlake, alluded to his success in having obtained the three silver medals in architecture at the last anniversary, as mentioned in our columns at the time. In addition to the above, twelve silver medals were awarded.

FROM ITALY.

Nor long since, we gave an extract from a letter written from Italy by Dr. Collingwood Bruce, and read at a meeting of the Newcastle Society of Antiquaries. We add a portion of a second communication from the same gentleman, well known as an antiquary. He is speaking of Fiesole and Volterra:—

"The view which you have of Fiesole from the high ground in the Boboli Gardens, in Florence, is exceedingly striking. If you could only fancy that an arm of the sea intruded itself upon the scene, you would have precisely the kind of landscape which Salvator Rosa delighted to draw. To me it looked like fairy-land—something that I could hardly believe existed on earth. On the afternoon that we visited Fiesole, heavy clouds were rolling about; now and then obscuring the sun, at other times flinging their broad shadows upon hill and plain. When at last we got to the top of the high rock on which the city is perched, the scene was truly glorious. . . . Now about the stones. Two or three fragments of the ancient wall of the town remain. One piece exhibited nine courses of stones, and seemed to me to be 21 feet high. The blocks were quadrangular, but untooled: they were evidently in the same state as when taken from the quarry; and the quarrymen seem to have availed themselves simply of the natural partings of the rock. They were of various sizes, but mostly very large: several were 6 feet in length. Of course, much regularity could not be observed in the bed of the stones: they were placed as we would place books of various sizes if required to pack them closely in a box. The work was altogether colossal. Two specimens of Roman work remain in the place; one of them a theatre, the other what is said to be the wall of a palace. The theatre is planted on the side of a slope—like the amphitheatre of Borovio—so as to obtain a partial support from the ground. Some rows of seats have been uncovered, and some caverns beneath, in which the wild beasts are said to have been lodged, have been excavated. This was interesting enough; but what took my fancy most was the wreck of the palace. The masonry was evidently Roman, but it had an Etruscan look about it. The stones are large, tooled on edges when they come in contact with one another, but left rough in the face. The line of the courses, though generally regular, is not perfectly so; a large stone occasionally protruding into another: the upright joints, too, are not always perpendicular. The work reminded me strongly of the north gateway of Borovio, and I think that the next time I visit that spot I shall be able to point out its Etruscan features. The Romans seem never to have forgotten the lessons they learned from the earlier possessors of North Italy.

The Etruscan remains are much more complete at Volterra than Fiesole. The town is planted upon a very high hill, and comes into sight at least two hours before you reach it. The view from it, when you do get within its walls, is very extraordinary. A desolation reigns around which reminds you of the reports that travellers give you respecting the region surrounding the Dead Sea. And yet olive groves and vineyards appear here and there, as if to put in a protest against the unfavourable opinion you are about to form. The present city does not occupy one half the ground embraced by the ancient walls, which can be traced throughout their entire circuit. Several most interesting specimens of the original Etruscan walls remain. One piece, of considerable length, I calculated was about 95 feet high. The character of the masonry was the same as at Fiesole, but the blocks were large and the courses more irregular. And yet the joints were close: the stones were set without mortar. On looking at this block of masonry, I could almost fancy I was looking on the face of some perpendicular cliff; the face of

the stones being untooled, and the joints of the building looking like the natural parting of the rock. I examined two of the gateways of the city. One of them, the Porta all' Arco, is a magnificent piece of work. The greater part of it is undoubtedly Etruscan; but, for reasons which I cannot detail in this brief note, I would have said that its beautifully-turned arch was Roman, had I not been informed that Mr. Layard and others, who are better capable of judging than I am, and who had more time to examine it, have declared the whole to be Etruscan. The other gate is the Porta d'Ercolo. The lower part is Etruscan: the arch is Mediaeval. There are, however, sufficient traces to show that this gateway had originally been arched over by regularly-formed *voussoirs*, but had been stepped over (like some portions of the *erarium* at Clunum)—a mode of construction for which the large slabs used by the Etruscans were peculiarly suitable.

But the chief interest of Volterra consists in its museum. Here are preserved an immense number of cinerary urns found in the tombs, which are left much in the state in which they were found. They are all outside the walls. They consist of caverns, many of them excavated out of the rock. The urns are placed upon a ledge, which runs round the cavern. In almost every instance the tombs have been rifled,—some of them in Roman times, and others at a more recent period, everything being found in the utmost confusion. Curiously enough, the pine cone ornament is always found accompanying a tomb, either on it or in it. When the excavators meet with this object, they know that their search will be rewarded with success. I feel sure that this ornament, which we so constantly meet with in Roman stations, and which it appears the Romans borrowed from the Etruscans,* is emblematical of animal life, of life. There seems to me to be something beautiful in their planting it in their tombs. They seem, by doing so, to express their confidence that the seed that they thus sow in weakness will one day blossom in eternal life.

The urns, of which there is so large a share in the museum, are dwarf sarcophagi, between two and three feet long, and proportionately broad and high. Some of them are composed of terra cotta, but most of them consist of alabaster, which abounds in the neighbourhood. Nearly all of them are elaborately carved. The spirit of the designs and their excellent workmanship are very remarkable. The drapery of some of the figures is quite Roman in its character.

That the Etruscans came from the East is pretty plain from their works. On a large slab preserved in the museum, and which was used to close the entrance into a tomb, is carved a figure, precisely resembling some of those which Mr. Layard has brought from Assyria. This stone has an inscription round its edge in Etruscan characters. Some of the ornaments on the urns are similar to those Mr. Layard found at Nimrod, and which afterwards passed into Grecian and Roman architecture. Amongst the minor objects preserved in the museum are some seals, shaped like the Egyptian scarabæus. Some, also, are engraved with characters that look to me like Persian.

Most of the urns are, doubtless, Etruscan; but I had not gone far in my examination of them before I put the question to the curator (who was well up in his subject), "Are you sure this is not Roman?" He told me that, in many cases, they could not distinguish the one from the other; unless, as was sometimes the case, they had an inscription upon them. In this fact we have a proof of the extent to which the Romans were indebted to the Etruscans for their artistic knowledge.

It is very remarkable that, little as we know of the history of a people which flourished before Rome rose upon the horizon of this world's history, they should have left behind them works which prove that they possessed a very high degree of civilization. It is quite evident that at that early date woman held that position in society to which she is entitled, and which it is the interest of man to accord."

* The pine and other cones are curiously characteristic of ancient Assyrian sculptures; and Mr. Loftus and others have found vase-like edifices in Chaldaea, strange to say, built up of terra cotta cones imbedded in clay. As the Roman and Etruscan cones, too, were connected with tombs; so, in this case, it was in a "city of the dead" this curious structure stood; as also another built with conical vases, laid horizontally, with their open mouths outward. The cone is still a distinguished emblem among the Thibetan Buddhists: their "sanctifying instrument," the *dofee*, is topped with a cone and is of the nature of a sceptre.—Ed.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The ordinary meeting of members, which would have been held in usual course on Monday evening last, was postponed, in consequence of the lamented decease of His Royal Highness the Prince Consort, patron of the Institute.

BRITISH ARCHAEOLOGICAL ASSOCIATION.

On December 11, Geo. Godwin, F.R.S., V.P., in the chair, associates having been elected, and presents received, Mr. Pettigrew and Mr. Cumming made remarks on an inscribed stone axe, found in the neighbourhood of Newark, Ohio, and considered the characters as produced by playfulness. Mr. Pettigrew stated that they did not represent a single Phœnician letter, to which language they had been ascribed.

The Dean of Worcester forwarded to Mr. Pettigrew the particulars of a discovery made at Worcester Cathedral during the restorations on the north side of the chancel, by which a stone coffin had been brought to light, containing the remains of a bishop, supposed to be De Constantius, of the twelfth century. On his breast was a fine silver-gilt paten, and around his head an embroidered and gilt band, with various figures. The particulars of the discovery, with proper illustrations, will be published by the Association.

The Rev. Mr. Kell communicated an account of the discovery of curious Roman remains in a cutting now in progress for a railway at Newport, Isle of Wight, which will, when completed, be arranged. The same gentleman also sent, for exhibition, a medallion of the Mater Dolorosa and Ecce Homo, of Italian workmanship, of the early part of the eighteenth century, found at Netley Abbey; also a very minute gold coin, weighing 29½ grains,—a quarter Philippus, of Gaulish coinage, found at Dover.

Mr. Evans gave a description of this interesting specimen, and stated that he possessed a half coin of the same, which was found at Margate.

Dr. Palmer sent a notice of the examination of a supposed sepulchral mound at Stanmore, Berks. A cavity with glazed tiles, dark mould, &c., was discovered, and it was conjectured rather to have been for agricultural purposes at a distant period, and had been in the progress of time covered over by large quantities of flints, stones, &c., so as to resemble a cairn, for which it was mistaken.

Amongst other exhibitions, Mr. George Wright exhibited a bone die, found, it was said, along with Roman remains, in excavations for a sewer in Old Kent-road.

Mr. Pettigrew considered it to be Saxon, of which he had seen many examples from graves in Kent and elsewhere.

Mr. Forman exhibited a large silver bracelet having for its centre the fine seal of Thomas Barton, bishop of Sodor and Man, 1152-1196. The bracelet weighs 4 oz. 7 dwts. The border is foliated, and the hoop has prominent scrolls and circles, one probably set with jewels, or inlaid with coloured enamels, of which some trace could yet be detected. It was found in a garden at Rathfrim, near Dublin, and was obtained from Captain Hoare's collection.

Dr. Prichard sent a Canterbury token of the sign of the "Chequers," so celebrated by Chaucer.

Mr. Prevost exhibited a gold Venetian Zucchetto, which had formed the decoration of the head of a Sereny, killed in the late Indian mutiny.

Dr. Palmer sent Roman remains obtained from a villa in Berkshire, belonging to Mr. H. Bunbury. The pottery was apparently from the Dorsetshire kilns. Horn cores of the *Balanophora* were also found, and a coin of Tiberius the Elder.

Mr. Solly exhibited two fine miniatures of Prince Henry, eldest son of James I. They were the work of Isaac Oliver. He also exhibited a miniature in oil, on copper, of James Stuart, the old Pretender, which was formerly in Dr. Mead's collection.

Mr. Cumming exhibited a rare medal issued on the birth of the young Pretender.

The remainder of the evening was occupied in the reading of and discussion upon a paper on Ogham inscriptions, by Mr. Pettigrew, in which he enumerated the examples hitherto found in Ireland, Wales, Scotland, and now by a single example in England, which, by the liberality of the lord of the manor at Lyvridge, South Devon, has been placed in the British Museum. A drawing of the stone was exhibited, with an alphabet, by which it was proposed to be read. It is important as being bilingual, there being Roman as well as Ogham characters, the former reading *Fingini Maquiritin* on one side, and *Maquiritin* on



TRALEE YOUNG MEN'S CHRISTIAN ASSOCIATION — MR. J. F. FULLER, ARCHITECT.

the other. The Oghams are on the lateral edges of the stone, and at a portion of the top. Mr. Pettigrew entered into a consideration of the Ogham alphabet and its varieties, as given by Dr. O'Donovan, Dr. Graves, and other eminent Irish antiquaries. He also discussed the probable antiquity of Ogham monuments, and felt disposed to assign them to a Pagan period, the Christian emblems found upon some being regarded by him as a means adopted by the missionaries to efface Pagan memorials and aid in the establishment of Christianity.

The Association then adjourned over to January the 8th, 1862.

DECAY OF STONE.

YORKSHIRE PHILOSOPHICAL SOCIETY.

At the last ordinary meeting of this society, Mr. Procter read the first part of a paper "On the cause of the Decay of Building Stones." He spoke of stone used for buildings as of four kinds—1st, granites and other igneous rocks; 2nd, sandstones; 3rd, limestones; 4th, magnesian limestones. He said that practically the destruction of absorbent stones is connected with exposure to a damp atmosphere, rendered impure by various acid and alkaline gases, and also with changes of temperature, especially above and below 38 deg., at which water obtains its greatest density. These deleterious substances are oxygen, carbonic acid, nitric acid, ammonia, and water from the air; and to these, in towns, may be added sulphurous, sulphuric, and hydrochloric acids. After alluding to the action of oxygen, it was said that carbonic acid in solution, as in rain, is a powerful solvent of all kinds of calcareous matter; and that in these and magnesian rocks it acts by transforming the insoluble into soluble carbonates; thus removing the lime and magnesia from the stone; for although the quantity is small the action of

the solvent is continuous. On other rocks it assists disruption, by the solution of the material, cementing the particles together, and eventually making all yield to its influence. The various acids mentioned must be looked upon as amongst the principal agents in effecting the destruction of stone. They result from combustion and various manufacturing processes carried on in towns. Dr. A. Smith has shown that the air of the central part of Manchester contains twenty-five parts of sulphuric acid in 100,000 of air. This acid acts directly on the magnesian limestones, and indirectly on sandstones, by the solution of the cementing materials; and thus, besides destruction, causes increased porosity of stone, rendering it more amenable to the action of water and frost. Besides this, in magnesian stones there is the formation of sulphate of magnesia, remarkable for the large amount of water of crystallization which it contains: the powerful mechanical effects resulting from the solidification of this water produces effects similar to those produced by the expansion of freezing water, and is the basis of Brard's test for the value of building stones. Salt-petre or nitrification is similar to the preceding, and arises from the formation of various nitrates or sulphates in the stone, under certain circumstances and in certain situations, which were detailed. This change displays itself by the formation of minute crystals, efflorescing from the interior to the exterior of the stone, and leading ultimately to its disruption. The porosity of a stone, either natural or induced by any of the previous causes, is important in estimating its stability; for water, when absorbed, acts upon stone quite as much through the changes in its volume at different temperatures as it does by chemical solution. Water is absorbed: a frost sets in: the liquid freezes and expands: the result is that portions are mechanically, by the expansive force of the water, detached; or the entire face of the

stone peels off. Practically, then, the great agent in the destruction of building stones is the water of the atmosphere; and the efforts of those who seek to prevent this destruction must be directed to this primary source of evil. In conclusion, it was stated that in numerous instances modern structures had rapidly decayed; whilst ancient ones, built of the same stones, had stood for centuries but little affected. It was suggested whether the rapidity with which stone at present is obtained from the quarry, sent to its destination, and placed in a building without time for drying or weathering, might explain this discrepancy.

TRALEE YOUNG MEN'S CHRISTIAN ASSOCIATION.

THE building represented by the accompanying engraving is to be erected in Tralee, Ireland. It contains, on the ground-floor, solicitors and clerks' offices, a room for the care-taker, and an ante-room, in connection with a large public hall, to be built at the rear, and having three entrances for the public, two of which are from the front. The first-floor is reached by a staircase communicating with the entrance-porch to the right; and contains a library, news-room, and committee-room: on the third-floor are class and bed rooms.

The materials proposed to be used in the construction of the building are local red sandstone for the walling, with limestone dressings. The county of Kerry—famous for its Valencia slates—is rich also in building stones of the finest quality; though but little use has been made of its resources, as yet, for the furtherance of architecture.

The building will stand directly opposite the Court-house, which is the only building in the town of Tralee having any claim to be considered a work of art.

The architect is Mr. J. F. Fuller, of Sneem, in the same county,—Kerry.

ELOQUENT MORSELS OF LONDON.



THE MITRE TAVERN, FLEET STREET.



DE FOE'S GRAVE, BUNHILL FIELDS BURIAL GROUND.



THE BIRTHPLACE OF J. M. W. TURNER, MAIDEN LANE, COVENT GARDEN.



HOUSES IN CRUTCHED FRIARS.

ELOQUENT MORSELS OF LONDON.

THE MITRE TAVERN, FLEET STREET.

DR. JOHNSON'S house and the temporary home of Goldsmith, in the Temple, have disappeared, but here still remains, at any rate, one resort of those eminent men in that locality, the Mitre Tavern, shown in our engraving. Here with Boswell they often supped, and here the tour to the Hebrides was first started. Mitre-court, in Fleet-street, leads to the tavern, which appears to have been but little altered. On one side of the tavern is an old-fashioned shoemaker's shop, probably erected soon after the fire of 1666.

Although the roar and bustle of traffic are great only a few yards distant, this is a quiet spot, and through the archway, on the right, Mitre-court-buildings, a pleasant glimpse of trees and the Thames is obtained.

On entering the tavern one is struck by the strength of the woodwork. Near the door is a lock on which it was customary, in days gone by, to cut for customers their mutton chop for dinner. The coffee-room, small and confined, it must be confessed, is a snug-looking apartment. It is divided into several boxes, in each of which a party of six or eight persons may be accommodated. Over the fireplace is a small oil painting, of two grotesque figures, male and female, seated at a table, inscribed—"Darby and Joan," and "Oh! the days when we were young." The box nearest the fireplace, the tradition of the house gives Dr. Johnson and his friends. "Here, sir," remarked the waiter, "in the centre of the head of the table, sat Dr. Johnson; on his left side sat Boswell, sir; and on the other hand Sir Joshua Reynolds." On the side next the fireplace there is a cast of Nollekens's bust of Johnson.

Many interesting associations come to mind while we look at this spot, which, notwithstanding the numerous changes which are going forward, still retains something of its old appearance, and serves to recall these celebrated men.

THE GRAVE OF DE FOE, BUNHILL FIELDS BURIAL-GROUND.

On the land which is now known as Bunhill Fields Burial-ground, near Finsbury-square, was a great pit used as a place of common interment during the Plague of 1665, and described so vividly by De Foe in his "Memoirs of the Plague." In the ground, when afterwards enclosed for the use of dissenters, De Foe (called in the register, according to Mr. Cunningham, "Dubow") was himself buried, 1731. The position of his grave is known; it is under the large flat stone in the foot-path down in our sketch, but there is not a letter on the stone to point it out. Surely this should not be the case of one who, as the author of "Robinson Crusoe," has given delight to hundreds of thousands, and contributed so materially to foster at love of adventure and resolution under difficulties which worthily distinguish Englishmen. Anyan and Dr. Isaac Watts, with several other well-known men, are buried in these grounds.

THE BIRTH-PLACE OF TURNER THE PAINTER, MAIDEN LANE, COVENT GARDEN.

The house No. 26, Maiden-lane, in which was born the greatest landscape-painter the world ever saw, has been pulled down. A new building for Messrs. Parkin & Co. now occupies its place. We have engraved a view of the old house. Turner's father, as every one knows now, was a hair-dresser; a business which, seventy or eighty years ago, when wigs and very close trimming were in greater demand than at present, was held in some esteem. The door under the arched passage on the right led to the shop, in the room above which, it seems, the infant artist was born. It may well have seemed strange to some that such a dingy-looking spot should have produced one so highly skilled in the production of the richest hues and harmonies, and in the glories of the brightest light and sunshine.

It should not, however, be forgotten that great changes have taken place in the neighbourhood. Covent Garden within the time mentioned, was at hand were green fields; and within short healthy and pleasant walk, delightful woods and groups of trees and cottages. In other directions were the parks, Kensington Gardens, and the rural district around them, far removed from noisy and bustling streets. There are also the picturesque groups of figures in the market close by; the famous old Abbey at Westminster; and—what was perhaps a greater delight to young Turner than all these—the Thames, with all its changing and generally beautiful effects. Some little doubt was cast on the statement that this future famous Royal Academician was

born here. There is, however, very clear evidence that he was, and continued to reside with his father in this house during the early years of his career.

For some time past these premises formed part of the warehouse of an extensive grocer's establishment, which has been entirely removed, and, as we have said, is now rebuilt. The arched way still remaining leads to the quaint little school of Covent Garden parish.

In the Maiden-lane of former times lived Dr. Sancroft, Dean of York; Andrew Marvell, and Voltaire.

HOUSES IN CRUTCHED FRIARS.

The picturesque fragment of old London shown in the engraving is situated at a short distance towards Tower-hill, from the Railway-station in Fenchurch-street. The exterior of this group of houses has been but little altered since Queen Elizabeth's days; the quaint gables, the highly-pitched roofs, the peculiar arrangement of the water-troughs, the projections over the shops (the windows of which are but little more than 7 feet in height), the thick window-frames and small squares of glass,—all give evidence of the considerable age of the structure. The sign of the hostelry which is shown in the engraving towards the distance, the "Lamb and Flag," was a well-known one in the metropolis, but has now nearly passed out of sight. On looking at the fronts of those venerable dwellings, one naturally expects that in the interior the inquiring antiquary would find something curious which would reward him for the pains of investigation. It is, however, remarkable to notice, in this instance, how completely all has been modernized: the fire-places, the staircases, the fittings of the rooms, the ceilings, have such a new aspect, that it causes surprise to find present-day contents in such a time-worn case.

In Fenchurch-street, and in parts surrounding Crutched-Friars, there are many interesting relics of London which were saved from the Great Fire; and some shops in which extensive business is still done have not been in any way altered since the time when Hogarth, Dr. Johnson, and Oliver Goldsmith may have wandered this way.

The neighbourhood has, however, a far more remote antiquity, for an inscribed stone found in the Tenter-ground, in Goodman's-fields, while making an excavation in a garden at a depth of about 7 feet below the surface, takes us back to the Roman occupation of Great Britain. Mr. Malcolm mentions that this relic belonged, at the time of the publication of his work, "Londinium Redivivum" (1805), to "Samuel Hawkins, esq., now at Bath." Several fragments of urns were found at the same time. The inscription connects it with the Sixth Legion. Inscriptions connected with the Sixth Legion have been found in other parts of England; but from that now mentioned, it is presumed that this portion of the Roman army was stationed for a time in or near London.

Matters are greatly changed since those days, when in the parish of Whitechapel some of our nobility formerly had their villas for the sake of the country air. Here Cromwell Earl of Essex, the short-lived minister of Henry VIII., had a house; and the famous Gondomar retired here, when disengaged from his attendance at the Court of James I.

Parallel to where the walls once stood,* is the street called the Minories, so named from certain poor ladies of the Order of St. Clare, or Minorresses, who had been invited into England by Blanch, Queen of Navarre, wife to Edmund Earl of Lancaster; who, in 1293, founded here for their reception, a convent. On its suppression it was converted into a dwelling-house, and granted by the king to several great people, who inhabited it. The Bishops of Bath and Wells once had it in lieu of their mansion in the Strand; and, in 1552, Henry Grey, Duke of Suffolk, possessed it by patent from Edward VI.: on his attainder it reverted to the Crown, in which it continued till the Restoration.

Soon after, a new house was built on it, called the King's,—for what reason, says Pennant, is unknown. Charles granted it to Col. William Legge, who resided there, died in it in 1672, and was buried thence, with great funeral pomp, in the adjoining church—that of Trinity, Minories. His descendants, of the Dartmouth family, for long continued to make this church the place of their interment.

There are still some houses here which are pro-

* A portion still remains near the Tower; of this we gave an engraving in the *Builder* some years ago, in an article on the London Wall.

bably three centuries old. Notwithstanding that, Pennant, who published his account of London in 1793, says, "This street, from being as despicable as any in the City, has of late years been most excellently rebuilt, is filled with several spacious shops, is become a fine street, and, on one side, has its square, its circles, and its crescent." The great improvements in various parts of the metropolis have caused, by the contrast, the Minories to have at this day a similar character to that which it seems to have had before the alterations at the end of the last century.

Behind this street stood Goodman's-fields. Stow, in connection with the locality, says, that in his time one Trolop, and afterwards Goodman, were farmers there; and that the "fields were a farm belonging to the said nunrie; at the which farm I myself (says he), in my youth, have fetched many a halfe penny worth of milk, and never had lesse than 3 ale pints for a halfe penny in the summer, nor lesse than one ale quart for a halfe penny in the winter, alwaies hot from the kine."

Pennant mentions that the theatre in Goodman's-fields was well remembered by his contemporaries, as the stage which first showed those powers with which, for a number of years, Garrick astonished and charmed the public. His first appearance was on October 19th, 1741. The play-house was founded by one Odel, in 1728. This theatre was rebuilt by Henry Clifford, in 1737; but was suppressed by the Act for licensing places of dramatical entertainment; yet it was supported, a few years after by an evasion, during which time Mr. Garrick entered himself of the company. He drew an audience of the nobility and gentry, whose carriages filled the whole space from Temple Bar to Whitechapel. Gray, in a letter to Chute, writing respecting these performances, says, "Did I tell you about Mr. Garrick, that the town are horn mad after? There are a dozen dukes of a night in Goodman's-fields sometimes."

On the west side of this portion of the walls, stood the house of *Crutched or Crossed Friars*, or *Frates sanctæ Crucis*. The order was instituted, or at least reformed, about the year 1169, by Gerard, prior of St. Mary de Morello, at Bologna. They astonished the English by appearing among them in 1214, and requiring from the opulent a house to live in, telling them that they were privileged by the Pope to be exempt from being reproached by anybody, and that they had from him power to excommunicate those who were hardy enough to reproach them. Two citizens, Ralph Hosier and William Sabernes, accommodated them with a house in this place, and became friars in it. Originally they carried in their hands an iron cross, which they afterwards exchanged for one of silver. They wore a cross, made of red cloth, on their garment, which at first was grey, and in later times altered to blue. One Adams was the first prior, and Edmund Streatham the last. Their annual income seems to have been small. Henry VIII. granted their house to Sir Thomas Wyatt, the elder, who built a handsome mansion on part of the site. This accomplished gentleman was the friend of Henry, Earl of Surrey, and died in 1541, in Dorsetshire, of a violent fever, contracted, it is said, by hard riding, to conduct to court an ambassador who had landed at Falmouth. This house afterwards became the residence of John Lord Lumley, a celebrated warrior in the time of Henry VIII., who greatly distinguished himself at the battle of Flodden, by his valour and the number of men he brought into the field. "John Lord Lumley, grandson to the first," says Pennant, "was amongst the few of the nobility of that time who had a taste for literature." He married his sister Barbary to Humphrey Llwyd, of Denbigh, and by his assistance formed a considerable library, which at present makes a valuable part of the British Museum. In the place of this house rose the Navy Office.

Near this place stood a Northumberland House, which was inhabited in the reign of Henry VI. by two of the Earls of Northumberland. One lost his life at the battle of St. Alban's, and the other his son in that of Toulon. Being deserted by the Percies, the gardens were converted into bowling alleys, and other parts, says Stow, into dicing-houses. This was probably one of the first of those evil places of resort.

THE ILLUSTRATED LONDON NEWS.—The Christmas Number of the *Illustrated London News* is a very remarkable production. The coloured supplement, from a gorgeous piece of fruit painting by Lance, is alone worth double the cost of the whole, with its numerous stories and engravings on wood.

EARLY PRINTED BOOKS AT THE SOCIETY OF ANTIQUARIES.

A VERY remarkable collection of early printed books has been gathered together in the rooms; is well arranged and ticketed by the care of Mr. C. Knight Watson, M.A., the present secretary, and may be inspected this Friday and Saturday by any person bearing the card of a Fellow of the Society.

The chief exhibitors are the late Prince Consort; Mr. Tite, M.P.; Trinity College, Cambridge; Mr. Slade; and Mr. Libri. Earl Spencer contributes a beautiful specimen of early block books, the "Sancti Johannis Apocalypsis," with one of the actual blocks used in printing. Among the early Italian books, contributed chiefly by Mr. Libri, are "Aristophanes," by Aldus, 1478, and a perfect copy of "Dante," printed at Florence in 1482, attract great attention. There is also an edition of "Lactantius," 1468, said to be the second book printed at Rome. A fine folio copy of "Pliny," with thirty-seven initial letter drawings, is one of the gems of the collection. The specimens of Caxton, Wynykn de Worde, Pyson, and other English printers, are very numerous. Along with these is a copy of Cranmer's version of the New Testament, printed in London, "at the syn of the Rose Garland, 1556," said to be the only known copy. Of Gutenberg there are several beautiful specimens, and Trinity College contributes a splendid "Editio Princeps" of Seneca. There is a choice collection of French "Livres d'Heures;" but, perhaps, the most interesting part of the exhibition is a case, contributed by Mr. Tite, containing about a score of the original Shakespearean quartos, most of them printed in his lifetime. Among them were copies of the "Two Noble Kinsmen," "Yorkshire Tragedy," "Sir John Oldcastle," and "Lord Cromwell," falsely attributed to him. There was also a copy of the "Sonnets," and of the first folio. In another case was the first edition of Milton's "Paradise Lost," containing the first three title-pages.

On Thursday, the 12th, Mr. Tite, M.P., read a paper on the collection, which he divided under four heads—Block Books, Early Printed Books, Hords, and Typographical Curiosities. To this paper we shall probably return before long.

THE DISCHARGE FROM UNDER-DRAINAGE.

INSTITUTION OF CIVIL ENGINEERS.

On December 3rd, the paper read was "On the Discharge from Under-drainage, and its Effect on the Arterial Channels and Outfalls of the Country," by Mr. J. Bailey Denton.

This paper contained deductions from a series of experiments made at Hinxworth, to ascertain the relative fall of rain on the surface, and the discharge of water from the under-drains. The experiments extended from 1st October, 1856, to 31st May, 1857. They were made on fields containing about 100 acres, in equal proportions of the two descriptions of soil into which the agricultural land of Great Britain requiring draining might be divided, viz., the surcharged free or porous soils, and the absorbent retentive soils, usually, though incorrectly, called "impervious clays."

The whole estate was drained by one connected system of works; but the mode of draining necessarily differed. Thus, the "free soils" were drained by occasional and wide drains from 4 to 8 feet deep, at a cost varying from 17. 10s. to 37. 10s. per acre; while the "gault clay" was drained uniformly, by a parallel arrangement of drains 25 and 27 feet apart, and 4 feet deep, at a cost varying from 57. 10s. to 67. 10s. per acre. In the latter case, the number of drains was increased to a maximum, the object being not only to remove excess of wetness, but to promote the aëration and disintegration of the soil.

It was remarked, that the average annual rainfall in the district was 24 inches, which had not been exceeded in the three years preceding the experiments. The greatest fall in twenty-four hours, during the eight months from October to May, was 0.542 of an inch, and the total fall was 10.045 inches, while the average fall, over the same period, amounted to 13 inches.

After some general remarks as to the time when under-drains commenced discharging, and upon the condition of the free soils and of the clays at Hinxworth, prior to under-draining, the author proceeded to consider the effect of that operation. On the "free soils," and in fact on most of the mixed soils, it was observed that no water could run from the under-drains until the water had

been raised, by descending rains, to the level of the drains—which was not exactly the case with "clay soils;"—and that, as the surface-springs rose higher and higher before draining, so the lowest drains would begin to run first; and as soon as the water-bed of the whole area drained, forming an inclined plane, had risen by degrees to the height of every drain, the whole system would be at work, and not till then. The quantity discharged by the drains did not represent the whole of the infiltrated water, which included the water discharged by the drains, the water which gravitated to the out-crop springs, and the moisture which rose from the subsoil beneath the drains by attraction into the soil above them, to be dispersed by evaporation at the surface. The quantity of water discharged by the surcharged "free soils" was rather more than two-thirds of the rain which fell on the surface, the actual quantities being 163,550 and 227,220 gallons per acre, or 7 and 10 inches respectively. This proportion had reference to the rainfall of eight months only. If the discharge of the whole year were compared with the rainfall, it would be found to be less than one-third, arising from the fact that, while the discharge of the remaining four months was very trifling, the rainfall was 11 inches, or 250,000 gallons per acre. If the mean discharge for twelve months of the free and mixed soils were taken together, it would be found to amount to one-fourth of the corresponding rainfall, a proportion which would give 6 inches in depth, or 135,732 gallons per acre as the mean quantity of water discharged from such soils to the outfalls from under-draining; a result not inconsistent with the experiments of Dickinson, Dalton, and Charnock. This quantity was, for the most part, new water rescued from evaporation, and would, *pro tanto*, swell the ordinary flow of rivers.

CHESTER ARCHITECTURAL SOCIETY.

The third monthly meeting of the session of this society was held in the room ordinarily occupied by the society, in St. Peter's-churchyard; which proved, however, inadequate; a considerable number of members having been unable to obtain admission. The Mayor was called to the chair.

Mr. J. H. Parker, of Oxford, lectured on "St. John's Church, Chester, and the Work of Restoration now in progress there." In the course of his remarks he stated that some idea could be formed of the immense amount of money and labour expended on the original edifice, when we reflected how large a sum was required merely to restore the fragment now under the architect's hands. The entire structure must certainly have cost more than 100,000*l.* of our money; and that at a time when hundreds of other similar buildings were being erected in various parts of England.

Mr. Hussey's series of plans for the restoration of the church, as likewise a large ground-plan of the church and ruins, by Mr. B. Owens, the contractor for the work, were arranged upon the wall; and these Mr. Parker explained; taking occasion to express his satisfaction with the various portions of the restoration so far as they had proceeded.

The Mayor, in alluding to Mr. Parker's condemnation of many pretended "restorations" in the present day, which, in his opinion, were merely "disfigurements" under a more delusive name, said,—"He would specially allude to one,—the parish church of Mottram. That church was the most prominently situate of any in the county. From the picture of it in Ormerod's 'Cheshire' it would be recognised as a beautifully proportioned and picturesque object placed on a commanding eminence. Some years ago the parishioners were advised that it was in danger, and a large sum was subscribed for the repair and restoration. An empirical pretender to architecture had been called in; and the result was that, by unnecessarily raising the body of this church, its beautiful proportions had been destroyed, both externally and internally; and it now presented to the eye an outline of architectural deformity. But this was not all. A beautiful and substantial oak and leaded roof that would have lasted for a thousand years had been taken away; and the contractor had, it was said, realised a much larger sum by the working up of the old materials to other purposes, than the materials for the new and less durable roof had cost. This showed the necessity of these so-called restorations being submitted to some more competent authority than they generally are."

Mr. Parker then referred to some stone fragments lying upon the table; all of which, with two exceptions, had been taken out of the foundations of the old south wall. The last object he

referred to was what he described as a strange vessel, apparently of twelfth century work, which had that moment met his eye; and he would ask the secretaries to give the meeting some reason for its presence amongst the relics from St. John's."

Mr. T. Hughes explained that the relic had been sent to the society some two years ago by a local architect, who was unable to say more about it than that it was given to him some time before by a gentleman, who stated it to have been discovered at St. John's. At a former meeting of the society, the exhibition of this vessel had given rise to an animated discussion, without, however, any definite result.

Mr. C. Brown stated that he remembered to have seen more than one of such relics; and as far as he could now recollect, very similar in form to the present one, in the nave of Fountains Abbey.

Mr. Parker observed that there was a somewhat new subject of archaeological study, which had been introduced by Miss Hartshorne, in a small work just published; viz.,—the caskets or repositories in which were placed, in the Middle Ages, the hearts of the founders or chief benefactors of a church. Several of these were extant; and it was not improbable that the relic now before them may have been sculptured for a like purpose. The hearts of numberless knights and barons, who had died or been killed during the Crusades, were certainly sent home to England in some such casket or reliquary as the one to which his attention had been called.

TRADE MARKS.

In the "good old times," as they are still sometimes called, when even in the metropolis the names were not emblazoned, nor in other ways marked on the corners of the streets, and no one had thought of numbering the houses,—in those days when post-offices were not known, advertising in newspapers but little encouraged, and book learning not general,—it was necessary for the dealers in different kinds of merchandise, manufacturers, and others, to devise some sign by which their respective premises could be identified: it was likewise necessary to use marks by which their goods could be readily distinguished by those who were engaged in business, many of whom were unable to read printed or written descriptions.

Some of these merchants' marks were a combination of the general form of the package of the materials in which they dealt, such as the wool-pack, golden fleece, &c., with letters, figures, and geometrical forms.

In churches or parts of old buildings; in the stately mansions of noble families in stained glass; or in other ways represented, may be still seen the marks of famous merchants. There are great varieties of these marks: some are formed by single or double crosses, circles, and other geometrical figures, heraldic shields, &c.: one, in a window over the Communion-table, in St. Helen's church, Bishopsgate-street, is composed of a double cross, numerals, and a shield. At the time of the demolition of Gerrard's Hall, in the City, to make way for New Cannon-street, several merchants' marks were found near the entrance to the crypt: these have been engraved in the *Builder*. They were doubtless the trade-marks of persons who had used this ancient place as a warehouse at different periods.

In some instances, instead of adorning their tombs by doubtful heraldic devices, old London merchants ordered that their hieroglyphical trade-mark should be placed on their tombs. On the tomb of John Orgone, in the church of St. Olaves, Hart-street, City, is his trade-mark, and the following inscription:—

"In God is my whole trust."

John Orgone and Ellene his wife.

1584.

As I was, so be ye,

As I am, you shall be;

That I gave, that I have,

That I spent, that I had;

Thus I ende all my cost:

That I left, that I lost."

Merchants and traders' marks are of great variety. There are also the curiously-devised rebuses, such as those of Isip in Westminster Abbey, Prior Bolton in parts of St. Bartholomew's Church, and others to which we have before directed attention. The monograms, rebuses, and other devices of the old English and German printers, the marks of cunning workers in gold and silver,—of painters, sculptors, and engravers, both ancient and modern, are matters of both interest and curiosity.

As time rolled on trade marks began in any instances to be disused; but, up to the present day, on most descriptions of writing-paper the makers' names are still stamped. The paper marks are quaint and singular. Amongst them is the "fool's" or "jester's" cap. This device was used by the manufacturer of a peculiar description of paper, which was remarkable for its quality and size. This met with considerable sale; and, being stamped with a "fool's cap," became in consequence so called; and, although this quality paper is sometimes now marked with the name of Britannia, and sometimes with a crown or other ornament, the name "foolscap" is still continued.

On several kinds of linen, in webs, particularly that of Irish manufacture; or muslin, silks, cotton cloths, &c., the modern trade marks are everywhere, although for the most part they display ingenuity and less artistic design than those formerly in use. Manufactured articles of gold and silver, besides receiving the maker's name, are still stamped at a considerable cost by authority.

At the present time, in various departments of art and manufacture, there is a disposition to revive the practice of using trade marks.

HIVERTON TOWN-HALL COMPETITION.

We are informed that sixty designs were submitted for the above; and, after several meetings, were reduced to the following six:—"Excellent," Mr. Henry Lloyd, Bristol; "Exitus acta obstat," Mr. Hayward, Exeter; "Wisdom, length, and Beauty," Mr. C. J. Phipps, Bath; "Utility," Mr. Ryall, Plymouth; "Perseverantia," "Que sais-je?" Eventually, the first premium was voted to Mr. Lloyd, and the second Mr. Hayward.

HULL TOWN HALL COMPETITION.

The town council of Hull are taking measures for the erection of a new town hall; and on Thursday, 12th instant, a report from Mr. Tite, president of the Institute of Architects, to whom the designs had been submitted by the council for his decision to which two were entitled to the premiums offered, was read at their meeting. Upwards of fifty designs had been sent in; and Mr. Tite, after examining them all, decided upon those bearing the following mottoes as the four best: No. 1, "Non Amore;" No. 2, "Experientia docet;" No. 3, "Fortes fortuna favet;" No. 4, "Prodesse non Consilium." These were found to be by—J. Mr. Cutburt Brodick, Leeds; No. 2, Messrs. Lockwood & Mawson, Bradford; No. 3, Messrs. W. G. Green & Louis Delville, London; No. 4, Mr. R. C. Smith, County Buildings, Hull. The premiums (100*l.* and 50*l.*) were accordingly awarded to be presented respectively to Mr. Brodick and Messrs. Lockwood & Mawson.

CHURCH-BUILDING NEWS.

Hardmead (Bucks).—On the 20th ult., the old church of St. Mary, at Hardmead, in the county of Bucks, was re-opened for Divine service by the Bishop of Oxford, after a complete restoration, from designs by Mr. D. Brandon. The old church was much decayed, and new roofs have been substituted, of open timber work, resembling in character the former ones. The old oak seats, ornamented with richly-carved panels, have been saved as far as practicable, and new seats of similar designs have been added where required. The whole of the interior stonework of the church has been restored: several new windows have been introduced; and the cement coating of the exterior walls has been removed to show the original masonry. After the service, which was very largely attended, the bishop planted a tree, *Waldstonia gigantea*, in the south-west part of the churchyard, commemorative of the event. The restoration of the church was at the cost of the owners of the land in Hardmead, Mr. W. E. Addon, Mr. R. C. Sheddin, and the Rev. E. C. Addon, assisted by the occupiers, who raised £1 upon security of the church rates. The church had been restored in 1860. The population of the parish being now under two hundred, sittings have been provided only for one hundred and fifty; but the church, which consists of a handsome tower, nave, north and south aisles, chancel, is capable of containing many more persons.

Stevenage (Herts).—A new church, for about 800 persons, has lately been finished at Stevenage, built of flints, with plinth and bonding courses of red brick; the windows, copings, and

quoins to flintwork, are in Bath stone. The building, which is in the Decorated style, consists of nave, chancel, and vestry. It is warmed with one of Porritt's stoves. The seats are of stained deal; the reredos (by Mr. Bary) of stone and marble, with inlayings in cement. The cost of the church was between 1,000*l.* and 1,100*l.* Mr. Bates, of Stevenage, was the builder; and Mr. Blomfield, the architect. The consecration, owing to various causes, will not take place before Easter; but the church is opened for evening service.

Guildford.—It has been resolved by the vestry of St. Mary's to re-floor the church, and erect open sittings in it, at a cost of six or seven hundred pounds; but, in the meantime an architect is to be employed to inspect the building, and report also as to ventilation and warming. Mr. Lower, it is said, will be employed.

Canterbury.—St. Mildred's church has been restored, under the direction of Mr. Butterfield, architect, and the interior repaired. It had become much decayed by age, and had suffered greatly from injudicious attention at various periods. Funds, raised by voluntary contributions only, were collected to the amount of 950*l.* The contracts for the works were taken for that sum by the Messrs. Wilson, of Canterbury, who have carried out the same. The chancel has been restored and fitted with stalls for the choir, the whole being paved with mosaic pattern tiles. The pulpit has been removed to near the centre column, its ancient position in the church. The whole surface of the pavement has been placed on sleeper walls, with external air ventilators, so as to prevent the presence of dry rot, the chief cause of the previous decay. The church is fitted up with open benches. An ancient stone carved font has been cleansed from heavy coats of paint. A gallery and an altarpiece have been removed, and an organ from Bevington's has been erected. Nearly 100*l.* are still required to clear off the liabilities.

Broadstairs.—A desire has long been entertained to improve the appearance of the church here by the erection of a tower, to contain a clock, there being no public clock in the place. Plans were furnished by Mr. G. A. Taylor, of the Maisonette; who, besides becoming a donor to the fund, placed his gratuitous professional services at the disposal of the committee as honorary architect. The first stone of the new tower has been laid. The tower will be 90 feet high. Nearly two-thirds of the estimated cost are already promised. Further alterations at the east end of the church are contemplated, but are postponed for the present. The contract for the tower has been taken by Mr. Caleb Hillier, bricklayer; and Mr. G. Page, carpenter.

Lacock (Wills).—On Tuesday, the parish church of Lacock, Wilts, was reopened, after having been closed some months during restoration. The whole of the body of the church, with the transepts, has been reset. The seats, which are all open, are of stained deal, with substantial bench ends. Those in the north transept (called the Lackham Aisle) are of oak. This aisle has been restored by Mr. Caldwell, of Lackham House. There is a new reading-desk and pulpit of oak, on a Bath stone base, and a new font, to replace the former urn of black marble. The beautiful Talbot chapel, and the chancel, which was rebuilt in the latter part of the last century, remain untouched; and the glazing east window, with two large square pews stuck immediately into the chancel arch, are only rendered more offensive by the restorations in the body of the church, which have been carried out in the most liberal manner. While the chancel remains closed, the organ-gallery at the west end cannot be removed; but everything has been prepared for its destruction at the shortest notice. The works have been executed by Mr. Mullings, of Devizes, and Mr. Gale, of Lacock. Mr. Blomfield was the architect.

Bristol.—The Rev. Canon Girdlestone, treasurer of the fund for the restoration of this cathedral, has issued a report to the lay committee, in which he says,—"The internal restoration of the cathedral from the eastern end to the tower, including the Berkeley Chapel, the new screen, and the enlargement of the organ, is now completed. The entire sum expended upon the above work amounts to 6,394*l.* 10*s.* 9*d.* The entire sum subscribed, including all donations for special purposes, and the collection made on the day of re-opening, amounted to 4,926*l.* 5*s.* 1*d.* Of this sum, 1,589*l.* 10*s.* 8*d.* has been contributed by the Dean and Chapter, and 3,336*l.* 14*s.* 5*d.* by the public. The whole amount subscribed falls short of the whole sum expended by 1,467*l.* 5*s.* 8*d.*, which deficit the Dean and Chapter have under-

taken to pay; and thus, together with the sum which they originally subscribed, may be considered as having contributed 3,057*l.* 16*s.* 4*d.*, i.e., nearly one-half of the whole sum expended. The work has cost considerably more than was expected. This has arisen chiefly from the necessity of doing a good deal of it by day wages, instead of by estimate and contract.

Wednesbury.—The first stone of a new Wesleyan Methodist chapel has been laid at Mesty Croft, a suburb of Wednesbury, which lies between the Westborough and Walsall roads, and is the recent addition to the inhabited part of the town, owing its erection to the Wednesbury Building Society. It now contains a population of 850 or 900 persons. The growth of this suburb is one of many proofs of the prosperity of the town, which is one of the most flourishing in South Staffordshire. The chapel will be of red brick, interspersed with blue-brick dressings, and calculated to accommodate about 200 persons. The cost will be 471*l.* Mr. Samuel Loxton is the architect.

Wigginton (Staffordshire).—A faculty has been obtained to make considerable alterations to the church (St. Leonard's) in this village, which is a chapel under Tamworth. The pews throughout and the gallery at the west end of the church are to be removed, and replaced by new open benches with solid ends, of deal, stained. There will also be a new pulpit and prayer-desk. The principal feature in the alteration is a new chancel, 24 feet long, with an aisle on the north side for the organ; the roof, which is to have two arched trusses and two framed intermediates, will be boarded on the top of the rafters, and stained. The work is being executed by Mr. C. Clarkson, from the designs and under the superintendence of Mr. Joyce, of Burton-on-Trent, architect.

Derby.—On the London-road, at the corner of Canal-street, a new chapel has just been opened for the use of the Wesleyan Methodists, the foundations of which were laid about twelve months ago. The edifice is 80 feet long and 47 feet wide, with gallery, circular at both ends. The chapel floor is raised about 5 feet above the road, and the basement contains several vestries, a large room for public meetings, and space for eating apparatus, &c. The site is peculiar in shape; and, the building being required as large as possible, the present position became necessary, although it has rather an awkward appearance when approached from the town, which is the more seen through being built up to the front of land. The edifice is of Gothic character, built of bricks, with stone, coloured brick, and ornamental tile dressing, relieved with some carving; the site is inclosed with suitable iron palisade on stone plinth. The chapel is lighted mainly with two gas ring lights from the ceiling, which assist in ventilating. The lighting was executed by Mr. Woolhouse. The chapel is warmed by an apparatus supplied by Messrs. Haden & Son, of Trowbridge. The edifice contains 900 sittings. The staining and varnishing of the woodwork, and painting and gilding of the pillars and gas pendants, were done by Mr. J. Basford. The whole expense of the building will not exceed the original estimate of 3,200*l.* The works have been executed by Messrs. W. & C. Bridgatt, builders, from a design by Messrs. Giles & Brookhouse, of Derby, architects (selected in a limited competition), and it has been carried out under their superintendence.

Stretford.—A reredos has just been placed in Stretford parish church, by the liberality of two anonymous donors. The erection of the new chancel, and the insertion in it of an east window by Mr. Wailes, have improved the appearance of the whole building. Both these works have been accomplished within the last year. The bareness of the eastern wall has been relieved by the new reredos, which is in the Early English style, and of Bath and Caen stone, carved. It consists of an arcade of stonework, divided into five compartments, and surmounted by a battlemented border. The central compartment is further subdivided, and presents a descending dove, beneath which is a banded scroll, inscribed with the words, "The cup of blessing," &c. The compartments on each side are decorated with angel supporters, monograms, foliage, &c. The architect was Mr. Blackwell, and the sculptor Mr. Evan Williams, both of Manchester.

Newcastle-upon-Tyne.—The foundation-stone of a United Free Methodist Chapel has been laid here. The site selected is a plot of ground near the east end of Prudhoe-street, on the north side of the street. The building is designed to seat 800 persons; and on a level with the ground-floor there will be a class-room, vestries, and a lecture-room. On the level of and communicating with

the galleries, it is intended to erect school-rooms capable of accommodating about 200 children. The style of architecture adopted is the Italian Gothic, and the buildings will be constructed of red brick, relieved with white stone dressings to openings, cornices, &c. The approach to the chapel will be by two porches, with staircases leading to the galleries. The woodwork will be of Petersburg pine, stained and varnished. The galleries will be supported on cast-iron columns, which latter, being made hollow, will be rendered available for purposes of ventilation. Other ventilators will be placed in the walls; and, for the heating of the chapel and school-room, it is intended to have a hot-water apparatus, to be provided by Messrs. Walker & Emley. Lighting will be secured by means of four star-lights, with ventilating tubes, placed in the ceiling. The plans of the building have been furnished by Mr. Gibson Kyle, architect, under whose superintendence the work will be carried out. The contractors are, for the brick-laying and masonry, Mr. Joseph Kyle; and for the joiner and carpenter work, Messrs. Wilson & Berry.

PROVINCIAL NEWS.

Poole.—The new Temperance Hall here, according to the *Dorset Chronicle*, has been opened. The facade is constructed of variously-coloured bricks. The internal arrangements comprise a hall, with platform and gallery, reading, committee, refreshment, retiring, and other rooms in connection therewith, and appropriated to the use of societies who will hold their meetings there; as well as apartments for the persons in charge of the building. The Poole Mechanics' Institute will immediately leave their present building and find accommodation in the new structure, which contains room especially designed for their reception. The Loyal Alliance Lodge of Odd Fellows will also remove from the old to the new hall. The large hall, in its full extent, is 70 feet long by 28 feet wide, and will accommodate about 400 persons, exceeding the present town-hall by a few feet in each direction. The walls are at present left plain; but the ceiling, which is supported by open timber work, has been decorated with arabesque painting in distemper by Mr. Edsall. In each panel is introduced the temperance star and other emblematical devices, surrounded by a border. The room derives most of the light from a skylight; but in the end wall are rose windows filled with stained glass. Sufficient provision has scarcely been made for the ventilation of the apartments, according to our authority; but this defect, it is said, was no fault of the original design, and could be easily remedied. The architect is Mr. P. Branuon, of Southampton; and the work has been executed by Messrs. Curtis, of Poole.

Swansea.—A move is now on foot in Swansea, for the purpose of erecting a large and commodious hall, capable of accommodating at least 4,000 persons, at Fynone; the front elevation facing Walters-street, near the centre of the town. If successful, it will supply a hiatus that has long been felt at Swansea.

MONUMENTAL.

The Herbert Memorial.—The cost of the proposed statue is estimated at 2,000*l.*, and the committee have determined on entrusting the commission to Baron Marochetti. With regard to the second object subscribed for, they recommended the adoption of the existing hospital at Charnmouth, which was established by Lord Herbert. They trusted that Miss Nightingale will yet be able to bestow her care upon the institution, and so discharge a service of love to the memory of the chief whom she so highly prized.

Rev. G. F. Guise.—A mediæval tomb to the memory of the late Rev. George Vernon Guise, M.A., vicar of Longhope, Gloucestershire, and son of Sir John Guise, Bart., has just been placed over his remains. It consists of a solid Sicilian marble cross, polished, on a slab plinth of Peterhead granite. The whole is highly polished, and raised on a bold plinth of royal rock weatherstone. The sculptor was Mr. George Lewis.

Cast Iron.—A short time since the Coalbrookdale Company had an order for a figure, in bronze, to be placed in front of the Woolwich Barracks, in memory of the officers, non-commissioned officers, and men of the Royal Regiment of Artillery who fell in the Crimean war. The order has been executed, and the finished statue now awaits removal to its destination. It is cast of metal from Russian guns taken at Sebastopol. The design is by Mr. John Bell, whose "Eagle Slayer," it will be remem-

bered, also cast by the Coalbrookdale Company, excited considerable attention in the Exhibition of 1851. It is a female figure representing Honour, with emblematical accompaniments, and is 10 feet high. The left hand grasps a sword, and is slightly raised, whilst the right hand holds a wreath, of which there are others in reserve. When placed upon its pedestal it will be 28 feet high. The pedestal is of granite, with ornamental shields, cast by the Company.

"WHAT IS AN ARCHITECT?"

SIR.—If we may judge from Mr. Henry Cole's speech at the Society of Arts on the 4th inst., there appears to be a great deal of ignorance existent respecting the usefulness of the profession of architecture.

It is, however, evident that he merely *appears* to be puzzled and unable to define "what an architect is," that he may have an opportunity of attacking, in a most ungenerous and illiberal manner, the whole body of modern architects; who, to say the least, are as conscientious and able in the discharge of their duties as the members of any other profession. The superficial arrogance of his assertions are the best protection against his wholesale condemnation of professional architects. Is Captain Fowke in such need of a trumpet that Mr. Henry Cole, C.B., finds it necessary to raise him on a pinnacle of fame by vilifying a respectable body of men? I have always been taught that a man must achieve eminence by his works possessing internal merit; but this, it appears, is becoming an old-fashioned notion; at least, if we may judge from the example before us, it is thought correct to set off the pure whiteness of one by blackening the characters of others.

Surely Mr. Cole cannot seriously mean to tell us that, if we would be architects, we must begin either as sculptors, painters, engineers, or geometers; and that the sure road to greatness in one art is to study another. As he raises the question, I may, perhaps, enable him to judge what an architect is. In the first place, then, he is a *gentleman*; and, in the second, he is one who can design, construct, and carry out any building which may be entrusted to his care. He is one who has devoted his whole time to the study of art and science as bearing on his particular profession. From time immemorial, *art* has been considered the first quality in a building; *utility* the first requisite. It is on these grounds that we have a right to ask, why was not some acknowledged *artist* consulted upon the best mode of obtaining the greatest beauty at the least expense? Symmetry and beauty form the soul of architecture; structure, the mere bone and muscle.

The only conclusion it is possible to arrive at, after reading Mr. Cole's remarks, is, that in his opinion it is utterly useless to follow architecture as a profession. Why not go a little further, and declare it would be better to begin as a baker, or candle-maker, or that an apprenticeship to the soap-boiling business would form a good preliminary course. As well might he ask, "What is an engineer?" Sir Hugh Myddleton was a banker, Smeaton an optician, Brindley a working millwright, Telford a stonemason, Stephenson a collier; while, in mechanical engineering, —Watt was an optician, Armstrong a lawyer. But it would be endless to multiply examples, all of which only prove that, when genius is strong, no difficulties can daunt it. These were men who forced themselves into notice against the strongest opposition; but would any rational man therefore employ a lawyer, or even a collier, to design a piece of machinery?

Captain Fowke may be one of these geniuses; but Mr. Cole must really pardon us, notwithstanding his rampant assertions, if we think that the practice of military engineering is not the most efficient mode of gaining a knowledge of architecture.

The instances cited by Mr. Cole are not those of men who have climbed the ladder of fame under apparently insurmountable difficulties: on the contrary, they were men who were petted, and basked in the sun of patronage. Perhaps he is not aware that the practice of the three arts in the great Italian period was as customary as the subdivision of them now; and that Michelangelo, Raffiello, and Leonardo da Vinci, are as much entitled to be termed architects as painters or sculptors.

The inexorable civilization of modern times has decreed that there shall be a more minute subdivision of labour; and Admirable Crichtons are now scarce.

It is really amusing to think of the changes in public opinion which alternately exalt and then dethrone a man. Ten years ago Paxton was the

hero before whom architects were to bow down in shame. Where is he now? Lo, a greater than he has appeared: his candle is snuffed, his nose out of joint. If the former had the commanding excellence attributed to him, why not in justice employ the experienced man, who was to create a revolution in architecture?

It is a strange fact that the only really fine feature in the Exhibition of 1851—the arched transept—emanated from the suggestion of that distinguished architect, Sir Charles Barry; and that that feature is the most noticeable one in all the imitations of the original Exhibition building.

No one seems to commend Captain Fowke's building for other than its utilitarian peculiarities. Taste, design, beauty, seem to be of very minor importance. Thus, though English architects gained five prizes out of ten in competition with all the world for the cathedral of Lille; foreigners will still say, and with justice, that the English set no value upon art.

In conclusion I would ask Mr. Cole,—Would he, considering Leonardo da Vinci was a military engineer, employ an architect to design the fortifications of this country; bearing in mind that, to make the case similar, he must employ one who has not distinguished himself as yet, and to the exclusion of the advice of any of our eminent military engineers? In my opinion, as the art of fortification is more intimately related to construction than the art of decoration, you would find more architects capable of becoming engineers than engineers architects. Painters and sculptors have become architects oftener than any other class, for the simple reason that *art* is more difficult of attainment to unpractised hands than construction or scientific knowledge.

T. MELLARD READE.

CADDING FOR CUSTOM.

SIR.—An advertisement appeared the other day in the *Times*, so *unusual* (if I am not mistaken, as regards the sapping, as it were, of our profession), that I have not been able to repress my strong inclination to send you a copy, and to express my condemnation of it. J. B. G.

"Third of *Fees Received* will be given by an Architect and Surveyor, to any one introducing Business or Clients to him. Estates managed; railway compensation claims adjusted; dilapidations ascertained; estates laid out for building operations, &c."

DRY ROT.

ALTHOUGH several communications have been sent you in reply to the queries of your correspondent, "T. H. W.," of November 2nd, I do not conceive the question to have been met by either of them; therefore beg to add a few remarks on the subject. Most people think, if they insert a few air-bricks under the floor line of a building, they have done all that is requisite for the ventilation of that portion of it; but it is not so: the air thus admitted falls into the space, and there lies, as inert as so much water, for a great portion of the year; and when a slight change does take place, the surfaces within, being at a lower temperature, condense the watery vapour in sufficient quantity to promote the growth of "dry rot," where the seeds have been already sown; and probably the water from the concrete never thoroughly dried out. The application of *corrosive sublimate*, it is well known, will destroy the fungus wherever it touches; but, when put down and undried in this stagnant air, it produces moisture enough to bring into active life the numerous very minute germs that have escaped the poison, as well as the eye of the operator.

The best remedy, under the circumstances, would be, after getting the surfaces as dry as possible, to connect the space under the floor with the furnace or stove by which the church is warmed, whereby a brisk current of air would be promoted, and, when the stove is in use, kept up. Where this method is not available, any other—for promoting this current, that is,—may be introduced, such as by one or more metal pipes, confined to this space at the bottom, carried up the wall of the building, and left open at top. One of your correspondents attributes the presence of the evil in his case to the fact of the mortar having been made up upon the site; but if as much water was used in making up the mortar had been applied to it, without a particle of lime, the same effect might have been anticipated. Cement concrete may be very useful in cases where there is a chance of water rising from below; but, on the other hand, where there is no such risk, it is a more certain condenser than the naked earth. Where boarded floors must be used so near the earth, the space beneath must be *ventilated*, or these ill effects will follow. WILLIAM WILDS.

THE STABILITY OF THE CRYSTAL PALACE.

Sir,—I have repeatedly noticed in recent visits to the Crystal Palace an amount of unevenness in the flooring; so remarkable, that it cannot have easily escaped the notice of those to whose safety the building is intrusted. That its deflection has not been rectified betokens, on the part of the directors, a conviction that its stance is not really endangered by danger, or at least with immediate danger; but when we reflect on the possible consequences of a partial failure of the flooring of such a building occurring at a moment when a crowd had gathered round some sort of attraction (and the whole business of conducting the Palace consists in securing and exhibiting attractive objects), one cannot but feel right that some authoritative explanation should be afforded to the public, through such a medium as your columns, of a phenomenon alarming to many observers, and doubly alarming to those conversant with buildings, but which is evidently not by the authorities at Sydenham to be no cause of fear.

This great deflection is chiefly observable in the north-west end of the building (that next the entrance from the railway station), and occurs in many places, but can be seen most markedly in the comparatively narrow passage running parallel to the nave, and in front of the French and Ceramic courts. It can also be well observed at the Pompeian Court. Of its cause I can say nothing, except that I have noticed it to be most manifest near the large masses of vegetable earth which plants are grown, and which are kept constantly wet. The floor-boards near these masses of wet earth exhibit here and there marks of decay; and one is therefore led to suspect decay of the joists and girders.

A SEASON TICKET-HOLDER.

BUILDING ACCIDENTS.

The Great Exhibition.—Mr. Bedford, the West-northern corner, has held a protracted investigation at St. George's Hospital, into the circumstances attending an accident which occurred at the Great Exhibition building, on Monday, the 12th, resulting in the death of Martin Conolly, and 23, residing at 6, New-court, Brompton, and was to two other workmen on the building. It appeared that on Monday last a gang of workmen and labourers, engaged in the construction of the roof and domes, were hoisting and placing iron principals, weighing 11 cwt. each, the top scaffold of the dome. One of these principals suddenly fell, in consequence of not being properly bolted, thereby tipping over some workmen on which deceased was standing, and sending him headlong to the ground, a distance of feet, the falling principal and planks inflicting injuries on two others. It was stated to be the duty of the "ganger," named Finn, to see that the bolts were fixed. Finn deposed that he duly pointed the deceased and another, called Mara, to the bolting. Mara swore that he knew nothing whatever about it, and that he was absent two hours and a half, talking to a friend. The jury briefly deliberated, and returned an open verdict, that deceased died from the effects of a fall at the International Exhibition, by negligence, arising from the bolts of the principals not being properly fixed.

Leeds.—A fire has occurred at the Leeds Town Hall, under rather extraordinary circumstances. The Victoria Hall is lighted with gas supplied from two enormous meters, placed one on each side of the building; and on Monday night, shortly after six o'clock, as Mr. Swales, inspector of nuisances, was going to his office, he observed that he supposed was the gas burning above the meter on the west side of the hall, near the prison stairs. On further examination he discovered that one of the large pipes which carry the gas up to the hall were literally blazing, and melting away. An alarm was immediately given, and the hand-engine belonging to the town brigade was almost instantly at work. A few minutes sufficed to remove all danger,—a fortunate but narrow escape. The origin of the fire is not known.

Old Houses.—The roof of an old house, existing of two stories, situate at St. Ninians, near Stirling, has fallen in. There was no person at the time. Another fatal accident, the fall of the roof of an old and ruinous house, occurred in Caithness. The house referred to an old barn at Hillhead, of Lybster. A man was engaged within it in threshing corn was killed. The roof was entirely supported by a couple, which gave way.

COMPENSATION CASE: NOTTINGHAM.

Last week an inquiry was opened in the grand jury room, at the Guildhall, Nottingham, before Mr. T. Hawksley, civil engineer, in the reference between the Corporation of Nottingham, being the Local Board of Health of the borough, and Mrs. Mary Ann Henson, Mr. R. B. Henson, and Mr. T. W. Henson, as to the compensation to be paid for property taken under the "compulsory powers of the Lands Clauses Consolidation Act, 1845." Mr. Cave, barrister, instructed by Messrs. Hunt & Son, solicitors, Nottingham, appeared on behalf of the claimants; and Mr. Field, barrister, instructed by Mr. Enfield, the town clerk, on behalf of the corporation.

It appears that some time ago the corporation resolved, on the recommendation of the Improvement Committee, to open up a new street leading from the Poultry and Cheapside to Carlton-street; and after the beginning of the present year the Local Board of Health, in pursuance of the power placed in their hands by Act of Parliament, gave notice to Mrs. and the Messrs. Henson that they intended to take a block of property and land, 709 square yards in extent, situate at the junction of Chandler's-lane and Bottle-lane, in order to carry out the proposed improvement. The owners of the property called in Mr. Booker, architect, who valued it at 6,603*l.*; upon which a claim for that amount was made to the Local Board; who, considering that sum to be greatly in excess of the value of the property, made what they considered a reasonable offer; and that being refused, they made another nominal offer, in order to have the matter settled either by a jury or by arbitration. The owners having adopted the latter course, both parties agreed to refer the question to Mr. Hawksley, who had come down to hear evidence, in order to put him in a position to give his award.

In course of the inquiry, Mr. Goddard, architect, Lincoln, said he had been in practice twenty-three years, and he was acquainted with Nottingham. He had considerable experience in valuing property taken compulsorily under the Lands Clauses Consolidation Act. He had surveyed the property in question, and he estimated its value at 7,350*l.* 8*s.* The mode by which he arrived at that was by valuing the buildings as they now stand. He then valued the land at the price it would fetch if cleared of the buildings; and having added the two sums together he made an allowance of 33*l.* 6*s.* 6*d.* per cent. for the compulsory sale. That was a usual allowance in cases of this kind, where the property was improvable, being in the centre of the town. It had always been the practice of the witnesses to make that allowance when acting on behalf of the promoters of an undertaking.—By Mr. Field: Witnesses valued the buildings, as they now stand, upon the rental, at 1,191*l.* 8*s.* He then valued the land, supposing it to be cleared of the buildings, at 7*l.* 6*s.* and 2*d.* per yard, amounting altogether to 5,552*l.* 6*s.*

Mr. Henson stated that the area of the land, stripped of the buildings, was 709 yards.

Mr. Jelland, architect, Nottingham, valued the property in question at 7,251*l.*, allowing one-third of the value of the land and buildings on account of the compulsory sale.

Mr. John Smith Norris, architect, Nottingham, said he had examined the property in question, and valued it at 6,561*l.* He estimated the buildings at 1,721*l.*, and the land at 3,191*l.*, giving a total of 4,912*l.*, to which he added the customary 33 per cent. for the forced sale, amounting to 1,641*l.*

For the corporation—Mr. Marrable, late superintending architect to the Metropolitan Board of Works, said he had examined the property in question, and found it to be in as bad repair as it could be, to be at all tenable. He took the net rental, making certain deductions for insurance and other matters, at 200*l.*; and in his opinion the property was worth thirty years' purchase, which would give 3,000*l.* He did not think the property was capable of being applied to more profitable purposes than it was at present. The value of the land, denuded of the buildings, he estimated at 4*l.* per square yard; and, taking it at 710 yards, that would give 2,841*l.* He would allow ten per cent. for compulsory sale, and that gave as the total value of land and buildings 3,225*l.* 2*s.* During his experience he had never allowed more than ten per cent., and he had never known more allowed for compulsory sales of land and buildings.

Mr. H. Moses Wood, architect, Nottingham, said he had examined the property in question, and he did not think its rental would be increased by laying out more money upon it, under its present system of occupancy. The land would not be compulsory sale at Lincoln in which it was pulled down. The value of the property he estimated at 3,233*l.*, making no allowance for compulsory sale; he had never known 33 per cent. allowed on that account, and did not think it ought to be allowed.—By Mr. Cave. The buildings on the land, exclusive of the main office, he estimated at 1,430*l.*, and the land at 1,520*l.* The land he estimated at 4*l.* and 2*d.* per yard. He was engaged in a case of compulsory sale at Lincoln in which 33 per cent. was allowed on that account.

Mr. Frederick Bakewell, architect, Nottingham, gave his valuation as 4,931*l.*, including 10 per cent. for compulsory sale. The land he considered was only worth 2*l.* 10*s.* per square yard.

Mr. Marriot O. Tarbolton, C.E., corporation surveyor, Nottingham, was of opinion that the marketable value of the property was 4,912*l.* That was if it was put up to auction, exclusive of allowance for forced sale. Ten per cent. was a proper sum to allow on that account, which would give 3,911*l.* 8*s.*, making a total of 4,360*l.*, which would give twenty-five years' purchase on the rental, which he took at 178*l.*, after making all deductions.

Mr. C. E. Cawley, C.E., had examined the property in question, and had taken two modes of arriving at its value,—one by the rental, and the second by valuing the

buildings as they stand and the land separately. By the first mode he estimated the value at 3,560*l.*, to which he added for compulsory sale, 10 per cent., 356*l.*, making altogether 3,916*l.* By the second mode he valued the buildings at 1,365*l.* 12*s.* 6*d.*, the land at 2,512*l.* 10*s.*, making 3,918*l.* 2*s.* 6*d.*; and adding to that for compulsory sale 10 per cent., 391*l.* 16*s.* 3*d.*, gave a total of 4,369*l.* 12*s.* 9*d.* In Manchester there was never more than 10 per cent. allowed for compulsory sale.

The arbitrator took time to consider his award.

ARCHITECTS' ACTIONS.

Palmer v. Elcock & Lowe.—At the Walsall County Court, an action has been tried for the recovery of 411*l.* 1*s.* 6*d.*, for work done, and damages sustained from breach of agreement. Counsel for plaintiff briefly detailed the circumstances. He stated that his client was an architect of some experience, residing in Wednesbury, and the defendants were partners, carrying on business in the same place as gas tube makers. Some time ago the last-named gentlemen conceived the notion of building a country house each, next door to each other, in the parish of Great Barr. In order to do this a plan was procured from Mr. Bates, of Handsworth, architect, and this was shown to plaintiff. It was merely the ground plan of two houses, the cost of building which would be about 400*l.* each; and plaintiff was asked what he would make out of the other plans and superintend the erection of the two houses for; and he, being on excellent terms with the defendant Mr. Lowe, said, in an off-hand way, that he would do it for 10*l.*, on condition that a horse and cart should be provided for him by defendant, and the plans and drawings were duly drawn; but afterwards Mr. Elcock decided to erect houses of a much superior character, and instructed plaintiff to make out plans for a seat in his trap when he drove over to Barr. He agreed to this, but did not agree to find him a horse and trap. Even when certain alterations and additions to the place were suggested, he thought the 10*l.* was to include all plaintiff's charges.

Other evidence having been led for the defendants, the Judge, in putting the case to the jury, said that the question for them to decide was as to whether the 10*l.* so often mentioned was to cover the whole of the charge for the work done. The main point to which he would direct their attention was the item of 27*l.* 10*s.* A bill for 411*l.* had been sent in for work done to property which cost 530*l.*, while 10*l.* had been considered a sufficient remuneration for work done to property valued 1,050*l.* But was the additional expenditure agreed to be made after the agreement for the 10*l.* to be paid to plaintiff for his services. And were the alterations suggested by the plaintiff without any understanding as to an extra remuneration? And was the extra amount of remuneration claimed a reasonable sum? If they thought that Mr. Elcock was justified in supposing that 10*l.* was the total sum plaintiff was to charge, and that plaintiff's silence on the subject confirmed him in such supposition, then their verdict would be for the defendant. If, on the other hand, they thought that the plaintiff was entitled to an extra claim, they must consider if the amount claimed was just; and, if not, how much of it would be a reasonable sum.

The jury, after a few minutes' deliberation, made an inquiry as to whether the plaintiff had done any work which it was not the province of an architect to perform; and, if so, if it was customary to charge 24 per cent. upon it. They also wished to know if it was usual to charge 5 per cent. upon amounts extra of contract. There appeared to be a difference of opinion on this subject; but Mr. Benton Dawes stated that 24 per cent. was the proper charge for extras. Eventually the jury returned a verdict to the effect that, as the original agreement between plaintiff and defendant appeared to have been an absolute bargain for 10*l.*, independently of the cost of the buildings, they did not think plaintiff was entitled to the claim he had made, nor to more than had been paid for the work for the defendants was, therefore, recorded. The case occupied the court nearly six hours.

TWELVE ADVANTAGES OF POST-OFFICE SAVINGS' BANKS.

1. THEY will be quite safe. Money placed in them is placed in the hands of the Government, which is bound by law to repay it when it is wanted.
2. They will be near to every man. He will pass them as he goes to his work and as he returns from it.
3. They will be open for eight hours of every working day. A man may walk into one and deposit his money at his own convenience, and he may do this when none of his neighbours or friends are by to see what he is about.
4. They will enable men to save up money by degrees. As small a sum as one shilling can be deposited in them.

5. They will give a fair interest for the money deposited in them. If a man deposits one shilling a week in them for ten years, he will then have nearly thirty pounds of principal and interest.

6. Persons depositing money in them will not be at any expense. There will be no charge for books, or forms, or postage. There will be no entrance fees and no fines.

7. Those who put money into them, and want it out again, can get it quickly—that is, in three or four days—and without trouble.

8. Women and children may deposit money in them in their own names.

9. If a man begins to deposit in one Post-office Savings' Bank, at Huddersfield, for instance, and afterwards goes to Rochdale, or Stourbridge, or some other town, he can go on depositing wherever he may be.

10. And if he has put his money into a Post-office Savings' Bank in one town, in Huddersfield, for instance, and wants it repaid to him in some other town, he can have it so repaid without difficulty.

11. The postmasters are strictly ordered not to disclose the name of any depositor in a Post-office Savings' Bank, or to mention the amount he or she may have saved.

12. Lastly, those who put money into Post-office Savings' Banks will have the advantage of feeling that they are doing their duty by their families and by themselves, and that they are placing their money where it will be safe until sickness, or old age, or some other cause, compels them to ask for it again. F. I. SCUDAMORE.

Books Received.

The History and Articles of Masonry; now first published from a MS. in the British Museum. Edited by MATTHEW COOKE. London: Richard Spencer, Great Queen-street. 1861.

The original of this little book is amongst the Additional Manuscripts in the British Museum, No. 23,198, and is ascribed by the editor to the latter part of the fifteenth century. It cannot at any rate be earlier, since it refers to the Polychronicon as "a chronicle printed," and this was not the case until 1482. It reads to us, we must confess, as a more recent production. The substance of the "History," which tells an odd rambling story about geometry and masonry, and Euclid and Solomon, is known in other shapes. One of Mr. Cooke's notes we may reprint. It is on the lines,—

"And after that was a worthy king in England that was called Athelstan, and his youngest son loved well the science of geometry, and he wist well that hand-craft had the practice of the science of geometry so well as masons, wherefore he drew him to council and learned (the practice of that science to his speculative, for of speculative he was a master, and he loved well masonry and masons."

This is, he says,—

"To the free and accepted, or speculative, mason the most important testimony. It asserts that the youngest son of King Athelstan learned practical masonry in addition to speculative masonry, for that he was a master. No book or writing so early as the present has yet been discovered in which speculative masonry is mentioned; and certainly none has gone so far as to acknowledge a master of such craft. If it is only for these lines the value of this little book to Freemasons is incalculable."

After writing the above, a friend, not a brother, but one of the most learned men on the subject of masonry, put the following question:—"Are you so sure that speculative masonry is Freemasonry?" May it not be the art of designing, speculative being tantamount to contemplative, amongst the older authors,—in fact, what we should now call an architect?"

Every Freemason can resolve this for himself."

Mr. Cooke appears to have executed his office very carefully.

Miscellaneous.

PRINCESS'S THEATRE.—On Thursday evening last, Mrs. Key Blunt, an American lady, of whose poetical readings we have before now spoken, essayed the sleep-walking scene from "Macbeth," and a scene from Goethe's "Faust and Marguerite," in conjunction with Mr. George Jordan, also an American; Mrs. Blunt succeeding in obtaining the applause of a very full house. "The Cricket on the Hearth" was admirably played by Miss Carlotta Leclercq, Mr. Ryder, Mr. Meadows, and Miss Helen Howard, the real *Willy Slowboy*.

ARCHITECTURAL SOCIETY OF NORTHAMPTON.—A committee-meeting was held 9th December, the Rev. Lord Alwyne Compton, in the chair. Various objects of interest were exhibited, and Mr. Morton consulted the committee with reference to a painted window about to be inserted in the chancel of Harleston Church. The cottages designed by Mr. Hedley, under the instructions of the committee, were scrutinized, and a form of recommendation to cottage-builders to be issued by the society agreed upon. Mr. Irvine exhibited patterns for the proposed needle-work for St. Sepulchre's.

TERRIFIC EXPLOSION.—A fearful explosion has occurred on the premises of Mr. Barnett, chemist and druggist, Jamaica-row, Birmingham, by which several persons were severely injured, one it is believed fatally, and an immense amount of property destroyed. The premises consist of a large shop, a dwelling-house, a large cellar below the shop being stored with oil, naphtha, and other inflammable liquids, while the second and third floors were occupied by Mr. Barnett's family. A large crowd assembled, and many of them actually commenced at once to plunder the shop! Very little is as yet known of the cause of the explosion. A lad was going down into the cellar for some oil, having a lighted candle in his hand; and when he got to the bottom of the stairs he heard a loud report, and was thrown to the ground and stanned. Mr. Barnett only knows that while standing at his desk he was suddenly raised from the ground and thrown forwards, and in a moment found himself in the cellar lying upon a mass of burning debris with his clothes on fire. It cannot yet be said with certainty whether the cause of the explosion was an escape of gas, or an ignition of inflammable vapour from the large stock of naphtha kept in the cellar. Not only the premises in which the explosion took place, but those on each side, have received much damage.

EDINBURGH: WORKMEN'S HOUSES.—An influential meeting has been held on this subject; the Lord Provost in the chair. The meeting was addressed by Mr. Sheriff Cleghorn; the Lord Advocate; Mr. Duncan McLaren; Mr. Alexander Wood, M.D.; the Rev. Dr. Guthrie; Rev. William Robertson, Greyfriars; Mr. David Mure, M.P.; Admiral Ramsay; and others. A committee was appointed to frame a constitution for a projected society or company to erect dwellings for the working classes, and look out for suitable sites. With reference to Mr. Dunlop's Act, the Lord Advocate, without committing himself, hinted that his influence would not be wanting to carry through a supplementary Act, conferring larger powers than that Act contains, by which much of the old wretched houses in the Old Town might be purchased at a fair valuation, by companies formed for the erection of new houses in their places. In supporting such a measure, his Lordship signified that he would be greatly encouraged and strengthened by the formation of a large and influential company for carrying out the object in view. It is said that the Dean of Guild is about to take measures for clearing the streets of dangerous tenements.

THE KESWICK DRAINAGE QUESTION.—A memorial has been recently presented to the Keswick Board of Health by the Local Poor Law Board of Guardians and magistrates, in which a right view of the sanitary question as affecting such boards, and which we have long urged, is thus pressed upon the attention of the Local Board of Health:—"We, the guardians and ex-officio guardians of the poor of Keswick, fearing that much suffering and an increase in the poor rates will result from the fever now existing in the alleys and lanes; and believing that the only way to arrest this epidemic and prevent the recurrence of similar diseases is, in the first place, thoroughly to drain the site of the town; beg to urge on the Local Board of Health the necessity of no longer delaying the works necessary for this purpose." A memorial from the rate-payers, landlords, and inhabitants generally has also been presented to the Local Board of Health as to the unhealthy condition of the town, and the necessity for "sound sanitary measures" being "speedily adopted," to prevent "a great deterioration of some of the property in the present town" by removal of the inhabitants to drained and healthier districts. The memorialists, therefore, urge the adoption of an "efficient system of drainage." The medical men of the town, too, declare that "the best plan to arrest the course of fever, and to prevent the recurrence of epidemic diseases in general, will be to execute a thorough system of drainage of the town." The Keswick people are actuated by a somewhat different spirit from that which is being displayed at Winchester.

THE GIRDEES OF THE LENDAL BRIDGE, YORK. These girders have been sold by tender, and have been in the course of removal during the week. The girders and other ironwork have fallen to the tender sent in by Mr. T. Cabry, the resident engineer of the North-Eastern Railway Company, at 2*l.* 10*s.* per ton; and the total purchase-money will be about 700*l.*

IRON SAFES.—A few days ago, one of Chubb's safes, containing 3,000*l.* of gold, was recovered from the wreck of the *Royal Charter*. On opening the safe the gold was found intact, much to the satisfaction of Messrs. Gibbs, Bright, & Co., the owners. It will be remembered that a great quantity of gold was dispersed and lost in the ill-fated vessel through being packed in wood cases, which were destroyed by the action of the waves.

THE SURVEYORSHIP TO THE COLCHESTER TOWN AND CHANNEL COMMISSIONERS.—From a list of thirty-two candidates three were selected; namely, Mr. Jeffrey Austin Hall, of Willenhall, South Staffordshire; Mr. Joseph Hope, of Summer Town, Oxford; and Mr. William F. Rowell, of Lancaster, Durham, for further selection; when the Board, after several votings, especially between Mr. Hall and Mr. Hope, which were more than once equal, at length appointed Mr. Hope, by a majority of eleven to seven.

SAWDUST AS A FIXER OF AMMONIA.—Sawdust is said to be one of the very best absorbents for liquid manure. Mixed with diluted sulphuric acid, it is one of the best materials for fixing the ammonia which is given off in stables. The following experiments have been put on record:—A shallow basin, in which sawdust, moistened with diluted sulphuric acid, was spread, was hung up in a stable; and, in the course of three weeks, all the acid in the sawdust was neutralized by the ammonia in the air of the stable, and a considerable quantity of sulphate of ammonia was formed in this manner. For this reason, sawdust, mixed with sulphuric acid, is recommended as a means of keeping stables sweet and wholesome. This acid should be diluted with forty times its bulk of water before it is applied to the sawdust. Just enough should be applied to make the sawdust feel damp. On account of its porosity, sawdust retains the acid very perfectly, and presents a large surface for the absorption of the ammonia.

NEW IRON BRIDGE, AT NORTHENDEN, CHESHIRE. The ferry-boat which, has been in use on the Mersey at Northenden from time immemorial, is now superseded by a lattice girder foot-bridge, which has been erected at the expense of Mr. Tatton, of Withenshaw Hall. This structure consists of two wrought-iron lattice girders, spanning the river, which is 83 feet wide at this point. The girders are of ornamental design, 88 feet long, 6 feet deep in the centre, and 2 feet 6 inches at the ends; and they are placed 6 feet apart; the footway being composed of cross timbers and planking. Each end of the bridge is supported by a cluster of four pile columns, 8 inches diameter, which are driven 15 feet into the earth. The upper parts of the girders are connected in two places by cast-iron arches, ornamented by the armorial bearings of the Tatton family. At one of these arches there is an iron lattice gate. The footpath is carried from the ends of the girders to the top of the banks by iron beams and planks, and there are ornamental iron railings at the sides. The whole has been designed, constructed, and erected by Messrs. Edward T. Bellhouse & Co., of Manchester.

OXFORD ARCHITECTURAL AND HISTORICAL SOCIETY.—At the second meeting (Nov. 13th), the Rev. P. G. Medd, in the chair; the junior secretary read a report, from which the following is an extract:—"The committee have also to announce that a communication was received during the long vacation from the honorary secretaries of the Royal Institute of British Architects, to the effect that 'that society having been named by her Majesty's Commissioners of the International Exhibition of 1862 as one of the Art Institutes in connection with it, they have thought it expedient that the various other architectural societies should be associated with the Institute, so as to form a united body, which might promote effectually the due representation of architecture in the Exhibition. A representative committee was therefore formed, to which your society was requested to nominate two representatives.' In accordance with this invitation, your committee at their first meeting this term nominated the Rev. Dr. Bloxam and Mr. J. H. Parker; and these gentlemen have both expressed their willingness to serve." The Rev. W. W. Shirley then read a paper on "The Character and Court of Henry II."

GALLERY OF ILLUSTRATIONS.—In Mr. and Mrs. Reed's excellent "Entertainment," Mr. Parry now relates, musically, the vicissitudes of a Colleen Bawn, in the words of Mr. Parry, and with Mr. Musgrave's music. He does only Parry can. Mrs. Reed herself is just now charming voice.

BLACKFRIARS-BRIDGE.—At a recent meeting of common council, Mr. H. W. Vallance, the man of the Bridge House Committee, brought up a report of that committee, to whom had been referred to obtain designs and estimates for the construction of a new bridge at Blackfriars, which recommended for adoption a girder bridge, for an iron bridge of 245,000 ft. of arches, at the estimated cost of 245,000 ft. In some discussion, the court resolved that nothing should be done until the report of the committee is fairly before the public.

MANCHESTER ARCHITECTURAL ASSOCIATION.—A meeting of this Association, held on Wednesday evening, the 11th, being the commencement of the winter session, partook somewhat of the character of a social reunion. The rooms were decorated with architectural drawings, and water-colours, and also with some original sketches by ancient masters. There were present about 150 members and friends: the vice-president, G. Shaw Aitkin, occupied the chair, and, after a few introductory remarks, called upon the hon. secretary, who read the report, which showed the Society to be in a most satisfactory position. The evening was spent in listening to several short papers, and in examining the various sketches of art, which induced a considerable amount of discussion.

PRIZES FOR ART STUDENTS.—Prizes to the amount of 20l. were recently offered by Mr. Benson to the various schools of art throughout the kingdom in connection with the South Kensington Art School, for designs for watch ornamentation. Mr. Benson informs us that the Inspector-General has just notified "that none of the designs which have been received are of a character to merit the full prize in any one of the classes into which they were divided: he has, however, made the following awards:—Two guineas to Mr. R. F. W. Liddle, Durham School; two guineas to Mr. W. A. Boon, South Kensington School; two prizes of three guineas each to Miss Annie Wherry, Farnborough School; and two guineas to Mr. George O. Blacker, of Wolverhampton School. It is disappointing that both in respect of the Art of London premiums, and this smaller matter, the schools should fall short.

IMPROVEMENT IN SAW-FRAMES.—An invention has been patented by Thomas Greenwood, of Leeds, to effect an economy in the construction in the setting up of machinery for sawing fl. A steam cylinder, it is stated, is set up in an inverted position on the top of the framework in which the saw-frame is mounted; and the saw-frame is connected directly with the piston-rod or rods of the inverted steam cylinder. The traverse, therefore, of the piston will impart requisite reciprocating motion directly to the saw-frame, and avoid the necessity for providing an extended foundation than is required to support the framework of the saw-mill; while, at the same time, this arrangement will involve the simplifying of the construction of the mechanism. The improvement is to draw back the saws, after the completion of each cut, from contact with the wood under operation; so that the teeth may be clear of the wood during the return of the frame.

MR. WINCHESTER DRAINAGE QUESTION.—A letter of ratepayers, from which much was expected, came to an untimely end last week. The Mayor took the chair, and commenced, says the *Windsor Advertiser*, "by speaking of the advantages of draining which other towns enjoyed, which he hoped Winchester would yet enjoy," "gross impropriety of a chairman" at a public meeting manifesting any positive dislike to, and commencing "a speech in favour of the drainage" of drainage, excited "some manifestations of disapprobation" on the part of those who actively felt that a public meeting ought to be conducted in an orderly manner, and in all respects with strict propriety; but when it was intimated by the Mayor (quite in order) that an arrangement could not be acceded to, as was proposed by one of the dirty party, because a gentleman (Mr. Rawlinson) had come down from London to address them; such a row was kicked up by the peacocks of order and propriety, that "not one word could be heard" throughout the meeting, the Mayor was under the necessity of discharging it without even an adjournment.

DR. SOUTHWOOD SMITH.—We have received, with feelings of the greatest regret, intelligence of the death of this gentleman, one of the pioneers of sanitary reform. He died on Tuesday, the 10th instant, in Florence, of acute bronchitis, arising from a cold caught while walking out in inclement weather, and after barely three days' illness. England is indebted to him.

LIVERPOOL ARCHITECTURAL SOCIETY.—The sixth meeting of the session of this Society was held on Wednesday evening, the 11th; Mr. James M. Hay in the chair. The attendance of members was not very numerous. The paper announced for the evening was one by Mr. J. A. Picton, F.S.A., "Notes on a recent Visit to Normandy." Mr. Picton not being able to be present, in consequence of indisposition, a paper by the same author, "On Ancient Fortifications," and read by him in the Free Library before the Engineer Corps, was substituted, and read by Mr. William H. Picton, hon. secretary of the Society. The reading of the paper was followed by a conversation on the subject of which it treated.

A NEW POWER.—The other day, two old women, from the neighbourhood of Coalsnaught, were walking along Mill-street, Alloa, when their attention was attracted to the building now in course of erection for the National Bank. At that moment some of Mr. Mailer's men were in the act of hoisting a large stone by the aid of a derrick, when one of the women, noticing this, said to her companion: "Gude save us, Jenny; did ye ever see the like o' that? masons liftin' the buildin' stanes wi' compasses!" In my young days they used to be 'carried.'" "Oo ay," said Jenny, "but masons are ay gettin' the larger the lazier."

ST. PATRICK'S BRIDGE, CORK.—The new St. Patrick's Bridge, Cork, has been opened. From the inside of one balustrade to the inside of the other it measures 60 feet 6 inches. 10 feet will be taken off each side for footpaths, which will be constructed of granite. In the entire length of the bridge, 222 feet, the rise in the level is only about 2 feet. In the centre of each of the arches at both sides is a head, carved in stone at Mr. Scannell's, Douglas-street. The six heads consist of duplicate copies of the likenesses of St. Bridget, St. Patrick, and Neptune, a somewhat curious mixture. As to cost, it appears there are 13,875 superficial feet, which have been built for 14,500l., or about 17 l. a foot. Sir John Benson is the architect of the bridge, Mr. Hargrave the contractor, and Mr. Barnard clerk of the works.

SOCIETY FOR BUILDING CHURCHES AND CHAPELS.—This society held its second meeting for the present session, on Monday last, at No. 7, Whitehall; the Archbishop of Canterbury in the chair. Grants of money were made in aid of the following objects, viz.:—Building churches at Louth, Lincoln; St. Peter's, Vauxhall, in the parish of Lambeth; and at Wimbledon, Surrey; rebuilding the churches at Fotherby, near Louth; Shipton Gorge, near Bridport; and Tatterford, near Rougham, Norfolk; enlarging or otherwise increasing the accommodation in the churches at Westfield, near Battle; Braunford, near Ipswich; Haddenham, near Thame; Westbury-on-Severn, near Newnham, Gloucester; and towards enlarging the Cemetery Chapel at Owlerton, in the parish of St. Philip, Sheffield. The grants formerly made towards re-building the churches at Melne, near Cardigan, and Winterburne, Houghton, near Blandford, Dorset, were also increased. The Society also accepted the trust of a sum of money, to be invested as a repair fund for the new church at Pill, near Bristol, in the county of Somerset. In consequence of the very serious diminution in the Society's resources, many of the above grants were less than they would otherwise have been. The district of St. Michael's, Louth, is a very poor one, and it is not expected to raise more than 200l. in it. The Ecclesiastical Commissioners will endow it out of the proceeds of the sale of lands belonging to the Louth Prebendal Stall. There is at present no church in the district of St. Peter's, Vauxhall. The population, amounting to nearly 6,000, are almost all of the labouring classes, very poor, a vast number receiving parochial relief, so that it is quite impossible to raise funds locally. A large sum has recently been expended in new schools. The parish of Wimbledon is rapidly increasing in population, so that the want of church room (especially free seats) is greatly felt. The present churches are more than full. Every effort has been made to raise the sum required; but, owing to the large sums subscribed for a recently-erected church and schools, the subscriptions to the fund for the present church have ceased.

THE COMING EXHIBITION.—Notwithstanding the expression of a contrary opinion in one or two quarters, we believe we may state positively that no alteration whatever will be made as to the date of the opening of the intended Exhibition. The domes are not yet progressing in the way that is desired.

CONVERSAZIONE AT THE BRIDGEMOUTH SCHOOL OF ART.—The second exhibition of the works of the students connected with this school, together with numerous drawings, plans, and paintings, from the South Kensington School of Art, took place on Thursday last week, at a grand *conversazione*, held in the Assembly Rooms of the New Market Buildings. Mr. Pritchard, M.P., was in the chair, and the hon. gentleman was supported by the Rev. H. P. Ward, hon. secretary and master of the Grammar School, and Mr. Mulligan, the master of the School of Art. The company mustered from 150 to 200, who promenaded the rooms from eight to nine o'clock, after which the distribution of the prizes to the successful competitors took place.

WOLVERHAMPTON: LECTURES ON ORNAMENTAL ART.—The first of a series of lectures on "The History of Ornamental Art" was delivered on Wednesday evening, in the Lecture Hall of the School of Art, Wolverhampton, by Mr. W. J. Muckley, the head master of that institution. The chair was occupied by Mr. G. L. Underhill, mayor. The lecture related to the art of the ancient Egyptians, and more especially to that which is displayed in their works of architecture. In his opening remarks Mr. Muckley explained that what was known of Egyptian art exhibited it only in a state of decay; the more ancient specimens that were left to us being the most perfect. Its lasting quality, its style,—with details peculiarly its own,—and the effect of its polychromatic decoration, were all dwelt upon, and illustrated with the aid of a magic-lantern. Examples of art were given from the rock temple of Aboosymbal, from the temples of Edfou and Esnabous, with the avenue of sphinxes leading thereto. Speaking of the rock temple, the lecturer observed that it was now pretty well ascertained they were of later origin than many of the constructed temples, a knowledge which was derived from the peculiarity of their decorations. Sphinxes and statues were also referred to; and in some instances the dimensions were recorded to show their vast size. Illustrations were likewise given of their variety, the man sphinx, the hawk sphinx, and the ram sphinx; the description first named being exhibited in the great sphinx before the pyramids of Gizeh. The principal observations on statues related to the Memnonia—the guardians of Thebes, and one of them the great oracle of the Egyptians. The objects of the Egyptian worship received a passing observation, and illustrations were given to show how some of them were introduced into decorative art,—a cornice, for instance, decorated with asp, and a similar adornment, partly symbolical and partly decorative, in the head-dress of the kings. The winged globe was also alluded to, its symbolical use explained, and its frequency in decorative art spoken of. The lecture, however, referred little to detail, tending rather to show the great characteristics of Egyptian works of art, namely, their grandeur, stability, and immensity. It was brought to a close with a peroration on the fallen statue of Ozymandias, and the moral taught by the life and ambition of that great monarch.

TENDERS.

For new premises at Charing-cross, for Mr. Wyld, M.P. Messrs. Lansdowne, architects:—

Mansfield	£1,819 0 0
Smith	1,815 0 0
Patman	1,765 0 0
Piper	1,598 0 0
Sawyer	1,677 0 0
Bastbury	1,640 0 0
Walker	1,630 0 0

For Lewes Baths, Sussex. Quantities not supplied:—

Harman	£2850 0 0
Thorpe	845 15 0
Card & Son	825 0 0
Berry	814 0 0
Davey (accepted)	807 0 0

For the erection of a new club-room and bar, at the Fleur-de-Lis Inn, Preston-street, Faversham, for Mr. Rigney. Mr. Adkin, architect. Quantities not supplied:—

Orpin	£235 10 0
Tell	282 0 0
S. M. Shrubsole	275 0 0
Dennis	267 10 0
Creed	250 0 0
L. Shrubsole (accepted)	250 0 0

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VOL. XIX.—No. 986.

Glasgow: History and Progress.

GLASGOW is a place we approach with that sort of reluctance which a landscape painter might feel at undertaking a subject that is too large for his canvass. To take in the whole would be impossible: to select the best points is difficult. Nevertheless, we have considered it due to the great commercial city which, in the progress of our inquiry, we have now undertaken to describe, to give a somewhat full account of its condition. It is not often we shall meet with so conspicuous an example of those extremes of prosperity and misery which all political writers, from Montesquieu to De Tocqueville, agree in pronouncing the most painful feature of our modern civilization.

The Roman province of Valentia possessed a fort near the wall of Antoninus, on the river Clyde, which in all probability constituted the parent stock of the city of Glasgow. About one hundred and fifty years after the Romans had finally abandoned the British Islands, a certain disciple of Saint Servan the Culdee, named Mungo, planted near this spot a Christian church, where, after performing numerous miracles, and suffering many vicissitudes, he died, and was buried in the year of our Lord, 601. Such was the origin of the most powerful and splendid archiepiscopal see in Scotland.

After the death of St. Mungo, the country was overrun with what an early historian (McUre), describes as heathenism and barbarity. But this language would seem to be too strong. The valley of the Clyde at this period was inhabited by a race of ancient Britons who, as Venerable Bede tells us, constituted themselves into an independent kingdom. From those barbarous tribes and that infant church sprang at least three of the earliest and most successful propagators of Christianity—St. Patrick, the apostle of the Irish; St. Ninian, the apostle of the Picts; and St. Columba, the apostle of the Scottish Highlanders. There occurs here a blank in the history of 500 years. It was not till the reign of King David the First, that a cathedral was built, which was richly endowed by that monarch and consecrated in his presence with great splendour and pomp, on the 7th of July, 1136.

This early cathedral was destroyed by fire within a period of forty years after its consecration. But Joceline, abbot of the Cistercian monastery of Melrose, who was now elevated to the bishopric, devoted the labours of a long life to re-building it on a new and extended plan. He invoked aid from the pious all over Europe, and his appeal met with so generous a response that the present beautiful crypt was consecrated in the year 1197, on the octave of St. Peter and St. Paul. The merit has also been assigned to Joceline of having built the superincumbent choir and lady chapel. But recent researches have shown* that these were only commenced by him, and were completed by his successors. Nevertheless,

the honour belongs to him of being the founder of the present cathedral; for it has been well ascertained that no part of the previous structure remains above ground. Joceline went back to Melrose, where he died in peace in the year 1199.

This ecclesiastical edifice was destined to be the nucleus of a great commercial city, and the parent of a renowned university. We shall not recount here its altered fortunes during the troubles of the Reformation; how narrowly it escaped destruction; and how long its beauties were disfigured. The last of the long line of spiritual princes who held dominion in Glasgow was James Beaton, a nephew of the celebrated cardinal of St. Andrew's. In the year 1560 he quietly retired into France, carrying with him the whole treasures and costly ornaments of the cathedral; and, what was of greater value, the chartulary and archives of the see, from the earliest period. These valuable manuscripts were fortunately discovered, and restored by the venerable Abbot Macpherson, of the Scotch College in Paris, at the time of the French Revolution; and have been given to the world in our own times under the superintendence of one of the most learned of the Scottish antiquaries.*

The history of the university we must pass without notice, although the field is tempting; and with regard to the city, we shall just point out the sages of its municipal development. William the Lion constituted the hamlet into a burgh or barony about the close of the twelfth century. Sixty years later the burgesses acquired the privilege of trading in Lennox and Argyle. In the year 1450 it was erected into a royal burgh. But the right of appointing magistrates still lay with the bishop,—a right which was claimed by the family of Lennox long after the Reformation. It was not until the year 1690, when the Scottish Parliament ratified a charter of William and Mary, which gave the city the power of choosing its own magistrates as freely as Edinburgh or any other royal burgh, that Glasgow emerged from its long endurance of ecclesiastical domination.

Glasgow, like London, has more than once been purified by fire. But in the year 1652 a tremendous conflagration burst out, which ravaged the city for eighteen hours, and destroyed two-thirds of the houses. A new city then rose upon its ashes—a city which seems to have excited the astonishment and admiration of all contemporary travellers. In "The Perfect Politician," a publication of 1658, it is described as built on a pleasant site, with a river navigable for small boats; possessing streets more clean and houses more neat than those of Edinburgh. A still higher compliment is paid by one Franck, an English tourist, in his "Northern Memoirs," published about the same time, and which is quoted by Sir Walter Scott as a proof that commerce had already brought wealth to Glasgow, and along with that a greater attention to the decencies and conveniences of life. In the "Short Account of Scotland," published in 1689, Glasgow is described as a place of great extent and good situation, bounded with stately buildings, mostly new, and some with piazzas under them. Even Captain Burt, in his celebrated "Letters from the North of Scotland," (1725)—a book which Lord Macanlay makes so much use of in his description of the Highlands—tells us that Glasgow is the prettiest and most uniform town he ever saw, and that he believes there is nothing like it in Britain. But Daniel De Foe furnishes the crowning compliment in his "Tour in Scotland" (1727). He tells us that Glasgow is "a large, stately, and well-built city. The houses are all of stone, and generally uniform in height. The lower stories stand on vast square Doric columns with arches. In a word, 'tis one of the cleanliest, most beautiful, and best-built cities in Great Britain." Thirty years later, another writer, whose fame is nearly equal to that of the author of "Robinson Crusoe," almost echoes his sentiments. Humphrey Clinker, who

visited Glasgow in his peregrinations, describes the streets as well paved, clean, straight, and spacious; there was a stately stone bridge, of seven arches, across the river, and 30,000 inhabitants in the town.

We must now say a few words respecting its commerce. At the period of Union, in 1704, the commerce of Glasgow was such as would excite the contempt of a modern fishing village in Sutherlandshire. In the year 1657, Commissioner Tucker reported to the Government, that, with the exception of the colliers, all the inhabitants were traders. Some went to Ireland with smiddy coals, in open boats of from four to ten tons; some went to France with herrings, coals, and woollen cloth; and some went to Norway for timber. The mercantile genius of the people, he added, was strong, but it was checked and kept under by the shallowness of their river. The Treaty of Union admitted the Glasgow merchants to equal privileges with the merchants of the south respecting the trade with the colonies; and the effect of this was, that Glasgow soon absorbed a large share of the colonial trade. The Virginia merchants could boast, in the year 1715, of fifteen large vessels in the tobacco trade; indeed, they exercised so much perseverance and overcame so many obstacles, that the city became the great emporium of tobacco in this country. Tobacco continued to be the staple of Glasgow commerce down to the period of the American War.

Those Virginia traders, like the sugar refiners of Bristol in the seventeenth century, were the nabobs of the City; and traces of their wealth and magnificence are still abundantly visible. "It was their custom," we are told by an intelligent writer, "to assemble at certain hours of the day on a privileged walk, arrayed in scarlet cloaks and bushy wigs; where they strutted about with as much assumed dignity as that of a Venetian merchant when paeing the Rialto." Smollett, whom we must again quote, furnishes us with a description of one. "I conversed," he says, "with Mr. Glassford, whom I take to be one of the greatest merchants in Europe. In the last war he is said to have had at one time, of his own property, five-and-twenty ships, with their cargoes, and to have traded for above half a million sterling in the year."

This Virginia trade in tobacco was succeeded by the Jamaica trade in sugar and rum; then came in their order the East India trade, the American trade, the Australian trade; and, finally, the steam-packets between Glasgow and New York, which, at this moment, we believe, form the most important trade of which the city can boast.

As to its manufactures, Glasgow was early celebrated for its weavers. During the seventeenth century, Glasgow plaids had acquired a certain celebrity; and the readers of Sir Walter Scott's exquisite novel of "Rob Roy" will remember how Bailie Nicol Jarvie delighted to dwell on the extraordinary qualifications of his father the deacon. But it was not until the invention of Arkwright had given an impulse to the cotton trade, that Glasgow began to excel in that great branch of our national manufacture. The steam-engine, too, did good service in the city of its nativity; and in fact, about the beginning of the present century, the river was covered on both sides with the smoky chimneys and dingy buildings which (to its infinite disgrace) distinguish the genius of our manufacturing industry. After cotton, the muslin trade is, perhaps, next in importance. Then we have the Turkey red fabrics, celebrated by Montaigne; and after that an infinite variety of soft goods. The chemical works of Glasgow are second to none in Europe. Sulphuric acid, chloride of lime, soda, glass, earthenware, all kinds of pigments, and all sorts of manures are here produced. There are some distilleries and some breweries. In no other city in the British empire, we believe, can there be found a list of manufactures so multifarious. But the most important of all is the manufacture

* See Pagan's "History of the Cathedral of Glasgow."

* See the "Registrum Episcopatus Glasguensis," printed by Mr. Cosmo Innes, for the Maitland Club.

of iron. Glasgow produces upwards of 300,000 tons of pig-iron per annum; and supports between Gartsherrie, Eglinton, Govan, the Clyde, Dundyvan, and other works, upwards of 150 furnaces. How this iron is manufactured into steam-engines, steam-ships, iron frigates, cannon shot, shells, and so forth, is well known to the readers of the *Builder*; and we shall not dwell on the subject.

But we may stay for a moment to point out the two great natural causes of this material wealth. In the first place, we must mention the geological position. Glasgow is situate in the very heart of the richest quarter of that great central coal basin which stretches across the whole of Scotland, from the German Ocean to the Atlantic. In this district the most important group of rocks is that which is usually classed as the coal formation—that is to say, rocks consisting of limestone, ironstone, freestone, coal, and clays. The workable ironstone contains from 27 to 45 per cent. of pure metal. The "Blackband" is of course most in request; and from this ore the greater portion of the Scotch pig-iron is smelted. The coal is equally prolific; the very shales are often rich in bitumen; and from the mines of Boghead and Torbanehill we derive, it is said, our principal supply of paraffine oil. The fire clay, if not equal to that of Staffordshire, is probably not far inferior. But the sandstone is the best in the country. Whoever has observed the splendid building materials of Glasgow and Edinburgh, will have seen one example of the inexhaustible riches of this central coal basin, of which Glasgow is the entrepôt. In the second place, Glasgow is richly indebted to its geographical position: it is situate on the banks of a great navigable river. Of the Clyde, indeed, it is impossible to speak in other language than that of admiration. It is but the fourth river in Scotland in volume of fresh water, and the third in length of course; inferior to the Forth or Tay in Highland scenery, and to the Tweed in pastoral beauty; but it is superior to all of them in utility, in artificial improvement in manufactures, in commerce, and in the triumphs of mechanical genius.

The improvements on this river have, we must say, been conducted on a scale of unusual magnificence. About a century ago its depth, at the point where the Kelvin discharges into its channel, was only 18 inches at low water, and 44 inches at high water. Its course, far below Daumbarton, abounded in shallow lagoons, interspersed with low islets and marshy ground. By judicious engineering operations, spread over a series of years, accompanied with an enormous expenditure of capital, it is now as navigable as the Thames. In fact, by dint of dredging, cutting, excavating, and embanking, to the tune of about a million and a half sterling, the navigable depth of the river has been increased, within the last fifty or sixty years, from 3 feet to 20 feet; and the revenue from 3,000*l.* to 90,000*l.* per annum. The Bromielaw Harbour is at this moment practically nothing less than half a mile of excellent docks—we need not say how crowded; and the contrast is indeed great between the small fishing sloops and Virginia traders which once unloaded their treasures on the same spot where now floats the gigantic iron steamer and the merchantman of 2,000 tons, which constitute the honour and glory of the Clyde.

In our next article we shall speak of the population, the water-supply, and the drainage.

THE QUESTION BETWEEN LONDON AND PARIS IMPROVEMENTS.

At the conclusion of our previous article on this subject,* we promised, with a view to the truthful comparison of London and Paris, to elucidate the statement that the present water supply of Paris is from a river receiving the contents of sewers.

In the first place, considerable portions of Paris are not supplied from the Seine at all, but

from other sources. Secondly, the only large sewer which can be in question at Chaillot, that of the Rue de Rivoli,—and this has become little more than a subsidiary outfall,—is not exactly near to the Chaillot "intake," but nearly a mile from, though indeed above it; and the "intake" for the unfortunate Montmartre has been recently re-arranged so as to place that district in as favourable circumstances as are possible till the new supply for all Paris be finally obtained. The difference between the statement and the facts may not seem great: it is well however to be quite correct. Rivers do certainly purify themselves in their course, or we should not be able to drink the sewage, filtered though it be, of Windsor and Reading,—not to mention the worse case of the water supplied by the New River and East-London Companies. The Seine, during the greater part of the year, or when not charged with earthy particles from the Marne, is as clear at the Pont-Royal, as is the Thames at Hampton: for the matter ejected by such sewers as are not intercepted, is different to that of the London system; and though what is objectionable, however offensive for Montmartre, is not so to the extent supposed, to those localities served with the water taken at Chaillot. But how long is it since we were taking our London supply from sources vastly more polluted than the Seine? The New River not many years ago received some of the sewage of Hertford; the Chelsea Company drew their supply from the river Thames, at Chelsea; and one South London Company actually drew theirs from a spot near to Hungerford Bridge; and great mortality was the result. A certain brewery when last we heard, was drawing from the stream still lower down. The whole proceeding by which some years back, the service of London was preserved to the companies, was a compromise against which we then protested; and of which the published results of our inquiries in the poorer districts of London, have shown results. The "constant service," and the disuse of water-butts seem to be as far off as ever. The compromise was excusable only, because there was not at the time, any authority for the whole metropolis, to be entrusted with what forms the business of the municipality of Paris. It is now said that measures commensurate with the wants of London, are under consideration. Similar measures for the service of Paris are, however, far advanced.

We were to look at the administration, and state of the law, in France, relating to sanitary improvement, we should find much that would be worthy of impartial examination. In Paris, the power placed in the hands of the Prefect of Police, and that given to the Municipal Council in 1850, by the "Loi relative à l'assainissement des Logements Insalubres," is in each case, great; and time only has been wanting to produce the results contemplated, without rendering a large proportion of the people homeless. One of the fourteen articles of the *loi* enacts that an architect shall form part of a commission which is to be named by each municipal council of France. The law permits the municipal authority to interdict provisionally, and the "Conseil de Préfecture" with the authority of the Conseil d'Etat, permanently, the occupation of an insalubrious dwelling; and protects lessees of *appartements* from proceedings by the proprietor. When the insalubrity is the result of exterior causes, the *commune* is permitted to acquire the several connected properties, and to sell again those portions which may rest outside the boundaries settled on for the new constructions. This is not so clearly worded as the "Décret sur la Grande Voirie de Paris," dated 26th of March, 1852, which is we suppose what was referred to by Mr. Tite, and which certainly gives an extraordinary amount of power.

One of the articles allows of the application of the decree to all towns making demand for it. It is not our present purpose to defend this decree, and the manner of its application. Both the "Conseil d'Hygiène publique et de la Salubrité" of the police, and the "Commission des Logements Insalubres" of Paris have produced excellent reports. The same person, Mr. Trébuchet, has been secretary for both boards. There is never absence of the services of architects. There are ten or a dozen attached to the police alone. They meet at the Préfecture every Friday. Utilization of the profession is the French system. Those who take part in controversy on the question of advantage of a similar system here, are welcome to abundant instances: we have just given the least remarkable one in the case of a public department. One of the recent writers already referred to, does not seem at all aware how the facts of the English practice contrast with those

of the French. For, on the authority of the "*Revue Municipale*," he writes: "The purely speculative nature of nearly all this building is further proved by the circumstance that out of 814 houses built in 1854 and 1855, only 354 were directed by architects; the rest were constructed by the contractors themselves on their own plans to sell again." Well! the employment of architects in London is probably less; and the results of the speculative element, in street and suburban architecture, are certainly worse.

It is because this professional element enters largely into the arrangements of the Paris works; because, again and in a word, there is *plan* in what is done, that the works as street-communications and health-promoters are on the whole so successful. Where one of the recent writers quotes the intended prolongation of the Boulevard St. Germain, as instance of unnecessary formation of a line; we take it that he cannot have much knowledge of Paris on that side of the river. There are no streets in the capital along which omnibuses pass, narrower, and more offensive and dangerous than those which centre at the "bottleneck" of the Croix-Rouge, and some of these, the Boulevard will greatly relieve. The French journals say that somebody is *écrasé* by a vehicle in the Rue du Four, every day; and there is not a broad street in the quarter.

We have left ourselves no space to go into the financial part of the question, on which, however, we could say much. Since this article was first written, the "*Mémoire*" of the Prefect of the Seine has appeared; and twenty columns of the "*Moniteur*," full of figures of the budget for 1862, and the accounts for 1860 and 1861, require some digestion, even by our French contemporaries. We have not yet seen whether the question of rents is touched. But it is worthy of remark, that in all one reads and hears about the French crisis, which is for the moment a question independent of Paris, very little is now prominently advanced against that part of the Government action which is connected with public works. The real channel of non-productive out-going, the army, is much more frequently instanced. The mere occupation of Rome has cost on the lowest estimate nearly seven millions sterling; several items of outlay being not included. What the Crimean and Italian wars, and the Syrian expedition, cost; and what is the constant outlay on the military and naval forces, will probably soon be told, and will make the outlay on Paris, estimated or possible, seem insignificant and quite supportable should it in the end fall upon the State, or to a greater proportion than at present. The estimate in 1858 was 180,000,000 francs (7,200,000*l.*), or 120 millions (4,800,000*l.*), to be provided in ten years by the Municipality, and 60 millions (2,400,000*l.*), before the year 1872 by the Government. The cost of such works as those for the new water-supply is not here included. The money is borrowed, the interest being paid out of the *octroi*-duties. It seems clear to us that the difficulty has been found greater than expected, and that this has led to the ready acceptance of whatever advantage might be gained from increased value of properties. Thus, proceedings of the Municipality in the direction last alluded to, have been widely blamed. The amounts claimed for compensation have been very large. In order that the unfavourable side of the question may not be concealed, let us give some of the more recent pieces of experience, which are not the worst.

In the case of property required for the Cuserne Municipale in La Cité, the jury of expropriation, in the session of last July, decided in forty-six cases of premises in the Rues de la Cité, aux Fèves, de la Calandre, and de Constantine, and the Quai du Marché-Neuf. The cases were divided into three categories. In the first of these, 12 houses or properties, the sum of the offers by the municipality was 762,500 francs, and that of the demands by the proprietors 1,337,656 francs. The sum of the different amounts allowed by the jury was 1,057,000 francs. In the second category, 18 cases, the offers amounted to 1,064,200 francs; and the demands to 2,005,951 francs; whilst the amount allowed was 1,682,000 francs. In the third category, 16 cases, the corresponding figures were 890,500; 1,602,200; and 1,204,400 francs. That is to say for the "immeubles," or freeholds, alone, the cost will be 157,736*l.* in place of 109,048*l.* Besides this however there are considerable amounts obtained by numerous occupiers of apartments and places of business. Amongst the number of cases decided by the jury, a "*marchand de vin*" at the corner of the Rues Constantine and de la Cité, having 5½ years of his lease to run, at an annual rent of 2,500

* See page 870, ante.

francs (100*l.*), was offered 15,000 francs (600*l.*); he demanded 64,400 francs (2,576*l.*), and he had allowed 40,000 francs (1,600*l.*). The proprietor of a *crémierie*,—a term implying at Paris a species of *restaurant*, or *café*, as often as a milk-shop,—having 10½ years of a lease, and an annual rent of 3,900 francs (156*l.*), was offered 20,000 francs (800*l.*), demanded 120,000 francs (4,800*l.*), and had allowed 40,000 francs (1,600*l.*). In a second case of a wine-shop, the remainder of lease being 9½ years, and the annual rent 1,330 francs (53*l.* 4*s.*), he offered 12,000 francs (480*l.*), the demand 19,000 francs (1,560*l.*), and the sum allowed, 10,000 francs (1,200*l.*). A baker in the Rue de la Calandre, with a remainder of 6½ years, at a rent of 1,525 francs (61*l.*), was offered 12,000 francs (480*l.*), demanded 52,000 francs (2,080*l.*), and received 45,000 francs (1,800*l.*). In connection with the prolongation of the avenue from the Quai d'Orsay, in face of the Pont des Invalides, there were two cases of expropriation as regards houses in the Rue St. Dominique decided by the jury in July last. For one of the "immeubles" or freeholds, the offer was 49,166 francs (1,966*l.* 12*s.* 9½*d.*), the demand was 140,000 francs (5,600*l.*), and the sum allowed, 91,000 francs (3,640*l.*). The owner had given for the property in 1824, 62,100 francs (2,484*l.*), all charges included. Thus it appears to have been contained on one side, that the property had deteriorated in value; whilst the case was settled on the opposite argument. For the other property, the offer was 32,000 francs (2,480*l.*), the demand was 148,000 francs (5,920*l.*), and the sum allowed was 100,000 francs (4,000*l.*). The wine-shop keeper, in one of these houses, who had nine years and a half of his lease to run, obtained an indemnity of 30,000 francs (1,200*l.*), between an offer of 7,000 francs (280*l.*), and his demand of 52,000 francs (2,080*l.*).

The juries, in the same manner in other expropriation cases, have allowed sums in excess of those offered by the Municipality: indeed in some instances, the difference is considerably greater than it appears for the property above spoken of. Such particulars, at greater length than we have been able to give them, are regularly published in the *Gazette des Tribunaux*. Since the Prefect can always report a good balance in hand, the point is whether this prosperity is the result of an excessive rise in the value of the "immeubles" or ground. We would rather wait for the discussion which will arise in a few days, and for the probable defence of the Municipality in one of the chambers of the Legislature, than go now deeply into this branch of the subject. Really it is not easy to say that the whole of the rise in prices is due to the demolitions; or whether that which may be imputed to them has operated to the injury of the working and middle classes, more than the influx of strangers has to the benefit. There are too many things to be taken note of,—even the gold discoveries,—and too many influences which obviously have operated and could not have been prevented by inaction, to allow of a decision, at the end of this article, on the question of finance for London. Certain things which are dear in Paris, are such as would be dear in London,—meat, for instance: vegetables are very cheap. Travellers' opinion is scarcely to be taken: those who buy at the markets may live for little compared with what would be the cost of their food at restaurants. It is the reverse of suffering that is prominent in the demeanour of the *ouvrier* class. We could tell a good story about the number of weeks it takes to get a few stitches done to a pair of boots; and he who intends spending a month in Paris, had better be independent of *blanchisseuses*, and pack up, not six shirts, as did the once sentimentally-journeymen Rev. Mr. Sterne, but a stock for the whole time, or he may be for a week shirtless. Nobody brings anything on the day promised; and masters seem helpless. France, it is true, may have a serious interest in much that is expressed in this love of amusement; and, what some perceive, decadence of the better part of female influences,—may be doing more harm than is supposed. But considering what is done, solely from the French interested point of view, and taking the object of the improvements as no more than the repression of revolutions, who will contend that this is not a proper object? What was the revolution of 1848 but a movement of the mob, for no understood aim. Could the best supporter of any subsequent state of things, find a logic or a justification for what took place in 1848? No one who has not heard the story of some of those who lost their all from the events of February and June, can appreciate the value now to the French, in a certain sense, of a strong government. A shop-keeper in the Rue Rambuteau, was in the habit of

receiving 200 francs per day: the revolution came; and his receipts were but four francs. He was ruined, and his family have never since retrieved a position.

OLD ENGLISH.

LET us make another dip into our seventh edition of "A New World of Words," which, as we said last week,* bears date no farther back than 1720.

There are many words set down which have slipped out of our vocabulary since the days in which the book was compiled; for instance,—“chandry, an apartment in a nobleman's house, where the candles are kept;” “coquet,” a male coquette; “gradatory,” a place to which one may go up by steps, “particularly an ascent from the cloister to the choir in some churches;” a “foot-pace,” a cloth-mat spread round, or before, or on the side of, a bed or chair of state; “homestall,” a mansion in the country; “carrel,” a closet or pew in a monastery, for privacy and retirement. “In old times every monk had his carrel to himself, and used to resort thither after dinner to study.” If we went further back there would be scores and scores of Saxon words to dot down, all of which the Dictionary embalms; but we need not include in the list words that were then obsolete. Vaccary is a word we do not often see used to represent a dairy; the use of the word “milk-meats” applied to butter and cheese, strikes the eye as a novelty, instead of a piece of antiquity; and the sketch of a milk-maid, as shown in the definition of “wreath, a garland, a roll such as women wear on their heads to carry a milk-pail,” is a little picture.

In some words we can trace the derivation of their modern representatives, such as “raspatory, a butler's tool to chip bread with;” “summer,” the beam that supports a building; “scrofula,” a little pig; “scrofa,” an old sow; “hobby,” a little Irish nag; “achievement,” the coat of arms such as are usually hung out on the front of houses after the death of the lord or lady.

Some of the explanations involve a recital of customs that have disappeared from among us. What corner in the laud is there now where, on a Plough Monday, if a ploughman can say to the maiden in the kitchen “Cock in the pot,” before she is able to say, “Cook on the dunghill,” he is entitled to a cock for Shrove Tuesday eating? Again, what christening involves the performance of a ceremony detailed under the word “kichel,” which is noted as “a kind of cake, whence in old times godfathers and godmothers, when their godchildren asked their blessing, used to give them a cake called kichel?” Where may we now look for a Mercury-woman?

Mercury-women were “certain women that sell news-books and other pamphlets, by wholesale, to the hawkers, who sell them by retail about the streets;”—which hawkers, by the way, acquired their name on account of their flying up and down the streets after the manner of hawks! Are the hundred herrings still annually baked in twenty-four pies, at Carlton, and presented to her Majesty, Victoria, as they were to Queen Anne and George I.? What has become of the budge-bachelors, “a company of poor old men, clothed in long gowns lined with lambs' furr, who attend upon the Lord Mayor of the City of London during the solemnity of the public show on the day that he first enters upon his office?” Where are the “hobblers, certain Irish knights that used to serve upon hobbies, or men who, by their holding of particular lands, were bound to keep a little light nag to give notice of any invasion by enemies, or other perils on the sea coast?” Does every inhabitant of Maldon, in Essex, still pay a mark-penny for having pipes and gutters laid out of their houses into the street? Is “Martlemass beef” still “salted and smok'd” at that season? Are refractory sailors now dipped from the main yard into the sea, and, if still found refractory after that reformatory process, made to “rake the keel,” which means, drawn by ropes right under the keel, from one end to the other? The law respecting shipwrecks is thus pithily told:—“Shipwreck is when a ship perishes at sea, and no man escapes alive: in which case whatever goods are cast upon the land belong to the king or to the lord of the manor; but if any person come on shore, or if either dog or cat be left alive, the goods return to the owner if he claim them within a year and a day.” And our common saying “we, or they, are not cousins,” is traced to its origin under the column headed Q.U.—“Quarter-cousins, fourth cousins, the last degree of kindred, whence 'tis said of persons

whose friendship declines, that they are not quater, or cater-cousins.”

Dean Swift's account of Lilliputians and Brobdignagians had, perhaps, prepared our lexicographer's mind for a belief in races whose geographical position it would be difficult to ascertain; for he gravely mentions a nation called “Ichthyophagi,” as “a certain people who feed altogether on fish and build their houses with fish-bones.” A belief in unbounded riches may have been developed from similar causes, for the value of one of the diamonds of the Great Mogul is quoted at 11,723,278*l.* 14*s.* 9*d.*—the accuracy of the calculation proved by the nicety of the fractional parts of the last pound. Although the sovereign on the throne was a foreign prince, the national intercourse with the continent was not of an intimate description. “All foreigners until very recently,” says this seventh edition of the “New World of Words,” were “called Frenchmen;” and all the red wines of France were generalized under one name—claret. England is described as “the most happy country in Europe.” Versailles, then the centre of all that was luxurious and magnificent, is not mentioned at all; although the Tuileries and the Louvre are both found in alphabetical order. “The Louvre [i.e. the work] is a stately palace in the city of Paris, so called by way of eminency, being the chief seat of the French monarchs, built by Francis I., enlarged with a noble gallery by Henry IV., and since much improved by Lewis XIV.” The Tuileries is gorgeously described as having a portal of marble with jasper pillars. Foreigners were assigned all sorts of loathsome diseases foreign to British soil. Pity the poor “Polanders!” Plica was “a disease hair among the Polanders, which causes their hair to cling together like a cow's tail; besides that they are crooked-backed, have their joints loose, breed lice, and are troubled with other symptoms.”

We must admire the quiet piece of irony with which the heavy character of the social entertainments of the new court is depicted. A ball, besides being “any round thing,” or a bullet for a gun, is also a “Solemn Publick Dancing Meeting.” A balloon is only another name for a foot-ball; and its attendant, gas, is only an empty sound.—A word which Van Helmont chiefly makes use of to signify a spirit not capable of being congealed.” A subscriber to a book enjoyed something over and above the benefits that fall to the share of such an amiable individual in these days; “the undertaker” (mournful synonyme for author!), “the undertaker proposes advantages to those that take a certain number of copies at a set price, and lay down part of the money before the impression is finished,” to which we cannot but assert the confiding subscribers were fully entitled. Further on an “undertaker” is acknowledged to be a word commonly applied to “men who take upon themselves to embalm dead bodies, and provide all things necessary for funerals.”

The wonders of natural history, now so amply illustrated by able authors and as gifted artists, are nothing to the creatures which our forefathers implicitly took for granted as contemporaries. Nothing was too marvellous for them to believe of the reptile part of creation. Their credulity was unbounded respecting creeping things, and only narrowed as it neared the higher developments. The same word, generally a long one, served to represent many items in creation.

Take Scolopendra. It is a venomous worm, with eight feet and a piked tail; a caterpillar with many feet; a worm, also called a bearworm, engendered of a melancholy humor, which makes the gums to become swollen and ulcerated, and loosens the nerves and teeth; a kind of water-serpent, about a cubit long; an insect named the sea galley-worm; also a certain fish, which, having swallowed a hook, casts up her bowels, and, being rid of it, sucks them in again—six different creatures. The locust, besides being an insect, was “a fish like a long oyster.” And consider the distinct tastes of the asp. This is “a most venomous serpent, having its eyes, not in the forehead, but in the temples: one kind kills by thirst, another by sleep, and a third by blood; the parties bit by them either thirsting, sleeping, or bleeding to death.” Unfortunate “parties!” Then they named a spider Asterion, whose bite was considered to weaken the knees. The “flying-tiger,” that one would have supposed was a full-grown quadruped with supplementary wings, turns out to be only “an American insect, spotted like a tiger, having six wings and as many feet. It feeds on flies, and spends the night in singing upon a tree,”—but a poor-spirited mode of existence compared to the expectations raised by its high-

* See page 875, ante.

sounding name. Then they knew of an insect, called Cucuyos, which emitted so bright a light that "the native Indians" go a-hunting at midnight with these insects fastened to their hands and feet. And they had detected the trick of the rattle-snake: his rattle was in his tail, "made of bones, inclosed in a dry husk." The new plantations in America teemed with marvels. There was the Anolis, about the bigness of a lizard, and of a yellowish skin, which, in the day time, is continually prowling about the cottages for food, and in the night lies under the ground, making a great noise; the Antus, a small bird that feeds upon flowers, and imitates the neighing of a horse; the land pike, a creature like the fish of the same name, but having legs instead of fins, with which it crawls very oddly upon the ground (these creatures lurk about the rocks, and are seldom seen but towards night, when they make a great noise more sharp and grating than toads). Even American bread was wonderful; it was called Cassave, and was a root whose juice was poisonous, but whose dry substance, divested of juice, was the general bread of the country. Ascending on the scale they could tell of a bird, the Charadins, that you had only to look upon to be cured of the jaundice; of another, the Tragopanas, that was larger than an eagle, with horns like a goat; of sea-unicorns; of sea cows; of mermaids; yet with this profusion of information about beings of their own creation, they knew but little of the nature and habits of animals with which we are familiar. The hyena was supposed to be male one year and female the next; the panther was the female of the leopard; the hippopotamus had the mane and tail of a horse; the antelope was pronounced a mongrel engendered of a hart and a goat; and so on. The Egyptian rat is deplored to be a creature about the bigness of a cat, and an enemy to crocodiles, "whose eggs it breaks, and sometimes kills them by stealing unawares into their mouths when they yawn, and eating out their bowels." The American rat was not far behind its African contemporary in its remarkable properties: "it has the scent of musk, by which it is easily discovered in its burrow, and its smell causes melancholy."

In those days there was a cry for manure, as in these; but a suspicion of applying sewage for such a purpose does not appear to have crossed the agricultural mind. Mention is made of "sainfoin, a kind of grass, otherwise called holy grass, medick fodder, Spanish trefol, and snail or horned clover grass, much cry'd up of late for improving barren land;" and further mention is made of "scavengers, from the Dutch word 'scaven,' to scrape,—parish officers, of whom two are chosen yearly that hire men call'd rakers, or dustmen, and carts, in order to cleanse the streets and carry away dirt and filth;" but there is nothing to show that this refuse was put to any profitable use. The old word for a dung-heap, we find, was "misen,"—whence, probably, our midden.

Then we may read of train bands, blunderbuses, caltrops, musketeers, and many other words, suggestive of old-world warfare. The definition of barracks will show how we have progressed in these matters. "Barrack," or "barraque," signifies "a hut like a little cottage for soldiers to lodge in in camp when they have no tents, or when an army lies long in a place in bad weather." Fire-makers were those who made fuzes for bombs, granades, and other fireworks. The various sizes of guns are minutely set forth from the cannon royal or cannon of eight, "a great gun of 8,000 pounds weight, 12 feet long, the diameter at the bore 5 inches, 32½ lbs. of powder; ball, 7½ inches in diameter" past the culverin, falconet, rabinet, saker, minion, and others, "a cannon on board ship, to discharge stones, broken iron, and partridge shot." And the various modes of fortification are detailed with a painstaking that only an adept in the art could have achieved.

And so the time comes when we must replace the sturdy folio among others as rugged, shut up the pages that show us what George I. and his German court saw and heard after the news had come to Hanover and Herrenhausen that Queen Anne was dead, and that the Elector of Hanover was king of England.

THE COOKING APPARATUS AT MR. KÜHN'S.—We are asked to add to the notice we gave recently of the large range in Hanover-street, that it was manufactured by the General Iron Foundry Company, Upper Thames-street, and that Mr. H. Callas was the person under whose immediate direction the work was carried out.

ON THE DEFECTS IN THE SANITARY PROVISIONS OF THE BUILDING ACT.

METROPOLITAN ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.

At a full meeting of this Association, held on Saturday last, in Whitehall-place, whereat several architects and district surveyors attended, Dr. Thomson (Marylebone) in the chair,

Mr. Liddle, medical officer of Health, White-chapel, read the following paper:—

The subject that I propose for your consideration this evening, although it has not the scientific interest that other papers read at these meetings usually possess, is, nevertheless, of such practical importance to us as medical officers of health, that I have no doubt it will obtain your attentive consideration. It is not my intention in this paper, merely to point out the defects in the Building Act as a sanitary measure, and then to leave the question, but it is my wish that the subject may be referred to the consideration of the committee for General Purposes; so that such amendments as may be necessary to the Act relating to the providing of adequate space for the ventilation of houses may be prepared, and submitted by this Association to the notice of Government; and be embodied in any new Bill to amend the Building Act, which may be laid before Parliament.

As the Metropolitan Board of Works is now preparing a Bill to amend the Building Act, I have chosen the present time as being the most opportune for bringing under your notice those grave and serious defects in the present Act, which permits landlords to construct houses without adequate provisions being made for preserving the health of the occupants. Unless such adequate provisions are made, the labour of the sanitary officers will not be attended with that beneficial result to the health of the community which the public may reasonably expect to flow from them. The consideration of this subject has been forced upon me by the many and serious attempts that have been made in the Whitechapel district, to evade the apparently wholesome provisions of the Building Act. Nearly the whole of the illustrations which I shall lay before you, have reference to buildings that have recently been constructed in the Whitechapel district.

You are aware that in the present Building Act it is enacted, that "Every building used or intended to be used as a dwelling-house, unless all the rooms are lighted and ventilated from a street or alley adjoining, shall have in the rear, or at the side thereof, an open space exclusively belonging thereto, of the extent at least of 100 square feet" (39th clause).

On the first reading of this clause it would appear satisfactorily to provide that a space of at least 100 square feet shall exist at the rear or side of a house, in which there are back rooms, so that such rooms shall be lighted and ventilated from a street or alley adjoining, shall have in the rear, or at the side thereof, an open space exclusively belonging thereto, of the extent at least of 100 square feet. (39th clause.)

In sketch No. 1, are represented four houses, built upon a piece of ground not more than is sufficient for two houses, and yet, in the opinion of the district surveyor, they are built in conformity with the provisions of the Building Act. The House No. 2 has a passage by the side of it, by which arrangement all the rooms are lighted and ventilated by the open spaces at the front and side: consequently an open space at the rear is not legally required. The yard at the rear, which is apparently common to Nos. 1 and 2, contains exactly 100 square feet, but it is said to belong entirely to No. 1.

As it was found to be impossible by any contrivance to give to house No. 3, which was intended to contain two rooms on a floor, a space of 100 square feet at the rear, the builder was compelled to make only one room on a floor, whereby all the rooms could be lighted and ventilated from the street; therefore, at the rear, the space to belong entirely to No. 4. I may, however, here state that there is a difference of opinion in the reading of the 39th clause, as regards the open spaces adjoining these houses, between the officers of the Board of Works of the Whitechapel district and the district surveyor. It is admitted by both parties that in this case the spirit of the Act is not complied with; but it is contended for, on the one hand, that the letter of the Act is fulfilled; while, on the other hand, it is maintained that the letter of the Act is evaded, because the entire space is neither at the back nor at the rear of No. 1, but the half of it is in the rear of No. 2. This matter can only be determined by persons learned in the law; and, to determine the point, the question is referred to the architect to the Metropolitan Board, who will submit the case to the law officer of the Board for his opinion.

The next case that I shall bring under your notice, exemplifying the facility of evading the provisions of the Building Act, is the following. On the west side of Queen's-place, Whitechapel High-street, there formerly stood a warehouse, but as houses in the rear of the warehouse the poor in this district is in great request, owing to the extension of the Blackwall Railway and the erection of extensive warehouses on the sites recently occupied by dwellings for the labouring classes, the owners of the ground thought it would be more profitable to himself to take down the warehouse and erect dwelling-houses on the site. Having cleared the ground, the landlord commenced building two dwelling-houses of six rooms in each, but having left a space in the rear of these two houses, of only 100 square feet, the builder was informed that he would not be allowed to complete them in the manner contemplated, and that instead of permitting him to build two rooms on a floor, only one room would be allowed. Notwithstanding our remonstrance, the houses were completed, each having two rooms on a floor, but the builder complied with the provisions of the Act of Parliament by making a double row of the houses, and then the two houses were said to be only one house, and that the space in the rear was 100 square feet, which was all that the Act required. This arrangement was therefore considered by the district surveyor to be legally satisfactory. The houses were finished, and they soon afterwards became occupied. On visiting the houses after they were tenanted, I ascertained that

the doorway between the houses was built up, thus again converting them into two houses. The back rooms of these houses are lighted and ventilated by a space only of 10 square feet. It is true that the landlord might be compelled to re-open the communication between the houses, but the doing so would not in any way add to the light and ventilation of the back rooms, and it would only add to the discomfort of the tenants; and moreover the prosecution of the owner would be attended with considerable trouble. If, however, these back rooms, which, as might be expected, are very dark, should be let to separate families for living and sleeping rooms, the Board may take proceedings against the landlord for allowing any room to be occupied which was so badly ventilated as to be unfit for human habitation. By adopting a similar plan of making a communication between each house in a long row of houses, the provisions of the Building Act, as to the number of square feet at the rear or side would be evaded, provided the space at the rear of the entire row of houses was 100 square feet, for the several houses would then be considered as one house only.

Another case showing the defects in the sanitary provisions of the Building Act, is that of Inkhorn-court, Whitechapel High-street. Here is a court about 11 feet wide, which is entered by means of a narrow passage under an archway in the High-street. This court formerly contained seven houses; viz., six on the east side, and one at the end or northern extremity; and on the west side there was a warehouse, the roof of which was at about the level of the upper part of the window of the second floor of the houses opposite. Each of the houses on the east side has a small yard at the back, in which is a privy; so that before the additional houses and the public privies were built on the site of the warehouse, the inhabitants were as comfortable as they might expect to be, while living in so narrow and confined a court. Three dwelling-houses, of six rooms in each, and two stories high (the entrance-door being in the centre of the house), and inhabited by upwards of seventy persons, now occupy the site of the warehouse. As all the rooms in these newly-erected houses are lighted and ventilated from the court, there was no occasion to leave the rear of the houses, and so, in order to provide the tenants with privy accommodation, three open and exposed privies were built at the south and west end of the court, opposite to No. 1 on the east side, and within 12 feet of the houses, and the privies were built on the site of public privies in confined courts is allowed to be perpetuated for the Building Act is entirely silent on the subject of privies or waterclosets. The Metropolitan Local Management Act, however, requires that every house shall have a sufficient privy and ashpit belonging to it; but the Act does not provide that the privy or watercloset shall be within the curtilage of the house, and hence there is no power vested in the district boards to prevent the formation of public privies.

Another defect in the sanitary provisions of the Building Act is exemplified in sketch No. 5. Here were some old dilapidated houses, which the landlord was desirous of pulling down and enlarging, but who, at the same time, was anxious to evade all the provisions of the Building Act as regards new buildings, and especially the provisions contained in the 39th clause. In order, therefore, to accomplish this object, the landlord took down the front of the houses, and after the lapse of a short time, he rebuilt them. He then took down the back walls, and again allowing a short time to elapse, he rebuilt them. Subsequently he took off the roof, and replaced it with a new one. Now, although this plan involved a few additional payments to the district surveyor, in the shape of fees, yet the landlord, most probably, not only saved money by preventing the district surveyor from compelling him to comply with the provisions of the Building Act as regards the structural arrangements of the houses, but he was enabled to add two rooms at the back of each house, and was not under the necessity of complying with the terms of the 39th clause.

The next point that I shall notice is that which relates to the building of houses in such places that admit of dispute on the question whether the court proposed to be built upon is an old or new court. For instance, a landlord has a piece of ground, bounded by a wall on the side of a narrow entrance abutting upon a public street, and leading to a small house at the extremity of the ground, and at the rear of each of the houses fronting the street is a stable or workshop. By trading upon this as an old court, a very great evil may be inflicted upon the community; for the landlord may erect and crowd together several dwelling-houses, provided that all the rooms in each house can be lighted and ventilated from the street, and the space between the houses on each side of such a court need not be of greater extent than is sufficient to admit the egress and ingress of the tenants; and the houses may be carried to an indefinite height, and may be provided with windows no larger than pigeon-holes. But if this place be considered as a new court, then a by-law of the Metropolitan Board requires that the space between the houses shall be at least 20 feet wide.

The advantages to the health of man in making provision for the free admission of light and air into their dwellings are now so well understood, that it would be out of place in me on the present occasion to enlarge upon the subject; but it is nevertheless incumbent upon us, as officers of health, to impress upon the Government the necessity of enacting that landlords shall not erect houses for habitation, which are not provided with the requisites necessary for preserving the health of the occupants.

Dr. Gibbon has directed my attention to the late proceedings of the Charter House authorities, in permitting a manufacturer to add another story to a building situated on one side of a court, thereby diminishing the means for the entrance of light and air to the houses opposite. It appears that when the Charter House authorities were remonstrated with upon the subject, they stated that because they were extra parochial, they were not under the jurisdiction of the district surveyor. Whether the Charter House authorities are correct or not in point of law, it is very doubtful whether the district surveyor can prevent any addition from being made to the height of a wall, provided that the foundation of the wall would admit of it. The Board of Works for the Holborn district visited the locality, and they intimated that it was not in their province to interfere in the matter.

I may here allude to a few other points which, although, perhaps, not strictly bearing on the subject of this paper, are nevertheless of great importance as regards the safety of the public while traversing the public streets. I

* This would not be legal.—Ed.

allude in the first place to the want of any provision being made by means of a parapet-wall to guard passengers from the danger of a loose slate or tile, or a heavy weight of snow falling in the street, if a parapet-wall were not a necessary adjunct to the architectural design of the building, then provision should be made for properly securing the eaves-gutter, and also for constructing the sides of the gutters towards the public streets, that new might prevent the fall of anything from the roof that was likely to injure the public. 2ndly. It is required by the Building Act that the height of a room shall be 7 feet, and if the room be constructed in the roof, then it is provided that the height of such room shall be throughout not less than one half the area of such room. I would suggest that rooms should not be built of a less height than 8 feet. 3rdly. Provision is not made for preventing the damp of walls, nor are rules laid down for regulating the size of windows in a house, except in those rooms which are below the surface of the footway. Neither is provision made for the ventilation of rooms. The Act is also silent upon the subject of the kind of materials to be used for the foundation of houses, and for the construction of the walls. How far it is desirable to prevent the use of such rubbish as is occasionally observed in the construction of the lowest class of houses, and how far the use of such materials is injurious to the health of the occupants of a house so built, is a matter upon which, at present, I offer no opinion, but it is certainly a subject worthy of inquiry.

In preparing a new Building Act, it would be very desirable to make provision that all buildings intended to be used as places of public entertainment should have a sufficient number of doors to allow the speedy exit of the audience in case of fire. Some of our public buildings are so badly provided with the means of exit, that were a fire to take place at the time when a large audience had assembled, very many lives would be lost in the attempt to escape.

Having now shown, how, in several instances, the 29th clause, which is the most important sanitary provision in the Building Act, has been, and can still further be, evaded, I conclude by making a suggestion, which, if embodied in any new Building Act, might in a great measure, if not entirely, prevent the recurrence of such cases, and which would render it unnecessary to attempt to frame a clause as was proposed, supposed to be sufficiently stringent to meet all the sanitary requirements. The clause that I would suggest for insertion is to the following effect. That before any building shall be erected, or any old building rebuilt, the plans of such building shall be submitted for approval to the Local Board; and in case the Local Board should disapprove of such plans, so far as they relate to the sanitary arrangements of the house, the Board may prohibit the erection of the proposed building; and if any building or buildings be erected without the sanction or approval of the Board having been previously obtained; then it shall be competent for the Local Board to order such building or buildings to be demolished; provided always that in case the landlord of such proposed building or buildings may think that a hardship is inflicted upon him by the Board in not giving its consent to the proposed erection of such building or buildings, then the power of appealing to the Metropolitan Board should be granted. The decision of the Metropolitan Board in all such cases of appeal shall be final.

It is already provided by the 76th clause of the Metropolitan Local Management Act that seven days' notice must be given in writing to the vestry or district board by the person intending to build or rebuild a house; but this clause merely relates to the drainage of the house. The extension of this clause so as to embrace the entire sanitary arrangements of a dwelling-house would probably be amply sufficient to obviate the difficulties which now exist in obtaining the necessary space for lighting and ventilating the rooms of dwelling-houses.

The law relating to the building of houses appears to be in this anomalous state, viz.—that houses can be built without suitable provision being made for the ventilation of the rooms, but that after houses are completed, by virtue of another Act, the local board may institute proceedings to prevent any person from vent any premises from being used which are in such a state as to be injurious to health.

It surely would be much better to prevent houses from being built unsuitable for habitation, than to prevent the health of the occupants being first made, than to allow houses to be completed, and then to prevent the landlord from letting them.

A discussion then ensued, in which Mr. H. Oliver, Mr. Edwin Chadwick, Mr. Godwin, and others, took part, and to which we may return.

THE HYPERTRON OF THE GREEKS.

On the last page of Mr. Falkener's work on "The Hypertron of the Greeks," there is a tail-piece woodcut, which has no explanatory super- or sub-cription, but none was needed. It represents the author, in an agony of mind, and at the same time had made of the Hypertron controversy, getting out of a window in his night-shirt, with a bundle of crackers in his hand, in the noise and smoke of which he evidently hopes to escape detection.

This elegant device would equally well serve as a headpiece to Mr. Aschpittel's letter in your recent number. While carefully avoiding all reference to the real facts of the question, he, by a brilliant display of learning, hopes to distract attention from the points at issue. He goes into a most learned disquisition on the meaning of the words "*fatigata*" and "*stratura*," but, with all his learning, does not seem to be able to satisfy even himself as to what that really was; and is obliged to abuse poor Justin, in order to help himself out of the scrape. As the meaning of these two unintelligible words is not likely to have much weight against the mass of facts arrayed on the other side, I would have left Mr. Aschpittel to the enjoyment of his literary crackers, which no doubt

are dazzling the world with their brilliancy, were it not that he reiterates two points, which are so engrained in the controversy that they will require to be publicly contradicted at least forty times before they will be entirely got rid of.

At the Architects' Institute, Mr. Aschpittel's refutation of my heresy consisted in repeating, over and over again, the words of Vitruvius, "*sine tecto*," and "*sub divo*," adding, "I can't get over that;" but in doing this he forgot to mention to what class of buildings it was that these words were applied by that author. Nothing, however, can well be clearer than the passage as it stands in Vitruvius:—"An hypæthral temple has ten columns in the pronaos and in the posticus; in all other respects, it is like the dipteral;" and these decastyle and dipteral temples are, according to our author, "in the middle, without a roof, and open to the air." So far, therefore, as the words of this author are concerned, decastyle temples, which are also dipteral, are hypæthral, and temples which are not decastyle or dipteral are not hypæthral. There, so far as he is concerned, the matter begins and ends.

Now, Mr. Aschpittel knows perfectly well that, from the time I first published on the subject, in 1849, to the present hour, I have always shown and insisted that decastyle temples were "*medio sub divo et sine tecto*;" and he knows that my views are in strict accordance with every syllable of Vitruvius: he knows, also, that his and Mr. Falkener's assertion that hexastyle temples were "*sine tecto*," &c., is not only unsupported by the testimony of this author, but in direct contradiction to the plain meaning of the words of his text. The only possible mode in which his theory could be extended to one octastyle temple, is a passage which every commentator admits to be corrupt, and in such direct contradiction to the rest of the paragraph in which it stands, that it makes the whole statement nonsense if it is admitted. With all this knowledge Mr. Aschpittel persists in representing my views as at variance with Vitruvius, and his as in accordance with that author! Even if it should be proved that he is correct, it will be in spite of, and not by the assistance of, anything found in Vitruvius; while, on the other hand, if it could be shown that I am in error, I have at all events the satisfaction of knowing that I err in company with the architect of the ancient world who is generally supposed to know most of this matter.

His second point is even more illogical. Both he and Mr. Falkener rely a great deal on certain passages in Varro, Ovid, and later Latin authors, alluding to buildings of their age; and Mr. Aschpittel on some gutters he discovered at Pompeii.

As Mr. Aschpittel persists in ignoring the beginning of the "*sine tecto*" passage in Vitruvius, nothing probably would induce him to read the next line; but any one who will do so will find these words: "*Hujus*" (an hypæthral temple) "*item exemplar Romæ non est.*" This, to most men's minds, would be final as to any examples being found at Rome; but Mr. Aschpittel evidently thinks he knows better than Vitruvius; and by reiteration may probably convince some persons that he does. To avoid dispute, we will, therefore, admit, at once, for the sake of argument, that every temple in Rome and Pompeii was in the unhappy condition of being "*sine tecto*" and "*sub divo*." What then? What possible influence could buildings erected about or after the Christian era have on temples, all of which were completed before the age of Alexander? My theories refer to Greek temples, and to Greek temples only. The men that built them were dead and buried, or burnt, three centuries at least before Varro and Ovid, or any of their set; and, according to the usual theory of cause and effect, what goes before is not likely to be influenced by what takes place three hundred years afterwards; though, perhaps, Mr. Aschpittel can explain how this happened in this case. Meanwhile, as he has taken such interest in the proposed examination of aspiring architects, and will, no doubt, be appointed one of the first examiners,—a post to which he is so justly entitled,—let me recommend the following as one of his first questions:—"Pray, sir, explain the influence which the Tudor style of the reigns of Henry VII. or VIII. had on the designs of the buildings in the reign of William the Conqueror?" He may depend upon it he will save himself a great deal of trouble by a few such questions. Nine-tenths of the aspirants will be spun, though I have no doubt but that he will be able to explain the matter entirely to his own satisfaction, and to that of his friend, Mr. Falkener.

As this letter is evidently the result of three

weeks' incubation between Mr. Aschpittel and "his friend," it is very satisfactory to me to think that nothing more to the point can be said against my views. Such letters may serve to convince the world that Mr. Aschpittel is a very learned man, which I thought all the world knew long ago; but they will not prove that the temples of the Greeks were "*sine tecto*" or "*sub divo*."

JAS. FERGUSON.

A FEW DAYS AT CHARTRES AND OTHER FRENCH TOWNS.*

I INTEND to bring before you a few notes, sketches, and recollections, of a short and rather hasty tour in France. As I am not altogether responsible for the shortness of the time, or the manner of spending it, I may remark that I do not intend to recommend anything like hurry in traversing districts so full of interest as are the provinces of Normandy, and the Ile de France; and I should think such a course is too painful in every respect to be adopted willingly. One must expect to leave many things unexamined or examined superficially, and be prepared to find some of our conclusions prove erroneous; but where most of our errors can be corrected by subsequent reading and discussion, and where we are not inclined to hold to them very firmly, our regret at the cause of them may be somewhat diminished, and particularly where we are compelled to choose between a superficial survey of things and no survey at all. I know of no way to render the illustrations and photographs of foreign buildings of proper use to us except by visiting the objects illustrated; and, when we have done this, though for a short time only, every well-known view of it acquires a new value, and every fresh one is more readily understood. I feel I can say little more than this of any place to which I went; but, as I shall generally appeal to the illustrations of a building when I say anything about it, I think I cannot lead you very far wrong; and I am sure the interest of the subject is sufficient to produce a profitable evening's discussion.

Of the different routes to Paris I chose and travelled very pleasantly by that through New-haven and Dieppe. I spent a day or two at Rouen, without any intention of doing more at this visit than get a rough idea of the town and its attractions; one day at the church of St. George de Boscherville; and then went on to Paris. Leaving Paris, I made two excursions, either of which would be enough to occupy the time usually at our command in a summer tour: they can be made most easily by railway, chiefly; and include most of the cathedrals of greatest interest in the north of France: one was from Paris to Rheims, Laon, Noyon, Compeigne, and Soissons; the other to Chartres, Le Mans, Sées, Caen, Bayeux, and villages in the neighbourhood; returning to England by way of Havre. I was deprived, by an unfortunate circumstance, of the company of a friend, whom I think every one ought to have on such an excursion. I met other gentlemen who had started, like myself, with some idea of walking over a portion of the country, and had given it up on finding the sameness of it and the wide distances at which the churches usually lie apart. I did not go there solely to study the specimens of Gothic architecture, but I will endeavour to put together in some order a few of the notes made at various times and places; and although there was much in the Cathedral of Notre Dame at Paris to which I might allude, I find I can best refer to the Cathedral at Chartres; both because it furnished matter that interested me rather more than others, and because I was led by circumstances to spend more time there than elsewhere.

As regards anything I may say of the superiority of our neighbours in any respect, you will understand that one of my objects was to take notice of anything that seemed to afford a useful hint; that I had no time to find out their deficiencies; and was on the whole so well treated, that I could not possibly feel less inclination.

In examining the church architecture of the twelfth and thirteenth centuries, the most interesting features are those connected with the vaulted roofs; everything, indeed, is, more or less, connected with the vaulting, and influenced by it; and it grows so naturally from the lower portions of the buildings, that one may usually gather from a plan of the piers and walls a fair idea of the whole of the vaulting arrangements. I think I did not see in France so many varieties, or such rich specimens of vaulting, as may sometimes be met with in one of our own cathedrals: nothing

* Read by Mr. T. Blashill before the Architectural Association, as elsewhere mentioned.

like our fan groining or the more complicated arrangements of ordinary rib-and-panel work; and, when I saw anything that was not of the most plain and simple kind, it was generally in very late work, and much overloaded with ornament. Simplicity and massiveness are the general rule; and I thought this one reason why the spans and heights of the larger churches did not strike me at first sight as being so much in excess of those in our own cathedrals as they really are. The ordinary arrangements of transverse and diagonal ribs, by which the compartments are divided into four or six cells, without either secondaries or ridge ribs are nearly always adopted; but the modifications of these systems to suit particular cases, such as those of the beautiful eastern chapels, and other irregular parts, give rise to a wonderful variety of pleasing forms.

I generally took sketches of some portion of the vaultings in connection with the shafts and capitals, and hardly ever failed to find some fresh contrivance to meet an irregularity in the plan, or to adapt new parts of the building to older parts: such examples occur in the transepts of St. Remi, and in those of St. Martin at Laon. At first sight, the absence of a ridge rib is, I think, disagreeable, especially where the central line of vaulting is straight throughout: there seems to be a want of something to stay the transverse arches, and connect them with the diagonals; but where, as is usual, the vaulting is slightly domical, and comes down on strong transverse ribs, there is no need of a ridge rib; and indeed it would then, from its want of horizontality, prove a disfigurement. On the whole, I think this feature, from the difference of its office, should, when used, be kept much less in strength than the arch-ribs which support the vault, and should be slightly ornamented: nearly all the specimens I saw were ornamented heavily, and with bad effect. Short pieces of ridge-rib were often introduced in apsidal chapels of slight projection, between the central boss and the nearest transverse arch; and this last was generally crippled in consequence. As to the vaulting arrangements of these chapels, and the aisles from which they project, I may refer to the diagrams, which show several pleasing varieties from Chartres, Soissons, Noyon, Le Mans, and the chapels in the transepts at Laon: the beauty of these chapels, with their groups of columns, each proportioned to the importance of the rib which it carries, is very great; and, to show the general management of the columns which carry the vaulting, I may refer to the plan of a portion of the nave of Soissons Cathedral, and that of the central part of Chartres, which is a very good example from which to study this branch of construction. After seeing a large number of these stone-vaulted churches, the effect of a wooden roof set abruptly on bare walls is strikingly incongruous. Very many of our English roofs, indeed, being richly and well designed, and carried on wall-shafts, are but slightly open to this objection; but such wooden roofs as I saw in France were extremely unsatisfactory. Perfectly plain in themselves, there was neither shaft nor corbel below them to break up the wall-space; and the whole looks very bald and barn-like. It is much to be wished that the vaulting of churches may become more general, especially as we can now frame the roof in iron, and so render fire impossible. This last precaution has been adopted at Chartres since the fire of 1836; and, after seeing the forest of timber used in such roofs as that of the Cathedral of Rheims, we may be glad that such an element of danger exists here no longer.

There are several very good varieties of pillars and combinations of shafts:—large circular pillars, either plain or surrounded by small shafts; pillars with four attached shafts, as at Chartres, where they are of two kinds, placed alternately, in one of which the large central pillar is circular, the shafts octagonal; in the other the central pillar is octagonal, with circular shafts on four of its faces. The latter I thought the best. At Rheims all kinds I think the circular section by far the most satisfactory; and the effect of a cluster of these, varying in size, and contrasting with the square angles of the piers which show between them, is most pleasing. Where these angles are hollowed out deeply, or heavily ornamented, this effect is lost; and I thought a very slight, sharp ornament, the most that could be used with good effect. In the vaulting ribs, the most pleasing sections are those where the angles are cut into large pointed heads; or where, in smaller ribs, there is a pointed head between two hollows: these are most common in the aisles, the ribs of the larger vaults having generally rounded members; but the pointed section contrasts properly

with the circular shafts, and is, I think, always to be preferred.

One of the handsomest halls I saw in France was the Chapter-house at Noyon. The ribs of the vaulting have this pointed section, and the building has an appearance of great elegance. There is plenty of plain wall-space to contrast with the exceeding richness of the openings, and the general effect of the interior is very good. The use of circular-headed trefoils in the windows is to be regretted, as they give an effect of weakness. In the four-light openings of the cloister, the trefoils of the light are circular also, but the arches which inclose them in pairs are very sharply pointed, and the upper circle sits upon them awkwardly: the shafts which carry these upper arches have their capitals at greater height than those of the sub-arches, which destroys the unity of the group of shafts. I think the whole of their windows would have been the better for a general use in the tracery of the bluntly-pointed arch; and, as regards the four-light openings, at least, the chief circle might have been larger. There is a handsome west front to this chapter-house; but the buttresses, with their fine terminals, are neither well proportioned nor well attached to the walls. The most spirited little base ornament, out of a rather large number that I sketched, was found in the chancel at Noyon. This place is most easy of access, and there is a great deal of work about the cathedral that should not be missed. Built about the middle of the twelfth century, it belongs to one of the most interesting periods of art. There is a fine triforium, and the piers of the nave are alternately simple and compound, as required for six-celled vaulting; the arches between them being of the plainest kind, chamfered, stilted, obtusely pointed, and of very good proportions; yet, for some reason, the vaulting which they carry is four-celled. Then there are the very interesting circular-ended transepts, another variety of which I have sketched from Soissons, a very beautiful church, most justly praised for its fine proportions. I reckon amongst the pleasantest portions of my journey the rides by diligence from Compeigne to and from Soissons. I think a railway is in progress; but, whether or no, the beauties and peculiarities of this cathedral will amply repay the journey. Riding there in company with a priest, a schoolmaster, and a commercial traveller, they all expressed great astonishment on finding I had travelled so far on such an errand. I had another reason for thinking the beautiful structures of the country less visited than they deserve to be, as I met with no more than one sketcher per week, and most of them were English.

In the compound pillars, where four smaller shafts are attached to a central one, the capitals are treated in a variety of ways, the difference in size of the principal and auxiliary shafts having generally suggested a difference in the height of the capital. At Chartres the necking of the smaller columns nearly coincides with a moulding that divides the capital of the principal column into two stages: sometimes the principal capital is made twice the height of the smaller ones without any division. At Rheims the capitals are all of one height, the smaller ones being in two stages: I nowhere saw them all of one uniform height and treatment, which seemed to be an advisable method. The division of a capital into two stages by a moulding is of rather frequent occurrence, and is always displeasing: those capitals having the foliage arranged in stiff crockets seem to produce the best architectural effect; but as specimens of sculpture there are magnificent capitals carved with rich foliage at Rheims and elsewhere. I noticed rather frequently, and in work of a date earlier than I expected, the use of ill-proportioned capitals, carrying mouldings no larger in section than the shaft beneath them. In such cases they seem out of place, and serve only to mark the division between shaft and superstructure, instead of expanding boldly under the abacus, to give support to a larger section at the springing of the arches. There is sometimes, in comparatively early work, a tendency to extreme lightness in construction, especially in clerestories and the arcades beneath them; and, however splendid the effect of such treatment may be when there is nothing but slender columns to obstruct the light, and every opening is filled with stained glass; there is about it a want of the ease that is necessary to elegance, and in some cases positive weakness and poverty, that bring to mind some of our Gothic a century or two later in date.

I allude to the cathedral of Chartres rather frequently because, though I could only examine it very imperfectly, I was on the whole more interested there than at any other place. It is one

of the largest of the French cathedrals, and chiefly dates from the most interesting period of Gothic architecture, that in which the building of large churches in the Pointed style was coming into vogue. Its charms are not those arising from regularity, completeness, or good proportions. In general character it is plain rather than rich, although in its porches and some other parts it has more figure-sculpture, and in its windows more painted glass than exist in any other of these churches. After seeing a building so regular, so well proportioned, and so nearly complete as Rheims Cathedral, Chartres affords a very interesting instance of great beauty and magnificence existing in company with the marks of accident, experiment, and change of intention. Nearly destroyed by fire in 1194, injured, more or less, in the sixteenth and seventeenth centuries, by the same cause; and the whole of the roofs destroyed in 1836; having the lower part of its western front of the twelfth, and the upper part of the fourteenth, century; one of the flanking towers being of the twelfth, the other of the sixteenth, century, and in no manner of proportion with each other; six or seven more towers in various stages of incompleteness; the body of the church of the thirteenth century,—too low and too short for its width; none of its arches agreeing in span; the chevet indifferently arranged, and most of the masonry indifferently wrought; there is still a remarkable character about its architecture, of whatever date, that has caused it to be more frequently referred to and illustrated than any other building of the kind. With regard to the flying buttresses, so well known, I have generally found them described as "heavy," or "unpleasing;" yet I think we see more sketches, by travellers, of these than of all others together; and I do not think it is solely because they are unique. They are part of a building consistently massive; and are, to my mind, except as to the upper portions, about the best adapted to their position and purpose of any I have ever seen. Usually a flying buttress is made to look like a mere rigid prop, carried by a slender arch,—sometimes a highly ornamented prop, but very frequently a most offensive one, only to be endured as a necessary evil, hiding the architecture from the eye. Here the buttresses are made artistic; and, instead of the comparatively straight prop of later buildings, which usually suggests danger, we have a bold deep arch spanning the aisle, open-pannelled, and having radiating columns most properly applied. I have met with no information as to the uppermost arch, probably of later design, and applied to resist the thrust of the timber roof, which ought to need no resistance; but if the uppermost stage of the upright buttress were made deeper, and finished with a heavy pinnace, as a counterfoil, another pinnace being raised on the projecting portion of the cornice, and so breaking up the heavy mass of roof, I think the composition would be most effective and satisfactory. The present open parapet on the cornice of the nave is modern, there being holes now existing which may represent a previous one: the spaces are 4 inches or 5 inches wider than those of the present parapet.*

ART-DESIGNS FOR THE GREAT EXHIBITION.

THE Committee for Art-Designs desire, we are glad to find, to make their department as complete as may be, and we are anxious to aid them in this endeavour. Many of our readers can assist them if they will with the loan of either drawings or models of articles coming under the term "Art Industry;" for example,—designs for objects involving relief, such as ceramics and glass (except tile, mosaic, enamel, and glass painting), precious metals, base metals, furniture and carving, plastic decoration; and designs for objects involving a flat or surface treatment, such as textile fabrics, paper-hangings, mural decoration, tiles and mosaic for walls and floors, inlays, stained, painted, and decorated glass.

The following may be enumerated among the deceased artists (between 1762 and 1862) specimens of whose works should be obtained: Chippendale, Chambers, Adams, Soane, Jeffery Wyatt, Stothard, Bridgens, Tatham, Pugin, James Wyatt, Bacon (sculptor), Gandy, Flaxman, T. Hope, Holland, Pitt (sculptor), B. Wyatt, Wyon (sculptor), Barry, Cotterill (sculptor).

Offers of works of this kind should be sent to Mr. John Leighton, Secretary of the Class 38a, at the Strand Office of the Commissioners.

* To be continued.

"LIVES OF THE ENGINEERS."*

RENNIE.

JOHN RENNIE, the architect of the three great London bridges,—Waterloo, Southwark, and London proper,—the engineer of the Plymouth Breakwater, of the London and East India Docks, and various other works of national importance, was born at Phantassie, in East Lothian, and not many miles from Edinburgh, on the 7th of June, 1761. His father was the owner of the small estate of Phantassie, which is situate midway between Haddington and Dunbar, and near the village of East Linton and the little river Tyne. At that time the chief crops in the Lothians, which, as Mr. Smiles remarks, "now exhibit, perhaps, the finest agriculture in the world," were *weeds*; and, when the first crop of wheat was raised on a field near Edinburgh, people flocked to look upon it as a wonder. Mr. Rennie, the father of the engineer, however, was one of the best farmers in his district, and was the first to introduce turnips as a regular farmer's crop. At that time the usual wages of the agricultural labourer were 6d. a day in the summer, and 6d. in the winter! They were, of course, well skilled in "listlessness and laziness." Rennie's father, under such circumstances, could not be expected, as the owner of a small farm, to be a very rich man; but the family were respectable, and remained so even after the father's death, when the widow managed the farm till the eldest son took charge.

Rennie, the engineer, was the youngest son. He showed his mechanical turn at a very early age; and in his boyish display he was encouraged by an ingenious millwright, named Andrew Meikle, who lived on the property of the Rennies, although his business was independent of them. Meikle was the inventor of the thrashing-mill; and his forefathers were for several generations celebrated in their way for mechanical ingenuity; as indeed was his own son, George Meikle, who, by means of a machine for raising water (invented, however, by his father), washed away some thousand acres or so of peat moss into the River Forth, and thus uncovered as much of good arable land, on the estate of Lord Kaim, at Kincardine. Andrew Meikle's father, on the other hand, was also well known, as the introducer from Holland of the winnowing machine, which became celebrated—or notorious, rather,—in sanctimonious Scotland, as the awful raiser of devil's wind!—and for daring to use which a worthy minister (a relative of Gillfillan, of Leith, the poet), who was "a wee" ahead of his compere, was ousted from his kirk and congregation. Andrew Meikle must have been a man possessed of some grim humour, as well as a little mechanical genius. On one occasion, when called upon to "win water" for a gentleman's mansion, where others had repeatedly failed to get any; he told the butler, one morning, to get ready to receive the water. "It will be time enough," Plush scoffingly remarked, "when we see the water." Meikle quietly pocketed the affront in the meantime; but, early next morning, when the butler opened his eyes and jumped out of bed, he "saw" the water up to his knees in his bed-room.

Encouraged in his mechanical tendencies by honest Andrew Meikle, John Rennie became entirely devoted to such pursuits; and his mother, with that intuitive wisdom by which the mothers of men of genius are so often inspired, not only removed the "interdict" against "fiddling" away his time at Andrew Meikle's shop, but appreciated him the cultivation and development of his mechanical genius, he learnt the use of his hands—one of the most valuable elements of his education—as a future engineer. Neither did his mother neglect his education; and at the end of two years he was sent to Dunbar burgh school, where he soon outstripped all his schoolfellows, and became so skilled a mathematician and so good a scholar, that he fulfilled the duties of mathematical teacher during an interregnum, after declining to accept the mastership of the whole school, which was offered him, although he was several years under age. Rennie afterwards went to Edinburgh University, where he matriculated in November, 1780; supporting himself at college entirely by the fruits of his own labour between the sessions. He became a special favourite of Dr. Robison, Professor of Natural Philosophy, by whom he was afterwards introduced and strongly recommended

to James Watt, with whose firm he first engaged to erect the Albion Mills, on the banks of the Thames, near the south-east end of Blackfriars Bridge. These steam mills were for a short time celebrated for their extent and their steam-engines, which were the most complete and powerful "fire-engines" as they were then called, which Watt had till then turned out of the Soho manufactory. One eventful night, however, in the year 1791, and after the mills had been founded seven years, and at work for three, Rennie, who lived close at hand, woke up of a sudden several times with the dreaming idea that the mills were on fire; and at last, being actually roused by the cry of "Fire," and the hurried rumble of fire-engines, he hastily dressed himself; rushed out, with the confirmed idea, doubtless, that his great work was the centre of popular attraction; and, strange to say, soon found that it was even so! The Albion Mills, the pride of poor Rennie, were in flames; and no efforts of fire-engines or firemen could save them. Singular as the circumstance was, perhaps the most singular circumstance of all was the fact that on this very site all Rennie's great works may be said to have originated; for here he set himself down, built his workshops, became a great engineer, and carried on business for the rest of his life. Though ostensibly a mechanical engineer, the Albion Mills having indeed of themselves established his reputation as such, and introduced him to extensive employment; nevertheless the civil branch of his profession occupied a considerable share of his attention from an early period; and eventually it became his chief pursuit; though, down to the year 1788, he was mainly engaged in designing and constructing machinery for dye-works, water-works (at London Bridge amongst others), flour-mills, and rolling-mills, in all of which Boulton & Watt's engine was the motive power employed.

Shortly after the retirement of Mr. Smeaton from the profession about the end of the year 1791, Mr. Rennie was consulted respecting numerous important canal undertakings, projected in different parts of the country; and amongst others were a proposed navigation to connect Cambridge with Bury St. Edmunds; another between Andover and Salisbury; and a third between Reading and Bath,—afterwards carried out by him as the Kennet and Avon canal. This was his first work in civil engineering. Another important line of navigation on which he was engaged was the Rochdale Canal, extending from the Bridgewater at Manchester, by Rochdale and Todmorden to the river Calder at Sowerby Bridge, a length of 31½ miles, with branches to the Leeds and Liverpool Canal at Wansley, and to Bury and Bolton. The Lancaster Canal was another enterprise conducted by Rennie in the same district. It crosses the Lune, at Lancaster, by a fine aqueduct, of which we are enabled to give the illustration introduced by Mr. Smiles. The aqueduct consists of five semicircular arches of 75 feet span each, the soffits being 50 feet, and the surface of the canal 62 feet, above the average level of the river. The whole length of the aqueduct, which is built of hard sandstone, is 600 feet.

As a canal engineer, Rennie continued to be extensively consulted throughout his whole life; and he seems early to have appreciated the railway, at least as an adjunct to canals, if not as a substitute for them. One of the canals as to which he was consulted was the Royal Canal of Ireland, the origin of which was rather a curious one. The Grand Canal, to connect the Liffey and Shannon navigations near Banagher, had already been formed; and, amongst its successful, and, in general, upper-class, proprietors was a retired shoemaker, who was regarded as a busy-body, whom they snubbed and "sent to Coventry." Vowing revenge, in the shape of a rival canal, which was merely laughed at, the old cobbler sold out the very large sum he had invested, and set to work with such determination, that he got up a new company, laid down a new line of navigation from Dublin to the Shannon, near Longford, and "banged Banagher," by playing havoc, not only with his rival's interests, but his own. It was to "redd up" the confusion into which this new concern had fallen before the works were completed, that Rennie was called in.

The drainage of the Lincolnshire and Cambridgeshire fens was one of the most important works of thorough drainages ever carried out by Mr. Rennie. The problem to be solved by the engineer was how best to carry out to sea the surplus waters of a district extending from the eastern coast almost to the very centre of England; and it was solved.

"The two great features of his plan were (1) his inter-capping or catchwater drains, and (2) his cutting down the outfalls to lower levels than had ever before been proposed. Simple though his system appears, now that its efficacy has been so amply proved by experience, it was regarded at the time as a valuable discovery in the practice of fen-drainage; and indeed it was nothing less. There were, however, plenty of detractors, who alleged that it was nothing of the kind. Any boy, they said, who has played at dirt pies in a gutter, knows that if you mix an opening sufficiently low to let the whole contained water escape, it will flow away. Very true; yet the thing had never been done until Mr. Rennie proposed it; and, simple as the method was, it cost him many years of arguing, illustration, and enforcement, before he could induce intelligent men in other districts to adopt the simple but thoroughly scientific method which he thus invented for the effectual discharge of the drainage of the Fens. And even to this day there are whole districts in which the stubborn obstinacy of ignorant obstructives still continues to stand in the way of its introduction. The Wildmore Fen proprietors, however, had the advantage of being led by a sagacious clear-seeing man in Sir Joseph Banks, who cordially supported the adoption of the proposed plan with all the weight of his influence; and Mr. Rennie was eventually empowered to carry it into execution."

By such labours, we need scarcely remark, an immense, and even national, value has been given to swamps and wastes otherwise worthless,—nay, far worse than worthless when sanitary considerations are kept in view. It has been said of Mr. Rennie that he was the greatest "slayer of dragons" that ever lived; this title being given in the Fens to persons who, by skill and industry, have perfected works of drainage, and thereby removed the causes of sickness and disease, typified in ancient times as dragons or destroyers.

The bridges erected by Mr. Rennie are amongst the finest of his works, and are sufficient of themselves to stamp him as one of the greatest masters of his profession. His first bridge was erected in 1784, when he was in his twenty-third year. It is the first bridge on the Edinburgh and Glasgow turnpike road, across the Water of Leith, near Stevenson's Mill. A view of it is annexed.

His greatest works of this kind are the Waterloo, Southwark, and London Bridges. The last he did not live to carry out, but the design was his, and it was executed by his son, the present Sir John Rennie. In the early part of his career, Mr. Rennie was called upon to furnish designs of many bridges, principally in Scotland, which were not carried out, from want of funds. The first bridge of any importance which he was called upon to execute was Kelso Bridge, across the Tweed; it was designed in 1789, and executed in 1803. It is said to have been one of the first bridges constructed in this country with a level roadway. Some of the old-fashioned bridges were excessively steep; and to get over them was like climbing the roof of a house. There was a heavy pull on one side, and a corresponding descent on the other. The old bridge across the Esk at Musselburgh, forming part of the high road between Edinburgh and London, was of this precipitous character. It was superseded by a handsome and substantial bridge, with an almost level roadway, after a design by Rennie. When the engineer was taking the work off the hands of the contractor, one of the magistrates of the town who was present asked a countryman who was passing at the time with his cart how he liked the new bridge. "Brig" said the man, "it's nae brig ava! Ye neither ken when ye're on't, nor when ye're aff't!"

We give Mr. Smiles's illustration of it.

The first bridge constructed by Rennie in England, and the earliest of his cast-iron bridges, was Boston Bridge, across the Witham, dating from 1803.

Mr. Rennie's reputation as an engineer becoming well established by these and other works, he was, during the remainder of his professional career, extensively consulted on this branch of construction; and many solid memorials of his skill in bridge-work are to be found in different parts of the kingdom. But the finest of the buildings of this character which were erected by him are unquestionably those which grace the metropolis itself.

As an engineer of docks and harbours, Rennie was no less celebrated than as a designer of bridges. In 1800 he was appointed engineer of the Company then established with the view of forming the London Docks, which he accordingly designed and executed. He was one of the first to use steam-power for many purposes, such as working the pile-engine, grinding mortar, and landing materials, for the Docks. In 1808, too, he recommended the use of steam-lifting cranes in the dock traffic; but to this day the suggestion, we believe, has not been carried out; and now, perhaps Armstrong's hydraulic cranes, as at Newcastle and elsewhere, would be preferable. The East-India Docks, projected shortly after the London Docks, were also carried out by Rennie.

* Lives of the Engineers, with an Account of their Principal Works: comprising also a History of Inland Communication in Britain. By Samuel Smiles. With portraits and numerous illustrations. Vols. I. and II. London: John Murray, Albemarle-street. 1861.

† Another apprentice of Andrew Meikle's was Peter Nicholson, the well-known author, of whom we have occasionally spoken.

WORKS OF RENNIE.



LUNE AQUEDUCT, NEAR LANCASTER.
By Mr. Percival Skelton.



RENNIE'S FIRST BRIDGE.
[From a Sketch by Mr. Rennie.]



MUSSELBURGH BRIDGE.
[From a Sketch by Mr. Rennie.]

Some of his harbour works at other places were also of considerable magnitude and importance; the growing trade of the country leading to his frequent employment in constructing new harbours, or extending and improving old ones. Glasgow, Torbay, Grimsby, Holyhead, Hull, Greenock, Leith, Southampton, and many other places were thus benefited by his engineering skill. The harbour of Holyhead and the Hull docks were amongst the most important of these.

The Bellrock Lighthouse, between the Tay and the Forth, in Scotland, after Smeaton's Eddystone Lighthouse model, was erected under Rennie's superintendence.

In the formation and improvement of royal docks and dockyards, and the construction of breakwaters, as well as in other ways, Rennie was employed by the Government, as at Sheerness, Woolwich, Deptford, Portsmouth, Plymouth, &c.

The celebrated Plymouth breakwater was constructed by Rennie.

On undertakings such as these, of great magnitude and importance, was Mr. Rennie engaged until the close of his useful and laborious life. There was scarcely a project of any large public work on which he was not consulted; sometimes furnishing the plans, and at other times revising the designs of others which were submitted to him. Numerous works of minor importance also occupied much of his attention. In addition to the various mills and manufactories fitted up by him with new and improved machinery, Mr. Smiles mentions that he advised the Bank of England on the subject of the more rapid manufacture of banknotes by the employment of the steam-engine; and he entirely re-arranged the Government machinery at Waltham for the better manufacture of gunpowder. He erected the anchor-forge at Woolwich Dockyard, considered to be the most splendid

piece of machinery in its day: he supplied Baron Fagel (than Dutch minister in this country) with designs of dredging-engines for clearing the mud out of the rivers and canals of Holland; and he designed and constructed the celebrated machinery for making ropes according to Captain Huddart's patent. In his capacity of advising engineer to the Admiralty, Mr. Rennie embraced every opportunity which his position afforded him of recommending the employment of steam-power in the Royal Navy. His advice met with the usual reception from the inert official mind: first indifference; next passive resistance; then active opposition when he pressed the matter further.

Apart from his great engineering works, Mr. Rennie's career contains but few elements of biographic interest: indeed, his works constitute his biography. Although he realized a competency by the practice of his profession, he did not accumulate a large fortune. The engineer, remarks Mr. Smiles,—

"Was then satisfied with a comparatively moderate rate of pay; and Mr. Rennie's charge of seven guineas for an entire day's work was even objected to by General Browning, the head of the Ordnance Department at the time. 'Why, this will never do,' said the General, looking over the bill: 'seven guineas a-day! Why, it is equal to the pay of a Field Marshal!' 'Well,' replied Mr. Rennie, 'I am a Field Marshal in my profession; and if a Field Marshal in your line had answered your purpose, I suppose you would not have sent for me.' 'Then you refuse to make any abatement?' 'Not a penny,' replied the engineer; and the bill was paid."

On the modesty, truthfulness, industry, and perseverance of the man, Mr. Smiles expatiates in a way which shows that much evidence of his actual possession of these and other good qualities had come under his notice during his researches. "His severe truthfulness," said one who knew him well, "was what I liked about Rennie." His death took place on the 4th of October, 1821.

We cannot lay aside Mr. Smiles's very interesting and able work without a few words on the style in which it is got up, and the way in which it has been received by the booksellers and the public. The engravings alone must have cost a large sum. The paper and printing are beautiful; and it is no wonder that the whole edition was disposed of at once. The sale of this edition, we understand, will scarcely cover the cost; but, the further sale of many new editions will, we hope, justly remunerate the author, who, we are told, has the copyright in his own hands.

NEW R.C. CHURCH OF ST. MARY, GREENOCK.

THIS spacious church and its adjoining residence for the clergy are already far advanced. They are built of the greyish green Gourock stone, with ashlar dressings of the fine Glasgow freestone, which is combined, internally, as to the church, with the rich red sandstone from Dumbarton, in the archstones, &c. The greatest internal dimensions of the church are 118 feet by 48 feet; and of the latter, 29 feet are given to the width of the nave. From the floor to the ridge of nave the height is 60 feet. Large accommodation at a moderate cost being required, the architectural character of the buildings is severe and simple, especially as regards the exterior. A spacious double portal at the western end forms the most striking feature, and will be enriched with early conventional foliage. The arcades of the nave, internally, are composed of six arches each, the two eastern ones being narrow and stilted, the others of a broad span: they are carried on cylindrical shafts, with tall bases rising above the seats, bands, and carved capitals, sustaining square abaci. The clerestory is arcaded throughout, passing round the apse; the alternate arcades being pierced for light with single lancets. Ten of these lancets occur in the chancel, and are to be filled with large figures of saints in stained glass. The roofs are boarded, and show the principal timbers: there are tie-beams and arched principals to the nave. It is intended to erect a baldachino or ciborium for the high altar, in which the various materials of the country, coloured sandstones, polished granite, &c., will be employed. The adjoining presbytery is connected by a cloister, with which are associated sacristy, &c.; and contains a spacious library, refectory, and private rooms for the clergy, &c. Every concession to modern wants and habits is made in its construction and arrangement; and though wholly in keeping with the Mediaeval "style" of the Church, will have as spacious windows,—affording ample light and air,—as comfortable fireplaces, with approved grates, &c., as could be desired.

The cost of the church and house complete will be 6,000*l.* Mr. Goldie is the architect; and Mr. Simpson, of Tottenham-court-road, the contractor.



THE CHURCH
OF ST. MARY
GREENOCK.



THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting was held on Friday evening (the 20th instant) at the house in Conduit-street.

The chair was taken by the president, Mr. Blomfield.

The following gentlemen were on ballot elected members of the Association:—Mr. Robert Wilton, 14, Oakley-square; Mr. Charles Fowle, 22, Southwark Bridge-road; Mr. Massa, 1, Queenhithe; Mr. W. Fotheringham, 2, Queen's-terrace, Holloway; and Mr. Frank Watkins, 14, William-street, Hampstead-road.

Mr. C. H. F. Lewes read the report of the library committee, which recommended that the books of the Association should be kept in a book-case in the committee-room, and that the periodical works should be bound.

The consideration of the report was reserved for a future evening.

Mr. Blashill then read a paper entitled "A Sketching Tour in France," a portion of which we give elsewhere.

At the conclusion,

The President observed that, as the length to which the paper extended would preclude adequate discussion that evening, it might be better to devote a future meeting to its consideration. The only point to which he would then refer was the absence of the ridge rib in French vaulting. The later description of French groining had no resemblance whatever to our "fan-groin."

Mr. Spiers remarked upon the circumstance that every French cathedral which he had seen was slightly on the incline, or curved. Several suggestions had been made as to the cause, one of which was, that the buildings were curved in order to represent the figure of our Lord on the cross. With regard to the moderate charges at French hotels, as mentioned by Mr. Blashill, he was sorry he could not add his testimony, because he found that there was invariably one scale of charge for Frenchmen, and another for Englishmen. In fact, some French friends had declined to accompany him upon his sketching tours on the ground that, if they went with an Englishman, they would have to pay twice as much as if they were to travel alone.

After a few observations from Mr. Paraire in favour of adjourning the discussion to a future evening, a motion to that effect was proposed by Mr. T. R. Smith, and carried unanimously.

INSTITUTION OF CIVIL ENGINEERS.

ANNUAL GENERAL MEETING.

On December 17th, Mr. Bidder, President, in the chair, the mere routine of the election was gone through, as demanded by the charter, other business being postponed on account of the death of the Prince Consort.

The abstract of the accounts showed that the amount received from subscriptions and fees was greater than in any previous year; and that the current subscriptions were now 50 per cent. in excess of what they were in 1851. During the year the Stephenson and the Miller Bequests had been invested in Railway Debenture Stocks; and an addition of 900*l.* had been made to the Institution Fund; so that the total investments now amounted to 12,144*l.* 12*s.* 11*d.* The sums on deposit at the Union Bank, and the current balance at the bankers', raised the amount to nearly 15,000*l.*

The total number of members of all classes was 945. The number of members had increased nearly fourfold.

After the reading of the report, Telford Medals were presented to Messrs. W. H. Preece, G. P. Bidder, jun., and F. Fox. Council premiums of books to Messrs. W. H. Preece, F. Braithwaite, G. Hurwood, and W. Hall; and the Manby Premium, in books, to Mr. G. P. Bidder, jun.

The thanks of the Institution were unanimously voted to the president, for his attention to the duties of his office; to the vice-presidents and other members and associates of council, for their co-operation with the president, and their constant attendance at the meetings; to Mr. C. Manby, hon. sec., and to Mr. James Forrest, sec., for the manner in which they had performed the duties of their offices.

The following gentlemen were elected to fill the several offices on the council for the ensuing year:—John Hawkshaw, president; J. E. Errington, J. Fowler, C. H. Gregory, and J. R. McClean, vice-presidents; Sir William Armstrong, J. Cubitt, T. E. Harrison, T. Hawksley, G. W. Hemans, J. Murray, J. S. Russell, G. R. Stephenson, C. Vignoles, and J. Whitworth, members; and Mr.

John Cochrane, and Col. Simmons, R.E., associates. The meeting was then adjourned until Tuesday, January 14th, 1862.

THE ARCHITECTURAL MUSEUM.

The committee record their sense of the loss of their patron, the late Prince Consort, in the following terms:—

"The committee of the Architectural Museum beg to testify their deep grief at the decease of His Royal Highness the Prince Consort. While feeling alike with all Her Majesty's subjects the greatness of the national misfortune, and respectfully sympathising with a loss which is irreparable to the Sovereign and the Royal Family, they trust that they may be permitted to express their own especial sorrow at the decease of a prince who has always shown himself the wise and learned promoter and munificent patron of art, and to whom the Architectural Museum owes a deep debt of gratitude for the kindness which induced His Royal Highness at the first foundation of the Museum to honour it by becoming its patron."

DWELLINGS OF THE OPERATIVE CLASSES IN EDINBURGH.

THE ARCHITECTURAL INSTITUTE OF SCOTLAND.

On the 17th inst. the annual general meeting of the Architectural Institute of Scotland was held in the Institute's Rooms, George-street; Mr. J. D. Fieldie in the chair.

Mr. David Cousin read an interesting paper on "The Present State of the Dwellings of the Operative Classes in Edinburgh." In the course of it he pointed out the frightful condition of parts of the city, to which we drew attention not long since, and called loudly for interference. Proceeding to point out what might be done to obtain a supply of better houses for the working classes, the reader said,—The best method of securing success would be for the workmen themselves to take this all-important matter into their own hands. Could they only be persuaded to take up the question of providing house accommodation for their families, it would be one of the greatest means of social advancement that has yet been attempted. They know their own requirements better than any other class of men. The idea of workmen associating together for this object is not new. In the year 1826 a co-operative society was formed in our own city, consisting of forty-eight members, joined together for the purpose of providing houses for themselves. This object they accomplished in the course of seven years, during which period six separate tenements were erected, with eight houses in each, being one house for each member. This property is situate in Canning-place, Causewayside, and is to this day a fair specimen of what workmen's houses ought to be. The plans were prepared by one of themselves; another took charge of the weekly subscriptions; and the whole affair was managed without expense. The committee of management contracted for the erection of the building in the ordinary way by competing estimates. The entry-money, I understand, was 5*l.*, which gave a small capital to begin operations. The weekly contributions of 2*s.* from each member helped the stock; and after the buildings were advanced to a certain stage, money at the ordinary rate of interest was easily procured. Each house consists of a room, kitchen, light bed-closet, and two dark closets, with water supply, soil-pipe, sink, and water-closet. The cost of such houses at that time was only about 80*l.* Wages were low and building materials cheap. The association I refer to, as has already been said, commenced in 1826. The wages in that year for joiners were 13*s.* per week: in the following year they were 14*s.* Yet with such low wages forty-eight industrious self-denying men were found with firmness of purpose sufficient to enable them to conduct this scheme to a successful issue. One of the members of this association I have the happiness to have had in my employment as clerk of works for many years; and he has kindly agreed to attend here to-night to give further details of the scheme, if required. I am glad to be able to add that he is still proprietor of the half-fell which fell to his share. House-rents, I understand, were rather cheaper during the period I have referred to than now: clothing was quite as dear then as now: some articles of food were much higher, as tea, for example, which at that time was 6*s.* per lb. I find the price of butcher's meat to have been as follows:—

In 1826,	roasting meat	was	8 <i>d.</i>	per lb.;	boiling,	7 <i>d.</i>	per lb.
In 1827,	"	"	7 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1828,	"	"	7 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1829,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1830,	roasting meat	was	8 <i>d.</i>	per lb.;	boiling,	7 <i>d.</i>	per lb.
In 1831,	"	"	8 <i>d.</i>	"	"	"	7 <i>d.</i>
In 1832,	"	"	7 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1833,	"	"	7 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1834,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1835,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1836,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1837,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1838,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1839,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1840,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1841,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1842,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1843,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1844,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1845,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1846,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1847,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1848,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1849,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1850,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1851,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1852,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1853,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1854,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1855,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1856,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1857,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1858,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1859,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1860,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>
In 1861,	"	"	6 <i>d.</i>	"	"	"	6 <i>d.</i>

The wages of the joiner now average 22*s.* per week: those of masons, at the present time, are 5*d.* per hour—which, for sixty hours per week, the length of time during which they worked at that time, gives a wage of 27*s.* 6*d.* per week; or, at fifty-two hours per week, as now arranged, a wage of 23*s.* 10*d.* per week, or fully one-half more than their brethren of thirty years ago. If industrious working men in those days could spare 2*s.* of weekly contribution towards the erection of dwellings for their families, surely it would be no great stretch of self-denial in their successors, now so much better paid, to follow their example and contribute a like sum for this noble object. The intelligence of the operative classes now is quite equal to what it was then, and they are much better accustomed to co-operation in securing a common object. Amongst their number there are men enough of skill, energy, and force of character sufficient to conduct such operations to a successful termination. It had occurred to me that those Property Investment Associations, set afoot some twelve or fifteen years ago, must have been the means, as it was the avowed object, of enabling working men to secure houses for themselves to a great extent. This I fear has not been the case. On inquiry of the manager of one of the largest of those companies established thirteen years ago, I find that it has advanced during that period to its members for the purchase of property no less a sum than 236,000*l.* Of this large sum not more than 5,000*l.* have been advanced to journeyman tradesmen, or clerks with corresponding wages, for the purchase of houses for their own occupancy in Edinburgh. Small tradesmen and journeymen have availed themselves of the facilities which these companies afford of getting money, and have purchased house property of an inferior description on speculation, for the purpose of being let or sold over again at an advanced rate. The prices paid for such properties in closes and back-courts range from six to eight years' purchase. In most cases such properties have been purchased by persons who seek to derive as large a return as possible without much view to sanitary arrangements: a few laudable cases form the exception. It thus appears that investment companies have not altogether realised the object originally contemplated; namely, of enabling working-men to become proprietors of their own dwelling-houses; nor have they in any sensible degree been the means of improving the houses of the working-classes. A co-operative building company has lately been formed, with a nominal capital of 10,000*l.*, in shares of 1*l.* each. I believe there are already upwards of 200 members. Such a company, if once firmly established on a broad basis, might do much to meet the demand for workmen's houses; but, to be available to any considerable extent, they would require a large capital for investment. Such a company, for some time at least, cannot be expected to have capital ready to invest in fixed property. Their object at first must be to build and sell, rather than to hold heritable property for the purpose of being let to workmen. Associations of the nature I have formerly referred to, as exemplified in that of 1826, might work harmoniously along with the Co-operative Building Society—the one advancing the money to build, the other entering into contract. Benefit Societies, where capital has been accumulated, might also lend their money in aid of the erection of workmen's houses, where a secure investment is offered.

ART IN CORK.

At the recent meeting to distribute the premiums amongst the students of the Cork School of Art, the chairman, Alderman Maguire, read an address, in the course of which he said:—The Artisan Class constitutes one of the most pleasing features of this institution. I care not in what sense, or under what aspect that class may be regarded; whether from a merely material and practical, or from a purely moral or intellectual, point of view. The Artisan Class, so called, consists of between sixty and seventy pupils; including workmen, apprentices, and young persons about to be apprenticed to some mechanical trade or craft. Of these, between forty and fifty are actual working men—literally artisans—who quit their workshop for the class-room, and the implements of their trade for the crayon and the chalk. The number is hopeful and encouraging rather than sufficient or satisfactory. One feels that it is well to have even so many of this interesting class; while one is ashamed at having so few. With such advantages offered to them, and at terms so easy, and with so large a number of artisans in the city, whose labour would be materially

assisted, whose capacity would be increased and strengthened, whose skill and taste would be developed by an art education, the wonder is that not more than between forty and fifty grown men are now enrolled in this class. I shall not insult so high-spirited and intelligent a body of men as the artisans of Cork by supposing that it is the quarterly fee of 5s. that holds them back from this school. Why, this trifling sum would be freely spent by almost any one of them in the enjoyment of a single day, or the indulgence of a single night. If it be not the fee which stands in the way, what is it? It must be indifference, or negligence; or, what is much more to be deplored, a culpable disregard of what is improving and elevating. I like to see the working man aspiring—ever aiming at a higher position; and I know no spectacle so inspiring as, or indeed more glorious than, that of the working man, rising by his own honest energy, by his manly toil and patient industry, above the ordinary lot which is common to his order, and pushing his way to position and independence, until the employed of yesterday becomes the employer of to-day, and the artisan is merged in the master. I put it to the working men of my native city, does not this School of Art offer to the self-respecting and justly ambitious artisan one means, and a potent means, of improvement, progress, and marked elevation in the social scale? If they doubt it, let them consult the brief annals of this school, and the history of its artisan class; and they will find how, already, the house carpenter has become the successful builder; how the stonemason has swelled into the contractor; how the cabinet-maker has developed into the graceful designer of elegant ornament; how the house-painter has grown into the accomplished decorator; how the journeyman engineer has been elected to the responsible position of managing foreman;—how the carver of commonplace and mere conventional ornament has acquired taste and skill and grace,—ay, and reputation,—by his acquaintance with art, even in its elementary forms,—how rank, and honour, and independence have been won by the art-workman; who, without this training of the eye and hand and taste, would have remained for ever a mere drudge; performing his daily task without energy and without spirit; satisfied, it might be, with mere sensual enjoyments, or occasionally relieving his discontented mind by grumbling at his fate, and envying the prosperity of his employer. If rightly employed, there is the power of a magician in the little implement which I would place in the hand of the working man. It will help him in his hour of labour; and it will delight him in his moments of leisure. We are told that every French soldier in the army of the Great Napoleon carried a marshal's baton in his knapsack. Now, I would slip into the breast-pocket of the workman a little instrument which, if he only understand its proper use, would be a companion and a friend in all his wanderings; which would prove his best passport in strange cities; which would fling open to him the doors of every workshop; which would enable him to push his way up, and up, and up, in the social scale, whenever the right time and the favourable chance afforded him the looked-for opportunity of showing what was in him. Need I say that that little instrument is the pencil of the ready draughtsman? Speaking then of the National School pupils, he proceeded,—Now, a word or two as to the influence of art-training upon the class in whom, I must confess, I feel the greatest interest. I remember how, in my address to a crowded audience, now more than eight years since, I thought it necessary to try and disabuse your "sensible" and "practical" people of certain notions which I believed them to entertain as to the impolicy of imparting a knowledge of art to the working man. On that occasion I used these words:—"If the general diffusion of art education resulted only in the propagation of new races of what the world, with a courtesy purely technical, terms artists—now hordes of bad painters and worse sculptors;—if teaching the elementary principles of art to the mechanic and artisan placed him above his business, or rendered him discontented with his craft; I have no hesitation in saying that the school through principles, were imparted, might be better termed a school of confusion than a school of design. But were there thsight to inquire whether those fears were well grounded; whether those dire prognostications have been verified by the result; and we are in a position so to inquire; for this school was founded in January, 1850; and has been in active operation for a period of nearly three years—a time quite sufficient to develop the seeds of

injury, and gather in more than one harvest of evil. My assertion is that the Cork School of Design has succeeded in educating, not a race of artists, but of *art workmen*,—not of painters and sculptors, but accomplished draughtsmen, skilful carvers, expert modellers, graceful and ready designers, clever pattern drawers, and excellent lithographers,—to all of whom an acquaintance with the principles of art has opened up, not so much new sources of delight, which it has done, but the means of advancement and independence in life. The records of the School furnish conclusive evidence as to this happy result." On the same occasion, but towards the conclusion of the address, I again referred to the influence of art training in another and more important sense; and the words employed are so fully borne out by the experience of eight additional years, that they are as applicable at this moment as they were when first uttered. Because of their literal correctness as a testimony, and their force as an illustration, I shall ask your indulgence while I thus repeat myself:—"I stated as my opinion, in the opening of this address; and if imparting a knowledge of the principles of art to the workmen tended to dissatisfy him with his profession and disgust him with his craft, it would be most imprudent to impart such knowledge; but if heart-education which this School affords the artisan were productive of injury to his moral conduct,—if it rendered him careless or indifferent in the discharge of his daily occupation,—if it induced in him a desire for false pleasure,—if it imparted to the hard-working son of labour any of those faults which the world is but too apt to overlook when associated with genius,—as if it were indispensable that the diamond should be debased by a flaw; if it made the workman other than what the true workman ought to be, and is, when he rightly appreciates his position in the social scale; I should be found amongst its most strenuous opponents, its most earnest denouncers. But what is the real fact? The effect is most marvellous, moral as well as mental. It is displayed as well in his improved habits of life, and his propriety and even dignity of demeanour, as in his greater intelligence and refinement. Steady, sober, orderly, and self-respecting, the art-pupil exhibits in his own person a noble evidence of the influence which lofty and generous pursuits ever have upon the mind and heart of man. Fully conscious of the beauty and sacredness of that heart which he worships, even at a humble distance, he disdain to bow as a slave before those base altars upon which too many of his class sacrifice their pride, their honour, their independence, the peace of their families,—all that man ought to cling to with the tenacity of life itself. While his senseless and misguided relative is wasting his health, his substance, and his character, in low dissipation; the art-pupil is diligently engaged in his allotted task, or perusing with delight and benefit the pages of some well-selected work, which adds new ideas to his mind, new attraction to his study.

METROPOLITAN IMPROVEMENTS HOPELESS.

LONG though it be since complaints have been made of the numerous straits and incongruities of the London thoroughfares, but little has been done to remedy the palpable evils which obstruct traffic. Grand things are prefigured, such as the stupendous sewage scheme, and the embankment of the Thames; but great improvements might be made by only attending to small matters; and important easements might be afforded to the incessantly rolling multitude by only opening small straits, and removing obstacles from the causeways of ancient intercommunication.

If alterations were turned to improvements in the old thoroughfares,—to abating nuisances where they exist,—to widening the choked gorges of such routes as Holborn, Chancery-lane, the Strand, clearing an opening northward, from Clement's Danes, by Russell-square, to Hampstead-road; striking out a leading line from London-bridge, on the south side, to Westminster (giving vent to all the intermediate bridges); then Londoners would acknowledge that some real regard was shown for improvements, and that the expense of the Board of Works was not wholly thrown away.

An observer of street innovations now in progress cannot fail to remark that, "*quoad antiquas vias*," no attempt is made for amelioration. Take, for example, the New-road—at the corner of Tottenham-court-road. Here a public-house juts out, and narrows this finest boulevard of London by 10 feet, presenting a stack of hideous building that intercepts and blocks out the view from either

end of this grand thoroughfare! And yet here through this very street, the Underground Railway is being carried forward with magic celerity.

Again, in the Brompton-road, at Knightsbridge, a plot of ground on the Park margin, about 50 feet frontage, and of 6 feet in depth, increasing westward to a depth of 14 feet, has been suffered to stand as the basis of a four-story structure! Surely this site ought to have been purchased, and either thrown into the Park, or else used for public purposes in some less absurdly-lofty incongruities: as, being the most important of all the metropolitan approaches, and within a stone's throw of Hyde Park Corner, such performances inflix a stigma upon national taste.

In the present state of civic management there is no help for enormities such as these; nor any escape from Holborn-bars, Temple-bar, nor the bar of the obtrusive publichouses in Tottenham-court-road crossing. Such and the like, everywhere, are the disgraces of London. We have no *Ediles*: no: the district-surveyor is the only arbiter for appeal against any possible nuisance: if the commissioners have the power and the means, they have not the will; and thus it is that London must languish while Paris glitters in all the glories of modern embellishment.

As to the district surveyor, in truth his powers are very limited; whilst he has no cognizance, nor power to speculate upon improvements, however much they may be needed.

No one can undervalue the great public benefit to be derived from the grand sewage system now in operation: on the contrary, the whole community look forward to the completion of that, as well as the river-bank railway and esplanade. Taking, however, a forecast of these proposed aggrandisements, the ancient metropolis will all the more need a thorough modification of its ways. If left in ancient decrepitude, the attractions of newly-opened routes will by contrast make the present old-established street lines all the more repulsive.

When Lord Llanover directed the park improvements, he, as "*arbitrator elegantiarum*," cast a halo of glory about them. Some such power ought to be exercised by some kindred spirits with respect to *street improvements*. The primary points for amendment are, after all, but few: the effects of change would be wondrous; while the cost, under judicious management, would be comparatively small.

The localities susceptible of improvement within a City range of 50 square miles are very numerous: the means for amendment are without stint: the requirements should not then be thought beneath the care of a minister who could easily find a modern *Æmilius* to illustrate the office of *Edile*.
QUONDAM.

PUBLIC BUILDINGS IN THE PROVINCES.

Cambridge.—The improvements at the Guildhall are rapidly approaching completion, according to the local *Chronicle*. The aldermen's parlour and the old assembly-room are available for public meetings. The suite of rooms appropriated to the School of Art are capacious and convenient. The large assembly-room is progressing.

Sandhurst.—The erection of the new Staff College, Sandhurst, is approaching completion. The work is carried out under the direction of Captain Pelly, of the Royal Engineers, assisted by Mr. E. Bowdler, of the Civil Staff. The new college is situated on a gentle slope, about half a mile to the eastward of the Cadets' College, and within the grounds belonging to that establishment. The style of architecture is modern Italian, freely treated; and the material is brick, with stone facings, the lower part being completely stone. The length of the main building is 265 feet; 110 feet depth (exclusive of external offices); and height from the ground about 60 feet. There are towers at the north and east ends; and one rises in the centre of the front, on the pediment of which are the Royal arms, surmounted by the crest of the college. There will be quarters for forty students. The contractor is Mr. Myers, of London.

Reigate.—The new Public Hall is now very near completion; and will be opened on 15th January. The Public Hall is capable of holding 500 persons. The architect is Mr. John Lees; and the builder, Mr. Carruthers.

Worcester.—The new aisle in St. John's Church was to be consecrated on Thursday in this week. When viewed from the Bromyard-road, the character of the church, on the north, is seen to have been completely altered. The spectator has now before him a building in the Early Decorated style, with walls of Ombersley stone, with Bath

stone windows and dressings, and a roof covered with tiles ornamentally arranged. There are four two-light windows on the side. On each window the lights are separated by mullions; but each light has a separate arch, and the heads are filled with tracery. Unfortunately the accommodation required in the church has rendered a gallery necessary; and, in consequence of this, stone transoms have been carried across the window; and this rather tends to make them look heavy. The east end has a window of similar shape to those in the side. A large rose window, also filled with tracery, has been introduced into the angle of each of the gables. The roof is covered with tiles laid in bands of red and black. The new aisle is 57 feet in length and 22 feet in width: the old aisle was 17 feet 6 inches shorter, and only 11 feet wide. The increased sitting room obtained by the alterations will accommodate 253 persons. The new aisle is from the designs of Mr. Perkins, architect, who superintended the works; and Messrs. Hemming & Son were the contractors.

Liverpool.—The Docks and Harbour Board have accepted the tender of Messrs. Haigh & Co., to construct offices for the traffic managers, at a cost of about 412*l.*, and to accept a tender for supplying lead piping; also a recommendation to erect a hut at the new timber quay, Birkenhead, for the accommodation of the timber measurer, at a cost of about 100*l.*

Dumfries.—The Dumfries and Maxwelltown Mechanics' Institute's New Hall, in Irish-street, Dumfries, was opened on the 12th inst. The style of the building is Gothic, of the Early English period. The front elevation to Irish-street is 62 feet long; its leading feature consisting of three large entrance-doors, with pointed arches, and a circular tracery window under the main gable. The arches are built of white and red arch stones alternately. The height from the ground to the apex of the gable is 46 feet. The internal arrangements of the building are simple. The total width of the ground-floor of the hall is 58 feet, and its length is 56 feet (exclusive of the platform, which is at the end opposite the front doors, and is 33 feet long by 11 feet wide). The gallery is placed opposite the platform, and extends over the entrance lobby: it is 23 feet deep, and 33 feet wide, and gives the total length of 76 feet from the back of the platform to the back of the gallery. The roof of the building is in three compartments, dividing the interior into a central nave and aisles on each side. The hall is seated for 1,000 people. The cost of the building is about 1,300*l.* The design was furnished by Mr. Fraser, of Dumfries, architect. The contractors were— for the mason work, Messrs. Crackstone & Son; for the joiner work, Mr. Meir; for the plaster work, Mr. Fraser; and the slater work, Mr. Bridges. Mr. Coltart had the painting, and Mr. Aitken the glazing.

Inverury.—The contracts for a new Town House have been agreed on, and preparations for building will be commenced forthwith.

STAINED GLASS.

Gainsborough Workhouse.—Mr. T. H. Oldman, of Gainsborough, has just placed a stained glass window in the new chapel now in course of erection at the Union Workhouse,—the gift of Miss Emily Anderson,—to the memory of his father. The window to be placed in the chancel. It is divided into three compartments. The subject of the centre one is the Resurrection. The tomb or sepulchre, "wherein was man never yet laid," with the stone rolled away from the entrance, and "linen clothes laid by themselves," is represented, as also are the frightened forms of the watch, who had "become as dead men." The figure of our Lord, as He is being received up into heaven, forms the chief object of the window. In each of the side compartments three figures are seen,—one at the bottom, representing an angel; and two at the top, representing Peter and John. The angels carry a scroll, upon which is inscribed, "Ye seek Jesus, who was crucified. He is not dead: He sleepeth." A scroll is also placed in the hands of the apostles, which contains the following passage of Scripture:—"Blessed are the dead who die in the Lord: they rest from their labours, and their works do follow them." The artist was Mr. Wailes, of Newcastle.

Carlisle Cathedral.—After delays of months and years, according to the *Carlisle Journal*, a stained glass window, in memory of the late Bishop Percy, now fills the east window of Carlisle Cathedral. Part of the grand east window being thus already filled; when it was determined that the lower portion should again be enriched with stained glass, the undertaking was a more difficult

one than if the whole window was to be renewed. The chief difficulty, of course, lay in having to assimilate the new to the old, and if possible preserve a general harmony. The task was entrusted to Messrs. Hardman, of Birmingham, who put up the Tait memorial window; and they submitted a design to the Dean and Chapter two years and a half ago which met with their approval, and its execution last week is what we are now recording. The window is divided by stone mullions into nine lights. Each of these is filled with groups illustrative of the life of Christ. Beginning at the bottom of the window on the north side, and proceeding from left to right, in the first light we have the Annunciation surmounted by "The Angel appearing to Joseph;" in the next the Nativity; then the Salutation surmounted by "The Circumcision." In the centre of this row is a large figure of the Crucifixion, with representations of the Virgin and St. John on the one side and a group of Jews on the other, angels being ranged above on each side: in the seventh light is "The first Miracle;" in the next, "The Marriage Feast;" and in the last, "Our Blessed Lord preaching." Over the seventh canopy is "St. Veronica with Veil;" over the eighth, "The Carriage of the Cross;" and over the last, "Thieves going to Crucifixion." Above the groups thus indicated is a row of medallions extending straight across the window, two in each light, representing the prophets, Habakkuk, Nahum, Ezekiel, Jeremiah, Baruch, Nehemiah, &c. Above the row of circles the groups are "The Adoration of the Kings," surmounted by "Angels appearing to the Kings;" "The Blessed Virgin, with our Lord," with a large ornate canopy; "The Adoration of the Shepherds," surmounted by a small group, "Angels appearing to the Shepherds." The next three lights form part of another large group around the central figure of "The Resurrection;" the first is St. Peter and St. John at the tomb, surmounted by a "Noli me tangere;" the other represents "The Three Maries," surmounted by "Going to Emmaus." Then follow in the same line "The Embalming of the Body," surmounted by "Joseph bethinking the Body;" "Taking down from the Cross;" "The Entombment," surmounted by "The Blessed Virgin going to the Home of St. John." Above this row of groups another row of medallions representing saints and prophets runs across the window. In the next row we find "The Presentation in the Temple," surmounted by "The Massacre of the Innocents;" "The Flight into Egypt," surmounted by "The Falling of the Idol;" "Christ disputing with the Doctors," surmounted by "The House at Nazareth." Then comes another central group with its accessories, "The Ascension," with apostles on each side, and angels above. Farther to the right, or south, the last three lights are set apart for "The Descent of the Holy Ghost upon the Apostles." At the top of the lights, just below the pointed canopies, are figures of Adam, Abraham, Melchisedek, Isaac, Jacob, Moses, &c. The cost of the window will be between 1,200*l.* and 1,400*l.*

CHURCH-BUILDING NEWS.

Stratton Audley (Oxfordshire).—The parish church of this village has just undergone extensive repairs, and partial restoration, at a cost of about 800*l.* The works were commenced by taking down and rebuilding the chancel arch, which was in a most insecure condition; and by thoroughly restoring the wood-work of the roof over the north aisle, which was much decayed; and renewing the lead-work. It was determined, during the progress of these works, to restore in a similar manner the coverings of the nave and south aisle; and this has also been done. The chancel, nave, and south aisle have been re-seated; a new and appropriate altar-rail has been provided; and the timbers of the chancel roof restored. The stone-work of the windows has been repaired throughout; and several lights or parts of lights which had been blocked up have been re-opened, and the whole newly glazed. Internal drop-arches in stone have also been substituted for wooden beams over the aisle windows; and several smaller improvements or restorations have been effected in the interior. Want of funds has caused the intention of completing the restoration by a thorough repair of the external masonry of the church to be postponed.

This church is an interesting and rather peculiar one. It contains a good deal of work of the Decorated period; and shows here and there traces of an earlier building; but was altered, not for the better, in the Perpendicular period. A very fine north porch, however, of late work, forms the most

remarkable feature of the exterior. Facing the work, several fragments of an ornamental encaustic tile paving, of good design, were discovered. The works have been carried out by Mr. Selby, of Oxford, builder; and the carving done by Mr. Jacquet, of London; the whole under the superintendence of Mr. Roger Smith, of London, architect. The church, which has been closed for some months, was re-opened for divine worship on Saturday, the 14th inst., by the Bishop of Oxford.

Bletsoe.—The opening of the church at Soul-drop, for divine service, after having, with the exception of the steeple, been rebuilt, has just taken place. The seats are oak, the backs being ornamented with carving. The chancel contains some sculpture. The roof is stone, groined. The eastern window is of stained glass. The spire has also been repaired and heightened.

Hanford.—The chancel of Hanford Church is being rebuilt, from designs by Mr. Rushforth. The chancel, which may be finished by next Easter, will have cost from 300*l.* to 400*l.*; the stone having been given by the Duke of Sutherland.

Leominster.—The new Wesleyan chapel at Leominster has been opened. The new edifice is situate in Burgess-street. The contract for its erection was undertaken by Mr. Nodan; but he failing to complete his agreement, it was taken up by Mr. Mansfield, of Kingston, and carried out. It is built in the Early English style of architecture, composed of brick, with Bath stone windows, and is capable of accommodating from 250 to 300 persons. It is about 50 feet long by 30 feet wide. The seats are open, of pitched pine, polished. The purchase for the ground on which the building is erected costs 250*l.*, and the contract price amounts to 585*l.*

Darlington.—The foundation stone of a new Independent chapel, about to be built at Darlington, was laid on the 7th inst. The design of the new edifice is Decorated Gothic, with a spire 100 feet high. There will be seats for 600 adults (allowing 20 inches clear for each person) and 100 children (14 inches for each). The cost is estimated at 1,000*l.* The architects are Messrs. Pritchett & Son, of York. This chapel is the first of a hundred new places of worship proposed to be erected throughout the country in commemoration of the ejection of 2,000 Nonconformist divines from the Church of England in the year 1662. It is to be called the "Bi-Centenary Memorial Church."

Gateshead.—The New Connection Methodists of Wotton Gilbert have erected a chapel in the Early Pointed style. The entrance is by a porch, having a pointed doorway, with trefoil arch opening, played jamps, moulded label, &c. The gable-end fronting into the street is pierced with pointed arch window openings. Mr. Gibson Kyle is the architect, and Mr. James Smith the builder.

Eccles.—Hope church, near Eccles, has been consecrated. The new church stands on the left hand of the old road leading to Eccles. It is dedicated to St. James. Mr. Walter Scott, of Liverpool, was the architect, and the church is in the Transition style. It is built of Storton stone, and cost 6,200*l.* The tower and spire are unfinished. The plan includes nave, with lofty clerestory, and open-timbered roof; north and south aisles, divided from the nave by circular columns and arches; chancel, extending one quarter of the entire length, which is 132 feet; also organ chamber and vestry. The organ was by Hill, of London, and cost 650*l.* The breadth of the church is 57 feet, and the height 48 feet. There are sittings for 624 persons, and about one-third of the seats are free.

ROYAL HOSPITAL FOR INCURABLES: COMPETITION.

THE managers of this institution having obtained land on the Brighton Railway, very near to the Caterham Junction, invited a limited number of architects to submit designs for a building to accommodate 300 patients; or, as we should rather say, inmates. Six complied, and sent drawings marked respectively, "Blessed are the merciful;" "A. B. C.;" "In good faith;" "Consolation;" "O.;" and "Z." 30,000*l.* were named as the sum that would probably be spent.

Assisted by an architect, as we understand, the board have awarded the first premium, 70*l.*, to the set marked "Blessed are the merciful;" found to be by Mr. E. M. Barry; and the second, 30*l.*, to "A. B. C.;" found to be by Mr. Geo. E. Barry's design is Venetian in character (parts suggesting the Bloomsbury Schools), with a tower in the centre of the main front, and circular turrets, with pointed roofs at intervals. It includes a large covered recreation court; and there are inclines, by means of which patients may be

wheeled to the several stories. The number of these varies; the inequalities of the ground being accommodated. Mr. Coe, on the contrary, appears to contemplate forming a level surface to start from. The style of his design, which includes a lofty central tower, is ordinary Italian. The buildings are ranged around two courts. The design marked "In good faith" is a Gothic adaptation of considerable merit. Plan and arrangement, however, are the points to be chiefly considered in a building for the purpose in question; and these we have not had the opportunity of sufficiently investigating. The object of the Institution is to provide a home for life for the hopeless and the helpless.

WHITBY CEMETERY COMPETITION.

THE designs of Messrs. Pritchett & Son, of Darlington, have been selected for this work, and are to be carried out, we are informed, by the authors, on the usual terms.

SYDNEY HOUSES OF PARLIAMENT COMPETITION.

WE have before now mentioned the competition for the two premiums—600*l.* and 300*l.*—offered by the Government of this colony for the best designs for the new Houses of Parliament, and Government buildings, which it is proposed to erect at the entrance to the Domain, in Macquarie-street. Twenty-one designs were tendered in competition for the premiums; and, after these had been publicly exhibited, the commissioners appointed to decide on the awards selected six of them as being the most eligible, and directed the Colonial architect to report upon the plans. Since he did so, the commissioners have had one meeting; and there can be no doubt that the next mail for England will bring the names of the successful competitors. The *Sydney Morning Herald* says,—The following are the mottoes attached to the six designs which were selected by the commissioners as the most eligible:—"Palladio," "Hora Semper," "I bide," "Fide et Virtute," "Follower of Wren," and "Sic fortis Etruri crevit."

FROM ABROAD.

THE committee for the restoration of the cathedral at Worms have, according to their published accounts, spent, in the preceding twelve months, 12,964*g.* and have, with this sum, entirely repaired the eastern cupola, which was much dilapidated. The interior of the middle nave has had its roof well underpinned, and the entire roof has been gone over, and wherever needed put into substantial repair.

During the repairs and restoration of the cathedral of St. Stephen, at Vienna, important tracings of gilding and fresco painting have been found on the vaulting of the nave and choir; with which, in fact, the entire building was once covered in the interior; but subsequently daubed over by a coating of grey wash. The three large windows which the municipality furnish will be ready immediately.

The King of Hanover has determined that the family museum at Herrenhausen shall be enlarged to a Guelph museum. All the *souvenirs* of this ancient dynasty that are now there, as well as every monument that has any connection with its ancestry, is to be procured and placed therein;—the originals where procurable; if not, in exact copies. Herrenhausen will change its name to the Guelphenburg. Some time back the king had the burying vaults of the elder Guelphs at Wern Garten, in Württemberg, put in substantial repair.

There has been lately placed in the cathedral at Cologne a Gothic altar taken from the suppressed convent of St. Clara, in whose restoration more than four thousand dollars have been spent. It is a beautiful work of Mediaeval art: it has the twelve apostles and various scenes from the life of the Virgin carved in wood: on the shutters Gospel scenes are depicted in a series of fine paintings.

PROPOSED NEW COLLEGE OF PHYSICIANS, KILDARE-STREET, DUBLIN.

IT will be remembered that in a limited competition of architects the design selected for the above building was that of Mr. W. G. Murray. On Friday evening, the 18th, the tenders of seven builders who proposed for the works were opened: the majority were found under the sum proposed to be expended; that from Messrs. Beardwood was the lowest. The quantities were supplied by Mr. W. Doolin. The design chosen is Classic. The façade consists of two orders,—Corinthian above Doric, and is to

be executed throughout in Scotch stone from the Huntershill quarries: the same stone will be used for the grand stairs.

The building will be 61 feet in front, 85 feet deep, and 46 feet high to the top of main cornice, which is to be capped with a balustrade: a similar balustrade will extend from the entrance portico at each side along the area front. The front rooms of ground floor will be, a reading-room, 20 feet by 18 feet; and a council-room of the same size on the opposite side of the entrance-hall. The rooms over these will be, a library, 34 feet by 18 feet; and a museum, 25 feet by 18 feet.

The principal staircase will be 30 feet by 30 feet, and the remainder of ground and first floor levels, as far back as the grand hall, which will extend across the entire building, will contain the private stairs and the usual accommodation for officers.

The grand hall will be 58 feet by 30 feet, and 30 feet high to centre of ceiling. This hall will be entered from the half-space of grand stairs, and will be lighted by five semicircular-headed windows, 5 feet by 9 feet 6 inches to springing; and by three glazed domes, 6 feet 6 inches in diameter, in ceiling. Recesses to correspond with the windows will be formed in the three remaining walls of hall. The ceilings of hall and staircase will be vaulted and coffered, and several of the coffered of staircase ceiling are to be filled in with plate glass. Cellars and caretaker's apartments will occupy the basement.

THE VICTORIAN EXHIBITION.

THE inauguration of this long-expected display of the natural products and works of art and industry of the colony took place, says the *Australian News*, on Tuesday, 1st October, in the Exhibition building. The Exhibition was opened by the governor, who was addressed by Sir Redmond Barry, the president, who in the course of his speech said:—"As you are aware, sir, the building in which we are assembled was erected to receive the contributions to the Exhibition held in Paris in 1855. It contains an available area of 15,000 superficial feet. However, the applications from intending exhibitors have multiplied to such an extent, that the commissioners found that they would be compelled either to enlarge its dimensions or to exclude many objects, and thereby damp the enterprise of those desirous to compete. An addition has been made, which gives an apartment 80 feet by 40 feet, calculated to form a useful adjunct to the now generally-considered indispensable Exhibition building. Under the energetic superintendence of Mr. Knight, agent of the commission, this, with several alterations to improve the internal arrangement of the original structure, has been completed in nine working days,—a proof that, in case of emergency, reliance may be placed now, as heretofore, on the skill and activity of our artificers. Water has been conducted into this building from the Yan Yean water supply,—a great national undertaking, since the former Exhibition took place here, at an outlay of but little short of a million sterling. Motive power for machinery is thus furnished.

A REVOLVING SHOP-FRONT.

"ONE good turn deserves another," people say; so the new shop-window just now put in at a well-known advertising outfitters in New Oxford-street, goes on, turn and turn about, all day, bringing the various goods suspended on its circumference in their turn to the front, and never "going off," though it is a revolver. It is a curious affair, 11 feet 9 inches in diameter, 12 feet in height, and weighs 24 tons. A heavy weight below, acting through various wheels, is the moving power. It was put up by Mr. Coombs, of the Borough, who, in the next he constructs, must make some better arrangement to keep out the wind. There are periodical revolutions in most things: why not in shop-fronts?

MASTER BUILDERS' ASSOCIATION.

SIR,—In your paper of October 19th, 1861, there is an extract from the opening address of the Liverpool Architectural Society, by Mr. Jas. M. Hay, "On Strikes." Would you kindly allow us, through the medium of your columns, to record our entire and hearty concurrence in the views then so ably and clearly expressed, as well as the deep sense we entertain of the necessity of acting upon the sound advice there given, and without delay forming the general association advocated by that gentleman, and no longer let the slur be cast upon us (to quote Mr. Hay's words, which are only too truthful), that "no permanent association exists among the masters; but, in its place, a

mushroom combination, speedily got up to suit the emergency, which as speedily dies away the moment the contest is over." We are confident that Mr. Hay's ideas on the subject need only be put in operation to insure success, and be the means of causing a better feeling between masters and men, as well as stopping the vexatious and grinding tyranny of the "Trades' Unions," which has been so severely felt by many thousands of good mechanics and sensible men who are utterly unable to throw off the yoke; being too old to join any other society, or unable to incur the expense; and thus are overpowered by a few petty despots, backed by a majority of inefficient and unthinking men.

We hope soon to see the London Association of Master Builders take in hand the formation of a general association, and trust provincial builders will at once give them the promise of their support.

Signed by the Secretary on behalf of the
BATH ASSOCIATION OF MASTER
BUILDERS.

FIREPROOF CONSTRUCTION.

IN reference to Mr. Dick's letter in the *Builder* on "Prevention of Conflagrations," may I direct his attention to a notice, in your paper of Oct. 19, of my patent fire-clay doors and shutters, which are of one piece, of a selected fire-clay, and without any kind of iron frame whatever? They work in fire-clay frames, have fire-clay fasteners, and only the hinges are of iron; but, should these last-named fail, the doors would still keep their position.

And now, will you, sir, allow me to say a few words on fireproof construction? Why should we not have warehouses as proof against injury by fire as are coke and bakers' ovens? It may be positively asserted that a warehouse can be made secure almost beyond a chance of failure, if the following amongst other conditions are observed: First, the whole interior to be lined with firebrick, and the floors to be on piers and vaulting of the same material, with a lattice-work of iron bars, laid in tubes of fire-clay, to meet the lateral pressure.

Secondly, the doorways and all openings should be at least 24 inches above the floor line, so that the water might be turned on to that depth at any moment, and on one or more floors, and retained there instead of being half wasted as at most of the fires.

Thirdly, the doors should be of fire-clay (together with iron ones to external doors), and the windows should have fire-clay shutters, capable of being opened or closed, mechanically, from a common staircase, without entering the warehouse at all.

Fourthly, the roof should be a vaulted one, and free from timber in any shape.

If these conditions, and other minor ones which it is needless to mention here, were complied with, I believe a fire might at any time be put out by half a dozen policemen.

GEO. GLOVER, Architect.

Observing a short notice by C. M. Dick, on "Prevention of Conflagrations," in your last number, I will thank you to forward the enclosed to him,* as I have a strong notion that "fire-clay bricks and bricks" can be made and used so as to make all buildings fireproof—I, i. e., practically so; not what is meant by the present term of fireproof buildings. Common bricks, or vitrified bricks from common clay, will never do this. As an architect and engineer, collier, and coke burner, I have tested "fire clay bricks" for twenty years, and am perfectly satisfied they can be made to stand even a white heat and water without cracking and parting; and I shall be delighted if I can in any way, however small, assist in bringing out so desirable and necessary a result. Nothing but a building fireproof, without care, can be trusted; and this I firmly believe can be made out of fire-clay. I have often thought of this, but never before stated it on paper. As a proof, I built in 1847-8 twenty coke ovens of fire-clay bricks, and they are now essentially as good as when first built; although, as you may easily suppose, they have passed through rather a rough time, while hot, and drenched with water every seventy hours.

SAMUEL SHARPE.

PUPILS AND COMPETITIONS.

I FEAR that we architects are somewhat harsh towards each other; but on points of custom it may be well to speak plainly; and the mischievous system of pushing and elbowing appears so unintentionally revealed by W. N. in a recent number of the *Builder*, "that I am induced to ask how a professional man not fully occupied" explains the necessity for active clerks, and justifies the presence of a plurality of pupils? Is it a defensible course to accept premiums, and then resort to these mean competing shifts to keep up a semblance of business? What "lower grades" may do can be no criterion for the higher, who cannot adopt the practices of the unprincipled without inevitable degradation. Such, at least, are the impressions under which I have been content to work hard, live frugally, pay equitably for necessary assistance, and decline pupils.

CAULD CHECKLESS.

* Note lies at our office.

DECISIONS UNDER METROPOLITAN BUILDING ACT.

Greenwich Police Court.—The District Surveyor of the Parish of St. Mary, Rotherhithe, v. Samuel Cooper.—The defendant in this case was summoned by Mr. William Snooke, district surveyor of Rotherhithe and part of Camberwell, for erecting a building formed wholly of wood and timber, contrary to the provisions of the Metropolitan Building Act. A second information was also laid against the same defendant for erecting the said building without giving two days' notice thereof to the surveyor. The district surveyor stated that he discovered the building in question, erected in September last, upon premises in the occupation of the defendant, who is a stonemason carrying on business at Clarence Wharf, Rotherhithe; that it was wholly of wood, 15 feet long, 8 feet wide, and 9 feet in height, with windows and doors, and used as a counting-house; that it was mounted on a wooden cill, and access was had to it by means of a ladder; that there was no fire-place, but it was possible to have gas burnt in it; that it was not attached to any other building, but was within 6 or 8 inches of the wharf belonging to the Surrey Gas Company's works. The surveyor stated that the building had been constructed without notice being given to him in the first instance; and that on discovering the same he had, on the 25th of October, caused a notice of irregularity to be served on the defendant, requiring him to amend the same within forty-eight hours; that the defendant had neglected to comply with that notice, but had subsequently applied to the Metropolitan Board of Works for their permission to allow the building to remain, which permission had, however, been refused.

It was contended, on behalf of the defendant, by his solicitor, that the structure in question was not a building within the meaning of the Building Act; that it had been constructed many years, and had small iron wheels or rollers, by which it could be removed from place to place; and that it had been brought to the defendant's yard, and removed from one part of the yard to another, within the last two years.

It was admitted that the structure in question was used as a counting-house; that there was no fire in it; but that it was possible to have gas or lights burnt therein.

Mr. Traill, the magistrate, said, looking at the dimensions of the building and the purposes for which it was applied; and which, probably, would require the use of artificial light and possibly heat; he considered that it was within the description of objects intended to be provided for by the Act of Parliament; and convicted the defendant in a penalty of 1s., and 42s. costs, for neglecting to give notice to the surveyor; and ordered the building to be amended in conformity with the first section of the first schedule of the above-named Act.

INCISED STUCCO.

In a previous number of the *Builder* there was an account given of the rebuilding of Whippingham Church, and in it some mention was made of ornamental plastering being executed by me. It is but due to state, that the ornamentation alluded to consists of stamped or incised common stucco; an invention by Mr. Ferrey, the architect; who has introduced this mode of simple and natural decoration in many churches and private residences. It so happened that the late Prince Consort saw one of these buildings, and was so much pleased with the incised geometrical patterns and texts, that his Royal Highness sent a gentleman to Mr. Ferrey, requesting to know all the particulars of the process, with a view to introducing it at Whippingham Church, under the direction of Mr. Humbert, the architect. I am now employed executing a considerable quantity of suitable decorations of his designs; and I think, if the character of this process were a little better known, it might be used extensively. It is a very simple, but effective mode of making common stucco ornamental, without the introduction of any sham application in principle. H. WORRELL.

Books Received.

The Royal Engineer's Department: its Work and the Estimates. By ARCS. London: Hardwicke, 1862.

UNDER this title, in a pamphlet of eight pages, ARCS reasserts what has been said by correspondents in our pages for years,—namely, wholly behind the scenes,—that the present system pursued in the Royal Engineer Department is a failure; that it

has resulted in bad barracks and defective fortifications; and that it is fast destroying the confidence of the army in the professional ability of the corps. These are serious charges, and demand an answer. A commission of inquiry has been sitting, we believe, for some time past.

The Revised Statute Book: Collection of the Public General Statutes relating to the United Kingdom, passed in the 24th and 25th Vols., Session 1861. With Tables of all the Statutes passed during the Session, and copious Index of the Public Statutes. Edited by JAMES BIGGS, Esq. Waterlow & Sons, Parliament-street, 1861.

THE editor of this work complains, as we intimated on a previous occasion, that the Government have adopted his plan of a revised statute book, and given it to others (Messrs. Reilly & Wood) to execute. The authorities, on the other hand, view the matter merely in this light,—that the task of a consolidation of the statutes, which was for a long time carried on by the late Statute Law Commission, has been for the last two years conducted under the immediate superintendence of the Lord Chancellor and the Attorney-General, with the sanction of the Treasury. We cannot enter on the merits of this question, but may state that Mr. Biggs has pointed out to the Government the very material distinction between a mere consolidation of the statutes without expurgation, and a revised edition such as his. As for the work itself, there are as yet no means of comparing it with that of the Government; which, although in progress, has not yet begun to assume a published form; but a revised edition of the statutes, such as that of Mr. Biggs, cannot but prove a very useful work, if carefully and accurately expurgated, as we have no reason to think it will not be.

Garden Fables; or, Flowers of Speech. By MRS. MEDHURST. Illustrated by THOMAS HOOD. London: Saunders & Otley, 66, Brook-street, Hanover-square, 1861.

WE have read these fables with pleasure and profit: they are graceful, good, and charming, and do credit as well to the head as the heart of their authoress. Longfellow writes,—

"In all places then, and in all seasons,
Flowers expand their light and soul-like wings
Teaching us by most persuasive reasons,
How akin they are to human things."

And this Mrs. Medhurst has taken as her motto for explication. Some of the fables are a little too and perhaps; but the short life of flowers suggests early death; and it was difficult to avoid the reference. We will quote one that is not so, to justify our praise. It is short, and is called "The Spirit of the Fountain."

"Weary in spirit from the inactive nature of my own life; imagining that to me more especially seemed denied the power to be useful to my fellow creatures; I found myself idly and discontentedly gazing at those beautiful Fountains of the far-famed Crystal Palace, at Sydenham, whose attractions drew admiring crowds around."

At first their external beauty sufficed for my enjoyment, as it did for those near me; but as imperceptibly, more serious and contented thoughts stole over me, I seemed endowed with mental vision. The jets of water were transformed into so many fair spirits, and the murmur of their rise and fall became words for my ears only. Enjoyment was the keener, inasmuch as surprise had no part in it; and intuitively I knew that there was a hidden meaning in the appearance and disappearance of these types of light and beauty.

"Fair Spirit," inquired I of one of them, whose gentle influence had most impressed me, "how can you and your companions find happiness in a life so aimless—a life bright and beautiful as of the butterfly it may be, but one in which little good is either felt or taught? Or if any deeper meaning lies hidden within it, teach me the secret or your glorious content."

"Surely," replied the Spirit, "thou hast not now to learn that everything is ordained for good, and to teach those who seek to be taught. Even to the unthinking crowds we are a brilliant sight, suggestive of mirth and beauty, but to thee a lesson of content."

Know, then, that our homes are hidden from mortal eyes; and though only an occasional hour of sunshine is permitted to us, yet that is all of pure enjoyment. The sun, our master, so lovingly smiles on us, that we waste not our time in murmuring that our meeting is so brief,—but with sportive endeavour strive to approach him in grateful worship. He scans not the distance ever remaining between himself and us, nor cares for the feebleness of our efforts; for, in recognizing our motives, he willingly accepts our attempts at praise. To us it is permitted to raise the drooping hearts of those oppressed by care, and hardened by toil; we renew in them the bright hopes of youth, recalling the time when, for their eager lips, Hope filled their Cup of Life with her most sparkling draught. Thus we send them back to struggle with care and toil, renovated by cheerfulness. Even the worldly-minded return,—though it be but for an instant,—to the scenes and purity of childhood. Lovers see in us a type of the life that they fondly dream awaits them,—that bright and ethereal happiness usually yet by contact with any gross care or sorrow. Perchance the children of Earth may fail to realize these dreams: the golden fruit may turn to bitter ashes; yet who dare say they regret the days of Hope?

These instances a few of our lessons; but thine own heart, guided aright, must help thee to learn many more. Cast aside unavailing regrets: steadily learn thine own mission; and fulfil it, no matter how insignificant it may appear to thee. Our task accomplished, we sorrow not to return whence we came,—unseen, unheeded, sufficient for us is the knowledge that we have been permitted to bestow happiness; and, therefore, content are we to retire from it, as at this moment thou art. Ere I could express my gratitude, the Spirit of the Fountain sank; the crowd dispersed; and I alone remained,—wiser and happier than before."

Mr. Hood's illustrations are all, with the exception of a frontispiece, in the shape of initial letters, of which there are twenty. Some of these are hard, but there is a redeeming quaint and characteristic cleverness in most of them.

Mrs. Medhurst's book ought to find many buyers.

Miscellaneous.

THE MASONS' STRIKE IN GLASGOW.—The dispute in the building trade, which began to assume somewhat formidable proportions on Saturday, has now been amicably settled, the men having withdrawn all claims for a half-holiday during the winter season.—*Glasgow Herald.*

THE COUNTY SURVEYORSHIP OF ANTRIM.—Mr. Charles Lanyon, C.E., who has for so many years filled the office of county surveyor for Antrim, has resigned his appointment. His successor has not yet been nominated. The *Belfast Newsletter*, from which we learn this, makes graceful and just allusion to Mr. Lanyon's well-known talents, perseverance, and zeal. "Mr. Lanyon," adds the *Newsletter*, "will soon enter upon duties of another kind, where the kindness and urbanity for which he is distinguished will, we doubt not, be displayed by him in all his dealings with his fellow-townsmen; and we are certain that even higher honours await him in his new career than any that he has yet won."

PROPOSED EMBANKMENT OF SOUTH SIDE OF THE THAMES.—Mr. John Thwaites, chairman of the Board of Works, has printed a list of points for the consideration of the Commission now sitting in reference to the embankment of the south side of the Thames, and very properly urges its necessity. He points to the termination of the embankment already carried out in connection with Battersea Park, as a convenient commencement on the western side, and suggests that it should be taken on to give security to Bermondsey and Rotherhithe. Increased means of communication in connection with the embankment will be needed to raise the money required. Mr. Thwaites sees no better means than a small tonnage due on the goods entered inwards and outwards in the port of London (excepting coal as already taxed), which could be readily collected by existing machinery.

MONUMENTAL.—The executive committee have announced that the statue of the late Josiah Wedgwood will be completed in January next, and that so far as the casting admits of inspection it is considered satisfactory. The committee have decided on placing it in the Ceramic Department of the Exhibition of 1862. At the close of the Exhibition the statue will be erected in the North Staffordshire Railway-square at Stoke.—The Seventy-eighth Highlanders' Memorial, on the Castle Esplanade, a tribute to the memory of the officers, non-commissioned officers, and privates of the 78th Regiment who fell during the late campaign against the Indian mutineers, is at present in course of erection on the north side of the Castle Esplanade, Edinburgh; a short distance from the gate leading into West Princes-street-gardens. The design of the memorial, or monument, is of a rather novel character. It is a Celtic cross of Redhall stone, 16 feet in height, resting upon an oblong double base of 9 feet; the entire height of the monument being about 27 feet. The four sides of the under-section of the base are embellished with small panels, bearing the names of the various battles in which the regiment has been engaged since its formation; and on the surfaces of the upper section will appear the names of all the officers and men killed in action during the Indian mutiny. The shaft of the cross is decorated with ornamentation; beginning, at its base, with the bas-relief figure of an elephant, the inscription, a deer's head in bas-relief; and terminating at the top with scroll-work. The deer and the elephant are the adopted emblems of the regiment. The monument is to be surrounded by a plain but massive railing. Mr. Robert Anderson, of Edinburgh, is the architect; and the bas-reliefs are modelled by Mr. George Maccallum, sculptor. It will be finished early next year.

AN ELECTRIC GAS ENGINE.—Dr. Thomas Mosson Meekins (LL.D), F.S.A., of London, barrister, at a recent meeting of the Royal Literary and Scientific Institution, Brighton, read a paper "On the Application of Electricity as a Locomotive and Projectile Force," in which he says,—"Gases generated under a high pressure will act fully as effectively as steam when admitted into the cylinder of a steam-engine. The tension may be raised to a point at which it would be perilous to work steam, owing to the facility with which the strength of the reservoir may be increased. Then no additional cost is incurred by working at the highest pressure: precisely the same electro-motive force is expended in effecting decomposition at all pressures. Thus the strength of the reservoir is the only practical limit to this enormous force, the real obstacle to its most economical application, an obstacle which, doubtless, will gradually yield to the ingenuity of engine manufacturers." He then enters minutely into the sources of the force and its amount, with that of the work which the gases can perform when employed in an electric gas engine, and also proposes a new electric gas gun. In conclusion, he claims the idea or invention of both of these as entirely original.

THE SANITARY STATE OF KESWICK.—A strong appeal on this subject has been made to his neighbours by Dr. Leitch, of Derwent Bank, in which he says:—"Judging from the death-rates of other country towns, and from the great reduction in the mortality of places in which the Health Act has been well carried out, I think no one conversant with the subject will doubt that at the very least fifty lives have been sacrificed during the last ten years, in consequence of the refusal of the Local Board to drain and sewer the town. In 1853 there was a general and exceedingly severe attack of scarlet fever in Keswick; and, passing over other epidemics, the recent attack of measles, though not deadly, was yet so universal as to prove the highly malarious nature of the atmosphere. To the question, 'What has this fever to do with the drainage?' I reply that it would be difficult to find in the whole history of fever any which is more clearly traceable to defective drainage than the fever which has been hanging about Keswick since May last." Dr. Leitch then enters minutely into the question; and amongst other remarks, he says,—"Over one cesspool in a good house there have been six cases of fever, and two deaths; over another, in the next lane, there have been five more, with seven cases between these two poison-pits, which are within forty yards of each other. I refrain from going further into detail on this disagreeable subject; but I pledge myself to prove before any medical inspector of the Privy Council, or jury of intelligent medical men, that the typhoid fever now in Keswick is the night soil fever, and results mainly from defective drainage. What is wanted at present is—first, disinfection; and second, the main drain."

BUILDING ACCIDENTS.—Another fatal accident has occurred at the Exhibition building. At the inquest at St. George's Hospital on the body, Henry Boyd, of Norwood, carpenter, said he was on the stage where deceased was employed; he stepped on a roller, which threw him down a hole where the timber was drawn up, and he fell across an iron girder. He was quite sober. The roller was used for the purpose of rolling away the timber when brought on to the platform. Deceased fell a distance of 100 feet. The roller fell with him. The jury returned a verdict of "Accidental Death." The coroner then suggested two simple preventives of any future accidents. One was to let the men work with ropes attached to them, so that they could not fall far [the men, we fear, will be the first to neglect such a precaution]; the other was to have tarpaulins, or something of the sort, to catch them at a short distance from the top. The foreman said every precaution had been taken; and suggestions of the coroner, some time back, had been acted upon; and there were also additional precautions now to be taken since this last fatal occurrence. A bricklayer's labourer, employed in roofing the new schools now in course of erection at Handsworth, having carried a quantity of slates up the scaffold, some 30 feet from the ground, missed his footing and fell. Several of his ribs were severely fractured, and he expired in about two hours. Verdict, "Accidental Death." At Scarborough, the outside of an old house, situate in Quay-street, has fallen. The fall of the wall was preceded by that of a single brick, which caused a woman who was passing to spring forward, and at the next instant the front of the house came down with a loud crash.

A BRIDGE OF SIZE.—Some of the Italian journals state that a project is in contemplation for uniting Sicily to the main land by throwing across the Strait of Messina a bridge of four arches.

THE ANTIQUARIAN DISCOVERY AT WORCESTER CATHEDRAL.—No further examination of the skeleton has taken place, owing to the indisposition of the architect, Mr. Perkins, whose opinion is required as to whether it will be necessary to remove it, in order to get to the pier. If the work can be done without such removal, the Dean, it is said, will not permit any further examination to take place. If, however, removal be necessary, the Dean himself will be present. A discussion meantime is going on in the local papers as to the identity of the person whose skeleton has been discovered, and whether he was an abbot or a bishop.

GLoucester CATTLE MARKET.—The more pressing improvements of the city having now been effected, says the *Gloucester Chronicle*, we are glad to see that the Town Council have directed their attention to the market [see *Builder* advertisements of 14th instant, and previous numbers], and we hope and believe that ere long Gloucester will be provided with accommodation for the sale of cattle, cheese, and wool, which, with the central position of the city, and its unrivalled railway facilities, will render it the great market of the Midland counties. At the present moment some fifty or sixty architects, and other professional men from different parts of the country, are engaged in devising the best methods of improvement. One great desideratum is an improved cheese and wool market, and the erection of warehouses for the storing of cheese and wool, with facilities for loading and unloading into railway trucks of both the broad and narrow gauge lines. The time for delivering the plans has been extended to the 11th of January.

NORTHAMPTONSHIRE ARCHITECTURAL SOCIETY. The first meeting of the Northampton sub-committee of the Northamptonshire Architectural and Archaeological Society was held in the Society's room, in Gold-street, on Tuesday, in last week. The chair was occupied by the Rev. Sydney Gedge. The Rev. Canon James stated that having been asked, as one of the secretaries of the Architectural Society, to say a few words on this opening meeting of the local sub-committee, he proposed doing so, lest it should seem that the general committee and officers of the Society did not take sufficient interest in this new movement of the resident members of Northampton. After Mr. James's remarks were concluded, the Chairman called upon Mr. Elliot to give his promised remarks on ancient Northampton, which that gentleman accordingly did. Mr. De Wilde was then requested to make some remarks on certain relics found on the site of the new Town Hall, but the relics had not been sent, and the observations were in consequence postponed. Mr. Irvine made some observations on the changes in the fabric of St. Sepulchre's, his remarks being illustrated with some rough drawings.

THE WENLOCK SCHOOL OF ART.—The distribution of prizes in connection with the borough of Wenlock School of Art took place at the lecture-room of the Institution, Coalbrookdale, on Friday before last. The attendance was rather small, but there was a large number of pupils of the school present. George Pritchard, esq., high sheriff of the county, presided. From a statement read to the meeting, it appears that, at the commencement of the year, the number of students in attendance at the classes was very small. Throughout the summer and autumn a gradual and encouraging increase had been experienced, until, at the present time, the numbers are,—at the morning classes, 20; at the artisan classes, 55; under teaching through the parochial schools, or classes for children, 500. These numbers, on the whole, show an increase upon those of last year, but they by no means come to those which this populous and manufacturing district might be expected to produce. To bring the studies into more practical relation with the manufacture of the locality, a modelling class has been formed, which affords some promise of success. As an additional stimulus to the attractiveness of the school, prizes of money for special subjects, as explained in handbills already widely circulated, have been offered by Messrs. Maw & Co. and the Coalbrookdale Company. Amidst many discouragements, the committee derive some encouragement from the fact that the number of rewards obtained at the school this year is relatively higher to the number of students than it has been in former years, or is usually the case in other schools.

GRANITE.—Mr. Sim, of Glasgow, has just brought into the Broomfield from his quarries upon the Fell Hill, near Creetown, a cargo of the largest sized blocks of granite which have ever been imported into that city. One of these, the shaft of an obelisk, 21 feet in length, cut from a single block at the quarry, weighs upwards of ten tons. The obelisk, when completed at Mr. Sim's works, will weigh, in all, thirty tons, and is to be forwarded to the new cemetery in Bradford, Yorkshire, where it is to be placed.

NEGLECT OF ANCIENT REMAINS: WHERWELL.—In the demolition of the ancient but very dilapidated church of this village, about three years since, says the *Hampshire Advertiser*, we alluded to the discovery of some very curious remains beneath the pavement thereof and in its walls. Among these was a full-length and well-carved free stone effigy of an abbot; no doubt one of the superiors of the abbey founded here by Queen Elfrida, its first abbess, as an atonement for the murder of her son-in-law, Edward the king and martyr, A.D. 993, in order to make way for her son Ethelred. Other curious mediæval remains were also brought to light. We regret to find that these have been built into the wall (with other ancient remains) which separates the curate's house from the churchyard, where the weather will soon destroy them and render them, what they are evidently considered, worthless and uninteresting.

TRADE OUTRAGE AT HUDDERSFIELD.—At York Assizes on Monday, before Mr. Justice Wightman, Patrick Ward was indicted for having, at Huddersfield, on the 6th instant, wounded Thos. McKenny, with intent to maim him. The prosecutor is a slater, and was in the employ of Mr. Goodwin, of Huddersfield. He was proceeding to his work on the morning of the 6th instant, when he was severely struck on the head and face by the prisoner with a poker, and wounded on the nose and head. It appeared from the statements which Ward subsequently made, that the prosecutor had given him offence by going to work when there was a strike. Guilty. The judge said it was a monstrous tyranny for persons who refused to be employed, except on certain terms, to oblige others to refrain from exercising their discretion of working for what wages they pleased. The prisoner was sentenced to three years' penal servitude.

FALL OF A HOUSE, POPLAR.—On Tuesday morning, at three o'clock, a calamity happened in Poplar, by which three persons lost their lives. There is a wretched place called Nelson-court, leading out of the High-street, in which there are several dilapidated tenements, inhabited almost solely by Irish people. One of those miserable hovels was occupied by a poor Irish labourer, named Richard Cogan, aged sixty; his wife Margaret, fifty-eight; and their two daughters, Mary Ann, aged twelve, and Ellen, aged eleven years. The family went to bed soon after eleven o'clock on Monday night. At three o'clock a loud crash was heard; and the neighbours, on repairing to the spot, found the abode of the Cogans a mass of ruins. In a very short time several policemen arrived on the spot, and soon cleared away the rubbish which surrounded the bed of the occupants of the hovel. Cogan and his wife were quite dead. The eldest daughter was brought out of the ruins in a dying state, and was conveyed to the Poplar Hospital, where the medical officers pronounced her to be dead. The youngest daughter, Ellen, was only slightly injured.

TENDERS.

For additions and improvements of Armagh Lunatic Asylum. Mr. J. Boyd, architect, Belfast. Quantities by Mr. B. T. Patterson, Dublin:—

Credit for old Materials.

Carroll	£6,900	0	0		
Gregg	6,308	0	0	£38	0
Ross	6,235	0	0	100	0
McGaughey	6,023	14	0	23	14
Cherry	5,794	12	0	131	12
Marshall	4,475	0	0	60	0

* Accepted.

For the erection of Shop, Dwelling-house, and Bakery Premises, situate in Goldsmith-street, Nottingham. Mr. Frederick Jackson, architect. Quantities not supplied:—

Stevenson & Weston	£1,239	0	0
Bell & Wood	1,200	0	0
Wright	1,140	0	0
Ward, Andsill, & Mills	1,094	0	0
Denmet	1,087	0	0
Barker (accepted)	1,000	0	0

For the bricklayer's and mason's work to new boundary walls, Heston Churchyard. Mr. J. T. Jackman, architect, Brentford:—

Hiscock	£288	0	0
Jacklin	276	0	0
Brunsdon	273	15	0
Adams & Sons	259	0	0
Nye (accepted)	235	0	0



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